

**Standard AS/NZS 60335.2.43:2005 incl. Amdts. 1-2  
 Particular requirements for clothes dryers and towel rails**

**Test report**

 Report Number .....: 6864  
 Date of issue .....: 10/08/2016  
 Total number of pages .....: 58

**Product**

 Brand .....: Atlantis  
 Model .....: ENTWEX612 and ENTWRF612  
 Type.....: Built-In Towel Rails  
 Rating .....: Class III, 12V dc, 52.3W, IP45

**Client information**

 Client.....: Atlantis Bathroom Style  
 Address.....: 26 Porutu Place, Tauriko, Tauranga, 3110  
 Purchase order/Reference .....: Email dated 16/05/2016

**Testing Laboratory**

 Name .....: Spectrum Laboratories Ltd  
 Address.....: 23 Highbrook Drive, East Tamaki, Auckland 2013,  
 New Zealand  
 Contact information .....: Phone (+64) 9 271 1616 Fax (+64) 9 271 1615

**Standard Specification**

 Standard(s) .....: AS/NZS 60335.1:2011 incl. Amdts. 1-2  
 AS/NZS 60335.2.43:2005 incl. Amdts. 1-2

**Instructions**

Scope of assessment.....: Full

**Summary**

 The sample Atlantis Models ENTWEX612 and ENTWRF612 Built-In Towel rails (as modified) complied with the Standard AS/NZS 60335.2.43:2005 incl. Amdts. 1-2002.

 Tested by (name + signature) .....: *Mr A. Kumar*  
 Compliance Engineer



 Approved by (name + signature) ...: *Mr C. Vroegop*  
 Approved Signatory



**General**

This report and the results contained within, relate only to the sample(s) tested, as submitted by the client. It contains no corrections or erasures and must not be quoted except in full.

**Report Preformat and Test Record document version**

Report preformat..... : CD-00357 Rev 1.0 (modified)  
Test record ..... : CD-10324 Rev 1.0 (modified)

**Supplied Documentation**

<u>Report No</u>	<u>Testing Body</u>	<u>Date</u>	<u>Standard</u>
4329590.50	DEKRA Testing and Certification (Shanghai) Ltd,	13/06/2016	IEC 61588-2-16:2009(1 <sup>st</sup> Ed.)+ A1:2013 IEC61588-1 (2 <sup>nd</sup> Edi.) + A1:2009
NL-41744 <i>CB TEST CERTIFICATE</i>	DEKRA Certification B.V	13/06/2016	IEC 61588-2-16:2009(ed.1)+ A1 IEC61588-1 (ed.2.) + A1

**Product information**

Classification of installation and use ..: Fixed / Built-in  
Class classification .....: Class III (towel rail supplied via independent power supply)  
Connection to the supply .....: Direct connection to fixed wiring via power supply  
Cord attachment type.....: NA  
Degree of ingress protection.....: IP45 (Models ENTWEX612 and ENTWRF612)  
Safety extra low voltage.....: YES  
Protective impedance .....: NO  
Thermal control.....: NO  
Protective device .....: NO  
Equipment weight .....: 10.6 kg (Model: ENTWEX612)  
.....: 7.5 kg (Model: ENTWRF612)  
Equipment dimensions.....: Model: ENTWEX612  
.....: 700 (L) X 1300 (H) mm.  
.....: Model: ENT WRF612  
.....: 570 (L) X 1170 (H) mm.

**Dates**

Equipment received ..... : 10/06/2016  
Testing completed ..... : 03/08/2016

### Equipment marking plate



Rated voltage: 12V  $\equiv$   
Rated power input: 52.3W  
Model: ENTWEX612  
IP45




Rated voltage: 12V  $\equiv$   
Rated power input: 52.3W  
Model: ENTWRF612  
IP45





### Technical Notes

- 1). As originally submitted various mandatory instructional statements as detailed in clause 7.12 were not included in the user instruction manual. During the assessment the client provided modified instruction manual which contained all necessary information.
- 2). As originally submitted the sample did not meet the requirements of clauses 23.1 and 25.9 as there were several sharp points and edges which could cause injury to the user / installer or damage the electrical insulation. During the assessment the manufacturer provided a declaration along with the photographs stating that wire ways would be well rounded and smooth for all production samples and compliance has been recorded on this basis.
- 3). The product family consists of two models ENTWEX612 and ENTWRF612. Both models were electrically and physically similar having common parts however differing in physical dimension. Operational testing was performed on the ENTWEX612 model as representative to cover the ENTWRF612 model as well.
- 4). The Towel Rails were class III products supplied via independent approved power supplies. The power supplies were provided to facilitate testing on the towel rails only, no assessment on the compliance of the power supply was made under this report.

AS/NZS 60335.2.43:2005 incl. Amdts. 1-2 inc. AS/NZS 60335.1:2011 incl. Amdts. 1-2:

Clause	Requirement - Test	Result - Remark	Verdict
<b>5</b>	<b>GENERAL CONDITIONS FOR THE TESTS</b>		<b>Complied</b>
	Tests performed according to clause 5, e.g. nature of supply, sequence of testing, etc.		Complied
5.8.1	Appliances for a.c. only are tested with a.c. at 50 Hz, and those for a.c. and d.c. are tested at a.c. 50 Hz or d.c., whichever is the more unfavourable supply.	<i>SELV. D.C voltage. (Independent approved power supply: 220-240V~).</i>	Complied
5.17	Appliances powered by rechargeable batteries that are recharged in the appliance are tested in accordance with Annex B.	<i>Not this type of appliance.</i>	Not Relevant
	Battery-operated appliances powered by batteries that are non-rechargeable or not recharged in the appliance are tested in accordance with Annex S.		Not Relevant
5.201 (AUS only)	For appliances, other than class III appliances, that are intended for connection to the supply mains and that are not marked with	<i>Class III appliance.</i>	Not Relevant
<b>6</b>	<b>CLASSIFICATION</b>		<b>Complied</b>
6.1	Appliances shall be of one of the following classes with respect to protection against electric shock:		Complied
	class I, class II, class III ..... :	<i>Towel rail: class III. independent approved power supply :Class II</i>	Complied
6.2	Protection against harmful ingress of water		Complied
AS/NZS 60335.2.43	Appliance shall be at least IPX1.	<i>IP45 (both models)</i>	Complied
<b>7</b>	<b>MARKING AND INSTRUCTIONS</b>		
7.1	Rated voltage or voltage range (V) ..... :	<i>12V (Model ENTWEX612 and Model ENTWRF612)</i>	Complied
	Symbol for nature of supply, or..... :		Complied
	Rated frequency (Hz) ..... :		Not Relevant
	Rated power input (W), or ..... :	<i>52.3 W (Models ENTWEX612 and ENTWRF612)</i>	Complied

Clause	Requirement - Test	Result - Remark	Verdict
	Rated current (A) .....	—	Not Relevant
	Manufacturer's or responsible vendor's name, trademark or identification mark .....	<p><i>ATLANTIS.</i></p> 	Complied
	Model or type reference.....	<p><i>Model:ENTWEX612</i> <i>Model:ENTWRF612</i></p>	Complied
	Symbol IEC 60417-5172, for class II appliances	<i>Class III.</i>	Not Relevant
	IP number, other than IPX0 .....	<i>IP45.</i>	Complied
	Symbol IEC 60417-5180, for class III appliances, unless	 <p><i>Symbol used.</i></p>	Complied
	the appliance is operated by batteries only	<i>Not this type of appliance.</i>	Not Relevant
	Appliances intended for connection to the supply mains, other than class III appliances, shall be marked with	<i>Class III appliance.</i>	Not Relevant
	– a rated voltage of at least:		Not Relevant
	• 230 V for single phase appliances;		Not Relevant
	• 400 V for polyphase appliances; or		Not Relevant
	– a rated voltage range that includes:		Not Relevant
	• 230 V for single phase appliances;		Not Relevant
	• 400 V for polyphase appliances.		Not Relevant
	Class II appliances and class III appliances incorporating a functional earth shall be marked with the symbol IEC 60417-5018 (2011-07).	<i>No such part.</i>	Not Relevant
	Symbol IEC 60417-5036, for the enclosure of electrically-operated water valves in external hose-sets for connection of an appliance to the water mains, if the working voltage exceeds extra-low voltage	<i>Not this type of appliance.</i>	Not Relevant
7.2	Warning for stationary appliances for multiple supply	<i>Single supply.</i>	Not Relevant
	Warning placed in vicinity of terminal cover		Not Relevant

Clause	Requirement - Test	Result - Remark	Verdict
7.3	Range of rated values marked with the lower and upper limits separated by a hyphen	<i>Not used.</i>	Not Relevant
	Different rated values marked with the values separated by an oblique stroke		Not Relevant
7.4	If the appliance can be adjusted for different rated voltages or rated frequencies, the voltage or the frequency to which the appliance is adjusted shall be clearly discernible.	<i>Not adjustable for different rated voltage.</i>	Not Relevant
	If frequent changes in voltage setting or frequency setting are not required, this requirement is considered to be met if the rated voltage or rated frequency to which the appliance is to be adjusted can be determined from a wiring diagram fixed to the appliance.		Not Relevant
7.5	Appliances with more than one rated voltage or one or more rated voltage ranges, marked with rated input or rated current for each rated voltage or range, unless	<i>Marked with a single rated voltage and a single power input.</i>	Not Relevant
	the power input is related to the arithmetic mean value of the rated voltage range		Not Relevant
	Relation between marking for upper and lower limits of rated power input or rated current and voltage is clear		Not Relevant
7.6	Correct symbols used		Complied
	Symbol for nature of supply placed next to rated voltage	<i>See marking label.</i>	Complied
	Symbol for class II appliances placed unlikely to be confused with other marking	<i>Class III.</i>	Not Relevant
	Units of physical quantities and their symbols according to international standardized system		Complied
7.7	Connection diagram fixed to appliances to be connected to more than two supply conductors and appliances for multiple supply, unless	<i>Class III appliances which were intended to be connected to a single supply via independent approved power supply.</i>	Not Relevant
	correct mode of connection is obvious		Not Relevant
7.8	Except for type Z attachment, terminals for connection to the supply mains indicated as follows:		Not Relevant
	- marking of terminals exclusively for the neutral conductor (letter N)	<i>Not polarity sensitive.</i>	Not Relevant
	- marking of protective earthing terminals (symbol IEC 60417-5019)		Not Relevant
	- marking not placed on removable parts		Complied

Clause	Requirement - Test	Result - Remark	Verdict
7.9	Marking or placing of switches which may cause a hazard	<i>No such part.</i>	Not Relevant
7.10	Indications of switches on stationary appliances and controls on all appliances by use of figures, letters or other visual means..... : :	<i>No such part.</i>	Not Relevant
7.11	Indication for direction of adjustment of controls	<i>No control.</i>	Not Relevant
7.12	Instructions for safe use provided		Complied
	Details concerning precautions during user maintenance		Complied
	The instructions state that:		Complied
	- the appliance is not to be used by persons (including children) with reduced physical, sensory or mental capabilities, or lack of experience and knowledge, unless they have been given supervision or instruction	<i>Text included.</i>	Complied
	- children being supervised not to play with the appliance	<i>Text included.</i>	Complied
	For a part of class III construction supplied from a detachable power supply unit, the instructions state that the appliance is only to be used with the unit provided	<i>Text included.</i>	Complied
	Instructions for class III appliances state that it must only be supplied at SELV, unless		Complied
	it is a battery-operated appliance, the battery being charged outside the appliance	<i>Not this type of appliance.</i>	Not Relevant
	For appliances intended for use at altitudes exceeding 2 000 m, the maximum altitude of use shall be stated.		Not Relevant
	The instructions for appliances incorporating a functional earth shall state the substance of the following	<i>No such part.</i>	Not Relevant
	This appliance incorporates an earth connection for functional purposes only		Not Relevant
AS/NZS 60335.2.43: 2005 + A1-2	The instructions for clothes dryers shall include the substance of the following:	<i>Not this type of appliance.</i>	Not Relevant
AS/NZS 60335.2.43: 2005 + A1-2	WARNING: This appliance is intended only for drying textiles washed in water.	<i>Not this type of appliance.</i>	Not Relevant
7.12.1	Sufficient details for installation supplied		Complied

Clause	Requirement - Test	Result - Remark	Verdict
	For appliances marked with different rated voltages or different rated frequencies (separated by a /), instructions shall be included to indicate to the user or installer what action must be taken to adjust the appliance for operation at the required rated voltage or rated frequency	<i>No adjustable output from the power supply.</i>	Not Relevant
AS/NZS 60335.2.43: 2005 + A1-2	The instructions for fixed towel rails, shall include the substance of the following warning:		Complied
AS/NZS 60335.2.43: 2005 + A1-2	WARNING: In order to avoid a hazard for very young children, this appliance should be installed so that the lowest heated rail is at least 600 mm above the floor.	<i>Text included.</i>	Complied
AS/NZS 60335.2.43: 2005 + A1-2	The instructions for fixed towel rails likely to be used in a bathroom shall state that the towel rail is to be installed so that switches and other controls cannot be touched by a person in the bath or shower. This instruction is not necessary if the towel rail is at least IPX4.	<i>IP45.</i>	Not Relevant
7.12.1	Sufficient details for installation supplied		Not Relevant
	For an appliance intended to be permanently connected to the water mains and not connected by a hose-set, this is stated		Not Relevant
7.12.2	Stationary appliances not fitted with means for disconnection from the supply mains having a contact separation in all poles that provide full disconnection under overvoltage category III, the instructions state that means for disconnection must be incorporated in the fixed wiring in accordance with the wiring rules		Complied
7.12.3	Insulation of the fixed wiring in contact with parts exceeding 50 K during clause 11; instructions state that the fixed wiring must be protected		Not Relevant
7.12.4	Instructions for built-in appliances:		Complied
	- dimensions of space	<i>Provided in instruction manual.</i>	Complied
	- dimensions and position of supporting and fixing		Complied
	- minimum distances between parts and surrounding structure		Complied
	- minimum dimensions of ventilating openings and arrangement	<i>Not this type of appliance.</i>	Not Relevant
	- connection to supply mains and interconnection of separate components		Complied



Clause	Requirement - Test	Result - Remark	Verdict
	- allow disconnection of the appliance after installation, by accessible plug or a switch in the fixed wiring, unless	<i>Separately approved power supply fitted with AS/NZS approved plug for disconnection from supply mains.</i>	Complied
	a switch complying with 24.3		Not Relevant
7.12.5	Replacement cord instructions, type X attachment with a specially prepared cord	<i>Class III appliance, fitting with a supply cord was not necessary.</i>	Not Relevant
	Replacement cord instructions, type Y attachment		Not Relevant
	Replacement cord instructions, type Z attachment		Not Relevant
7.12.6	Caution in the instructions for appliances incorporating a non-self-resetting thermal cut-out that is reset by disconnection of the supply mains, if this cut-out is required to comply with the standard		Not Relevant
7.12.7	Instructions for fixed appliances stating how the appliance is to be fixed	<i>Described in instruction manual.</i>	Complied
7.12.8	Instructions for appliances connected to the water mains:		Not Relevant
	- max. inlet water pressure (Pa)..... : -		Not Relevant
	- min. inlet water pressure, if necessary (Pa) :		Not Relevant
	Instructions concerning new and old hose-sets for appliances connected to the water mains by detachable hose-sets		Not Relevant
7.13	Instructions and other text required by this standard shall be written in English.	<i>English.</i>	Complied
7.14	Marking clearly legible and durable, rubbing test as specified	<i>Marking label was durable and legible after test.</i>	Complied
7.15	Markings on a main part		Complied
	Marking clearly discernible from the outside, if necessary after removal of a cover	<i>Discernible from the outside.</i>	Complied
	For portable appliances, cover can be removed or opened without a tool	<i>Not this type of appliance.</i>	Not Relevant
	For stationary appliances, name, trademark or identification mark and model or type reference visible after installation	<i>Visible after installation.</i>	Complied

Clause	Requirement - Test	Result - Remark	Verdict
	For fixed appliances, name, trademark or identification mark and model or type reference visible after installation according to the instructions	<i>Trademark on the towel rail visible after installation.</i>	Complied
	Indications for switches and controls placed on or near the components. Marking not on parts which can be positioned or repositioned in such a way that the marking is misleading		Not Relevant
	The symbol IEC 60417-5018 (2011-07) shall be placed next to the symbol IEC 60417-5172 (2003-02) or the symbol IEC 60417-5180 (2003-02) as appropriate.		Not Relevant
7.16	Marking of a possible replaceable thermal link or fuse link clearly visible with regard to replacing the link	<i>No such part.</i>	Not Relevant
<b>8</b>	<b>PROTECTION AGAINST ACCESS TO LIVE PARTS</b>		<b>Complied</b>
8.1	Adequate protection against accidental contact with live parts	<i>Power supply separately approved, Output voltage SELV for the towel warmer.</i>  <i>Class III appliances without live parts.</i>	Not Relevant
8.1.1	Requirement applies for all positions, detachable parts removed	<i>No such part.</i>	Not Relevant
	Lamps behind a detachable cover not removed, if conditions met	<i>No such part.</i>	Not Relevant
	Insertion or removal of lamps, protection against contact with live parts of the lamp cap		Not Relevant
	Use of test probe B of IEC 61032, with a force not exceeding 1 N: no contact with live parts		Not Relevant
8.1.2	Use of test probe 13 of IEC 61032, with a force not exceeding 1 N, through openings in class 0 appliances and class II appliances/constructions: no contact with live parts	<i>Class III.</i>	Not Relevant
	Test probe 13 also applied through openings in earthed metal enclosures having a non-conductive coating: no contact with live parts		Not Relevant
8.1.3	For appliances other than class II, use of test probe 41 of IEC 61032, with a force not exceeding 1 N: no contact with live parts of visible glowing heating elements		Complied

Clause	Requirement - Test	Result - Remark	Verdict
8.1.4	Accessible part not considered live if:		Complied
	- safety extra-low a.c. voltage: peak value not exceeding 42.4 V		Not Relevant
	- safety extra-low d.c. voltage: not exceeding 42.4 V	<i>Output voltage of power supply;</i>  <i>Not exceeded 42.4V.</i> <i>Measured: 12.03V (for both models).</i>	Complied
	- or separated from live parts by protective impedance		Not Relevant
	If protective impedance: d.c. current not exceeding 2 mA, and		Not Relevant
	a.c. peak value not exceeding 0.7 mA		Not Relevant
	- for peak values over 42.4 V up to and including 450 V, capacitance not exceeding 0,1 nF		Not Relevant
	- for peak values over 450 V up to and including 15 kV, discharge not exceeding 45 nC		Not Relevant
	- for peak values over 15kV, the energy in the discharge not exceeding 350 mJ		Not Relevant
8.1.5	Live parts protected at least by basic insulation before installation or assembly:		Complied
	- built-in appliances	<i>SELV.</i>	Complied
	- fixed appliances		Complied
	- appliances delivered in separate units		Not Relevant
8.2	Class II appliances and constructions constructed so that there is adequate protection against accidental contact with basic insulation and metal parts separated from live parts by basic insulation only	<i>Class III appliances.</i> <i>However the towel rail supplied from independent approved transformer separated from metal parts by basic insulation.</i>	Not Relevant
	Only possible to touch parts separated from live parts by double or reinforced insulation		Not Relevant
<b>9</b>	<b>STARTING OF MOTOR-OPERATED APPLIANCES</b>		<b>Not Relevant</b>
	Requirements and tests are specified in part 2 when necessary		Not Relevant

Clause	Requirement - Test	Result - Remark	Verdict
<b>10</b>	<b>POWER INPUT AND CURRENT</b>		
10.1	Power input at normal operating temperature, rated voltage and normal operation not deviating from rated power input by more than shown in table 1 .....	<i>(see appended table)</i>	Complied
	Test carried out at upper an lower limits of the ranges for appliances with one or more rated voltage ranges, unless	<i>No voltage range.</i>	Complied
	the rated power input is related to the arithmetic mean value		Not Relevant
	If the power input varies throughout the operating cycle and the maximum value of the power input exceeds, by a factor greater than two, the arithmetic mean value of the power input occurring during a representative period, then the power input is the maximum value that is exceeded for more than 10 % of the representative period. Otherwise the power input is taken as the arithmetic mean value.		Not Relevant
10.2	Current at normal operating temperature, rated voltage and normal operation not deviating from rated current by more than shown in table 2. :		Not Relevant
<b>11</b>	<b>HEATING</b>		<b>Complied</b>
11.1	No excessive temperatures in normal use	<i>See appended table.</i>	Complied
AS/NZS 60335.2.43: 2005 + A1-2	Towel rails are also subjected to the test of 11.101		Complied
11.2	The appliance is held, placed or fixed in position as described..... :	<i>As per instruction manual. Mounted to a wall in test corner with 600mm clearance to floor.</i>	Complied
11.3	Temperature rises, other than of windings, determined by thermocouples		Complied
	Temperature rises of windings determined by resistance method, unless		Not Relevant
	the windings are non-uniform or it is difficult to make the necessary connections		Not Relevant
11.4	Heating appliances operated under normal operation at 1.15 times rated power input (W) .....	<i>No adjustable output.</i>	Complied

Clause	Requirement - Test	Result - Remark	Verdict
AS/NZS 60335.2.43: 2005 + A1-2	If the temperature rise limits are exceeded in appliances incorporating motors, transformers or electronic circuits, and the power input is lower than the rated power input, the test is repeated with the appliance supplied at 1,06 times rated voltage		Not Relevant
11.5	Motor-operated appliances operated under normal operation at most unfavourable voltage between 0.94 and 1.06 times rated voltage ...	<i>Not this type of appliance.</i>	Not Relevant
11.6	Combined appliances operated under normal operation at most unfavourable voltage between 0.94 and 1.06 times rated voltage:	<i>Not a combined appliance.</i>	Not Relevant
AS/NZS 60335.2.43: 2005 + A1-2	Combined appliances are operated as heating appliances	<i>Not this type.</i>	Not Relevant
11.7 AS/NZS 60335.2.43: 2005 + A1-2	Appliances are operated until steady conditions are established	<i>Operated until steady state conditions were established.</i>	Complied
11.8	Temperature rises monitored continuously and not exceeding the values in table 3 .....	<i>(see appended table)</i>	Complied
	If the temperature rise of a motor winding exceeds the value of table 3, or	<i>No such part.</i>	Not Relevant
	if there is doubt with regard to classification of insulation,		Not Relevant
	tests of Annex C are carried out		Not Relevant
	Sealing compound does not flow out		Complied
	Protective devices do not operate, except	<i>No such part.</i>	Not Relevant
	components in protective electronic circuits tested for the number of cycles specified in 24.1.4	<i>No such part.</i>	Not Relevant
AS/NZS 60335.2.43: 2005 + A1-2	The temperature rise of the textiles shall not exceed 75 K	<i>Not exceeded.</i>  <i>See appended table.</i>	Complied
AS/NZS 60335.2.43: 2005 + A1-2	The temperature rise limits of motors, transformers and components of electronic circuits, including parts directly influenced by them, may be exceeded when the appliance is operated at 1,15 times rated power input		Not Relevant
AS/NZS 60335.2.43: 2005 + A1-2	For oil-filled appliances, the temperature rise of parts in contact with oil is not measured	<i>Not this type of appliance.</i>	Not Relevant
11.101 AS/NZS 60335.2.43: 2005 + A1-2	Towel rails are operated at rated power input but without textiles	<i>Tested as specified.</i>	Complied
AS/NZS 60335.2.43: 2005 + A1-2	The temperature rises of the surface shall not exceed the following values		Complied

Clause	Requirement - Test	Result - Remark	Verdict
AS/NZS 60335.2.43: 2005 + A1-2	– metal and painted metal 60 K	<i>(see appended table)</i>	Complied
AS/NZS 60335.2.43: 2005 + A1-2	– vitreous enamelled metal 65 K	<i>No such part.</i>	Not Relevant
AS/NZS 60335.2.43: 2005 + A1-2	– glass and ceramic surfaces 70 K	<i>No such part.</i>	Not Relevant
AS/NZS 60335.2.43: 2005 + A1-2	– plastic having a thickness exceeding 0,3 mm 85 K	<i>Not exceeded.</i>	Complied
AS/NZS 60335.2.43: 2005 + A1-2	The temperature rise limit of 85 K also applies for plastic material having a metal finish of thickness less than 0,1 mm	<i>No such part.</i>	Not Relevant
<b>13</b>	<b>LEAKAGE CURRENT AND ELECTRIC STRENGTH AT OPERATING TEMPERATURE</b>		<b>Complied</b>
13.1	Leakage current not excessive and electric strength adequate		Complied
	Heating appliances operated at 1.15 times the rated power input (W) .....	<i>No adjustable rated power output. Measured during normal operation.</i>	Complied
	Motor-operated appliances and combined appliances supplied at 1.06 times the rated voltage (V) .....	<i>Not this type of appliance.</i>	Not Relevant
	Protective impedance and radio interference filters disconnected before carrying out the tests	<i>No such part.</i>	Not Relevant
13.2	For class 0, class II appliances, class II constructions and class III appliances, leakage current measured by means of the circuit described in figure 4 of IEC 60990	<i>Tested as specified.</i>	Complied
	For class 0I appliances and class I appliances, C may be replaced by a low impedance ammeter responding to the rated frequency of the appliance.	<i>Class III.</i>	Not Relevant
	Leakage current measurements .....	<i>(see appended table)</i>	Complied
13.3	The appliance is disconnected from the supply		Complied
	Electric strength tests according to table 4 ... :	<i>(see appended table)</i>	Complied
	No breakdown during the tests	<i>No breakdown.</i>	Complied
<b>14</b>	<b>TRANSIENT OVERVOLTAGES</b>		<b>Not Relevant</b>
	Appliances withstand the transient over-voltages to which they may be subjected		Not Relevant

Clause	Requirement - Test	Result - Remark	Verdict
	Clearances having a value less than specified in table 16 subjected to an impulse voltage test, the test voltage specified in table 6..... :		Not Relevant
	No flashover during the test, unless		Not Relevant
	of functional insulation if the appliance complies with clause 19 with the clearance short-circuited		Not Relevant
<b>15</b>	<b>MOISTURE RESISTANCE</b>		<b>Complied</b>
15.1	Enclosure provides the degree of moisture protection according to classification of the appliance	<i>IP45 (both models).</i>	Complied
	Compliance checked as specified in 15.1.1, taking into account 15.1.2, followed by the electric strength test of 16.3		Complied
	No trace of water on insulation which can result in a reduction of clearances or creepage distances below values specified in clause 29	<i>After the IP45 tests, there was water deposited inside the main frame of towel rails. However the mainframe/ body of towel rail is operated at SELV (output of PSU). There was no reduction of clearance and creepage distance and the units continue to operate. There was no breakdown of the electric strength test.</i>	Complied
15.1.1	Appliances, other than IPX0, subjected to tests as specified in IEC 60529..... :	<i>IP45.</i>	Complied
	Water valves containing live parts in external hoses for connection of an appliance to the water mains tested as specified for IPX7 appliances		Not Relevant
15.1.2	Hand-held appliance turned continuously through the most unfavourable positions during the test	<i>Not this type of appliance.</i>	Not Relevant
	Built-in appliances installed according to the instructions	<i>As per instruction manual.</i>	Complied
	Appliances placed or used on the floor or table placed on a horizontal unperforated support		Not Relevant



Clause	Requirement - Test	Result - Remark	Verdict
	Appliances normally fixed to a wall and appliances with pins for insertion into socket-outlets are mounted on a wooden board		Not Relevant
	For IPX3 appliances, the base of wall mounted appliances is placed at the same level as the pivot axis of the oscillating tube		Not Relevant
	For IPX4 appliances, the horizontal centre line of the appliance is aligned with the pivot axis of the oscillating tube, and		Not Relevant
	for appliances normally used on the floor or table, the movement is limited to two times 90° for a period of 5 min, the support being placed at the level of the pivot axis of the oscillating tube		Not Relevant
	Wall-mounted appliances, take into account the distance to the floor stated in the instructions		Not Relevant
	Appliances normally fixed to a ceiling are mounted underneath a horizontal unperforated support, the pivot axis of the oscillating tube located at the level of the underside of the support, and		Not Relevant
	for IPX4 appliances, the movement of the tube is limited to two times 90° from the vertical for a period of 5 min		Not Relevant
	Appliances with type X attachment fitted with a flexible cord as described		Not Relevant
	Detachable parts subjected to the relevant treatment with the main part	<i>No such part.</i>	Not Relevant
	However, if a part has to be removed for user maintenance and a tool is needed, this part is not removed		Not Relevant
15.2	Drying cabinets, in which electrical components are located below the textiles, shall be constructed so that the dripping water does not affect their electrical insulation	<i>Not this type of appliance.</i>	Not Relevant
15.3	Appliances proof against humid conditions		Complied
	Checked by test Cab: Damp heat steady state in IEC 60068-2-78		Complied
	Detachable parts removed and subjected, if necessary, to the humidity test with the main part		Complied
	Humidity test for 48 h in a humidity cabinet	<i>25°C, 93% 48 hrs.</i>	Complied
	Reassembly of those parts that may have been removed		Complied



Clause	Requirement - Test	Result - Remark	Verdict
	The appliance withstands the tests of clause 16	<i>No breakdown after the electric strength test. (see appended table)</i>	Complied
<b>16</b>	<b>LEAKAGE CURRENT AND ELECTRIC STRENGTH</b>		<b>Complied</b>
16.1	Leakage current not excessive and electric strength adequate		Complied
	Protective impedance disconnected from live parts before carrying out the tests	<i>No such part.</i>	Not Relevant
	Tests carried out at room temperature and not connected to the supply	<i>Tested as specified.</i>	Complied
16.2	Single-phase appliances: test voltage 1.06 times rated voltage (V) .....	<i>254.4 V. (1.06x240V) to power supply.</i>	Complied
	Three-phase appliances: test voltage 1.06 times rated voltage divided by Ö3 (V) .....	<i>Not this type.</i>	Not Relevant
	Leakage current measurements .....	<i>(see appended table)</i>	Complied
	Limit values doubled if:		Not Relevant
	- all controls have an off position in all poles, or		Not Relevant
	- the appliance has no control other than a thermal cut-out, or		Not Relevant
	- all thermostats, temperature limiters and energy regulators do not have an off position, or	<i>No such part.</i>	Not Relevant
	- the appliance has radio interference filters		Not Relevant
	With the radio interference filters disconnected, the leakage current do not exceed limits specified .....		Not Relevant
16.3	Electric strength tests according to table 7 ... :	<i>(see appended table)</i>	Complied
	Test voltage applied between the supply cord and inlet bushing and cord guard and cord anchorage as specified..... :	<i>(see appended table)</i>	Complied
	No breakdown during the tests	<i>No breakdown after the test.</i>	Complied
<b>17</b>	<b>OVERLOAD PROTECTION OF TRANSFORMERS AND ASSOCIATED CIRCUITS</b>		<b>Not Relevant</b>
	No excessive temperatures in transformer or associated circuits in event of short-circuits likely to occur in normal use .....	<i>Power Supply separately approved. Provided only to facilitate testing of towel rails.</i>	Not Relevant

Clause	Requirement - Test	Result - Remark	Verdict
<b>18</b>	<b>ENDURANCE</b>		<b>Not Relevant</b>
	Requirements and tests are specified in part 2 when necessary		Not Relevant
<b>19</b>	<b>ABNORMAL OPERATION</b>		<b>Complied</b>
19.1	The risk of fire, mechanical damage or electric shock under abnormal or careless operation obviated		Complied
	Electronic circuits so designed and applied that a fault will not render the appliance unsafe .. :	-	Not Relevant
	Appliances incorporating heating elements subjected to the tests of 19.2 and 19.3, and		Complied
	if the appliance also has a control that limit the temperature during clause 11 it is subjected to the test of 19.4, and	<i>No such part.</i>	Not Relevant
	if applicable, to the test of 19.5		Not Relevant
	Appliances incorporating PTC heating elements are also subjected to the test of 19.6	<i>No such part.</i>	Not Relevant
	Appliances incorporating motors subjected to the tests of 19.7 to 19.10, as applicable	<i>No such part.</i>	Not Relevant
	Appliances incorporating electronic circuits subjected to the tests of 19.11 and 19.12, as applicable		Not Relevant
	Appliances incorporating contactors or relays subjected to the test of 19.14, being carried out before the tests of 19.11		Not Relevant
	Appliances incorporating voltage selector switches subjected to the test of 19.15	<i>No such part.</i>	Not Relevant
	Unless otherwise specified, the tests are continued until a non-self-resetting thermal cut-out operates, or	<i>No such part.</i>	Not Relevant
	until steady conditions are established		Not Relevant
	If a heating element or intentionally weak part becomes open-circuited, the relevant test is repeated on a second sample		Not Relevant
AS/NZS 60335.2.43: 2005 + A1-2	For each of the tests, new textiles are used	<i>New textiles used.</i>	Complied
19.2	Test of appliance with heating elements with restricted heat dissipation; test voltage (V): power input of 0.85 times rated power input .. :		Complied

Clause	Requirement - Test	Result - Remark	Verdict
AS/NZS 60335.2.43: 2005 + A1-2	For appliances having a heated surface that supports the textiles, eight layers of textiles are used. For appliances in which the textiles are dried by a warm airflow, two layers of textiles are placed on the heating element guard or over the air inlet if the heating unit is located above the textiles	<i>Eight layers of textiles were used.</i>	Complied
AS/NZS 60335.2.43: 2005 + A1-2	The test is carried out with the textiles completely covering the guard or air inlet and then with the textiles covering 80 % of the area of the guard or air inlet	<i>No such part.</i>	Not Relevant
AS/NZS 60335.2.43: 2005 + A1-2	Appliances incorporating a fan are also tested without the motor operating, the guard or air inlet being uncovered	<i>No such part.</i>	Not Relevant
AS/NZS 60335.2.43: 2005 + A1-2	Appliances in which the heating unit is located above the textiles are also tested with two layers of textiles placed over the rails. The rails are raised by 50 mm above their normal position or through the maximum distance allowed by the construction, whichever is less		Not Relevant
AS/NZS 60335.2.43: 2005 + A1-2	Wall-mounted appliances that are folded when stored are also tested in the folded position without textiles	<i>Not this type.</i>	Not Relevant
19.3	Test of 19.2 repeated; test voltage (V): power input of 1.24 times rated power input..... :		Complied
19.4	Test conditions as in cl.11, any control limiting the temperature during tests of cl.11 short-circuited	<i>No such part.</i>	Not Relevant
19.5	Test of 19.4 repeated on Class 0I and I appliances with tubular sheathed or embedded heating elements. No short-circuiting, but one end of the element connected to the elements sheath	<i>Not this type of heating element.</i>	Not Relevant
19.6	Appliances with PTC heating elements tested at rated voltage, establishing steady conditions	<i>No such part.</i>	Not Relevant
19.7	Stalling test by locking the rotor if the locked rotor torque is smaller than the full load torque, or	<i>No motor.</i>	Not Relevant
19.8	Multi-phase motors operated at rated voltage with one phase disconnected	<i>Not this type of appliance.</i>	Not Relevant
19.9	Running overload test on appliances incorporating motors intended to be remotely or automatically controlled or liable to be operated continuously	<i>No such part.</i>	Not Relevant
19.10	Series motor operated at 1.3 times rated voltage for 1 min..... :	<i>No such part.</i>	Not Relevant

Clause	Requirement - Test	Result - Remark	Verdict
19.11	Electronic circuits, compliance checked by evaluation of the fault conditions specified in 19.11.2 for all circuits or parts of circuits, unless	<i>Approved safety isolating power supply was submitted to facilitate testing only and it was outside the scope of assessment.</i>	Not Relevant
19.12	If the safety of the appliance for any of the fault conditions specified in 19.11.2 depends on the operation of a miniature fuse-link complying with IEC 60127, the test is repeated, measuring the current flowing through the fuse-link; measured current (A); rated current of the fuse-link (A) :	<i>No such part.</i>	Not Relevant
19.13	During the tests the appliance does not emit flames, molten metal, poisonous or ignitable gas in hazardous amounts	<i>No emission of flames, molten metal and poisonous gas after the test.</i>	Complied
	Temperature rises not exceeding the values shown in table 9 .....	<i>(see appended table)</i>	Complied
	Compliance with clause 8 not impaired		Complied
	If the appliance can still be operated it complies with 20.2		Complied
	Insulation, other than of class III appliances or class III constructions that do not contain live parts, withstands the electric strength test of 16.3, the test voltage as specified in table 4:		Complied
	- basic insulation (V) .....	<i>(See appended table)</i>	Complied
	- supplementary insulation (V) .....	-	Not Relevant
	- reinforced insulation (V) .....	-	Not Relevant
	After operation or interruption of a control, clearances and creepage distances across the functional insulation withstand the electric strength test of 16.3, the test voltage being twice the working voltage	<i>No such part.</i>	Not Relevant
	The appliance does not undergo a dangerous malfunction, and		Not Relevant
	no failure of protective electronic circuits, if the appliance is still operable	<i>No such part.</i>	Not Relevant
	Appliances tested with an electronic switch in the off position, or in the stand-by mode:		Not Relevant
	- do not become operational, or		Not Relevant
	- if they become operational, do not result in a dangerous malfunction during or after the tests of 19.11.4		Not Relevant

Clause	Requirement - Test	Result - Remark	Verdict
	If the appliance contains lids or doors that are controlled by one or more interlocks, one of the interlocks may be released provided that:		Not Relevant
	- the lid or door does not move automatically to an open position when the interlock is released, and		Not Relevant
	- the appliance does not start after the cycle in which the interlock was released		Not Relevant
AS/NZS 60335.2.43: 2005 + A1-2	The temperature rise of the textiles shall not exceed 150 K	<i>Did not exceed the limit of 150K.  (See appended table).</i>	Complied
AS/NZS 60335.2.43: 2005 + A1-2	The textiles shall not be significantly scorched	<i>The textiles showed no signs of scorching</i>	Complied
19.14	Appliances operated under the conditions of clause 11, any contactor or relay contact operating under the conditions of clause 11 being short-circuited	<i>No such part.</i>	Not Relevant
19.15	For appliances with a mains voltage selector switch, the switch is set to the lowest rated voltage position and the highest value of rated voltage is applied	<i>No such part.</i>	Not Relevant
<b>20</b>	<b>STABILITY AND MECHANICAL HAZARDS</b>		<b>Not Relevant</b>
20.1	Appliances having adequate stability	<i>Built-in appliance.</i>	Not Relevant
	Tilting test through an angle of 10°, appliance placed on an inclined plane/horizontal support, not connected to the supply mains; appliance does not overturn	<i>Not this type of appliance.</i>	Not Relevant
20.101	Wall mounted clothes dryers of the folding type shall withstand the forces likely to occur in normal use.	<i>Not this type of appliance.</i>	Not Relevant
20.2	Moving parts adequately arranged or enclosed as to provide protection against personal injury	<i>No moving parts.</i>	Not Relevant
<b>21</b>	<b>MECHANICAL STRENGTH</b>		<b>Complied</b>
21.1	Appliance has adequate mechanical strength and is constructed as to withstand rough handling		Complied
	Checked by applying 3 blows to every point of the enclosure like to be weak, in accordance with test Ehb of IEC 60068-2-75, spring hammer test, with an impact energy of 0,5 J	<i>Three blows applied to each part with an impact energy of 0.5 J.</i>	Complied

Clause	Requirement - Test	Result - Remark	Verdict
	The appliance shows no damage impairing compliance with this standard, and	<i>No damage after the test.</i>	Complied
	compliance with 8.1, 15.1 and clause 29 not impaired		Complied
	If doubt, supplementary or reinforced insulation subjected to the electric strength test of 16.3		Not Relevant
	If necessary, repetition of groups of three blows on a new sample		Not Relevant
21.2	Accessible parts of solid insulation having strength to prevent penetration by sharp implements	<i>Safety extra low voltage.</i>	Not Relevant
<b>22 CONSTRUCTION</b>			
<b>22</b>	<b>CONSTRUCTION</b>		<b>Complied</b>
22.1	Appliance marked with the first numeral of the IP system, relevant requirements of IEC 60529 are fulfilled	<i>IP45 (both models).</i>	Complied
22.2	Stationary appliance: means to ensure all-pole disconnection from the supply being provided:		Complied
	- a supply cord fitted with a plug, or	<i>Independent power supply with AS/NZS approved plug.</i>	Not Relevant
	- a switch complying with 24.3, or	<i>No such part.</i>	Not Relevant
	- a statement in the instruction sheet that a disconnection incorporated in the fixed wiring is to be provided, or	<i>Text included.</i>	Complied
	- an appliance inlet		Not Relevant
	Singe-pole switches and single-pole protective devices for the disconnection of heating elements in single-phase, permanently connected class 01 and class I appliances, connected to the phase conductor	<i>Class III.</i>	Not Relevant
22.3	Appliance provided with pins: no undue strain on socket-outlets	<i>No such part.</i>	Not Relevant
22.4	Appliance for heating liquids and appliance causing undue vibration not provided with pins for insertion into socket-outlets	<i>Not this type of appliance.</i>	Not Relevant
22.5	No risk of electric shock when touching the pins of the plug, for appliances having a capacitor with rated capacitance exceeding 0,1nF, the appliance being disconnected from the supply at the instant of voltage peak	<i>No such part.</i>	Not Relevant

Clause	Requirement - Test	Result - Remark	Verdict
	Voltage not exceeding 34 V (V) .....	-	Not Relevant
	If compliance relies on the operation of an electronic circuit, the electromagnetic phenomena tests of 19.11.4.3 and 19.11.4.4 are applied one at a time to the appliance. The discharge test is then repeated three times and for each test, the voltage shall not exceed 34 V.		Not Relevant
22.6	Electrical insulation not affected by condensing water or leaking liquid		Complied
	Electrical insulation of Class II appliances not affected if a hose ruptures or seal leaks	<i>Power Supply separately approved.</i>	Not Relevant
	In case of doubt, test as described		Not Relevant
22.7	Adequate safeguards against the risk of excessive pressure in appliances containing liquid or gases or having steam-producing devices	<i>Not this type of appliance.</i>	Not Relevant
22.8	Electrical connections not subject to pulling during cleaning of compartments to which access can be gained without the aid of a tool, and that are likely to be cleaned in normal use		Complied
22.9	Insulation, internal wiring, windings, commutators and slip rings not exposed to oil, grease or similar substances, unless		Complied
	the substance has adequate insulating properties		Not Relevant
22.10	Not possible to reset voltage-maintained non-self-resetting thermal cut-outs by the operation of an automatic switching device incorporated within the appliance, if:	<i>No such part.</i>	Not Relevant
22.11	Reliable fixing of non-detachable parts that provide the necessary degree of protection against electric shock, moisture or contact with moving parts		Complied
	Obvious locked position of snap-in devices used for fixing such parts		Not Relevant
	No deterioration of the fixing properties of snap-in devices used in parts that are likely to be removed during installation or servicing		Not Relevant
	Tests as described		Not Relevant
22.12	Handles, knobs etc. fixed in a reliable manner	<i>No such part.</i>	Not Relevant



Clause	Requirement - Test	Result - Remark	Verdict
22.13	Unlikely that handles, when gripped as in normal use, make the operator's hand touch parts having a temperature rise exceeding the value specified for handles which are held for short periods only	<i>No such part.</i>	Not Relevant
22.14	No ragged or sharp edges creating a hazard for the user in normal use, or during user maintenance	<i>No sharp edges. Refer to technical notes.</i>	Complied
	No exposed pointed ends of self-tapping screws or other fasteners, likely to be touched by the user in normal use or during user maintenance	<i>No exposed sharp points.</i>	Complied
22.15	Storage hooks and the like for flexible cords smooth and well rounded	<i>No such part.</i>	Not Relevant
22.16	Automatic cord reels cause no undue abrasion or damage to the sheath of the flexible cord, no breakage of conductors strands and no undue wear of contacts	<i>No such part.</i>	Not Relevant
22.17	Spacers not removable from the outside by hand or by means of a screwdriver or a spanner	<i>No such part.</i>	Not Relevant
22.18	Current-carrying parts and other metal parts resistant to corrosion		Complied
22.19	Driving belts not relied upon to provide the required level of insulation, unless	<i>No such part.</i>	Not Relevant
	constructed to prevent inappropriate replacement		Not Relevant
22.20	Direct contact between live parts and thermal insulation effectively prevented, unless		Not Relevant
	material used is non-corrosive, non-hygroscopic and non-combustible		Not Relevant
22.21	Wood, cotton, silk, ordinary paper and fibrous or hygroscopic material not used as insulation, unless	<i>Not used.</i>	Complied
	impregnated		Not Relevant
	This requirement does not apply to magnesium oxide and mineral ceramic fibres used for the electrical insulation of heating elements		Not Relevant
22.22	Appliances not containing asbestos	<i>None.</i>	Complied
22.23	Oils containing polychlorinated biphenyl (PCB) not used	<i>None.</i>	Complied



Clause	Requirement - Test	Result - Remark	Verdict
22.24	Bare heating elements, except in class III appliances or class III constructions that do not contain live parts, adequately supported	<i>Class III. Heating wires are fully enclosed and they are covered with at least one layer of insulation.</i>	Not Relevant
	In case of rupture, the heating conductor is unlikely to come in contact with accessible metal parts		Not Relevant
22.25	Sagging heating conductors, except in class III appliances or class III constructions that do not contain live parts, cannot come into contact with accessible metal parts	<i>Class III appliance.</i>	Not Relevant
22.26	For class III constructions the insulation between parts operating at safety extra-low voltage and other live parts complies with the requirements for double or reinforced insulation	<i>Class III appliance</i>	Complied
22.27	Parts connected by protective impedance separated by double or reinforced insulation		Not Relevant
22.28	Metal parts of Class II appliances conductively connected to gas pipes or in contact with water, separated from live parts by double or reinforced insulation	<i>Class III.</i>	Not Relevant
22.29	Class II appliances permanently connected to fixed wiring so constructed that the required degree of access to live parts is maintained after installation		Not Relevant
22.30	Parts serving as supplementary or reinforced insulation fixed so that they cannot be removed without being seriously damaged, or		Not Relevant
22.31	Neither clearances nor creepage distances over supplementary and reinforced insulation reduced below values specified in clause 29 as a result of wear		Not Relevant
22.32	Supplementary and reinforced insulation constructed or protected against pollution so that clearances or creepage distances are not reduced below the values in clause 29		Not Relevant
22.33	Conductive liquids that are or may become accessible in normal use and conductive liquids that are in contact with unearthed accessible metal parts are not in direct contact with live parts or unearthed metal parts that are separated from live parts by basic insulation only	<i>No such part.</i>	Not Relevant
22.34	Shafts of operating knobs, handles, levers etc. not live, unless	<i>No such part.</i>	Not Relevant

Clause	Requirement - Test	Result - Remark	Verdict
22.35	For other than class III constructions, handles, levers and knobs, held or actuated in normal use, not becoming live in the event of a failure of basic insulation	<i>Class III.</i>	Not Relevant
22.36	For appliances other than class III, handles continuously held in the hand in normal use so constructed that when gripped as in normal use, the operators hand is not likely to touch metal parts, unless	<i>Class III appliance.</i>	Not Relevant
22.37	Capacitors in Class II appliances not connected to accessible metal parts and their casings, if of metal, separated from accessible metal parts by supplementary insulation, unless	<i>No such part.</i>	Not Relevant
22.38	Capacitors not connected between the contacts of a thermal cut-out	<i>No such part.</i>	Not Relevant
22.39	Lamp holders used only for the connection of lamps	<i>No such part.</i>	Not Relevant
22.40	Motor-operated appliances and combined appliances intended to be moved while in operation, or having accessible moving parts, fitted with a switch to control the motor. The actuating member of the switch being easily visible and accessible	<i>Heating appliance which had no moving parts.</i>	Not Relevant
22.41	No components, other than lamps, containing mercury		Complied
22.42	Protective impedance consisting of at least two separate components	<i>No such part.</i>	Not Relevant
22.43	Appliances adjustable for different voltages, accidental changing of the setting of the voltage unlikely to occur	<i>Not adjustable for different rated voltage.</i>	Not Relevant
22.44	Appliances not having an enclosure that is shaped or decorated like a toy		Complied
22.45	When air is used as reinforced insulation, clearances not reduced below the values specified in 29.1.3 due to deformation as a result of an external force applied to the enclosure		Not Relevant
22.46	For programmable protective electronic circuits used to ensure compliance with the standard, the software contains measures to control the fault/error conditions in table R.1	<i>No such part.</i>	Not Relevant
22.47	Appliances connected to the water mains withstand the water pressure expected in normal use	<i>Not this type of appliance.</i>	Not Relevant

Clause	Requirement - Test	Result - Remark	Verdict
22.48	Appliances connected to the water mains constructed to prevent backsiphonage of non-potable water	<i>Not this type of appliance.</i>	Not Relevant
22.49	For remote operation, the duration of operation is to be set before the appliance can be started, unless	<i>No remote control.</i>	Not Relevant
22.50	Controls incorporated in the appliance take priority over controls actuated by remote operation	<i>No such part.</i>	Not Relevant
22.51	There is a control on the appliance manually adjusted to the setting for remote operation before the appliance can be operated in this mode	<i>No such part.</i>	Not Relevant
22.52	Socket-outlets on appliances accessible to the user in accordance with the socket-outlet system used in the country in which the appliance is sold	<i>No such part.</i>	Not Relevant
22.53	Class II appliances and class III appliances that incorporate functionally earthed parts shall have at least double insulation or reinforced insulation between live parts and the functionally earthed parts.	<i>No such part.</i>	Not Relevant
22.54	Button cells and batteries designated R1 shall not be accessible without the aid of a tool unless the cover of their compartment can only be opened after at least two independent movements have been applied simultaneously.	<i>No such part.</i>	Not Relevant
22.201	Appliances having integral pins for insertion into socket outlets shall comply with the appropriate requirements of AS/NZS 3112.		Not Relevant
<b>23</b>	<b>INTERNAL WIRING</b>		<b>Complied</b>
23.1	Wireways smooth and free from sharp edges	<i>(Refer to Technical Notes )</i>	Complied
	Wires protected against contact with burrs, cooling fins etc.		Complied
	Wire holes in metal well-rounded or provided with bushings	<i>Well rounded holes.</i>	Complied
	Wiring effectively prevented from coming into contact with moving parts	<i>No moving parts.</i>	Not Relevant
23.2	Beads etc. on live wires cannot change their position, and are not resting on sharp edges	<i>No such part.</i>	Not Relevant
	Beads inside flexible metal conduits contained within an insulating sleeve		Not Relevant

Clause	Requirement - Test	Result - Remark	Verdict
23.3	Electrical connections and internal conductors movable relatively to each other not exposed to undue stress	<i>No moving parts.</i>	Not Relevant
23.4	Bare internal wiring sufficiently rigid and fixed		Not Relevant
23.5	The insulation of internal wiring subjected to the supply mains voltage withstanding the electrical stress likely to occur in normal use	<i>SELV. Test not required as wiring and connections operated at SELV (Class III),</i>	Not Relevant
	Basic insulation electrically equivalent to the basic insulation of cords complying with IEC 60227 or IEC 60245, or		Not Relevant
	no breakdown when a voltage of 2000 V is applied for 15 min between the conductor and metal foil wrapped around the insulation	<i>Test included for information purposes only; Internal heating wiring: 2000V@ 15 min. No breakdown.</i>	Not Relevant
23.6	Sleeving used as supplementary insulation on internal wiring retained in position by clamping at both ends, or	<i>No such part.</i>	Not Relevant
23.7	The colour combination green/yellow only used for earthing conductors	<i>Class III, no earthing conductor.</i>	Not Relevant
23.8	Aluminium wires not used for internal wiring	<i>Not used.</i>	Complied
23.9	Stranded conductors not consolidated by soldering where they are subjected to contact pressure, unless		Complied
	the contact pressure is provided by spring terminals		Not Relevant
23.10	The insulation and sheath of internal wiring, incorporated in external hoses for the connection of an appliance to the water mains, at least equivalent to that of light polyvinyl chloride sheathed flexible cord (60227 IEC 52)	<i>Not this type of appliance.</i>	Not Relevant
<b>24</b>	<b>COMPONENTS</b>		<b>Complied</b>
24.1	Components comply with safety requirements in relevant IEC or AS/NZS standards		Complied
	List of components ..... :	<i>(see appended table)</i>	Complied
	If components have not been tested and found to comply with relevant IEC standard for the number of cycles specified, they are tested in accordance with 24.1.1 to 24.1.9		Complied

Clause	Requirement - Test	Result - Remark	Verdict
	For components mentioned in 24.1.1 to 24.1.9 no additional tests specified in the relevant component standard are necessary other than those specified in 24.1.1 to 24.1.9		Not Relevant
	Components not tested and found to comply with relevant IEC standard and components not marked or not used in accordance with its marking, tested under the conditions occurring in the appliance		Complied
	Lampholders and starterholders that have not being tested and found to comply with the relevant IEC standard, tested as a part of the appliance and additionally according to the gauging and interchangeability requirements of the relevant IEC standard	<i>No such part.</i>	Not Relevant
	No additional tests specified for nationally standardized plugs such as those detailed in IEC/TR 60083 or connectors complying with the standard sheets of IEC 60320-1 and IEC 60309		Not Relevant
24.1.1	Capacitors likely to be permanently subjected to the supply voltage and used for radio interference suppression or for voltage dividing, complying with IEC 60384-14	<i>No such part.</i>	Not Relevant
	If the capacitors have to be tested, they are tested according to Annex F		Not Relevant
24.1.2	Safety isolating transformers complying with IEC 61558-2-6	<i>The submitted approved power supply was outside the scope of this assessment.</i>	Not Relevant
	If they have to be tested, they are tested according to Annex G		Not Relevant
24.1.3	Switches complying with IEC 61058-1, the number of cycles of operation being at least 10 000	<i>No such part.</i>	Not Relevant
24.1.4	Automatic controls complying with IEC 60730-1 with the relevant part 2. The number of cycles of operation being at least:		Not Relevant
24.1.5	Appliance couplers complying with IEC 60320-1	<i>No such part.</i>	Not Relevant
24.1.6	Small lamp holders similar to E10 lampholders complying with IEC 60238, the requirements for E10 lampholders being applicable	<i>No such part.</i>	Not Relevant
24.1.7	For remote operation of the appliance via a telecommunication network, the relevant standard for the telecommunication interface circuitry in the appliance is IEC 62151	<i>Not this type of appliance.</i>	Not Relevant

Clause	Requirement - Test	Result - Remark	Verdict
(AUS only)	Telecommunication interface circuitry must comply with the Telecom Labelling Notice issued under the Telecommunications Act instead of IEC 62151.	<i>No such part.</i>	Not Relevant
24.1.8	The relevant standard for thermal links is IEC 60691		Not Relevant
	Thermal links not complying with IEC 60691 are considered to be an intentionally weak part for the purposes of Clause 19	<i>No such part.</i>	Not Relevant
24.1.9	Contactors and relays, other than motor starting relays, tested as part of the appliance		Not Relevant
	They are also tested in accordance with Clause 17 of IEC 60730-1, the number of cycles of operations in 24.1.4 selected according to the contactor or relay function in the appliance... :		Not Relevant
24.101 Part 2.	Thermal cut-outs incorporated in appliances for compliance with 19.4 shall not be self resetting.	<i>No such part.</i>	Not Relevant
24.2	Appliances not fitted with:		Not Relevant
	- switches or automatic controls in flexible cords	<i>None.</i>	Complied
	- devices causing the protective device in the fixed wiring to operate in the event of a fault in the appliance	<i>None.</i>	Complied
	- thermal cut-outs that can be reset by soldering, unless	<i>No thermal cut-out.</i>	Not Relevant
	the solder has a melting point of at least 230 °C		Not Relevant
24.3	Switches intended for all-pole disconnection of stationary appliances are directly connected to the supply terminals and have a contact separation in all poles, providing full disconnection under overvoltage category III conditions	<i>No such part.</i>	Not Relevant
24.4	Plugs and socket-outlets for extra-low voltage circuits and heating elements, not interchangeable with plugs and socket-outlets listed in IEC/TR 60083 or IEC 60906-1 or with connectors and appliance inlets complying with the standard sheets of IEC 60320-1		Not Relevant
24.5	Capacitors in auxiliary windings of motors marked with their rated voltage and capacitance, and used accordingly	<i>No such part.</i>	Not Relevant

Clause	Requirement - Test	Result - Remark	Verdict
24.6	Working voltage of motors connected to the supply mains and having basic insulation that is inadequate for the rated voltage of the appliance, not exceeding 42 V		Not Relevant
24.7	Detachable hose-sets for connection of appliances to the water mains comply with IEC 61770	<i>Not this type of appliance.</i>	Not Relevant
24.8	Motor running capacitors in appliances for which 30.2.3 is applicable and that are permanently connected in series with a motor winding, not causing a hazard in event of a failure	<i>No such part.</i>	Not Relevant
<b>25</b>	<b>SUPPLY CONNECTION AND EXTERNAL FLEXIBLE CORDS</b>		<b>Not Relevant</b>
	<i>Class III appliance intended to be connected by supply wiring to an independent power supply (itself was fitted with approved AS/NZS plug and cord).</i>		Noted
<b>26</b>	<b>TERMINALS FOR EXTERNAL CONDUCTORS</b>		<b>Complied</b>
26.1	Appliances provided with terminals or equally effective devices for connection of external conductors	<i>Approved terminal blocks provided.</i>	Complied
	Terminals only accessible after removal of a non-detachable cover, except	<i>Class III.</i>	Not Relevant
	for class III appliances that do not contain live parts	<i>Class III.</i>	Not Relevant
	Earthing terminals may be accessible if a tool is required to make the connections and means are provided to clamp the wire independently from its connection	<i>Class III, no earthing facility.</i>	Not Relevant
26.2	Appliances with type X attachment and appliances for the connection of cables to fixed wiring provided with terminals in which connections are made by means of screws, nuts or similar devices, unless	<i>Class III appliance.</i>	Not Relevant
26.3	Terminals for type X attachment and for connection of cables of fixed wiring so constructed that the conductor is clamped between metal surfaces with sufficient contact pressure but without damaging the conductor		Not Relevant



Clause	Requirement - Test	Result - Remark	Verdict
26.4	Terminals for type X attachment, except those having a specially prepared cord and those for the connection of cables of fixed wiring, no special preparation of conductors such as by soldering, use of cable lugs, eyelets or similar, and		Not Relevant
26.5	Terminals for type X attachment so located or shielded that if a wire of a stranded conductor escapes, no risk of accidental connection to other parts that result in a hazard		Not Relevant
26.6	Terminals for type X attachment and for connection of cables of fixed wiring suitable for connection of conductors with cross-sectional area according to table 13; rated current (A); nominal cross-sectional area (mm <sup>2</sup> )..... :	-	Not Relevant
26.7	Terminals for type X attachment, except in class III appliances not containing live parts, accessible after removal of a cover or part of the enclosure	<i>Class III appliance.</i>	Not Relevant
26.8	Terminals for the connection of fixed wiring, including the earthing terminal, located close to each other		Not Relevant
26.9	Terminals of the pillar type constructed and located as specified		Not Relevant
26.10	Terminals with screw clamping and screwless terminals not used for flat twin tinsel cords, unless		Not Relevant
26.11	For type Y and Z attachment, soldered, welded, crimped or similar connections may be used		Not Relevant
<b>27</b>	<b>PROVISION FOR EARTHING</b>		<b>Complied</b>
27.1	Accessible metal parts of Class 0I and I appliances permanently and reliably connected to an earthing terminal or earthing contact of the appliance inlet	<i>Class III appliance, no earthing facility</i>	Not Relevant
	Earthing terminals and earthing contacts not connected to the neutral terminal		Not Relevant
	Class 0 appliances, class II appliances and class III appliances shall have no provision for protective earthing.	<i>Class III appliance, no earthing.</i>	Complied
	Class II appliances and class III appliances may incorporate an earth for functional purposes.	<i>No such part.</i>	Not Relevant
	Safety extra-low voltage circuits not earthed, unless	<i>Not earthed.</i>	Complied



Clause	Requirement - Test	Result - Remark	Verdict
	protective extra-low voltage circuits		Not Relevant
27.2	Clamping means of earthing terminals adequately secured against accidental loosening	<i>No earthing facility.</i>	Not Relevant
27.3	For a detachable part having an earth connection and being plugged into another part of the appliance, the earth connection is made before and separated after current-carrying connections when removing the part		Not Relevant
27.4	No risk of corrosion resulting from contact between parts of the earthing terminal and the copper of the earthing conductor or other metal		Not Relevant
27.5	Low resistance of connection between earthing terminal and earthed metal parts		Not Relevant
27.6	The printed conductors of printed circuit boards not used to provide earthing continuity in hand-held appliances.		Not Relevant
<b>28</b>	<b>SCREWS AND CONNECTIONS</b>		<b>Complied</b>
28.1	Fixings, electrical connections and connections providing earthing continuity withstand mechanical stresses		Complied
	Screws not of soft metal liable to creep, such as zinc or aluminium	<i>Not of soft metal.</i>	Complied
	Diameter of screws of insulating material min. 3 mm		Not Relevant
	Screws of insulating material not used for any electrical connections or connections providing earthing continuity	<i>No insulating screws.</i>	Not Relevant
	Screws used for electrical connections or connections providing earthing continuity screwed into metal	<i>No earthing connection.</i>	Not Relevant
	Screws not of insulating material if their replacement by a metal screw can impair supplementary or reinforced insulation		Not Relevant
	For type X attachment, screws to be removed for replacement of supply cord or for user maintenance, not of insulating material if their replacement by a metal screw impairs basic insulation		Not Relevant
	For screws and nuts; torque-test as specified in table 14 .....	<i>Screws for mechanical connection. (see appended table)</i>	Complied

Clause	Requirement - Test	Result - Remark	Verdict
28.2	Electrical connections and connections providing earthing continuity constructed so that contact pressure is not transmitted through non-ceramic insulating material liable to shrink or distort, unless		Not Relevant
28.3	Space-threaded (sheet metal) screws only used for electrical connections if they clamp the parts together		Not Relevant
28.4	Screws and nuts that make mechanical connection secured against loosening if they also make electrical connections or connections providing earthing continuity		Complied
	This requirement does not apply to screws in the earthing circuit if at least two screws are used, or	<i>No earthing facility. Class III appliance.</i>	Not Relevant
	if an alternative earthing circuit is provided		Not Relevant
	Rivets for electrical connections or connections providing earthing continuity secured against loosening if the connections are subjected to torsion		Not Relevant
<b>29</b>	<b>CLEARANCES, CREEPAGE DISTANCES AND SOLID INSULATION</b>		<b>Complied</b>
	Clearances, creepage distances and solid insulation withstand electrical stress		Complied
	For coatings used on printed circuits boards to protect the microenvironment (Type 1) or to provide basic insulation (Type 2), Annex J applies..... :	--	Not Relevant
	The microenvironment is pollution degree 1 under type 1 protection		Not Relevant
	For type 2 protection, the spacing between the conductors before the protection is applied is not less than the values specified in Table 1 of IEC 60664-3		Not Relevant
	These values apply to functional, basic, supplementary and reinforced insulation ..... :	<i>Class III appliance.</i>	Complied
29.1	Clearances not less than the values specified in table 16, taking into account the rated impulse voltage for the overvoltage categories of table 15, unless..... :	<i>Class III appliances with safety extra-low voltage. (see appended table)</i>	Complied
	for basic insulation and functional insulation they comply with the impulse voltage test of clause 14		Not Relevant

Clause	Requirement - Test	Result - Remark	Verdict
	However, if the distances are affected by wear, distortion, movement of the parts or during assembly, the clearances for rated impulse voltages of 1500V and above are increased by 0,5 mm and the impulse voltage test is not applicable	<i>Rated Voltage &lt; 50V. Impulse voltage: 500V.</i>	Not Relevant
	Impulse voltage test is not applicable:		Not Relevant
	- when the microenvironment is pollution degree 3, or		Not Relevant
	- for basic insulation of class 0 and class 01 appliances or to appliances intended for use at altitudes exceeding 2 000 m		Not Relevant
	Appliances are in overvoltage category II	<i>Overvoltage category II</i>	Complied
	A force of 2 N is applied to bare conductors, other than heating elements		Complied
	A force of 30 N is applied to accessible surfaces	<i>SELV</i>	Complied
	For appliances intended for use at altitudes exceeding 2 000 m, the clearances in Table 16 shall be increased according to the relevant multiplier values in Table A.2 of IEC 60664-1.		Not Relevant
29.1.1	Clearances of basic insulation withstand the overvoltages, taking into account the rated impulse voltage		Complied
29.1.2	Clearances of supplementary insulation not less than those specified for basic insulation in table 16..... :		Not Relevant
29.1.3	Clearances of reinforced insulation not less than those specified for basic insulation in table 16, using the next higher step for rated impulse voltage..... :		Not Relevant
29.1.4	Clearances for functional insulation are the largest values determined from:		Complied
	- table 16 based on the rated impulse voltage..... :	<i>(see appended table)</i>	Complied
	- table F.7a in IEC 60664-1, frequency not exceeding 30 kHz		Complied
	- clause 4 of IEC 60664-4, frequency exceeding 30 kHz		Not Relevant
	If values of table 16 are largest, the impulse voltage test of clause 14 may be applied instead, unless		Not Relevant
	the microenvironment is pollution degree 3, or		Not Relevant

Clause	Requirement - Test	Result - Remark	Verdict
	the distances can be affected by wear, distortion, movement of the parts or during assembly		Complied
	However, clearances are not specified if the appliance complies with clause 19 with the functional insulation short-circuited		Not Relevant
	Lacquered conductors of windings considered to be bare conductors		Not Relevant
	However, clearances at crossover points are not measured		Not Relevant
	Clearance between surfaces of PTC heating elements may be reduced to 1mm		Not Relevant
29.1.5	Appliances having higher working voltages than rated voltage, clearances for basic insulation are the largest values determined from:		Not Relevant
29.2	Creepage distances not less than those appropriate for the working voltage, taking into account the material group and the pollution degree..... :	<i>(see appended table)</i>	Complied
	Pollution degree 2 applies, unless	<i>Pollution degree 2.</i>	Complied
	- precautions taken to protect the insulation; pollution degree 1		Not Relevant
	- insulation subjected to conductive pollution; pollution degree 3		Not Relevant
	A force of 2 N is applied to bare conductors, other than heating elements		Complied
	A force of 30 N is applied to accessible surfaces		Complied
	In a double insulation system, the working voltage for both the basic and supplementary insulation is taken as the working voltage across the complete double insulation system		Not Relevant
29.2.1	Creepage distances of basic insulation not less than specified in table 17..... :	<i>(see appended table)</i>	Complied
29.2.2	Creepage distances of supplementary insulation at least those specified for basic insulation in table 17, or..... :	-	Not Relevant
29.2.3	Creepage distances of reinforced insulation at least double those specified for basic insulation in table 17, or..... :	-	Not Relevant
29.2.4	Creepage distances of functional insulation not less than specified in table 18..... :	<i>(see appended table)</i>	Complied
29.3	Supplementary and reinforced insulation have adequate thickness, or a sufficient number of layers, to withstand the electrical stresses		Not Relevant

Clause	Requirement - Test	Result - Remark	Verdict
<b>30</b>	<b>RESISTANCE TO HEAT AND FIRE</b>		<b>Complied</b>
30.1	External parts of non-metallic material,		Complied
	parts supporting live parts, and		Not Relevant
	parts of thermoplastic material providing supplementary or reinforced insulation		Not Relevant
	Parts of thermoplastic material providing supplementary or reinforced insulation tested at 25 °C plus the maximum temperature rise determined during clause 19, if higher; temperature (°C)..... :	<i>Class III appliances supplied at SELV No Supplementary or Reinforced insulations.</i>	Not Relevant
30.2	Parts of non-metallic material resistant to ignition and spread of fire		Complied
	This requirement does not apply to:		Noted
	parts having a mass not exceeding 0,5 g, provided the cumulative effect is unlikely to propagate flames that originate inside the appliance by propagating flames from one part to another, or		Complied
	decorative trims, knobs and other parts unlikely to be ignited or to propagate flames that originate inside the appliance		Not Relevant
	Compliance checked by the test of 30.2.1, and in addition:		Complied
	- for attended appliances, 30.2.2 applies		Not Relevant
	- for unattended appliances, 30.2.3 applies	<i>Unattended appliance.</i>	Complied
	For appliances for remote operation, 30.2.3 applies	<i>Not this type of appliance.</i>	Not Relevant
	For base material of printed circuit boards, 30.2.4 applies	<i>No such part.</i>	Not Relevant
30.2.1	Parts of non-metallic material subjected to the glow-wire test of IEC 60695-2-11 at 550 °C	<i>Refer to resistance to fire result tables.</i>	Complied
	However, test not carried out if the material is classified as having a glow-wire flammability index according to IEC 60695-2-12 of at least 550 °C, or		Not Relevant
	the material is classified at least HB40 according to IEC 60695-11-10		Not Relevant

Clause	Requirement - Test	Result - Remark	Verdict
	Parts for which the glow-wire test cannot be carried out need to meet the requirements in ISO 9772 for material classified HBF		Not Relevant
30.2.2 Part 2.	Appliances operated while attended, parts of non-metallic material supporting current-carrying connections, and	<i>Not applicable in part 2.</i>	N/A
30.2.3.1	Parts of non-metallic material supporting connections that carry a current exceeding 0.2 A during normal operation, and parts of non metallic material within a distance of 3 mm of such connections, are subjected to the glow wire test of IEC 60695-2-11 with a test severity of 850°C.	<i>Refer to resistance to fire result tables.</i>	Complied
	However, the glow-wire test is not carried out on parts of material classified as having a glow-wire flammability index of at least 850 °C according to IEC 60695-2-12.		Not Relevant
	The glow-wire test is also not carried out on small parts that comply with the needle-flame test of annex E or on small parts of material classified as Noted-0 or Noted-1 according to IEC 60695-11-10 provide that the test sample used for the classification was no thicker than the relevant part of the appliance.		Not Relevant
30.2.3.2	Parts of non-metallic material supporting connections, and		Complied
	parts of non-metallic material within a distance of 3mm,		Complied
	subjected to glow-wire test of IEC 60695-2-11		Complied
	The test severity is:		
	- 750 °C, for connections carrying a current exceeding 0,2 A during normal operation	<i>Refer to resistance to fire result tables.</i>	Complied
	- 650 °C, for other connections		Complied
	Glow-wire applied to an interposed shielding material, if relevant		
	However, the glow-wire test of 750 °C or 650 °C as appropriate, is not carried out on parts of material fulfilling both or either of the following classifications:		Not Relevant
	- a glow-wire ignition temperature according to IEC 60695-2-13 of at least:		Not Relevant
	· 775 °C, for connections carrying a current exceeding 0,2 A during normal operation		Not Relevant

Clause	Requirement - Test	Result - Remark	Verdict
	· 675 °C, for other connections		Not Relevant
	- a glow-wire flammability index according to IEC 60695-2-12 of at least:		Complied
	- 750 °C, for connections carrying a current exceeding 0,2 A during normal operation	<i>Refer to resistance to fire result tables.</i>	Complied
	- 650 °C, for other connections		Not Relevant
	The glow-wire test is also not carried out on small parts. These parts are to:		Not Relevant
	- comprise material having a glow-wire ignition temperature of at least 775 °C or 675 °C as appropriate, or		Not Relevant
	- comprise material having a glow-wire flammability index of at least 750 °C or 650 °C as appropriate, or		Not Relevant
	- comply with the needle-flame test of Annex E, or		Not Relevant
	- comprise material classified as V-0 or V-1 according to IEC 60695-11-10		Not Relevant
	The consequential needle-flame test of Annex E applied to non-metallic parts that encroach within the vertical cylinder placed above the centre of the connection zone and on top of the non-metallic parts supporting current-carrying connections, and parts of non-metallic material within a distance of 3 mm of such connections if these parts are those:		Complied
	- parts that withstood the glow-wire test of IEC 60695-2-11 of 750 °C or 650 °C as appropriate, but produce a flame that persist longer than 2 s, or	<i>Refer to resistance to fire result tables.</i>	Complied
	- parts that comprised material having a glow-wire flammability index of at least 750 °C or 650°C as appropriate, or		Not Relevant
	- small parts, that comprised material having a glow-wire flammability index of at least 750 °C or 650 °C as appropriate, or		Not Relevant
	- small parts for which the needle-flame test of Annex E was applied, or		Not Relevant
	- small parts for which a material classification of V-0 or V-1 was applied		Not Relevant
	However, the consequential needle-flame test is not carried out on non-metallic parts, including small parts, within the cylinder that are:		Not Relevant
	- parts having a glow-wire ignition temperature of at least 775 °C or 675 °C as appropriate, or		Not Relevant



Clause	Requirement - Test	Result - Remark	Verdict
	- parts comprising material classified as V-0 or V-1 according to IEC 60695-11-10, or		Not Relevant
	- parts shielded by a flame barrier that meets the needle-flame test of Annex E or that comprises material classified as V-0 or V-1 according to IEC 60695-11-10		Not Relevant
30.2.4	Base material of printed circuit boards subjected to the needle-flame test of Annex E	<i>No PCB.</i>	Not Relevant
	Test not applicable to conditions as specified:		Not Relevant
<b>31</b>	<b>RESISTANCE TO RUSTING</b>		<b>Complied</b>
	Relevant ferrous parts adequately protected against rusting		Complied
<b>32</b>	<b>RADIATION, TOXICITY AND SIMILAR HAZARDS</b>		<b>Complied</b>
	Appliance does not emit harmful radiation or present a toxic or similar hazard due to their operation in normal use		Complied
<b>A</b>	<b>ANNEX A (INFORMATIVE) ROUTINE TESTS</b>		<b>Not Relevant</b>
	Description of routine tests to be carried out by the manufacturer		Not Relevant
<b>B</b>	<b>ANNEX B (NORMATIVE) APPLIANCES POWERED BY RECHARGEABLE BATTERIES</b>		<b>Not Relevant</b>
<b>C</b>	<b>ANNEX C (NORMATIVE) AGEING TEST ON MOTORS</b>		<b>Not Relevant</b>
<b>D</b>	<b>ANNEX D (NORMATIVE) THERMAL MOTOR PROTECTORS</b>		<b>Not Relevant</b>
<b>E</b>	<b>ANNEX E (NORMATIVE) NEEDLE-FLAME TEST</b>		<b>Complied</b>
	Needle-flame test carried out in accordance with IEC 60695-11-5, with the following modifications:		Complied
7	Severities		Complied



Clause	Requirement - Test	Result - Remark	Verdict
	The duration of application of the test flame is 30 s $\pm$ 1 s		Noted
9	Test procedure		Complied
9.1	The specimen so arranged that the flame can be applied to a vertical or horizontal edge as shown in the examples of Figure 1		Complied
9.2	The first paragraph does not apply		Complied
	If possible, the flame is applied at least 10 mm from a corner		Complied
9.3	The test is carried out on one specimen		Complied
	If the specimen does not withstand the test, the test may be repeated on two additional specimens, both withstanding the test		Noted
11	Evaluation of test results		Complied
	The duration of burning not exceeding 30 s		Complied
	However, for printed circuit boards, the duration of burning not exceeding 15 s		Not Relevant
<b>F</b>	<b>ANNEX F (NORMATIVE) CAPACITORS</b>		<b>Not Relevant</b>
<b>G</b>	<b>ANNEX G (NORMATIVE) SAFETY ISOLATING TRANSFORMERS</b>		<b>Not Relevant</b>
<b>H</b>	<b>ANNEX H (NORMATIVE) SWITCHES</b>		<b>Not Relevant</b>
<b>I</b>	<b>ANNEX I (NORMATIVE) MOTORS HAVING BASIC INSULATION THAT IS INADEQUATE FOR THE RATED VOLTAGE OF THE APPLIANCE</b>		<b>Not Relevant</b>
<b>J</b>	<b>Annex J (NORMATIVE) COATED PRINTED CIRCUIT</b>		<b>Not Relevant</b>
<b>K</b>	<b>ANNEX K (NORMATIVE)</b>		<b>Complied</b>
	The information on overvoltage categories is extracted from IEC 60664-1		Complied
	Overvoltage category is a numeral defining a transient overvoltage condition.		Complied

Clause	Requirement - Test	Result - Remark	Verdict
	Equipment of overvoltage category IV is for use at the origin of the installation		
	Equipment of overvoltage category III is equipment in fixed installations and for cases where the reliability and the availability of the equipment is subject to special requirements.		Not Relevant
	Equipment of overvoltage category II is energy consuming equipment to be supplied from the fixed installation	<i>Overvoltage category II.</i>	Complied
	If such equipment is subjected to special requirements with regard to reliability and availability, overvoltage category III applies.		Not Relevant
	Equipment of overvoltage category I is equipment for connection to circuits in which measures are taken to limit transient overvoltage to an appropriately low level		Not Relevant
<b>L</b>	<b>ANNEX L (INFORMATIVE) GUIDANCE FOR THE MEASUREMENT OF CLEARANCES AND CREEPAGE DISTANCES</b>		<b>Noted</b>
	Information for the determination of clearances and creepage distances		Noted
<b>M</b>	<b>ANNEX M (NORMATIVE) POLLUTION DEGREE</b>		<b>Complied</b>
	The information on pollution degrees is extracted from IEC 60664-1		Complied
	Pollution		Complied
	The microenvironment determines the effect of pollution on the insulation, taking into account the microenvironment		Complied
	Means may be provided to reduce pollution at the insulation by effective enclosures or similar		Complied
	Minimum clearances specified where pollution may be present in the microenvironment		Complied
	Degrees of pollution in the microenvironment		Complied
	For evaluating creepage distances, the following degrees of pollution in the microenvironment are established:		Complied
	- pollution degree 1: no pollution or only dry, non-conductive pollution occurs. The pollution has no influence		Not Relevant

Clause	Requirement - Test	Result - Remark	Verdict
	- pollution degree 2: only non-conductive pollution occurs, except that occasionally a temporary conductivity caused by condensation is to be expected	<i>Pollution degree 2.</i>	Complied
	- pollution degree 3: conductive pollution occurs or dry non-conductive pollution occurs that becomes conductive due to condensation that is to be expected		Not Relevant
	- pollution degree 4: the pollution generates persistent conductivity caused by conductive dust or by rain or snow		Not Relevant
<b>N</b>	<b>ANNEX N (NORMATIVE) PROOF TRACKING TEST</b>		<b>Not Relevant</b>
<b>O</b>	<b>ANNEX O (INFORMATIVE) SELECTION AND SEQUENCE OF THE TESTS OF CLAUSE 30</b>		<b>Noted</b>
<b>P</b>	<b>ANNEX P (INFORMATIVE) GUIDANCE FOR THE APPLICATION OF THIS STANDARD TO APPLIANCES USED IN WARM DAMP EQUABLE CLIMATES</b>		<b>Not Relevant</b>
<b>Q</b>	<b>ANNEX Q (INFORMATIVE) SEQUENCE OF TESTS FOR THE EVALUATION OF ELECTRONIC CIRCUITS</b>		<b>Not Relevant</b>
<b>R</b>	<b>ANNEX R (NORMATIVE) SOFTWARE EVALUATION</b>		<b>Not Relevant</b>
<b>ZZ</b>	<b>Annex ZZ (informative)</b>	<i>AS/NZS National variations have been addressed throughout the report</i>	<b>Complied</b>



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10.1	TABLE: Power input deviation					Complied
Input deviation of/at:	P rated (W)	P measured (W)	Calculated dP %	Allowed dP %	Remark	
12V (Model ENTWEX612)	52.3	52.3	0	±10	Complied	

11.8	TABLE: Heating test, thermocouples		Model ENTWEX612	Complied
	Test voltage (V) .....	Pri: 257V ac 12.03 V, 51.7 W		¾
	Ambient (°C) .....	25.0		¾
Thermocouple locations		dT (K)	Max. dT (K)	
Heating cable wiring insulation 1		47.8	145	
Heating cable wiring insulation 2		52.8	145	
Heating cable wiring insulation 5		50.4	145	
Textile 1		26.6	75	
Textile 3		30.3	75	
Textile 5		31.4	75	
Metal surface		29.0	Reference	
insulated parts supporting heating cable (inside metal tube)		4.9	Cl.30.1	
Body (plastic surface)		5.7	45	
Terminal block		<2	Cl.30.1	
Side wall		3.4	60	
Ceiling		3.0	60	
Mounting surface		<2	60	
Floor (600 mm away)		Negligible	60	

11.101	TABLE: Heating test, thermocouples		Model ENTWEX612	Complied
	Test voltage (V) .....	Pri:240V ac Sec: 12.02V, 52.3 W		¾
	Ambient (°C) .....	25.0		¾
Thermocouple locations		dT (K)	Max. dT (K)	
Heating cable wiring 1		38.0	145	
Heating cable insulation 2		42.1	145	
Heating cable insulation 5		33.9	145	
insulated parts supporting heating cable (inside metal tube)		5.1	Cl.30.1	
Metal surface1		18.0	60	
Metal surface 2		18.9	60	
Metal surface 3		19.3	60	
Metal surface 4		18.3	60	
Metal surface 5		19.6	60	
Metal surface 6		18.6	60	
Moulded surface top (behind metal tubes)		2.8	85	
Moulded surface middle (behind metal tubes)		2.1	85	
Moulded surface bottom (behind metal tubes)		1.1	85	
Side wall		3.5	60	
Ceiling		<2	60	
Mounting surface		<2	60	
Floor (600 mm away)		Negligible	60	



13.2	TABLE: Leakage current		Complied
	Heating appliances: 1.15 x rated input (W) :	52.3W/12 V	¾
	Motor-operated and combined appliances: 1.06 x rated voltage (V)..... :	—	¾
Leakage current between		I (mA)	Max. allowed I (mA)
Phase conductor (to power supply) and enclosure of towel rail		0.055	0.7
Neutral conductor (to power supply) and external enclosure		0.057	0.7

13.3	TABLE: Electric strength		Complied
Test voltage applied between:		Voltage (V)	Breakdown (Yes/No)
Insulation of SELV (connections to outer wrapped in foil)		500	No

16.2	TABLE: Leakage current		Complied
	Single phase appliances: 1.06 x rated voltage ..... :	Prim: 254.4 V Sec: 12.02 V	¾
	Three phase appliances 1.06 x rated voltage divided by Ö3:..... :	-	¾
Leakage current between		I (mA)	Max. allowed I (mA)
Live parts (supply to power supply) and external enclosure		0.02	0.5

16.3	TABLE: Electric strength		Complied
Test voltage applied between:		Voltage (V)	Breakdown (Yes/No)
Insulation of SELV (connections to outer wrapped in foil)		500	No

19.13		TABLE: Abnormal operation, temperature rises		Complied
	Test voltage (V).....:	Cl. 19.2: Prim: 212.0V, Sec:12.02V Cl. 19.3: Prim: 267.2V, Sec:12.02V		—
	Ambient (°C)	Cl. 19.2: 23.8 Cl. 19.3: 20.4		—
Thermocouple locations		dT (K)		Max. dT (K)
		Clause19.2	Clause 19.3	
Textile 1		34.2	33.3	150
Textile 3		41.7	44.9	150
Textile 5		43.5	44.7	150
Mounting surface		5.9	5.1	150
Side wall		9.1	14.9	150
Ceiling		9.7	8.5	150
Floor		11.8	9.0	150
Floor (600 mm away)		—	<2	150

24.1		TABLE: Components				Complied
Object / part No.	Manufacturer/ trademark	Type / model	Technical data	Standard	Mark(s) of conformity	
Switch mode power supply	MEAN WELL	OWA-120A-12	Input: 200-240V~ 0.8A 50/60 Hz Output: +12Vdc 9.6A, Ta:40°C	IEC 61558-2-16 IEC 61558-1	—	
Heating wiring	Not identified by marking	—	PTFE insulation	—	—	
Terminal block	 Heavy Power Co., Ltd	PA12	500V	—		

28.1		TABLE: Threaded part torque test		Complied
Threaded part identification	Diameter of thread (mm)	Column number (I, II, or III)	Applied torque (Nm)	
Towel rail screws (on metal tubes)	3.58	II	0.8	

29.1		TABLE: Clearances					Complied
		Overvoltage category.....: .....			Overvoltage category II		¾
		Type of insulation:					
Rated impulse voltage (V):	Min. cl (mm)	Basic (mm)	Supplementary (mm)	Reinforced (mm)	Functional (mm)	Verdict / Remark	
500	0,5	>10	—	—	>10	Complied	
Supplementary information:							
*) For tracks on printed circuit boards if pollution degree 1 and 2							
**) For pollution degree 3							
***) If the construction is affected by wear, distortion, movement of the parts or during assembly							



29.2		TABLE: Creepage distances, basic, supplementary and reinforced insulation										Complied
Working voltage (V)	Creepage distance (mm)											Verdict
	Pollution degree											
	1	2			3			Type of insulation				
		Material group			Material group							
		I	II	IIIa/IIIb	I	II	IIIa/IIIb *)	B**)	S**)	R**)		
£50	0,18	0,6	0,85	1,2	1,5	1,7	1,9	>10	¾	¾	Complied	
£50	0,18	0,6	0,85	1,2	1,5	1,7	1,9	¾	—	¾	—	
£50	0,36	1,2	1,7	2,4	3,0	3,4	3,8	¾	¾	—	—	
Supplementary information:												
*) Material group IIIb is allowed if the working voltage does not exceed 50 V												
**) B = Basic insulation, S = Supplementary insulation, R = Reinforced insulation												

29.2		TABLE: Creepage distances, functional insulation								Complied
Working voltage (V)	Creepage distance (mm)							Verdict / Remark		
	Pollution degree									
	1	2			3					
		Material group			Material group					
	I	II	IIIa/IIIb	I	II	IIIa/IIIb *)				
50	0,16	0,56	0,8	1,0>10	1,4	1,6	1,8	Complied		
Supplementary information:										
*) Material group IIIb is allowed if the working voltage does not exceed 50 V										



30.1	TABLE: Ball pressure			Complied
Part	Test temperature (°C)	Impression diameter (mm)	Allowed impression diameter (mm)	
Terminal block	125	1.1	2	

**Components:**

Object/part No.	Manufacturer /trademark	Type/model	Technical data	Standard	Mark(s) of conformity
Control gear/ Power Supply	MEAN WELL	OWA-120A-12	Input: 200-240V~, 0.8A, 50/60 Hz Output: +12VDC , 9.6A Ta:40°C	—	—
Terminal block	 Heavy Power Co., Ltd	PA12	500V	—	

**Resistance to fire results table:**

The sample tested is arranged so that the part in contact with the glow-wire is the part most likely to be under thermal stress. The test is conducted with the part arranged vertically with pine wood covered by tissue paper. The standards used for Glow-wire testing were AS/NZS 60695.2.10 and AS/NZS 60695.2.11.

Number of Specimen	1	2	3
Tested item	Terminal block	Terminal block	Terminal block
Material	TP	TP	TP
Colour	White	White	White
Test specimen	SA	SA	SA
Number of samples tested	1	1	1
24 h Conditioning of samples	15-35 °C		
	45-75% RH		
Wire temperature (°C)	850	750	550
Duration of application (t <sub>a</sub> ) (s)	30	30	30
<b>Observations</b>			
Duration from application to ignition of the sample (t <sub>i</sub> ) (s)	2	2	NI
Duration from beginning of application to when flames extinguish (t <sub>e</sub> ) (s)	30, SE	30, SE	NI
Maximum height of flames after initial 5s (mm)	20	30	NA
Degree of wire tip penetration (mm)	3	3	2
Degree of specimen distortion	SD	SD	SD
Scorching of pinewood board	NO	NO	NO
<b>Evaluation Criteria</b>			
Visible flame or sustained glowing	YES	YES	NI
Duration of flaming or glowing after tip removal (s)	<1	<2, SE	NA
Surrounding parts burned away completely	NO	NO	NO
Ignition of tissue paper	NO	NO	NO
<b>RESULTS</b>	Complied	Complied	Complied

**Legend**

SA	Sub Assembly	CE	Complete Equipment	SC	Separate component
ME	Manually extinguished	SE	Self Extinguished	WP	Sample penetrated no ignition
NA	Not applicable	NI	No ignition	SD	Specimen distorted
FS	Flame short duration	EBD	Emitted burning droplets	PM	Penetration limited by metal
TP	Thermoplastic	TS	Thermoset plastic	SS	Specimen scorched
FC	Flaming material came away with tip				

**Resistance to fire results table (continued):**

The standard used for needle-flame testing was AS/NZS 60695.11.5.

<b>Number of Specimen</b>	1	—	—
Tested item	Terminal block	—	—
Material	TP	—	—
Colour	White	—	—
Test specimen	SA	—	—
Number of samples tested	1	—	—
24 h Conditioning of samples	15-35 °C		
	45-75% RH		
Duration of application (t <sub>a</sub> ) (s)	30	—	—
<b>Observations</b>			
Duration from application to ignition of the sample (t <sub>i</sub> ) (s)	2	—	—
Duration from beginning of application to when flames extinguish (t <sub>e</sub> ) (s)	30,SE	—	—
Degree of specimen distortion	SD	—	—
Scorching of pinewood board	NO	—	—
<b>Evaluation Criteria</b>			
Visible flame or sustained glowing	YES	—	—
Duration of flaming or glowing after flame removal (s)	<1, SE	—	—
Surrounding parts burned away completely	NO	—	—
Ignition of tissue paper	NO	—	—
<b>RESULTS</b>	Complied	—	—

**Legend**

SA	Sub Assembly	CE	Complete Equipment	SC	Separate component
ME	Manually extinguished	SE	Self Extinguished	WP	Sample penetrated no ignition
NA	Not applicable	NI	No ignition	SD	Specimen distorted
FS	Flame short duration	EBD	Emitted burning droplets	PM	Penetration limited by metal
TP	Thermoplastic	TS	Thermoset plastic	SS	Specimen scorched

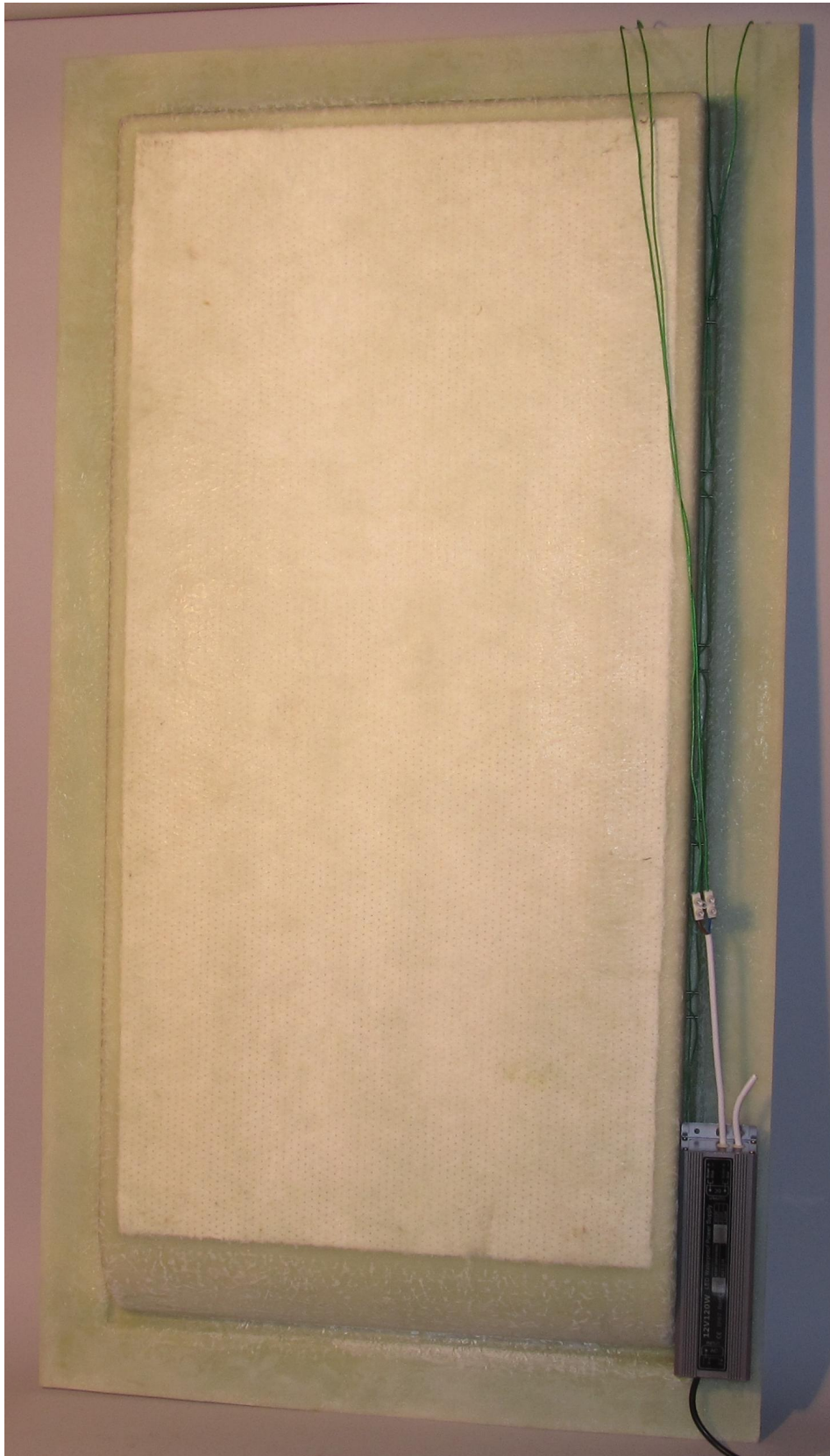


SPECTRUM  
LABORATORIES

**Photographs: Atlantis Models ENTWEX612 and Model ENTWRF612 Built-In Towel Rails:**



**Model: ENTWEX612 - Front View**



Model: ENTWEX612 – Rear View





Model: ENTWEX612 - Front View



**Model: ENTWEX612 – External Top View**



**Model: ENTWEX612 – External Rear View**

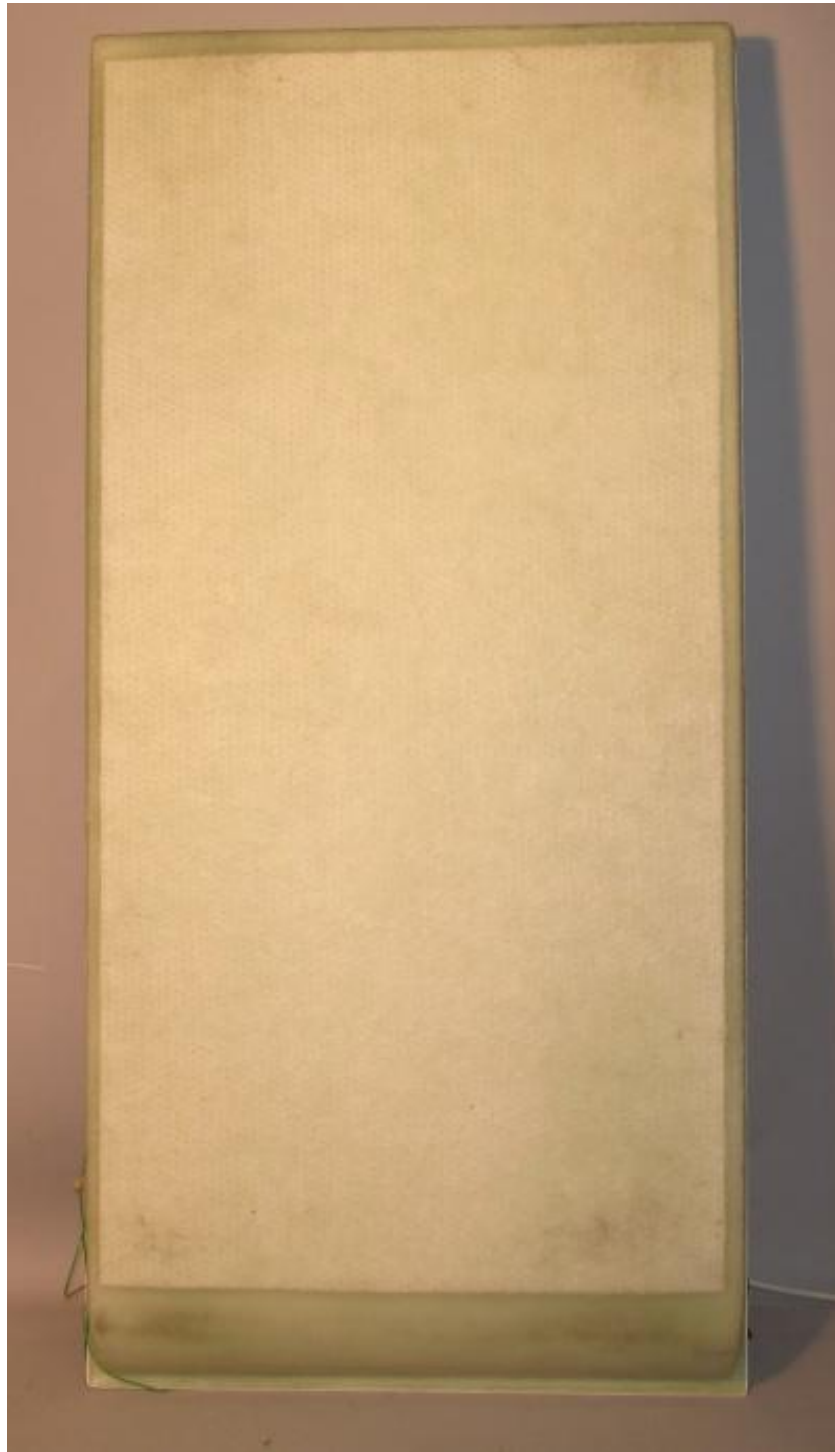


**Model: ENTWEX612 – Top View**





**Model: ENTWRF612- Front View**



Model: ENTWRF612- Rear View



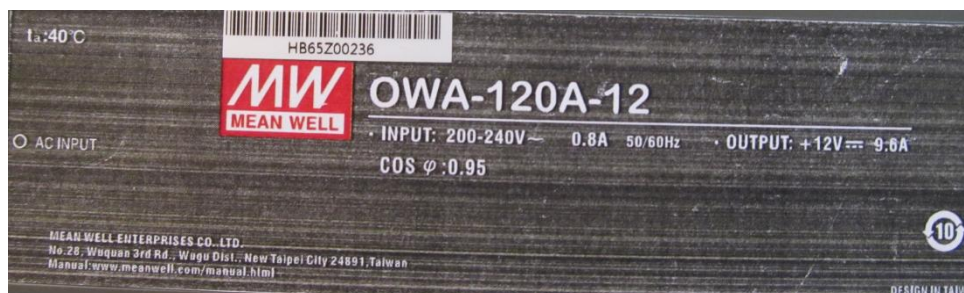
Model: ENTWRF612- External Side View



Model: ENTWRF612- End View



Transformer (for both models)



SMPS/Transformer ( for both models)



Insulator for mounting screw to prevent damage to adjacent supply wiring.



**Measurement Uncertainty:**

The recorded measurement uncertainties apply to all measurements within this test report unless otherwise specified.

The reported expanded uncertainty is based on a standard uncertainty multiplied by a coverage factor  $k = 2$ , providing a level of confidence of approximately 95%. The uncertainty evaluation has been carried out in accordance with IANZ requirements.

Measureand (X)	Calibrated Range	Measurement Uncertainty
Voltage (AC/DC)	$X \leq 1 \text{ V}$	$\pm 3.5\%$
	$1 \text{ V} < X \leq 600 \text{ V}$	$\pm 4.5\%$
	$600 \text{ V} < X \leq 3 \text{ k V}$	$\pm 5\%$
	$3 \text{ kV} < X \leq 7.5 \text{ kV}$	$\pm 5\%$
	$10 \text{ kV} < X \leq 20 \text{ kV}$	$\pm 5\%$
Current (AC/DC)	$X \leq 1 \text{ A}$	$\pm 2\%$
	$1 \text{ A} < X \leq 10 \text{ A}$	$\pm 2.5\%$
	$10 \text{ A} < X \leq 20 \text{ A}$	$\pm 1.5\%$
Frequency	$X \leq 100 \text{ Hz}$	$\pm 0.2\%$
	$100 \text{ Hz} < X \leq 100 \text{ kHz}$	$\pm 0.1\%$
Power	$X \leq 12 \text{ kW}$	$\pm 1\%$
Temperature	$X \leq 50 \text{ }^\circ\text{C}$	$\pm 2 \text{ }^\circ\text{C}$
	$50 \text{ }^\circ\text{C} < X \leq 990 \text{ }^\circ\text{C}$	$\pm 5 \text{ }^\circ\text{C}^*$
Resistance	$X \leq 100 \text{ } \Omega$	$\pm 2\%$
	$100 \text{ } \Omega < X \leq 10 \text{ k}\Omega$	$\pm 1.5\%$
	$10 \text{ k}\Omega < X \leq 10 \text{ M}\Omega$	$\pm 2.5\%$
Mass	$X \leq 210 \text{ g}$	$\pm 0.1\%$
	$210 \text{ g} < X \leq 300 \text{ g}$	$\pm 0.010 \text{ kg}$
	$0.3 \text{ kg} < X \leq 60 \text{ kg}$	$\pm 0.012 \text{ kg}$
Length	$X \leq 200 \text{ mm}$	$\pm 0.06 \text{ mm}$
	$200 \text{ mm} < X \leq 1000 \text{ mm}$	$\pm 3 \text{ mm}$
Force	$X \leq 200 \text{ N}$	$\pm 1.5\%$
	$200 \text{ N} < X \leq 1000 \text{ N}$	$\pm 1\%$
Velocity	$X \leq 1000 \text{ rpm}$	$\pm 0.1\%$
	$1000 \text{ rpm} < X \leq 30000 \text{ rpm}$	$\pm 0.1\%$

\*Error is linear,  $\pm 5 \text{ }^\circ\text{C}$  denotes maximum uncertainty with respect to 990  $^\circ\text{C}$  reading.