

TEST REPORT

IEC/EN 60 065

Audio, video and similar electronic apparatus
Safety requirements

Report Reference No.: JGZ0512006-1

Tested by (+ signature): Eric Ren

Approved by (+ signature): Roy Xie

Date of issue: April 01, 2006

Contents: Page 1 to 39 for IEC/EN 60 065 TRF
Appendix A 1 to A 7 for photosTesting laboratory Name: Intertek Testing Services Shenzhen Ltd. Guangzhou GDD
BranchAddress: 3/F., Hengyun Building, 728 Kaifa Ave., Guangzhou Economic &
Technological Development District, Guangzhou, China

Testing location: Same as above

Client Name: Ashdown Design & Marketing Ltd.

Address: Park Farm, Inworth, Colchester, Essex CO5 9SH, U.K.

Standard: IEC 60065_2001 / EN 60065_2002

Test procedure: LVD

Non-standard test method: N.A.

Test Report Form/blank test report

Test Report Form No.: IECEN60065F

TRF originator: BEAB

Master TRF: Dated 2003-02

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Test item Description: Guitar Bass ABM Series Head & Combo

Trademark: ASHDOWN

Model and/or type reference: ABM 500RC EVO II, ABM 500 EVO II, ABM C115-500 EVO II, ABM
C210T-500 EVO II, ABM C410T-500 EVO II, ABM 300 EVO II, ABM
C115-300 EVO II, ABM C210T-300 EVO II

Manufacturer: Dongguan jingheng Electron Co., Ltd

Rating(s): AC 220 V ~ 600W, 50/60 Hz, Class I apparatus

AC 230 V ~ 600W, 50/60 Hz, Class I apparatus

AC 240 V ~ 600W, 50/60 Hz, Class I apparatus

Test case verdicts

Test case does not apply to the test object.....: N/A

Test item does meet the requirement.....: P(ass)

Test item does not meet the requirement: F(ail)

Testing

Date of receipt of test item: December 01, 2005

Date(s) of performance of test.....: December 01, 2005 - March 30, 2006

General remarks

This report is not valid as a CB Test Report unless signed by an approved CB Testing Laboratory and appended to a CB Test Certificate issued by a NCB, in accordance with IECEE 02.

This report shall not be reproduced except in full without the written approval of the testing laboratory.

The test results presented in this report relate only to the item(s) tested.

"(see appended table)" refers to a table appended to the report.

"(see remark #)" refers to a remark appended to the report.

"(see Annex #)" refers to an annex appended to the report.

Throughout this report a comma (point) is used as the decimal separator.

When determining the test conclusion, the Measurement Uncertainty of test has been considered.

This product will mark three voltage input separately in each model: 220V, 230V, 240V but has the same mains transformer; all the heating test on this report was based on the voltage range of 220 – 240V.

Models of ABM 500 EVO II, ABM C115-500 EVO II, ABM C210T-500 EVO II, ABM C410T-500 EVO II were identical to ABM 500RC EVO II in circuit diagram, The difference between them is ABM 500RC EVO II was single amplifier module with metal enclosure without speaker(Size: 195 x 525 x 325 mm, Weight: 14 kg); ABM 500 EVO II was single amplifier module identical to ABM 500RC EVO II with wooden enclosure without speaker(Size: 195 x 525 x 325 mm, Weight: 14 kg); for ABM C115-500 EVO II, a 15" speaker with wooden box was constructed additionally to the amplifier module (Size: 587 x 610 x 335 mm, Weight: 28 kg); for ABM C210T-500 EVO II, a 2 x 10" speakers with wooden box was constructed additionally to the amplifier module (Size: 720 x 720 x 450 mm, Weight: 38 kg); for ABM C410T-500 EVO II, a 4 x 10" speakers with wooden box was constructed additionally to the amplifier module (Size: 880 x 720 x 450 mm, Weight: 46 kg).


Models of ABM C115-300 EVO II, ABM C210T-300 EVO II were identical to ABM 300 EVO II in circuit diagram, The difference between them is ABM 300 EVO II was single amplifier module with wooden enclosure without speaker(Size: 195 x 525 x 325 mm, Weight: 12 kg); for ABM C115-300 EVO II, a 15" speaker with wooden box was constructed additionally to the amplifier module (Size: 587 x 610 x 335 mm, Weight: 26 kg); for ABM C210T-300 EVO II, a 2 x 10" speakers with wooden box was constructed additionally to the amplifier module (Size: 720 x 720 x 450 mm, Weight: 35 kg).

ABM500 EVO II was identical to ABM 300 EVO II in circuit and construction except for the transformer.


Summary of Testing and Conclusions

The sample(s) tested complies with the requirements of IEC/EN 60065:2002. Compliance with European Special National Conditions, Annex ZB, and A – Deviations, Annex ZC, is recorded at the end of this report.

Copy of marking plate



50/60Hz 

FUSE RATING
100-120V
1AAL 250V
2.20-240V
T.4AL 250V

SERIAL No:- 

MODEL No:- **EVOII500**

POWER CONSUMPTION: 600W

WARNING - ATTENTION

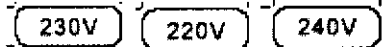
THIS APPARATUS MUST BE EARTHED FOR CONTINUED PROTECTION AGAINST RISK OF FIRE. REPLACE ONLY WITH SAME TYPE AND RATING OF FUSE. UTILISER UN FUSIBLE DE RECHANGE DE MEME TYPE ET CALIBRE. TO REDUCE THE RISK OF FIRE OR ELECTRICAL SHOCK. DO NOT EXPOSE THIS EQUIPMENT TO RAIN OR MOISTURE

MANUFACTURED BY
**ASHDOWN
ENGINEERING**




*EVOII
500*

*Ashdown
Engineering*



Note: The above information was silk-printed on the rear and front enclosure, the model no. can replaced as below models:
ABM 500RC EVO II, ABM C115-500 EVO II, ABM C210T-500 EVO II, ABM C410T-500 EVO II, ABM 300 EVO II, ABM C115-300 EVO II, ABM C210T-300 EVO II

IEC/EN 60065			
Clause	Requirement – Test	Result - Remark	Verdict
3	GENERAL REQUIREMENTS		P
	Safety class of the apparatus	Class I apparatus	P
4	GENERAL CONDITIONS OF TESTS		P
4.1.4	Ventilation instructions require the use of the test box	Test box not used	N/A
5	MARKING		P
	Comprehensible and easily discernible	Located on rear and front enclosure	P
	Permanent durability against water and petroleum spirit		P
5.1	Identification, maker, model	Trademark: ASHDOWN Model no.: ABM 500RC EVO II, ABM 500 EVO II, ABM C115-500 EVO II, ABM C210T-500 EVO II, ABM C410T-500 EVO II, ABM 300 EVO II, ABM C115-300 EVO II, ABM C210T-300 EVO II	P
	Class II symbol if applicable	Class I apparatus	N/A
	Rated supply voltage and symbol	AC 220 V ~ AC 230 V ~ AC 240 V ~	P
	Frequency if safety dependant	50/60 Hz	P
	Rated current or power consumption	600 W	P
5.2	Earth terminal	 (Located on the internal bottom enclosure)	P
	Hazardous live terminals	No such terminal	N/A
	Supply output terminals (other than mains)	No such supply	N/A
5.3	Use of triangle with exclamation mark	Used in circuit diagram	P
5.4	Instructions for use		
5.4.1	Mains powered equipment not exposed to dripping or splashing. Warning concerning objects filled with liquid, etc.	Mentioned in user manual	P
	Hazardous live terminals, instructions for wiring	No such terminal	N/A
	Instructions for replacing lithium battery	No battery used	N/A
	Instructions for modem if fitted	No model used	N/A

IEC/EN 60065			
Clause	Requirement – Test	Result - Remark	Verdict

	Class I earth connection warning	Mentioned in user manual	P
	Instructions for multimedia system connection		N/A
	Special stability warning for fixed installation		N/A
5.4.2	Disconnect device: plug/coupler or all-pole mains switch location, accessibility and markings	All-pole switch used as disconnect device and mentioned in user manual	P
	Instructions for permanently connected equipment	Not this type apparatus	N/A

6	HAZARDOUS RADIATION		N/A
6.1	Ionizing radiation < 36 pA/kg (0,5 mR/h)	No ionizing radiation	N/A
6.1 EN 60065	European Council Directive 96/29/Euratom of 13 May 1996 10cm from outer surface of apparatus <1µSv/h (0,1mR/h)		N/A
6.2	Laser radiation, emission limits to IEC 60825-1 :	No laser radiation	N/A
	Emission limits under fault conditions		N/A

7	HEATING UNDER NORMAL OPERATING CONDITIONS		P
7.1	Temperature rises not exceeding specified values, no operation of fuse links	(see appended table)	P
7.1.1	Temperature rise of accessible parts	(see appended table)	P
7.1.2	Temperature rise of parts providing electrical insulation	(see appended table)	P
7.1.3	Temperature rise of parts acting as a support or as a mechanical barrier		N/A
7.1.4	Temperature rise of windings	(see appended table)	P
7.1.5	Parts not subject to a limit under 7.1.1 to 7.1.4		N/A
7.2	Softening temperature of insulating material supporting parts conductively connected to the mains carrying a current > 0,2 A at least 150 °C		N/A

8	CONSTRUCTIONAL REQUIREMENTS WITH REGARD TO THE PROTECTION AGAINST ELECTRIC SHOCK		P
8.1	Conductive parts covered by lacquer, paper, untreated textile oxide films and beads etc. considered to be bare	Not used	P
8.2	No shock hazard when changing voltage setting device, fuse-links or handling drawers etc.	Tools required	N/A
8.3	Insulation of hazardous live parts not provided by hygroscopic material	No hygroscopic material used	P

IEC/EN 60065			
Clause	Requirement – Test	Result - Remark	Verdict
8.4	No risk of electric shock following the removal of a cover which can be removed by hand	Tools required	N/A
8.5	Class I equipment		P
	Basic insulation between hazardous live parts and earthed accessible parts	<p>Measured clearance (basic insulation required) between:</p> <ul style="list-style-type: none"> - Live parts of appliance inlet and enclosure: 10,1 mm - Live parts of switch and enclosure: 10,7 mm - Track of PCB with TH1, TH2 and earth terminal: 3,1 mm <p>Measured creepage distance (basic insulation required) between:</p> <ul style="list-style-type: none"> - Live parts of appliance inlet and enclosure: 12,1 mm - Live parts of switch and enclosure: 11,7 mm - Track of PCB with TH1, TH2 and earth terminal: 3,1 mm <p>(Measured operating voltage: 240 Vrms, 339 Vpeak; Limit: clearance \geq 2,0 mm, creepage distance \geq 2,4 mm)</p>	P
	Resistors bridging basic insulation complying with 14.1 a)		N/A
	Capacitors bridging basic insulation complying with 14.2.1 a)		N/A
8.6	Class II equipment and Class II constructions within Class I equipment	Class II constructions within Class I equipment	P
	Reinforced or double insulation between hazardous live parts and accessible parts		P
	Components bridging reinforced or double insulation complying with 14.1 a) or 14.3	No such component	N/A
	Basic and supplementary insulation each being bridged by a capacitor complying with 14.2.1 a)		N/A
	Reinforced or double insulation being bridged with 2 capacitors in series complying with 14.2.1 a)		N/A
	Reinforced or double insulation being bridged with a single capacitor complying with 14.2.1 b)	No such component	N/A
	Basic insulation bridged by components complying with 14.3.4.3		N/A

IEC/EN 60065			
Clause	Requirement – Test	Result - Remark	Verdict
8.7	Basic insulation between parts at 35 V to 71 V (peak) a.c. or 60 V to 120 V d.c. and accessible parts	No such insulation	N/A
	Reinforced or double insulation between circuits operating at voltages between 35 V and 71 V (peak) a.c. or between 60 V and 120 V d.c. and hazardous live parts at higher voltage		N/A
	Separation by Class II isolating transformer		N/A
	Separation by Class I transformer		N/A
	Separation by earthed conductive part		N/A
8.8	Basic or supplementary insulation > 0,4 mm.....:		N/A
	Reinforced insulation > 0,4 mm (mm)		N/A
	Thin sheet insulation		P
	Basic or supplementary insulation, at least two layers, each meeting 10.3		N/A
	Basic or supplementary insulation, three layers any two of which meet 10.3		N/A
	Reinforced insulation, two layers each of which meet 10.3		N/A
	Reinforced insulation, three layers any two which meet 10.3	Three layers insulation tape separated between primary winding and secondary winding complied with reinforced insulation Each layer thickness: 0, 05 mm Any two layers pass the relative dielectric strength test (test voltage: 4240 Vpeak)	P
8.9	Adequate insulation between internal hazardous live conductors and accessible parts	Primary lead wire connected between mains transformer and mains switch was double insulated and their thickness is 1,3 mm	P
	Adequate insulation between internal hazardous live parts and conductors connected to accessible parts		P
8.10	Double insulation between conductors connected to the mains and accessible parts	Double insulated power cord used (test voltage 4240 Vpeak)	P

IEC/EN 60065			
Clause	Requirement – Test	Result - Remark	Verdict
8.11	Detaching of wires	1. Primary lead wire connected between mains transformer and mains switch was connected to mains switch by using wire connector 2. Primary lead wire of mains transformer was inserted into hole in PCB with TH1, TH2 before soldering 3. Secondary wire was connected to PCB by using wire connector and cable tie	P
	No undue reduction of creepages or clearance distances if wires become detached		P
	Vibration test carried out	No, no need, see above	N/A
8.12	Adequate cross-sectional area of internal wiring to mains socket-outlets	No mains socket-outlets used	N/A
8.13	Adequate fastening of windows, lenses, lamp covers etc. (pull test 20 N for 10 s)		P
8.14	Adequate fastening of covers (pull test 50 N for 10 s)		P
8.15	No risk of damage to the insulation of internal wiring due to hot parts or sharp edges		P
8.16	Only special supply equipment can be used	No such supply	N/A
8.17	Insulated winding wire without additional interleaved insulation		N/A
8.18	Endurance test as required by 8.17		N/A
8.19	Disconnection from the mains	All-pole switch used as disconnect device and mentioned in user manual	P
8.19.1	Disconnect device	Type: All-pole switch	P
	All-pole switch or circuit breaker with >3mm contact separation	Measured value: 3,5 mm > 3,0 mm	P
8.19.2	Mains switch ON indication	ON/OFF	P
8.20	Switch not fitted in the mains cord	Located in rear enclosure	P
8.21	Bridging components comply with clause 14	No such component	N/A

IEC/EN 60065			
Clause	Requirement – Test	Result - Remark	Verdict
9	ELECTRIC SHOCK HAZARD UNDER NORMAL OPERATING CONDITIONS		P
9.1	Testing on the outside		P
9.1.1	For voltages >1000 V ac or >1500 V dc complies with clause 13.3.1 for basic insulation	No such high voltage	N/A
9.1.1.1	Touch current measured from terminal devices using the network in annex D	Measured voltage: Max.U1: 91,0 mVpeak Max.U2: 35,0 mVpeak	P
	Discharge not exceeding 45 µC	Measured discharge: 0,2 µC	P
	Energy of discharge not exceeding 350 mJ	Open circuit voltage < 15 KV	N/A
9.1.1.2	Test with test finger and test probe		P
9.1.2	No hazardous live shafts of knobs, handles or levers		P
9.1.3	Ventilation holes and other holes tested by means of 4 mm x 100 mm test pin	Ventilation holes not used on top enclosure	N/A
9.1.4	Terminal devices tested with 1 mm x 20 mm test pin (10 N); test probe D of IEC 61032		P
	Terminal devices tested with 1 mm x 100 mm straight wire (1 N); test probe D of IEC 61032		P
9.1.5	Pre-set controls tested with 2.5 mm x 100 mm test pin (10 N); test probe C of IEC 61032	No pre-set controls	N/A
9.1.6	No shock hazard due to stored charge on withdrawal of the mains plug; voltage (V) after 2 s :		N/A
	If C is not greater than 0,1 µF no test needed	No mains capacitance	N/A
9.1.7	Enclosure sufficiently resistant to external force		P
	Test probe 11 of IEC 61032 for 10 s (50 N)		P
	Test hook of fig. 4 for 10 s (20 N)		P
	30 mm diameter test tool for 5 s (100 or 250 N)	For metal enclosure: 100 N For wooden enclosure: 250 N	P
9.2	No hazard after removing a cover by hand	Tools required	N/A

10	INSULATION REQUIREMENTS		P
10.1	Insulation resistance (MΩ) at least 2 MΩ min. after surge test for basic and 4 MΩ min. for reinforced insulation		N/A
10.2	Humidity treatment 48 h or 120 h	48 h	P
10.3	Insulation resistance and dielectric strength	(see appended table)	P

IEC/EN 60065			
Clause	Requirement – Test	Result - Remark	Verdict
11	FAULT CONDITIONS		P
11.1	No shock hazard under fault condition		P
11.2	Heating under fault condition		P
	No hazard from softening solder		P
11.2.1	Measurement of temperature rises	(see appended table)	P
11.2.2	Temperature rise of accessible parts	(see appended table)	P
11.2.3	Temperature rise of parts, other than windings, providing electrical insulation	(see appended table)	P
	Temperature rise of printed circuit boards (PCB) exceeding the limits of table 3 by max. 100 K for max. 5 min		N/A
	a) Temperature rise of printed circuit boards (PCB) to 20.1.3, exceeding the limits of table 3 by not more than 100 K for an area not greater than 2 cm ²		N/A
	b) Temperature rise of printed circuit boards (PCB) to 20.1.3 up to 300 K for an area not greater than 2 cm ² for a maximum of 5 min		N/A
	Meets all the special conditions if conductors on printed circuit boards are interrupted		N/A
	Class I protective earthing maintained		P
11.2.4	Temperature rise of parts acting as a support or mechanical barrier		N/A
11.2.5	Temperature rise of windings	(see appended table)	P
11.2.6	Temperature rise of parts not subject to the limits of 11.2.1 to 11.2.5		N/A

12	MECHANICAL STRENGTH		P
12.1.1	Bump test where mass >7 kg	Measured mass: min. 10,6 kg No damage	P
12.1.2	Vibration test	No damage	P
12.1.3	Impact hammer test	No damage	P
	Steel ball test		P
12.1.4	Drop test for portable apparatus where mass < 7 kg	Not this type apparatus	N/A
12.1.5	Thermoplastic enclosures strain relief test		N/A
12.2	Fixing of knobs, push buttons, keys and levers		P
12.3	Remote controls with hazardous live parts	No such device	N/A
12.4	Drawers (pull test 50 N, 10 s)	No drawer used	N/A

IEC/EN 60065			
Clause	Requirement – Test	Result - Remark	Verdict
12.5	Antenna coaxial sockets providing isolation		N/A
12.6	Telescoping or rod antennas construction	No antenna used	N/A
12.6.1	Telescoping or rod antennas securement		N/A

13	CLEARANCE AND CREEPAGE DISTANCES		P
13.1	Clearances in accordance with 13.3	Pollution 2	P
	Creepage distances in accordance with 13.4	Pollution 2 and material group IIIb	P
13.2	Determination of operating voltage	Rated voltage: 220 – 240 V	P
13.3	Clearances		
13.3.2	Circuits conductively connected to the mains comply with table 8 and, where applicable, table 9	Measured clearance (basic insulation required): - Between difference polarity of appliance inlet: 11,4 mm - Between difference polarity of switch: 12,4 mm - Between different polarity in mains transformer: 6,8 mm (Measured operating voltage: 240 Vrms, 339 Vpeak; Limit: clearance ≥ 2,0 mm)	P
13.3.3	Circuits not conductively connected to the mains comply with table 10	.	N/A
13.4	Creepage distances		
	Creepage distances greater than table 11 minima	Measured creepage distance (basic insulation required): - Between difference polarity of appliance inlet: 12,6 mm - Between difference polarity of switch: 12,4 mm - Between different polarity in mains transformer: 6,8 mm (Measured operating voltage: 240 Vrms, 339 Vpeak; Limit: creepage distance ≥ 2,4 mm)	P
13.5	Printed boards		
13.5.1	Clearances and creepage distances between conductors on printed circuit boards, one of which may be conductively connected to the mains, as in fig. 10		N/A
13.5.2	Type B coated printed circuit boards complying with IEC 60664-3 (basic insulation only)		N/A

IEC/EN 60065			
Clause	Requirement – Test	Result - Remark	Verdict
13.6	Conductive parts along uncemented joints clearances and creepage distances comply with 13.3 and 13.4		N/A
	Conductive parts along reliably cemented joints comply with 8.8		N/A
13.7	Enclosed, enveloped or hermetically sealed parts: not conductively connected to the mains: clearances and creepage distances as in table 12		N/A
13.8	Parts filled with insulating compound, meeting the requirements of 8.8		N/A

14	COMPONENTS		P
14.1	Resistors		
	a) Resistors between hazardous live parts and accessible metal parts	No such resistor	N/A
	b) Resistors, other than between hazardous live parts and accessible parts		N/A
	b) Resistors separately approved		N/A
14.2	Capacitors and RC units		
	Capacitors separately approved	No such capacitor	N/A
14.2.1	Y capacitors tested to IEC 60384-14, 2 nd edition ...		N/A
14.2.2	X capacitors tested to IEC 60384-14, 2 nd edition ...		N/A
14.2.3	Capacitors operating at mains frequency but not connected to the mains: tests for X2		N/A
14.2.5	Capacitors with volume exceeding 1750 mm ³ , where short-circuit current exceeds 0,2 A: compliance with IEC60384-1, 4.38 category B or better		N/A
	Capacitors with volume exceeding 1750 mm ³ , mounted closer to a potential ignition source than table 5 permits: compliance with IEC 60 384-1, 4.38 category B or better		N/A
	Shielded by a barrier to V-0 or metal	Metal-cased capacitor used	N/A
14.3	Inductors and windings		
	Comply with IEC 61558-1, IEC 61558-2 (as relevant) and clause 20.1.4	Tested with appliance	N/A

IEC/EN 60065			
Clause	Requirement – Test	Result - Remark	Verdict
14.3.1	Transformers and inductors marked with manufacturer's name and type	<p>1. Transformer (for model ABM 500RC EVO II, ABM 500 EVO II, ABM C115-500 EVO II, ABM C210T-500 EVO II, ABM C410T-500 EVO II)</p> <p>Trade name: Top Cheers</p> <p>Model: ABM500-100/120/230/240V</p> <p>2. Transformer (for model ABM 300 EVO II, ABM C115-300 EVO II, ABM C210T-300 EVO II)</p> <p>Trade name: Top Cheers</p> <p>Model: ABM300-100/120/230/240V</p>	P
	Transformers and inductors separately approved ..	No, tested with appliance	N/A
14.3.2	General		P
14.3.3	Constructional requirements		P
14.3.3.1	Clearances and creepage distances comply with clause 13		P
14.3.3.2	Transformers meet the constructional requirements		P
14.3.4.1	Class II transformers have adequate separation between hazardous live parts and accessible parts (double or reinforced insulation)	<p>Measured clearance and creepage distance:</p> <ul style="list-style-type: none"> - Between primary winding and secondary winding of mains transformer (ABM500): 15,2 mm - Between primary winding and secondary winding of mains transformer (ABM300): 15,8 mm <p>(Measured working voltage: 515,0 Vrms, 728 Vpeak; Limit: clearance ≥ 4,8 mm, creepage distance ≥ 10,0 mm)</p>	P
	Coil formers and partition walls > 0,4 mm		N/A
14.3.4.2	Class I transformers, with basic insulation and protective screening only if all 7 conditions of 14.3.4.2 are met		N/A
14.3.4.3	Separating transformers with at least basic insulation		N/A

IEC/EN 60065			
Clause	Requirement – Test	Result - Remark	Verdict
14.3.5.1	Class II transformers have adequate insulation between hazardous live parts and accessible parts (double or reinforced insulation)	Insulation was separated between primary winding and secondary winding of mains transformer complied with reinforced insulation and test voltage 4240 V peak	P
	Coil formers and partition walls > 0,4 mm		N/A
14.3.5.2	Class I transformers have adequate insulation between hazardous live parts and accessible conductive parts or those conductive parts or protective screens connected to a protective earth terminal		N/A
	Winding wires connected to protective earth have adequate current-carrying capacity		N/A
14.4	High voltage components		
	High-voltage components and assemblies: U > 4 kV (peak) separately approved	No high-voltage components used	N/A
	Component meets category V-1 of IEC 60707		N/A
14.4.1	High voltage transformers and multipliers tested as part of the submission		N/A
14.4.2	High voltage assemblies and other parts tested as part of the submission		N/A

IEC/EN 60065

Clause	Requirement – Test	Result - Remark	Verdict
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14.5	Protective devices		
	Protective devices used within their ratings		P
	External clearances and creepage distances meet requirement of clause 13 for the voltage across the device when opened	Measured clearance and creepage distance (Basic insulation required): - Between different polarity of thermal cut-off: 3,8 mm - Between different pole of mains current fuse: 9,0 mm (Measured working voltage: 240 Vrms, 339 Vpeak; Limit: clearance ≥ 1,0 mm, creepage distance ≥ 1,5 mm) - Between different pole of current fuse (FS1): 3,8 mm - Between different pole of current fuse (FS2): 3,8 mm - Between different pole of current fuse (FS3): 2,8 mm - Between different pole of current fuse (FS4): 5,6 mm - Between different pole of current fuse (FS5): 8,3 mm - Between different pole of current fuse (FS6): 4,7 mm - Between different pole of current fuse (FSOUT1): 4,8 mm - Between different pole of current fuse (FSOUT2): 4,8 mm (Measured working voltage ≤ 50 Vrms; Limit: clearance ≥ 1,0 mm, creepage distance ≥ 1,2 mm)	P
14.5.1.1	a) Thermal cut-outs separately approved	Approved thermal cut-out inside mains transformer	P
	b) Thermal cut-outs tested as part of the submission		N/A
14.5.1.2	a) Thermal links separately approved	No thermal-link used	N/A
	b) Thermal links tested as part of the submission		N/A
14.5.1.3	Thermal devices re-settable by soldering		N/A
14.5.2.1	Fuse-links in the mains circuit according to IEC 60127		P

IEC/EN 60065			
Clause	Requirement – Test	Result - Remark	Verdict
14.5.2.2	Correct marking of fuse-links adjacent to holder ...:	Fuse inside appliance inlet: T4AL250V FS1, FS2, FS6: T1AL250V FS3: T250 mAL250V FS4, FS5: T10AL250V FSOUT1, FSOUT2: T12AL250V	P
14.5.2.3	Not possible to connect fuses in parallel		P
14.5.2.4	Not possible to touch hazardous live parts when replacing fuse-links without the use of a tool	Tools are required	N/A
14.5.3	PTC-S thermistors comply with IEC 60730-1		P
	PTC-S devices (15 W) category V-1 or better		P
14.5.4	Circuit protectors have adequate breaking capacity and their position is correctly marked		P
14.6	Switches		
14.6.1 a)	Separate testing to IEC 61058 including: 10 000 operations Normal pollution suitability Resistance to heat and fire level 3 and V-0 compliance with annex G, G.1.1	Approved switch used in rear enclosure (The peak inrush current is 20,0 A and less 1.414 x rating of switch)	P
14.6.1 b)	Tested in the apparatus:	Approved switch used	N/A
	Switch controlling > 0.2A with open contact voltage > 35 V (peak)/24 V dc complying with 14.6.3, 14.6.4 and V-0 in annex G, G.1.1		N/A
	Switch controlling > 0.2A with open contact voltage < 35 V (peak)/24 V dc complying with 14.6.3 and V-0 in annex G, G.1.1		N/A
	Switch controlling < 0.2A with open contact voltage > 35 V (peak)/24 V dc complying with 14.6.4 and V-0 in annex G, G.1.1		N/A
14.6.2	Switch tested to 14.6.1 b) constructed to IEC 61058-1 subclause 13.1 and has making/breaking action independent of speed of actuation		N/A
14.6.3	Switch tested to 14.6.1 b) compliant with IEC 61058-1 subclause 16.2.2 d) and m) not attaining excessive temperatures in use		N/A
14.6.4	Switch tested to 14.6.1 b) has adequate dielectric strength		N/A
14.6.5	Mains switch controlling mains socket outlets additional tests to IEC 60058-1	No mains socket outlets used	N/A
	Socket outlet current marking correct		N/A

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Clause	Requirement – Test	Result - Remark	Verdict
14.7	Safety interlocks		
	Safety interlocks to 2.8 of IEC 60950	No interlocks used	N/A
14.8	Voltage setting devices		
	Voltage setting device not likely to be changed accidentally	No voltage setting devices used	N/A
14.9	Motors		
14.9.1	Endurance test on motors	No motor used	N/A
	Motor start test		N/A
	Dielectric strength test		N/A
14.9.2	Not adversely affected by oil or grease etc.		N/A
14.9.3	Protection against moving parts		N/A
14.9.4	Motors with phase-shifting capacitors, three-phase motors and series motors meet clause. B.8, B.9 and B.10 of IEC 60950, Annex B		N/A
14.10	Batteries		
14.10.1	Batteries mounted with no risk of accumulation of flammable gases	No battery used	N/A
14.10.2	No possibility of recharging non-rechargeable batteries		N/A
14.10.3	Recharging currents and times within manufacturers limits		N/A
	Lithium batteries discharge and reverse currents within the manufacturers limits		N/A
14.10.4	Battery mould stress relief		N/A
14.10.5	Battery drop test		N/A
14.11	Optocouplers		
	Optocouplers comply with Cl. 8	No optocouplers used	N/A
	Internal and external dimensions to 13.1. or alternatively 13.6 (jointed insulation)		N/A
14.12	Surge suppression varistors		
	Comply with IEC 61051-2	No varistors used	N/A
	Not connected between mains and accessible parts except for earthed parts of permanently connected apparatus		N/A
	Complies with the current pulse, fire hazard and thermal stress requirements of 14.12		N/A

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Clause	Requirement – Test	Result - Remark	Verdict
15	TERMINALS		P
15.1.1	Mains plug, appliance inlet, interconnection couplers and mains socket-outlet meet the appropriate standard		P
15.1.2	Connectors for antenna, earth, audio, video or data:		P
	No risk of insertion in mains socket-outlets		P
	No risk of insertion into audio or video: outlets marked with the symbol of 5.2		P
15.1.3	Output terminals of a.c. adaptors or similar devices not compatible with household mains socket-outlets	No such terminal	N/A
15.2	Provision for protective earthing		
	Accessible conductive parts of Class I equipment reliably connected to earth terminal, within equipment		P
	Class I supply equipment with non-hazardous live output voltage: output circuit not connected to earth		N/A
	Protective earth conductors correctly coloured	Green/yellow cord used	P
	Equipment with non-detachable mains cord provided with separate protective earth terminal near mains input	Detachable power cord used	N/A
	Protective earth terminal resistant to corrosion		P
	Earth resistance test: $< 0,1 \Omega$ at 25 A	Measured resistance: 32,0 m Ω	P
15.3	Terminals for external flexible cords and for permanent connection to the mains supply	No such terminals	N/A
15.3.1	Adequate terminals for connection of permanent wiring	No such terminals	N/A
15.3.2	Reliable connection of non-detachable cords:	Detachable power cord used	N/A
	Not soldered to conductors of a printed circuit board		N/A
	Adequate clearances and creepage distances between connections should a wire break away		N/A
	Wire secured by additional means to the conductor		N/A
15.3.3	Screws and nuts clamping conductors have adequate threads: ISO 261, ISO 262 or similar		P
15.3.4	Soldered conductors wrapped around terminal prior to soldering or held in place by additional means		N/A
	Clamping of conductor and insulation if not soldered or held by screws		N/A

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Clause	Requirement – Test	Result - Remark	Verdict
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15.3.5	Terminals allow connection of appropriate cross-sectional area of conductors, for the rated current of the equipment	No such terminals	N/A
15.3.6	Terminals to 15.3.3 have sizes required by table 16	No such terminals	N/A
15.3.7	Terminals clamp conductors between metal and have adequate pressure		N/A
	Terminals designed to avoid conductor slipping out when tightened or loosened		N/A
	Terminals adequately fixed to avoid loosening when the clamping is tightened or loosened and stress on internal wiring is avoided		N/A
15.3.8	Terminals carrying a current more than 0,2 A: contact pressure not transmitted by insulating material except ceramic		N/A
15.3.9	Termination of non-detachable cords: wires terminated near to each other		N/A
	Terminals located and shielded: test with 8 mm strand		N/A
15.4	Devices forming a part of the mains plug	Detachable power cord used	N/A
15.4.1	No undue strain on mains socket-outlets		N/A
15.4.2	Device complies with standard for dimensions of mains plugs		N/A
15.4.3	Device has adequate mechanical strength (tests a,b,c)		N/A

16	EXTERNAL FLEXIBLE CORDS		P
16.1	Mains cords sheathed type, complying with IEC 60227 for PVC or IEC 60245 for synthetic rubber cords	PVC	P
	Non-detachable cords for Class I have green/yellow core for protective earth	Detachable power cored used	N/A
16.2	Mains cords conductors have adequate cross-sectional area for rated current consumption of the equipment	3 X 0,75 mm ²	P
16.3	a) Flexible cords not complying with 16.1, used for interconnections between separate units of equipment used in combination and carrying hazardous live voltages, have adequate dielectric strength		N/A
	b) Flexible cords not complying with 16.1, withstand bending and mechanical stress (3.2 of IEC 60227-2)		N/A

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Clause	Requirement – Test	Result - Remark	Verdict
16.4	Flexible cords used for connection between equipment have adequate cross-sectional areas to avoid temperature rise under normal and fault conditions		N/A
16.5	Adequate strain relief on external flexible cords	Detachable power cord used	N/A
	Not possible to push cord back into equipment		N/A
	Strain relief device unlikely to damage flexible cord		N/A
	For mains cords of Class I equipment, hazardous live conductors become taut before earth conductor		N/A
16.6	Apertures for external flexible cord: no risk of damage to the cord during assembly or movement in use	Detachable power cord used	N/A
16.7	Transportable musical instruments and amplifiers fitted with detachable cord set with appliance inlet to IEC 60320-1		P
	Transportable musical instruments and amplifiers fitted with detachable cord sets or with means of stowage to protect the cord		P

17	ELECTRICAL CONNECTIONS AND MECHANICAL FIXINGS		P
17.1	Torque test to table 20:		P
	- screws into metal: 5 times	Torque used: 1,2 Nm	P
	- screws into non-metallic material: 10 times		N/A
17.2	Correct introduction into female threads in non-metallic material		P
17.3	Cover fixing screws: captive		N/A
	Non-captive fixing screws: no hazard when replaced by a screw whose length is 10 times its diameter	Checked by Ø X 10 screw	N/A
17.4	No loosening of conductive parts carrying a current > 0,2 A		N/A
17.5	Contact pressure not transmitted through plastic other than ceramic for connections carrying a current > 0,2 A		N/A
17.6	Stranded conductors of flexible supply cords carrying a current > 0,2 A with screw terminals not consolidated by solder		N/A
17.7	Cover fixing devices other than screws have adequate strength and their positioning is unambiguous		N/A

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Clause	Requirement – Test	Result - Remark	Verdict
17.8	Fixing devices for detachable legs or stands provided		N/A
17.9	Internal pluggable connections, affecting safety, unlikely to become disconnected		P

18	MECHANICAL STRENGTH OF PICTURE TUBES AND PROTECTION AGAINST THE EFFECTS OF IMPLOSION		N/A
	Picture tube separately approved to IEC 61965:	No picture tube used	N/A
	Picture tube separately approved to 18.1		N/A
18.1	Picture tubes > 16 cm intrinsically protected		N/A
	Non-intrinsically protected tubes > 16 cm used with protective screen		N/A
18.2	Intrinsically protected tubes: tests on 12 samples		N/A
18.2.1	Samples subject to ageing: 6		N/A
18.2.2	Samples subject to implosion test: 6		N/A
18.2.3	Samples subject to mechanical strength test (steel ball): 6		N/A
18.3	Non-intrinsically protected tubes tested to 18.3		N/A

19	STABILITY AND MECHANICAL HAZARDS		P
	Mass of the equipment exceeding 7 kg	Measured mass: 10,2 kg min	P
	Apparatus intended to be fastened in place – suitable instructions	Not this type apparatus	N/A
19.1	Test on a plane, inclined at 10° to the horizontal		P
19.2	100 N force applied vertically downwards		P
19.3	Apparatus mass > 25 kg or height > 1 M or supplied with cart or stand		P
19.4	Edges or corners not hazardous		P
19.5	Glass surfaces with an area exceeding 0,1 m ² or maximum dimension > 450 mm, pass the test of 19.5.1		N/A
19.6	Wall or ceiling mountings adequate		N/A

20	RESISTANCE TO FIRE		P
20.1	Electrical components and mechanical parts		P
	a) Exemption for components contained in an enclosure of material V-0 to IEC 60707 with openings not exceeding 1 mm in width		P

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Clause	Requirement – Test	Result - Remark	Verdict
	b) Exemption for small components as defined in 20.1		P
20.1.1	Electrical components meet the requirements of Clause 14 or 20.1.4		P
20.1.2	Insulation of internal wiring working at voltages > 4 Kv or leaving an internal fire enclosure, not contributing to the spread of fire		N/A
20.1.3	Material of printed circuit boards on which the available power exceeds 15 W at a voltage between 50 V and 400 V (peak) a.c. or d.c. meets V-1 or better to IEC60707, unless used in a fire enclosure	V-0 PCB used	P
	Material of printed circuit boards on which the available power exceeds 15 W at a voltage >400 V (peak) a.c. or d.c. meets V-0 to IEC 60707		N/A
20.1.4	Components and parts not covered by 20.1.1, 20.1.2 and 20.1.3 (other than fire enclosures) mounted nearer to a potential ignition source than the distances in Table 21 comply with the relevant flammability category in Table 21		N/A
	Components and parts as above but shielded from a potential ignition source, with the barrier area in accordance with Table 21 and fig. 13		N/A
20.2	Fire enclosure		N/A
20.2.1	Potential ignition sources with open circuit voltage > 4 kV (peak) a.c. or d.c. contained in a fire enclosure to V-1		N/A
20.2.2	Internal fire enclosures with openings not exceeding 1 mm in width and with openings for wires completely filled		N/A
20.2.3	Requirements of 20.2.1 and 20.2.2 met by an internal fire enclosure		N/A

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Clause	Requirement – Test	Result - Remark	Verdict
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A	APPENDIX A, ADDITIONAL REQUIREMENTS FOR APPARATUS WITH PROTECTION AGAINST SPLASHING WATER		N/A
A.5.1	j) Marked with IPX4 (IEC 60529), 5.4.1 a) does not apply		N/A
A.10.2.1	Enclosure provides protection against splashing water		N/A
A.10.2.2	Humidity treatment carried out for 7 days		N/A

B	APPENDIX B, APPARATUS TO BE CONNECTED TO THE TELECOMMUNICATION NETWORKS		N/A
	Complies with IEC 62151 clause 1		N/A
	Complies with IEC 62151 clause 2		N/A
	Complies with IEC 62151 clause 3 but with 3.5.4 modified to 2.4.10 of this standard		N/A
	Complies with IEC 62151 clause 4 but with 4.1.2, 4.1.3 and 4.2.1.2 modified in accordance with annex B of this standard		N/A
	Complies with IEC 62151 clause 5 but with 5.3.1 modified in accordance with annex B of this standard		N/A
	Complies with IEC 62151 clause 6		N/A
	Complies with IEC 62151 clause 7		N/A
	Complies with IEC 62151 annex A, B and C		N/A



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Clause	Requirement – Test	Result - Remark	Verdict
7.1	TABLE: temperature rise measurements		P
	Power consumption in the OFF	0 W	--
	Position of the functional switch (W)	--	—
Operating conditions			
1/8 of max. non clipping output power with standard signal input at 264,0 V			
Model no. of tested apparatus: ABM 500RC EVO II			
	Un (V)	In (A)	Pn (W) Pout (W)
	264,0	2,035	386,5 80,1
	240,0	1,803	314,6 65,6
Fuse-link current: Mains fuse = 2035 mA			
	Loudspeaker impedance (Ω)	4	—
	Several loudspeaker systems	4 (Ω) X 1	--
	Marking of loudspeaker terminals	--	--
	Monitored point:	dT (K)	Limit dT (K)
	Winding surface of mains transformer	41	85
	Primary lead wire	18	60
	Secondary lead wire	19	60
	PCB surface near DR1	27	85
	PCB surface near D11	26	85
	PCB surface near TR22	65	85
	PCB surface near TR1	40	85
	PCB surface near TR19	49	85
	PCB surface near R34	31	85
	PCB surface near IC5	21	85
	PCB surface near IC4	19	85
	PCB surface near D8	15	85
	PCB surface near D7	19	85
	Heat-sink of TR19	56	For reference
	Enclosure near mains transformer (Top, Metallic)	5	40
	Enclosure near heat sink of TR19 (Top, Metallic)	3	40
	Enclosure near mains transformer (Side, Metallic)	2	40
	Winding temperature rise measurements		
	Ambient temperature t1 (°C)	24	—

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TRF originator BEAB

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Clause	Requirement – Test	Result - Remark			Verdict	
	Ambient temperature t2 (°C)	27			—	
Temperature rise dT of winding:		R ₁ (Ω)	R ₂ (Ω)	dT (K)	Limit dT (K)	Insulation class
Primary winding of mains transformer		1,751	2,157	57	85	Polyurethane resins

7.1	TABLE: temperature rise measurements (Cont'd)			P
	Power consumption in the OFF	0 W		--
	Position of the functional switch (W)	--		—
Operating conditions				
1/8 of max. non clipping output power with standard signal input at 264,0 V				
Model no. of tested apparatus: ABM 300 EVO II				
	Un (V)	In (A)	Pn (W)	Pout (W)
	264,0	1,217	254,7	41,6
	240,0	1,103	226,5	32,3
Fuse-link current: Mains fuse = 1217,0 mA				
	Loudspeaker impedance (Ω)	4		—
	Several loudspeaker systems	4 (Ω) X 1		--
	Marking of loudspeaker terminals	--		--
	Monitored point:	dT (K)	Limit dT (K)	
	Winding of mains transformer	30	85	
	Primary lead wire	17	60	
	Secondary lead wire	19	60	
	PCB surface near DR1	35	85	
	PCB surface near D5	21	85	
	PCB surface near D11	24	85	
	PCB surface near R34	28	85	
	PCB surface near TR1	36	85	
	PCB surface near TR22	42	85	
	PCB surface near D6	29	85	
	PCB surface near IC5	36	85	
	PCB surface near D8	26	85	
	PCB surface near IC4	34	85	
	Enclosure (Front, Metallic)	9	40	

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TRF originator BEAB

IEC/EN 60065					
Clause	Requirement – Test	Result - Remark			Verdict
	Enclosure (Top, Non-Metallic)	4			60
	Enclosure (Side, Non-Metallic)	5			60
	Enclosure (Rear, Non-Metallic)	10			60
	Winding temperature rise measurements				
	Ambient temperature t1 (°C)	24			—
	Ambient temperature t2 (°C)	25			—
	Temperature rise dT of winding:	R ₁ (Ω)	R ₂ (Ω)	dT (K)	Limit dT (K)
	Primary winding of mains transformer	3,068	4,266	46	85
					Insulation class
					Polyurethane resins

7.2	TABLE: softening temperature of thermoplastics			N/A
Temperature T of part	T - normal conditions (°C)	T - fault conditions (°C)	T softening (°C)	
--	--	--	--	
--	--	--	--	
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10.3	TABLE: insulation resistance measurements		P
Insulation resistance R between:	R (MΩ)	Required R (MΩ)	
Between mains poles (primary fuse disconnected)	> 10	2	
Between parts separated by basic or supplementary insulation	>10	2	
Between parts separated by double or reinforced insulation	>10	4	

10.3	TABLE: electric strength measurements		P
Test voltage applied between:	Test voltage (V)	Breakdown	
Mains poles (primary fuse disconnected)	2120	No	
Between parts separated by basic or supplementary insulation	2120	No	
Between parts separated by double or reinforced insulation	4240	No	

11.2	TABLE: summary of fault condition tests		P
	Voltage (V) 0,9 or 1,1 times rated voltage	AC 220/230/240 V	—
	Ambient temperature (°C)	21,3 – 28,0	—

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Clause	Requirement – Test	Result - Remark	Verdict

Monitored point: Under fault conditions specified below	dT (K)	Limit dT (K)
100% of max. non clipping output power with standard signal input Un (V) = 264; Pn (W)= 1033,0;In (mA) = 4836,0 Model no. of tested apparatus: ABM 500RC EVO II	--	--
Winding surface of mains transformer	101	150
Primary lead wire	60	100
PCB surface near TR22	63	110
PCB surface near TR19	58	110
Heat sink of TR19	57	For reference
Enclosure near mains transformer (Top, Metallic)	18	65

Result: No hazards; Test time = 2 hrs 48 mins
No higher temperature rise occurred.

Monitored point: Under fault conditions specified below	dT (K)	Limit dT (K)
100% of max. non clipping output power with standard signal input Un (V) = 264; Pn (W)= 1033,0;In (mA) = 4836,0 Model no. of tested apparatus: ABM 300 EVO II	--	--
Winding surface of mains transformer	85	150
Primary lead wire	43	100
PCB surface near DR1	66	110
PCB surface near D6	44	110
Enclosure near mains transformer (Top, Metallic)	11	65

Result: No hazards; Test time = 3 hrs 7 mins
The iinput power was oscillated between 624,9 W and 0 w, No higher temperature rise occurred.

Monitored point: Under fault conditions specified below	dT (K)	Limit dT (K)
Short circuit of C44 Un (V) = 264; Pn (W)= 384,0;In (mA) = 2037,0 Model no. of tested apparatus: ABM 500RC EVO II	--	--
Winding surface of mains transformer	14	150
Primary lead wire	10	100
PCB surface near TR22	40	110
PCB surface near TR1	39	110

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TRF originator BEAB

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Clause	Requirement – Test	Result - Remark	Verdict
	Enclosure near mains transformer (Side, Metallic)	12	65
Result: No hazards; Test time = 56 mins No higher temperature rise occurred. After some mins, the input power was dropped to 28,9 W.			
	Monitored point: Under fault conditions specified below	dT (K)	Limit dT (K)
	Short circuit of V1 PIN 6-8 Un (V) = 264; Pn (W)= 386,4;In (mA) = 2033,0 Model no. of tested apparatus: ABM 500RC EVO II	--	--
	Winding surface of mains transformer	33	150
	Primary lead wire	16	100
	PCB surface near D11	30	110
	PCB surface near D6	28	110
	Enclosure near mains transformer (Side, Metallic)	13	65
Result: No hazards; Test time = 1 hrs 59 mins No higher temperature rise occurred. The input power was similar to normal.			
	Monitored point: Under fault conditions specified below	dT (K)	Limit dT (K)
	Short circuit of V1 PIN 6-7 Un (V) = 264; Pn (W)= 386,7;In (mA) = 2041,0 Model no. of tested apparatus: ABM 500RC EVO II	--	--
	Winding surface of mains transformer	31	150
	Primary lead wire	18	100
	PCB surface near D11	32	110
	PCB surface near D6	32	110
	Enclosure near mains transformer (Side, Metallic)	18	65
Result: No hazards; Test time = 1 hrs 6 mins No higher temperature rise occurred. The input power was similar to normal.			
	Monitored point: Under fault conditions specified below	dT (K)	Limit dT (K)
	Short circuit of C37 Un (V) = 264; Pn (W)= 388,6;In (mA) = 2041,0 Model no. of tested apparatus: ABM 500RC EVO II	--	--
	Winding surface of mains transformer	39	150
	Primary lead wire	19	100

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Clause	Requirement – Test	Result - Remark	Verdict
	PCB surface near TR22	67	110
	PCB surface near IC5	56	110
	Enclosure near mains transformer (Side, Metallic)	15	65
Result: No hazards; Test time = 53 mins No higher temperature rise occurred. The input power was similar to normal.			
Monitored point: Under fault conditions specified below		dT (K)	Limit dT (K)
Lock fan Un (V) = 264; Pn (W)= 388,3;In (mA) = 2044,0 Model no. of tested apparatus: ABM 500RC EVO II		--	--
	Winding surface of mains transformer	53	150
	Primary lead wire	28	100
	PCB surface near TR22	74	110
	PCB surface near TR19	96	110
	Enclosure near mains transformer (Side, Metallic)	51	65
Result: No hazards; Test time = 2 hrs 1 min No higher temperature rise occurred. The input power was similar to normal.			
Monitored point: Under fault conditions specified below		dT (K)	Limit dT (K)
Cover the ventilation on rear enclosure Un (V) = 264; Pn (W)= 413,6;In (mA) = 2135,0 Model no. of tested apparatus: ABM 500RC EVO II		--	--
	Winding surface of mains transformer	53	150
	Primary lead wire	28	100
	PCB surface near TR22	74	110
	PCB surface near TR19	96	110
	Enclosure near mains transformer (Side, Metallic)	51	65
Result: No hazards; Test time = 2 hrs 34 mins No higher temperature rise occurred.			
Monitored point: Under fault conditions specified below		dT (K)	Limit dT (K)
Short circuit of D6 Un (V) = 264; Pn (W)= 102,6;In (mA) = 745,0 Model no. of tested apparatus: ABM 500RC EVO II		--	--

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Clause	Requirement – Test	Result - Remark	Verdict

Result: No hazards;
 No higher temperature rise occurred. The fuse-link FS3 was opened immediately and its current is 3,84 A
 The rating of FS3 is 250 mA.

Monitored point: Under fault conditions specified below	dT (K)	Limit dT (K)
Short circuit of D6 Un (V) = 198; Pn (W)= 81,9;In (mA) = 648,0 Model no. of tested apparatus: ABM 500RC EVO II Result: No hazards; No higher temperature rise occurred. The fuse-link FS3 was opened immediately and its current is 2,67 A The rating of FS3 is 250 mA.	--	--
Short circuit of C53 Un (V) = 264; Pn (W)= 102,6;In (mA) = 745,0 Model no. of tested apparatus: ABM 500RC EVO II Result: No hazards; No higher temperature rise occurred. The fuse-link FS3 was opened immediately and its current is 384 mA The rating of FS3 is 250 mA.	--	--
Short circuit of C53 Un (V) = 198; Pn (W)= 81,9;In (mA) = 648,0 Model no. of tested apparatus: ABM 500RC EVO II Result: No hazards; No higher temperature rise occurred. The fuse-link FS3 was opened immediately and its current is 292 mA The rating of FS3 is 250 mA.	--	--
Short circuit of D8 Un (V) = 264; Pn (W)= 383,2;In (mA) = 2028 Model no. of tested apparatus: ABM 500RC EVO II Result: No hazards; No higher temperature rise occurred. The fuse-link FS2 was opened immediately and its current is 8,72 A The rating of FS2 is 1,0 A.	--	--

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Clause	Requirement – Test	Result - Remark	Verdict
	Monitored point: Under fault conditions specified below	dT (K)	Limit dT (K)
	Short circuit of D8 Un (V) = 198; Pn (W)= 229,4;In (mA) = 1718,0 Model no. of tested apparatus: ABM 500RC EVO II	--	--
	Result: No hazards; No higher temperature rise occurred. The fuse-link FS2 was opened immediatly and its current is 6,31 A The rating of FS2 is 1,0 A.		
	Monitored point: Under fault conditions specified below	dT (K)	Limit dT (K)
	Short circuit of C47 Un (V) = 264; Pn (W)= 383,2;In (mA) = 2028,0 Model no. of tested apparatus: ABM 500RC EVO II	--	--
	Result: No hazards; No higher temperature rise occurred. The fuse-link FS2 was opened immediatly and its current is 9,76 A The rating of FS2 is 1,0 A.		
	Monitored point: Under fault conditions specified below	dT (K)	Limit dT (K)
	Short circuit of C47 Un (V) = 198; Pn (W)= 229,4;In (mA) = 1718,0 Model no. of tested apparatus: ABM 500RC EVO II	--	--
	Result: No hazards; No higher temperature rise occurred. The fuse-link FS2 was opened immediatly and its current is 8,86 A The rating of FS2 is 1,0 A.		
	Monitored point: Under fault conditions specified below	dT (K)	Limit dT (K)
	Short circuit of DR1 Un (V) = 264; Pn (W)= 0;In (mA) = 0 Model no. of tested apparatus: ABM 500RC EVO II	--	--
	Result: No hazards; No higher temperature rise occurred. The mains fuse was opened immediatly and its current is 17,6 A The rating of mains fuse is 4,0 A.		
	Monitored point: Under fault conditions specified below	dT (K)	Limit dT (K)

IEC/EN 60065			
Clause	Requirement – Test	Result - Remark	Verdict
	Short circuit of DR1 Un (V) = 198; Pn (W)= 0;In (mA) = 0 Model no. of tested apparatus: ABM 500RC EVO II	--	--
Result: No hazards; No higher temperature rise occurred. The mains fuse was opened immediatly and its current is 17,3 A The rating of mains fuse is 4,0 A.			
	Monitored point: Under fault conditions specified below	dT (K)	Limit dT (K)
	Short circuit of C1 Un (V) = 264; Pn (W)= 0;In (mA) = 0 Model no. of tested apparatus: ABM 500RC EVO II	--	--
Result: No hazards; No higher temperature rise occurred. The mains fuse was opened immediatly and its current is 18,7 A The rating of mains fuse is 4,0 A.			
	Monitored point: Under fault conditions specified below	dT (K)	Limit dT (K)
	Short circuit of C1 Un (V) = 198; Pn (W)= 0;In (mA) = 0 Model no. of tested apparatus: ABM 500RC EVO II	--	--
Result: No hazards; No higher temperature rise occurred. The mains fuse was opened immediatly and its current is 17,6 A The rating of mains fuse is 4,0 A.			
	Monitored point: Under fault conditions specified below	dT (K)	Limit dT (K)
	Short circuit of D14 Un (V) = 264; Pn (W)= 0;In (mA) = 0 Model no. of tested apparatus: ABM 500RC EVO II	--	--
Result: No hazards; No higher temperature rise occurred. The mains fuse/FS1 was opened immediatly and their current is 17,7/8,2 A The rating of mains fuse/FS1 is 4,0/1,0 A.			
	Monitored point: Under fault conditions specified below	dT (K)	Limit dT (K)
	Short circuit of D14 Un (V) = 198; Pn (W)= 0;In (mA) = 0 Model no. of tested apparatus: ABM 500RC EVO II	--	--

IEC/EN 60065			
Clause	Requirement – Test	Result - Remark	Verdict
<p>Result: No hazards; No higher temperature rise occurred. The mains fuse/FS1 was opened immediatly and their current is 15,4/6,4 A The rating of mains fuse/FS1 is 4,0/1,0 A.</p>			
<p>Monitored point: Under fault conditions specified below</p>		dT (K)	Limit dT (K)
<p>Short circuit of C22 Un (V) = 264; Pn (W)= 0;In (mA) = 0 Model no. of tested apparatus: ABM 500RC EVO II</p>		--	--
<p>Result: No hazards; No higher temperature rise occurred. The mains fuse/FS1 was opened immediatly and their current is 17,7/8,7 A The rating of mains fuse/FS1 is 4,0/1,0 A.</p>			
<p>Monitored point: Under fault conditions specified below</p>		dT (K)	Limit dT (K)
<p>Short circuit of C22 Un (V) = 198; Pn (W)= 0;In (mA) = 0 Model no. of tested apparatus: ABM 500RC EVO II</p>		--	--
<p>Result: No hazards; No higher temperature rise occurred. The mains fuse/FS1 was opened immediatly and their current is 16,3/7,5 A The rating of mains fuse/FS1 is 4,0/1,0 A.</p>			
<p>Monitored point: Under fault conditions specified below</p>		dT (K)	Limit dT (K)
<p>Short circuit of TR22 PIN C-E Un (V) = 264; Pn (W)= 0;In (mA) = 0 Model no. of tested apparatus: ABM 500RC EVO II</p>		--	--
<p>Result: No hazards; No higher temperature rise occurred. The mains fuse was opened immediatly and their current is 16,8 A The rating of mains fuse is 4,0 A.</p>			
<p>Monitored point: Under fault conditions specified below</p>		dT (K)	Limit dT (K)
<p>Short circuit of TR22 PIN C-E Un (V) = 198; Pn (W)= 0;In (mA) = 0 Model no. of tested apparatus: ABM 500RC EVO II</p>		--	--

IEC/EN 60065			
Clause	Requirement – Test	Result - Remark	Verdict

Result: No hazards; No higher temperature rise occurred. The mains fuse was opened immediatly and their current is 16,4 A The rating of mains fuse is 4,0 A.			
Monitored point: Under fault conditions specified below		dT (K)	Limit dT (K)
Short circuit of Output Un (V) = 264; Pn (W)= 0; In (mA) = 0 Model no. of tested apparatus: ABM 500RC EVO II		--	--
Result: No hazards; No higher temperature rise occurred. The mains fuse was opened immediatly and their current is 17,7 A The rating of mains fuse is 4,0 A.			
Monitored point: Under fault conditions specified below		dT (K)	Limit dT (K)
Short circuit of Output Un (V) = 198; Pn (W)= 0; In (mA) = 0 Model no. of tested apparatus: ABM 500RC EVO II		--	--
Result: No hazards; No higher temperature rise occurred. The mains fuse was opened immediatly and their current is 16,4 A The rating of mains fuse is 4,0 A.			
Winding temperature rise measurements			
Ambient temperature t1 (°C)		--	—
Ambient temperature t2 (°C)		--	—

After fault condition tests, the apparatus was subjected to the test of clause 10.3 insulation resistance and dielectric strength” and was complied.

IEC/EN 60065			
Clause	Requirement – Test	Result - Remark	Verdict

14	TABLE: list of critical components and materials					P
Component	Manufacturer/ trademark	Type/model	Value / rating	Standard	Approval/ Reference	
Power cordset	Lian Dung Electric Wire Co., Ltd.	LT-312 H05VV-F LT-501	AC 250 V; 16 A 3 x 0,75 mm ² AC 250 V; 10 A	IEC 60799	VDE	
Power cord	Lucky United Electric Wire & Cable Co. Ltd.	H05VV-F PVC	3 X 0,75 mm ²	IEC 60227	VDE	
Power cord (Alternative)	Shenzhen Tongyuan Ind. Co., Ltd	H05VV-F PVC	3 X 0,75 mm ²	IEC 60227	VDE	
Power cord (Alternative)	Lian Dung Electric Wire Material Co., Ltd	H05VV-F PVC	3 X 0,75 mm ²	IEC 60227	VDE	
Appliance inlet	Rong Feng Industrial Co., Ltd.	RF-2004	AC250 V; 10 A	IEC 60320	VDE	
Appliance inlet (Alternative)	Supercom wire &Cable Ltd.	SC-9F	AC 250 V; 10 A	IEC 60320	DEMKO	
Mains Switch	Light Country	R5	AC 250 V; 15 A	IEC/EN 61058	VDE	
Plastic material of switch	Chang Chun Plastics Co., Ltd.	T373J	V-0	IEC/EN 60707	Tested in appliance	
Plastic material of switch (Alternative)	E I Dupont De Nemours & Co., Inc.	FR7025V0F(+)	V-0	IEC/EN 60707	Tested in appliance	
Transformer (ABM500 series)	Top cheers	ABM500- 100/120/230/240 V	Input: AC 100/120/230/240 V 50/60 Hz	IEC/EN 60065	Tested with appliance	
Transformer (ABM300 series)	Top cheers	ABM300- 100/120/230/240 V	Input: AC 100/120/230/240 V 50/60 Hz	IEC/EN 60065	Tested with appliance	
Insulation tape inside mains transformer	Toray Industries Inc Film Div	Lumirror X-10	VTM-2; 130°C	IEC/EN 60065	Tested in appliance	
Thermal cut-out inside mains transformer	SEIKI Controls Co., Ltd.	ST-22	AC 250 V; 1A 120°C	IEC/EN 60730	VDE	

¹⁾ an asterisk indicates a mark which assures the agreed level of surveillance

IEC/EN 60065			
Clause	Requirement – Test	Result - Remark	Verdict

14	TABLE: list of critical components and materials					P
Component	Manufacturer/ trademark	Type/model	Value / rating	Standard	Approval/ Reference	
Thermal cut-out used inside mains transformer (Alternative)	Texas Instruments Holland BV	17AM	AC 250 V; 10 A 120 °C	IEC/EN 60730	KEMA	
Heat shrinkable tube	Shenzhen Changyuan Electronic Material Co., Ltd.	Changbao 102	600V; 125 °C	IEC/EN 60065	Tested in appliance	
Thermal cut-out (Mounted on the heat-sink surface)	Shining El. Machine Co.	U-A...	AC 250V; 10A 125 °C	IEC/EN 60730	VDE	
Thermal cut-out (Mounted on the heat-sink surface) (Alternative)	Light country Co., Ltd.	T-24	AC 250V, 10A, 125 °C	IEC/EN 60730	VDE	
Fuse inside appliance inlet	Walter Electronic Co. Ltd.	TSD 5 mm X 20 mm	T4AL250V	IEC 60127	VDE	
Fuse inside appliance inlet (Alternative)	Walter Electronic Co. Ltd.	TMD 5 mm X 20 mm	T4AL250V	IEC 60127	VDE	
FS1, FS2, FS6	Walter Electronic Co. Ltd.	TSD 5 mm X 20 mm	T1AL250V	IEC 60127	VDE	
FS1, FS2, FS6 (Alternative)	Walter Electronic Co. Ltd.	TMD 5 mm X 20 mm	T1AL250V	IEC 60127	VDE	
FS4, FS5	Conour Electronics Co., ITd	ADL 6,3 mm X 32 mm	T10AL250V	IEC 60065	Tested with appliance	
FS4, FS5 (Alternative)	Walter Electronic Co. Ltd.	MDC 6,3 mm X 32 mm	T10AL250V	IEC 60065	Tested with appliance	
FS3	Walter Electronic Co. Ltd.	TMD/TSD 5 mm X 20 mm	T250mAL250V	IEC 60127	VDE	

TRF No: IEC/EN 60065D

TRF originator BEAB

IEC/EN 60065			
Clause	Requirement – Test	Result - Remark	Verdict

¹⁾ an asterisk indicates a mark which assures the agreed level of surveillance

14	TABLE: list of critical components and materials				P
Component	Manufacturer/ trademark	Type/model	Value / rating	Standard	Approval/ Reference
FSOUT1 FSOUT2	Walter Electronic Co. Ltd.	TMD/TSD 5 mm X 20 mm	T12AL250V	IEC 60127	VDE
Material of plastic connector	E I Dupont De Nemours & Co., Inc.	FR7025V0F(+)	V-0	IEC 60707	Tested in appliance
Material of plastic connector (Alternative)	E I Dupont De Nemours & Co., Inc.	101L(+)(f1)	V-2	IEC 60707	Tested in appliance
Material of plastic connector (Alternative)	Chang Chun Plastics Co., Ltd.	T373J	V-0	IEC/EN 60707	Tested in appliance
PCB	Long chang Printed Circuit Ltd	LC-02V0	V-0	IEC 60707	Tested in appliance
PCB (alternative)	Long chang Printed Circuit Ltd	LC-04V0A	V-0	IEC 60707	Tested in appliance
PCB (alternative)	Long chang Printed Circuit Ltd	LC-04V0	V-0	IEC 60707	Tested in appliance
PCB (alternative)	Eiiso Enterprise Co., Ltd	5	V-0	IEC 60707	Tested in appliance

¹⁾ an asterisk indicates a mark which assures the agreed level of surveillance

IEC/EN 60065			
Clause	Requirement – Test	Result - Remark	Verdict
ZB	ANNEX ZB TO EN 60 065, SPECIAL NATIONAL CONDITIONS		P
2.6.1	DK: certain types of Class I apparatus, see 15.1.1, may be provided with a plug not establishing earthing continuity when inserted in Danish socket-outlets		N/A
13.3.1	NO: In Norway, due to IT power distribution system used, the a.c. MAINS supply voltage is considered to be equal to the line-to-line voltage, and will remain 230V in case of a single earth fault.		N/A
15.1.1	DK: mains cord for single-phase equipment having a rated current not exceeding 10 A shall be provided with a plug according to Heavy Current Regulations Section 107-2-D1		N/A
	DK: Class I equipment with socket-outlets with earthing contact, or which are intended to be used in locations where protection against indirect contact is required shall be provided with a plug in compliance with Standard Sheet DK 2-1a		N/A
	DK: socket-outlets for providing power to Class II equipment with a rated current of 2,5 A shall have dimensions according to the drawing on page 131 of EN 60 065:98 other dimensions shall be to IEC 60 083 Standard Sheet C 1a for portable socket-outlets		N/A
	DK: mains socket-outlets with earthing contact shall comply with Heavy Current Regulations Section 107-2-D1, Standard Sheet DK 1-3a, DK 1-5a or DK 1-7a		N/A
	GB: equipment fitted with a flexible cable or cord provided with a 13A BS 1363 plug as in Statutory Instrument 1768:94		N/A
	IE: equipment fitted with a flexible cable or cord provided with a 13 A plug in accordance with Statutory Instrument 525:97		N/A
	NO: mains socket-outlets on Class II equipment meet CEE Publication 7 with the following amendments:		N/A
	- dimensions 2,5 A, 250 V socket-outlets shall comply with Standard Sheet 1 page 132 of EN 60 065:98		N/A
	- mechanical strength 2,5 A, 250 V socket-outlets tested as specified in EN 60 065, 12.1.3		N/A
	- protecting rim also tested		N/A

IEC/EN 60065			
Clause	Requirement – Test	Result - Remark	Verdict
	NO: method b) of 8.1 is not permitted. Double or reinforced insulation is required between parts connected to the mains and parts connected to the public telecommunications network		N/A
J.2	NO: In Norway, due to IT power distribution system used, the a.c. MAINS supply voltage is considered to be equal to the line-to-line voltage, and will remain 230V in case of a single earth fault.		N/A

ZC	ANNEX ZC TO EN 60 065, A-DEVIATIONS		N/A
5	DE: additional markings required in German language:		N/A
	- cathode ray tubes with an accelerating voltage between 20 kV and 30 kV (marking on the tube)	Not this type apparatus	N/A
	- TV receivers whose picture tube has an accelerating voltage between 20 kV and 30 kV		N/A
	- TV receivers whose picture tube has an accelerating voltage greater than 30 kV		N/A
	- TV receivers whose picture tube has an accelerating voltage less than 20 kV		N/A
5.1	IT: additional markings on the outside of the TV receiver in Italian language		N/A
	IT: user instructions in Italian language including a conformity declaration		N/A
	IT: certification number on the back cover		N/A
14	SE: Switches containing mercury such as thermostats, relays and level controllers are not allowed.		N/A

Photo



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Front View (model no.: ABM 500RC EVO II)



JGZ0512006-1

Front View (model no.: ABM 500 EVO II)

Photo



JGZ0512006-1

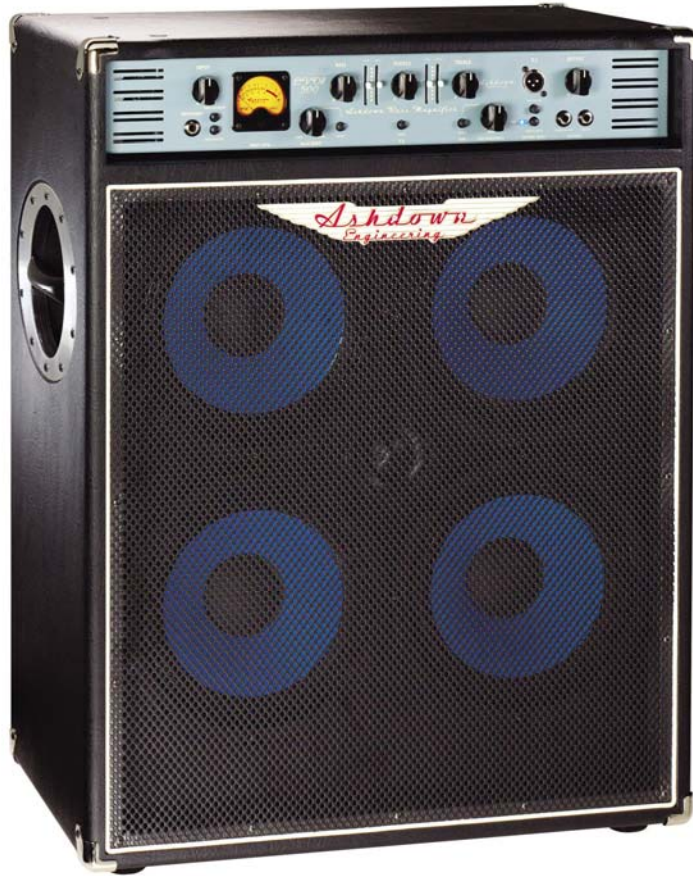
Front View (model no.: ABM C115-500 EVO II)



JGZ0512006-1

Front View (model no.: ABM C210T-500 EVO II)

Photo



JGZ0512006-1

Front View (model no.: ABM C410T-500 EVO II)



JGZ0512006-1

Front View (model no.: ABM 300 EVO II)

Photo



JGZ0512006-1

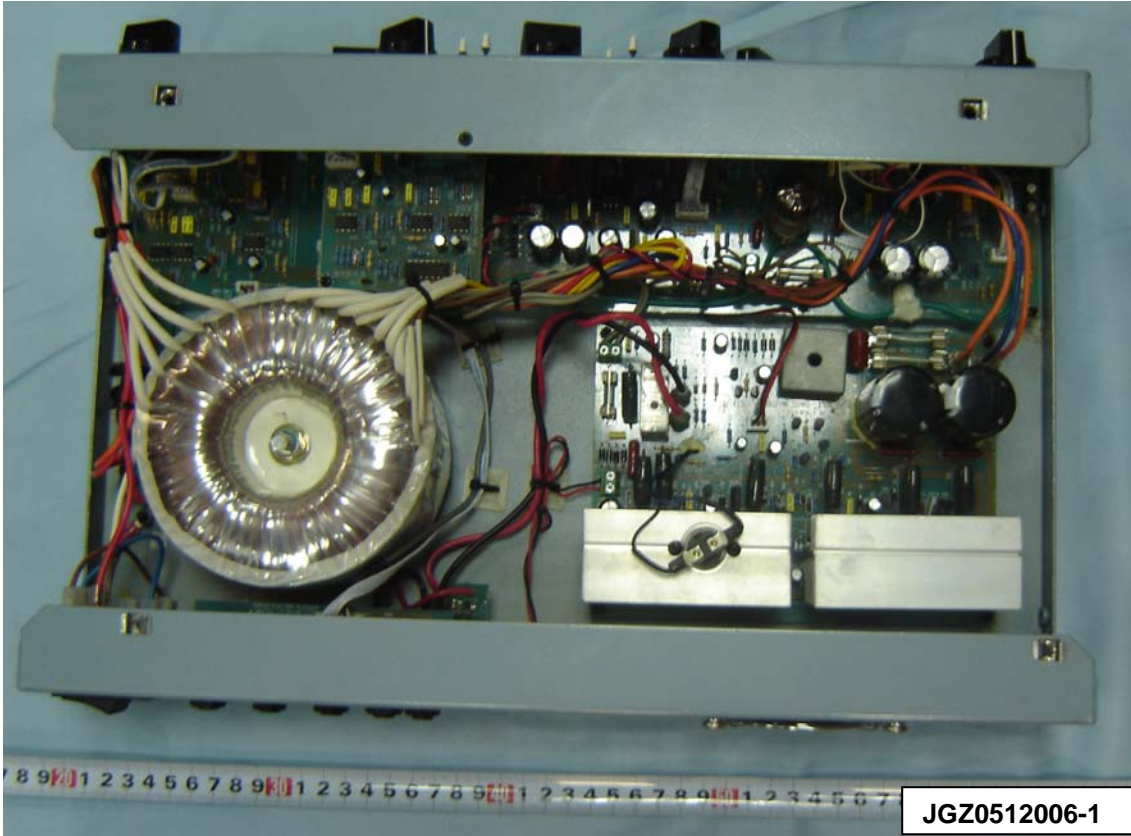
Front View (model no.: ABM C115-300 EVO II)



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Front View (model no.: ABM C210T-300 EVO II)

Photo



Internal View



Mains transformer (for ABM 500 series)

Photo



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Location of thermal cut-out inside mains transformer (for ABM 500 series)



JGZ0512006-1

Mains Transformer for ABM 300 series

TRF No: IEC/EN 60065D

TRF originator BEAB

Photo



Location of thermal cut-out inside mains transformer for ABM 300 series