

Electrical Equipment Safety System

CHECK TESTING REPORT

2017-2018

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Endorsed by Standing Committee of Officials

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More information is available on the internet (www.eess.gov.au)

Introduction

This report presents the results of check tests on in-scope electrical equipment conducted between July 2017 and June 2018.

Electrical safety legislation of participating Electrical Equipment Safety System (EESS) jurisdictions focus on the prevention of death, injury and destruction of property caused by electricity. Within the legislation there are requirements on parties in the supply chain of equipment to ensure safe electrical equipment is supplied.

The supply chain includes manufacturers and importers of electrical equipment (Responsible Suppliers) being required to ensure they test the equipment they supply to show it is electrically safe. Jurisdictions that apply the EESS have legislative requirements for in-scope electrical equipment regulated under the EESS. The EESS is a system safeguarding the supply chain of in-scope electrical equipment (low voltage electrical equipment for household personal or similar use).

Responsible Suppliers (Australian or New Zealand based manufactures or importers) make a declaration that all equipment they supply is electrically safe and meets relevant safety standards. It is the duty of the responsible supplier to ensure this by having appropriate processes in place to ensure ongoing compliance of all equipment they manufacture or import.

Regulators have established an annual testing program to check compliance of in-scope electrical equipment with the relevant electrical safety standard.

The objective of the check testing program is to identify and remove non-conforming electrical equipment from the marketplace.

Check Testing Objective

To improve consumer safety for household electrical equipment in Australia and New Zealand by:

- sourcing in-scope electrical equipment from the market place and testing it to the relevant standard;
- taking regulatory action on non-compliances;
- providing information about results to stakeholders; and
- to stop sale of, remove, or rectify any identified non-compliant equipment.

Check Testing is conducted as part of the EESS activities where in-scope electrical equipment is purchased from the marketplace and subject to tests to the relevant standard by independent accredited test laboratories. Where non-compliances occur, the Regulator engages with the Responsible Supplier and will take appropriate enforcement actions based on the severity of risk the non-conformity presents. Irrespective of the resulting compliance action taken, all non-compliances are required to be rectified by the responsible supplier before supplying any further equipment. The results are also used to influence changes in safety standards in the review of risk levels of equipment.

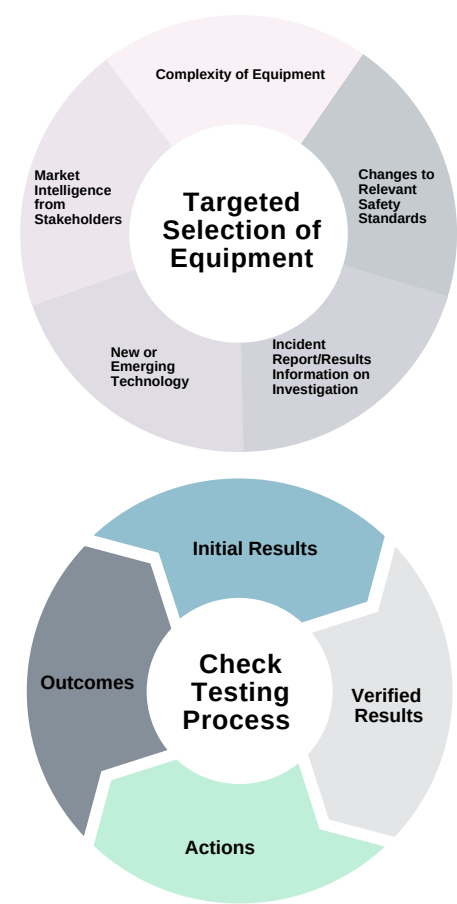
The check testing program for 2017-2018 focused on a mixture of Level 1 and Level 3 in-scope electrical equipment tested to selected safety clauses. Equipment types selected for testing were chosen using a risk assessment selection tool to identify the most appropriate equipment for testing.

The selection tool included various factors such as incident data, recalls, previous equipment history, characteristics of the equipment type and previous check testing results. Testing on all equipment was conducted at accredited laboratories in Australia and New Zealand.

Testing included; appliance connectors, submersible pumps, luminaires portable type, simple portable luminaire, washing machines, building wire cable, kettles, irons, vacuum cleaners, upright ovens, microwave ovens and clothes dryer (87 models in total).

Equipment to be tested was purchased nationally from retailers, wholesalers and national online sellers, with brands and models chosen irrespective of price or brand name.

Our Check Testing Strategy



A targeted approach is used when selecting equipment for check testing. Equipment is identified using a selection tool. The selection tool aims to highlight equipment with a greater likelihood of non-compliance or has a significant consequence if non-compliant.

Targeted Choice of Tests

Tests chosen for the targeted equipment based on issues identified for the type of equipment, or if non-compliant would be a significant issue, such as:

- Heating
- Abnormal operation
- Clearance distances and creepages (distances from live parts to accessible parts)
- Resistance to fire (flammability)
- Weatherproof ratings (IP ratings)
- Markings
- Electric strength (high voltage tests)
- Resistance to heat (ball pressure on plastics)
- Strength of contacts /withdrawal forces (power boards/appliance connectors)
- Insulation thickness
- Earthing
- Flexing
- Residual current/operation test/fault current ratings.

Severity Category

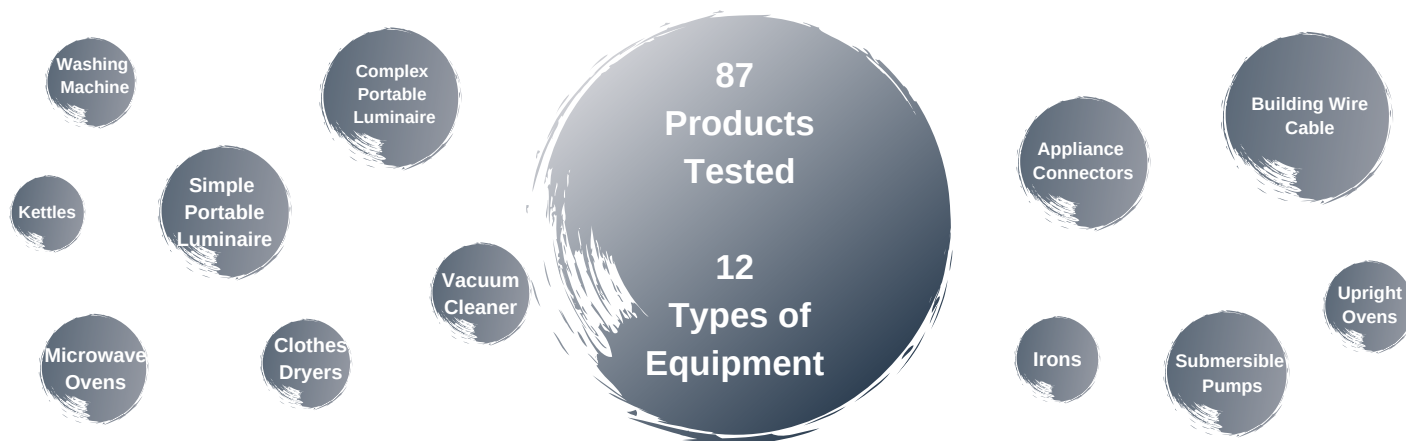
All non-compliances must be rectified by Responsible Suppliers irrespective the level of severity. Below is a ratings classification that the Regulator may apply. The action the regulator may take increases, as the severity increases.

Passed	Minor non-compliance (e.g. failure of markings)	Medium non-compliance (e.g. failure of a safety related clause by a small margin that is within uncertainty /repeatability limits). Multiple minor non-compliances.	Mid-level non compliances. (e.g. clear failure to a safety related clause).	Major non-compliance (e.g. multiple failures to safety related clauses in a model or multiple samples fail a safety related clause).	Significant non-compliance. (e.g. failure of critical safety related clause or significant failures of safety related clauses - failure notably not within limits or many samples fail).
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After the test results have been received from the testing laboratory, the results must be confirmed as legitimate and accurate results. Once the test report and results have been confirmed, the classification of severity category level can be determined. The severity should be taken on a case by case basis and there may be some overlap between categories (that is there is not a hard cut off between categories). Actions that may be taken by the Regulator are dependent on the severity and can range from a notice to stop sale, rectify or modify equipment before further sale, cancellation of registrations or certification, recalls or infringement notices or other prosecution or prohibition activities.

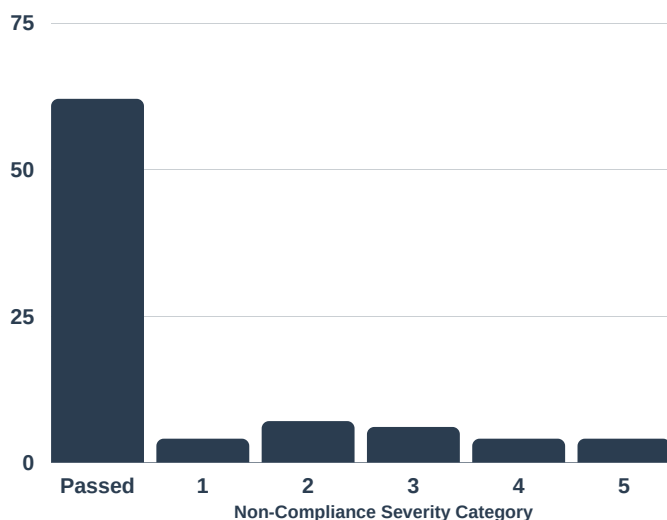


Check Testing 2017 - 2018



Overall Results of Check Testing

After all results were classified for severity category level they were tabled in a graph for easy comparison of level as shown below. The more severe classifications were reviewed for any trend. A common link was identified as indicated by the statistics to the right of the graph.



4 out of 4 of severity category 5 (significant failure) were models with no registered responsible supplier. All models with a severity category 5 were purchased from online sellers

2 out of 4 of severity category 4 (major) were models with no registered responsible supplier.

Highlights and Lowlights

Top 2 non-compliances



- 70% of submersible pumps tested recorded non-compliances including severity category 4 & 5 failures.
 - Six pumps were subject to recall by the Regulator or Responsible Supplier.
 - Raised to level 3 risk level in EESS in 2020 (requiring independent certification, supplier and model registration).



- 30% of Simple Portable Luminaire recorded non-compliances including one model with a severity category 4 rating. All failures were models with no registered responsible supplier.
 - Stop sale and rectification actions applied
 - re-defined and classified to level 2 risk level in EESS in 2018 (requiring supplier and model registration).



100% passed all tests applied:



100% Washing Machines



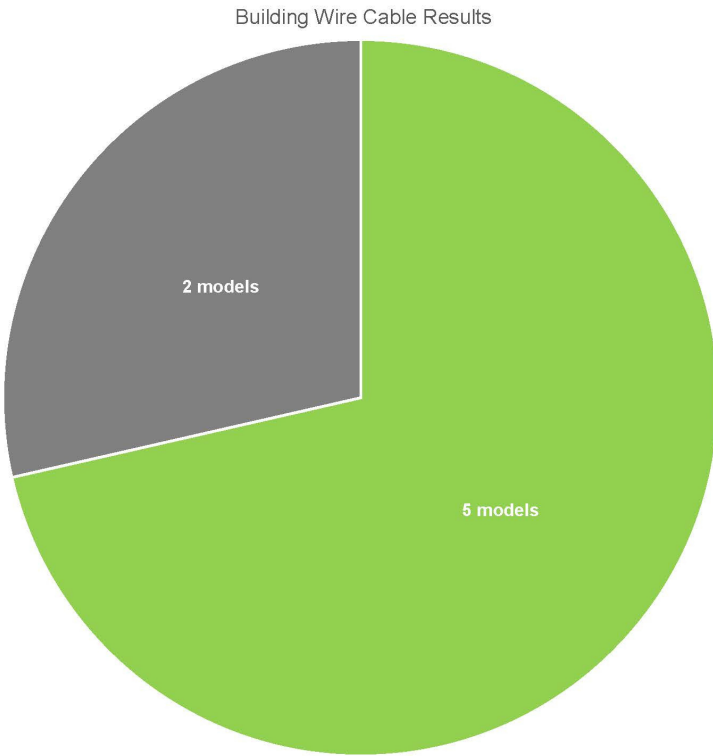
100% Irons



100% Kettles

Building Wire Cable

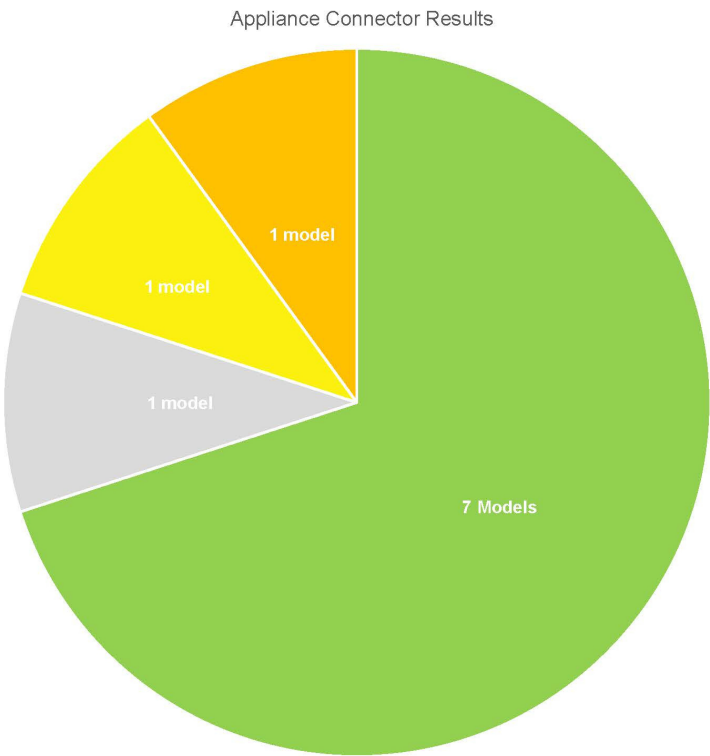
Equipment Type: Building Wire Cable		
Number Assessed: 7	Standards: AS/NZS 5000.2 AS/NZS 3808	Clauses: Table 3 of AS/NZS5000.2 Tests 2: Conductor resistance Test 5: Measurement of insulation thickness Test 6: Measurement of oversheath thickness Table 5 of AS/NZS3808 Test C: Loss of mass of insulation Table 6 of AS/NZS3808 Test C: Loss of mass of sheath Table 3, test 2 – conductor resistance Table 3 test 5 – Insulation thickness Table 5 – loss of mass
Non-compliances: Core insulation thickness below limit		



Regulator Actions
<ul style="list-style-type: none">• Supplier informed - minor failure and product no longer being sold
<ul style="list-style-type: none">• Supplier informed - minor failure and responsible supplier showed test for same batch compliant

Appliance Connector

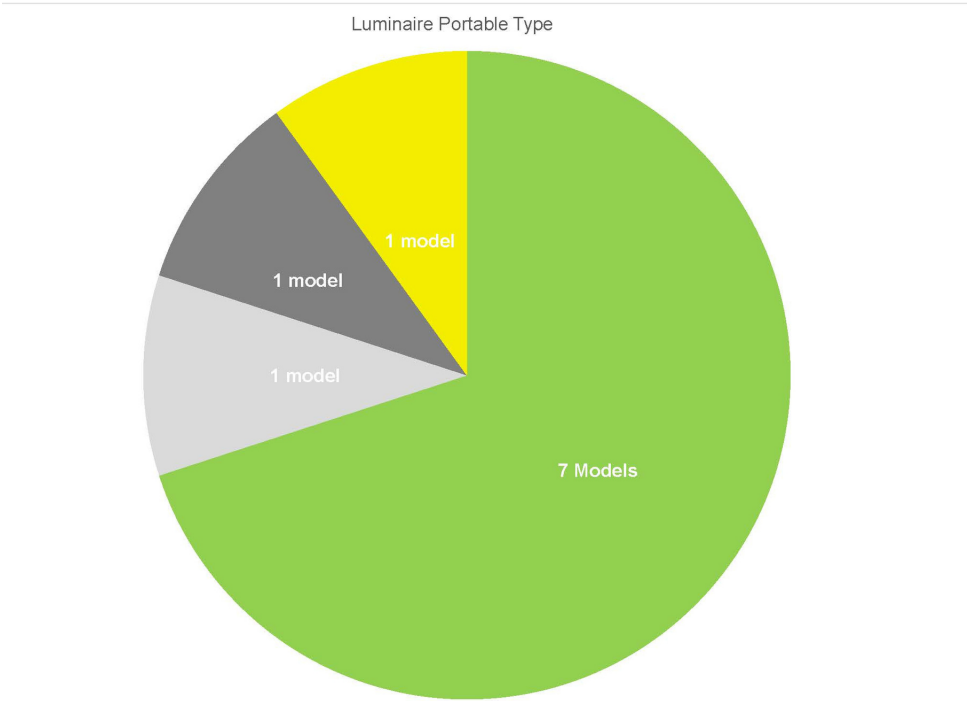
Equipment Type: Appliance Connector		
Number Assessed: 10	Standards: AS/NZS 60320.1	Clauses: 112 – Terminals and terminations 16 – Withdrawal force 22 – Cords and their connections
Non-compliances: Withdrawal force greater than maximum limit Withdrawal force less than minimum limit Flexing test		



Regulator Actions
• Stop sale issued
• Supplier notified of failure - marginal failure, over max withdrawal force, supplier to monitor
• No longer certified

Luminaire Portable Type

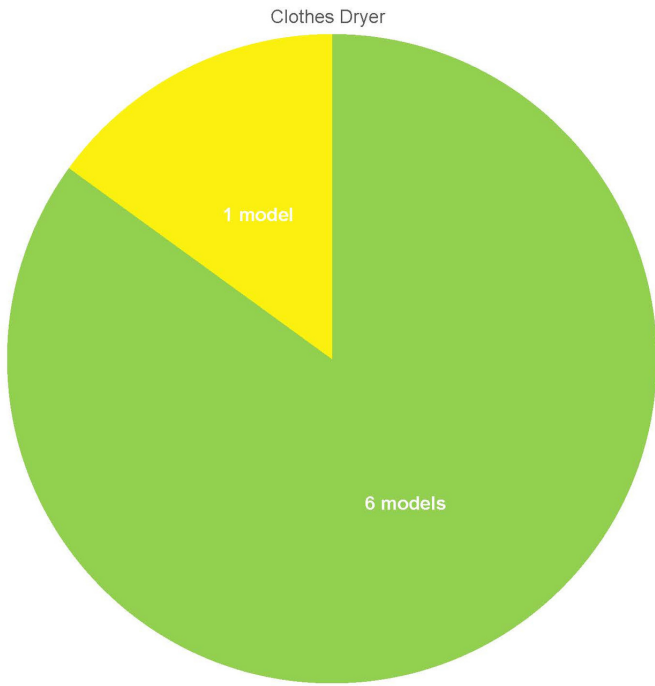
Equipment Type :Luminaire Portable type		
Number Assessed: 10	Standards: AS/NZS 60598.2.4	Clauses: 4.5 – Marking 4.6 – Construction 4.7 – Creepage distances and clearances 4.10 – External and internal wiring 4.11 – Protection against electric shock 4.14 – Insulation resistance and electric strength
Non-compliances: Marking symbol height requirement Insufficient warnings in instructions Stability test Clearance distance between live parts Cord anchorage test		



Regulator Actions
• Supplier taking rectification actions
• Stop sale issued

Clothes Dryer

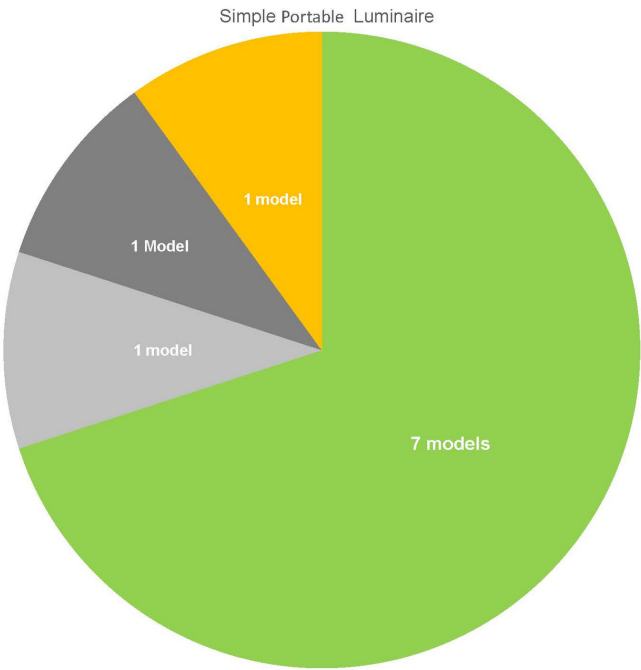
Equipment Type: Clothes Dryer		
Number Assessed: 7	Standards: AS/NZS 60335.2.11	Clauses: 19 – abnormal operation 27 – Earthing 30 – Resistance to heat and fire
Non-compliances: Metal parts (possibly accessible) not earthed. An internal molding failed consequential resistance to fire test.		



Regulator Actions
• Supplier taking rectification actions
• Stop sale issued

Simple Portable Luminaire

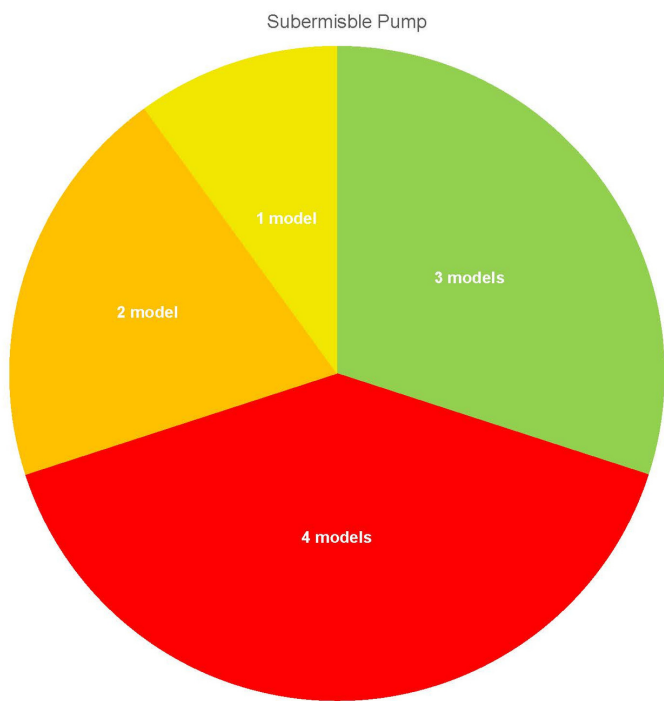
Equipment Type: Simple Portable Luminaire		
Number Assessed:	Standards:	Clauses:
10	AS/NZS 60598.2.4	Annex ZA
Non-compliances:		
Heating test - supply cord exceeded limit		
Component failed resistance to fire test		
Nameplate marking insufficient		



Regulator Actions
• Stop sale issued
• Supplier notified of failure - marginal failure, within uncertainty tolerances, supplier to monitor
• Suppliers taking rectification actions

Submersible Pumps

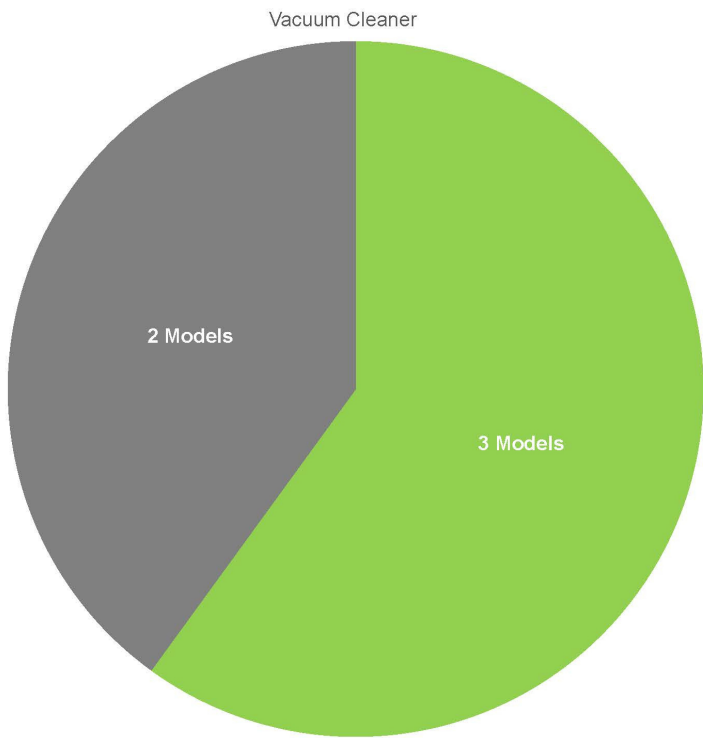
Equipment Type: Submersible Pumps		
Number Assessed: 10	Standards: AS/NZS60335.2.41	Clauses: 23 - Internal wiring 25 - Supply connection and external flexible cords 27 - Provision for earthing
Non-compliances: Marking - max depth not marked, no weatherproof rating Accessible metal not earthed - may become live in event of basic insulation failure No coupling device for supply cord connection Flexing test Supply cord conductor cross sectional area below limit Supply cord insulation material type		



Regulator Actions	
• Stop sale issued	
• Supplier voluntary recalls	
• Regulator initiated recalls	(Four regulator initiated recalls as no responsible supplier in Australia for these four models)

Vacuum Cleaners

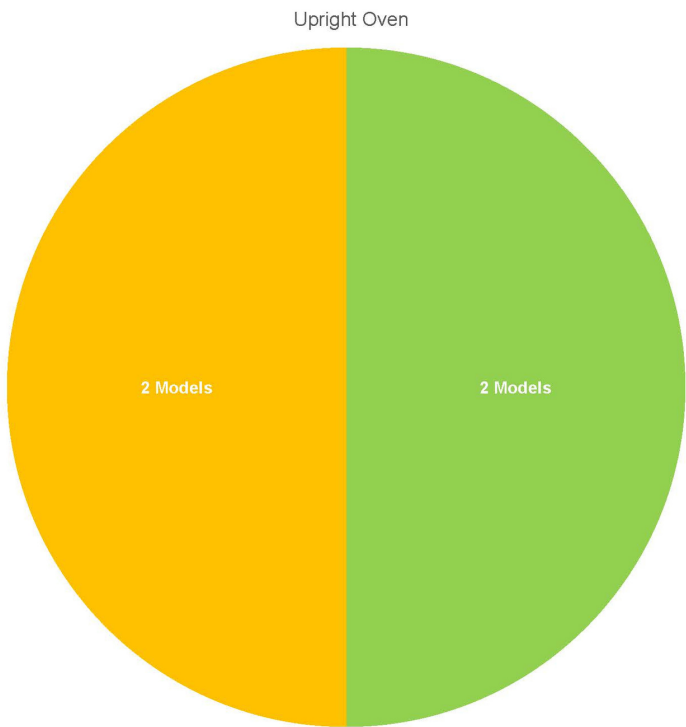
Equipment Type: Vacuum Cleaners		
Number Assessed: 5	Standards: AS/NZS60335.2.2	Clauses: 7 – Marking 8 - Protection against electric shock 19 - Abnormal operation 21 - Mechanical strength 22 - Construction 30 - Resistance to heat and fire
Non-compliances: Marking - no symbol for accessory operating at above safety extra low voltage Instruction - no safety warning related to accessories operating at a greater than extra ow voltage.		



Regulator Actions
<ul style="list-style-type: none">Supplier taking rectification actions

Upright Oven

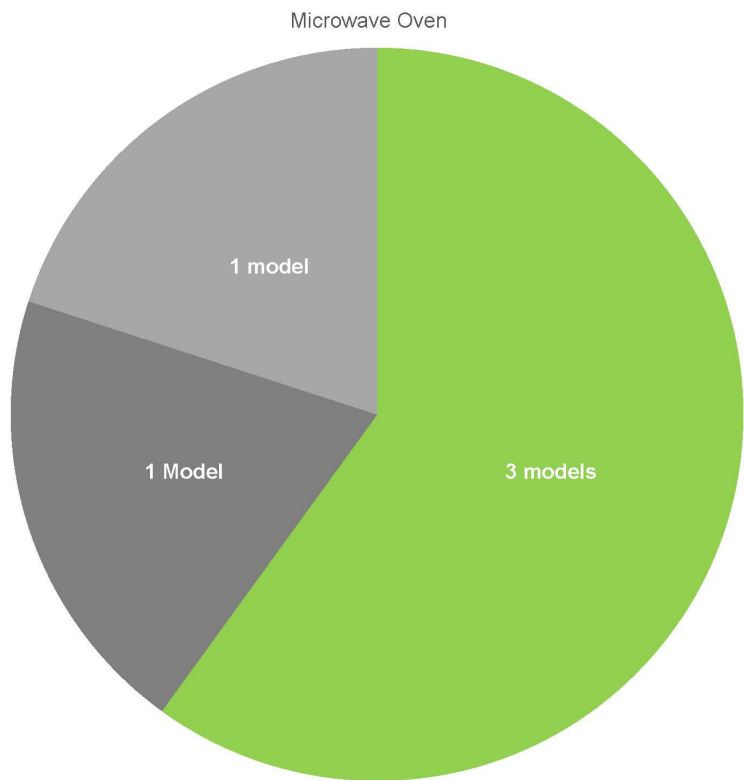
Equipment Type: Upright Oven		
Number Assessed: 4	Standards: AS/NZS60335.2.6	Clauses: 11 – Heating (11.101) 19 – abnormal operation 20 – stability and mechanical hazards (20.101, 20.102) 21 – mechanical strength (21.1, 21.101, 21.104)
Non-compliances: Heating test - external accessible side and front surfaces		



Regulator Actions
<ul style="list-style-type: none">Stop sale issued

Microwave Oven

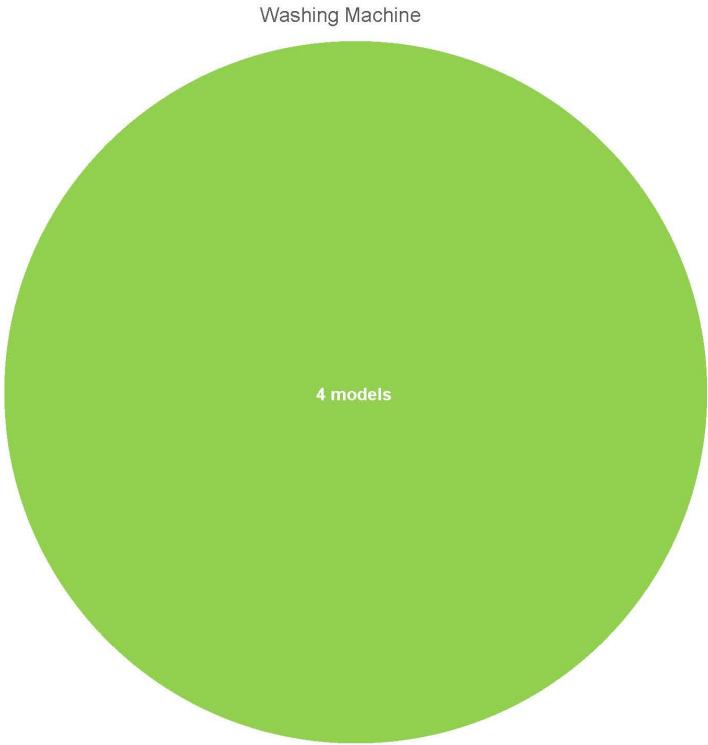
Equipment Type: Microwave Oven		
Number Assessed: 5	Standards: AS/NZS60335.2.25	Clauses: 11 – heating 19 – abnormal operation (19.11.2, 19.13, 19.101, 19.102, 19.103, 19.104, 19.105) 27 – Earthing 30 – Resistance to heat and fire 32 – Radiation, toxicity and similar hazards
Non-compliances: Heating Test - HV transformer exceeded limit		



Regulator Actions
<ul style="list-style-type: none">Stop sale issued
<ul style="list-style-type: none">Supplier notified of failure - marginal failure, within uncertainty tolerances, supplier provided evidence of compliance

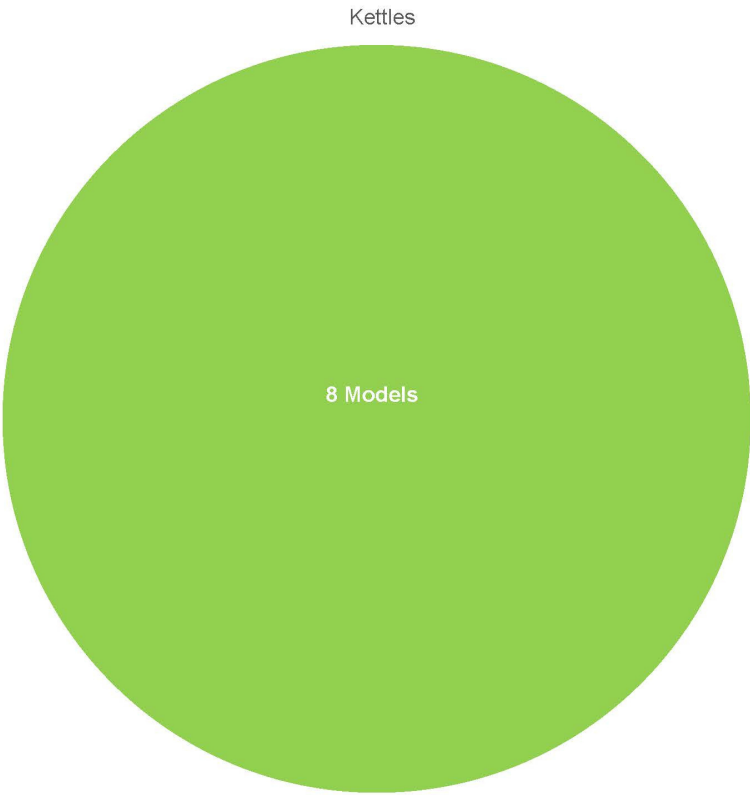
Washing Machines

Equipment Type: Washing Machine		
Number Assessed: 4	Standards: AS/NZS 60335.2.7	Clauses: 11 - Heating 15 - Moisture Resistance 16 - Leakage current and electric 19 - Abnormal Operation 29 - Creepage distances and clearances 30 - Resistance to heat and fire
Non-compliances: n/a		



Kettles

Equipment Type: Kettles (Liquid Heating Appliance)		
Number Assessed: 8	Standards: AS/NZS 60335.2.15	Clauses: 15 - Moisture resistance 19 - Abnormal operation 21 - Mechanical Strength 30 - Flammability
Non-compliances: n/a		



Iron

Equipment Type: Iron		
Number Assessed: 7	Standards: AS/NZS 60335.2.3	Clauses: 11 - Heating 19 - Abnormal operation 21 - Mechanical Strength 25 - Supply connection and external flexible cords 30 - Flammability
Non-compliances: n/a		

