EESS
Electrical Equipment Safety System

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Check Testing Report

2018-2019

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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 finalized between July 2018 and June 2019.

Electrical safety legislation of participating Electrical Equipment Safety System (EESS) jurisdictions focuses 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 marketplace and testing it to the relevant standard;
- Taking regulatory action on non-compliances;
- Proving 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 and in the review of risk levels of equipment.

The check testing program for 2018-2019 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.

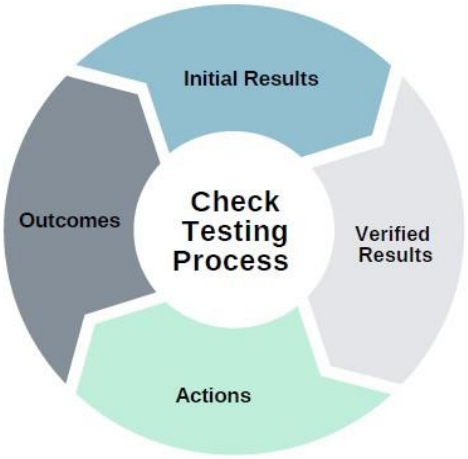
Testing included:

DC Isolators, EPODs, Recessed LED Luminaires, Hair Dryers, RCBOs, Self-Ballasted LEDs, Stick Blenders, Power Supplies, and Plug Pack Power Supplies

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

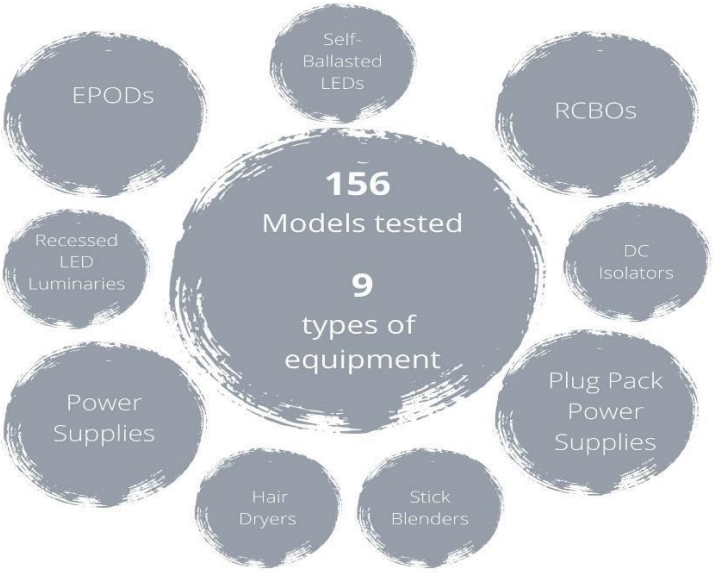
All non-compliances must be rectified by Responsible Suppliers irrespective of the level of severity. Below is a ratings classification that the Regulator may apply. The action the regulator may take increases, as the severity increases.

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).

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.

2018-2019 Check Testing Program



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.

7 out of **7** Models of severity category 5 were recalled.

10 out of **17** Plug pack power supplies recorded a failure. Three with severity category 5 and seven with severity category 4

Highlights and Lowlights

Top Non-Compliance

100% Recessed LED Luminaires failed, including severity category 1,2,3 & 4 failures.

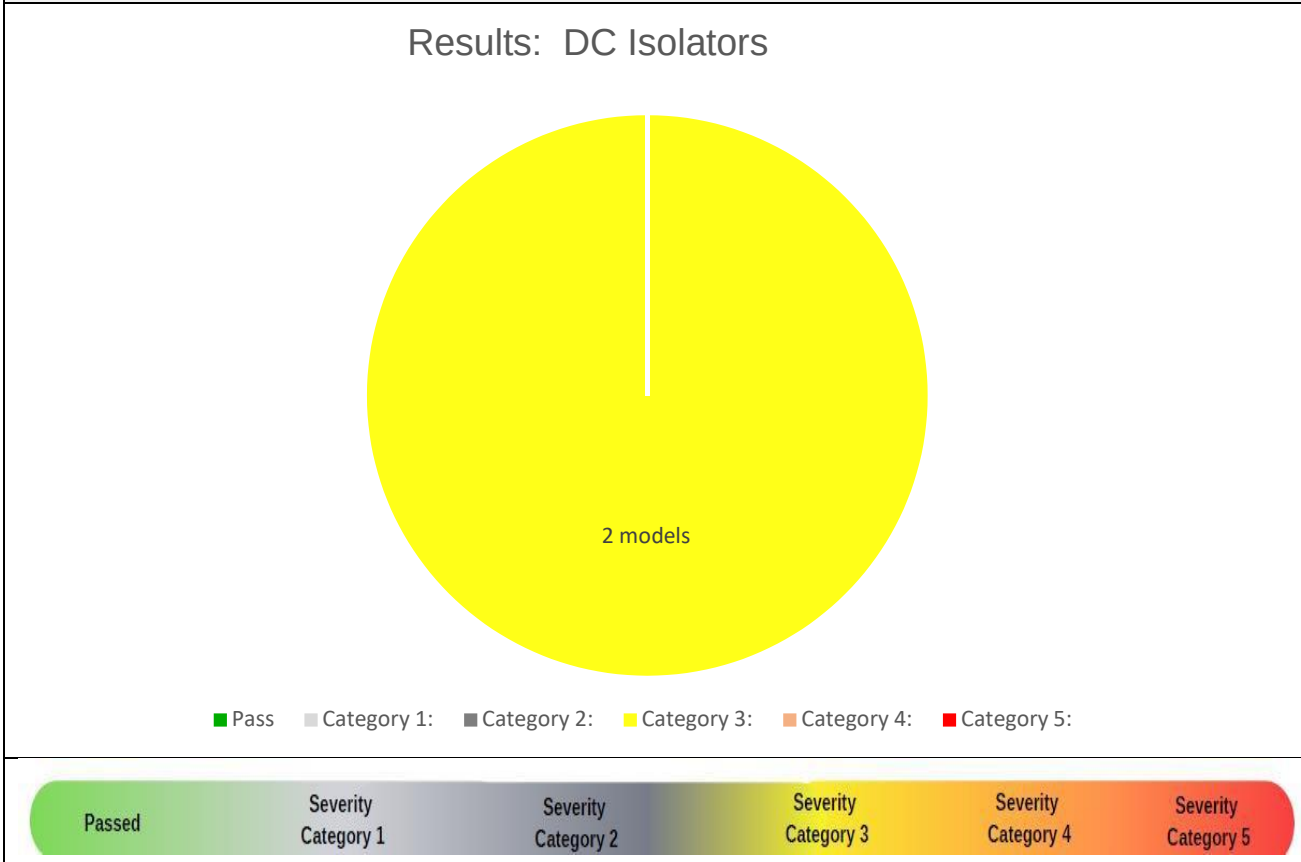
- multiple marking failures on multiple models, multiple failures of thermal test including external surfaces – multiple tests and some samples pass, some samples fail – quality assurance issues.
- Multiple models flagged for retest

Top Compliance

80% Stick Blenders passed with only two models recording a failure (both severity category 3).

DC Isolators

Equipment Type:	DC Isolators	
Number Assessed:	**Standards**	**Clauses**
2	AS/NZS 60947.3	D.5.2 Marking, identification, information and data D.5.3 Instructions for installation and operation D.8.3.13 Degree of protection — Enclosed equipment (IP56NW)
Non-Compliances:		
• Marking data not in required detail • Weatherproof test failure		



Regulator Actions

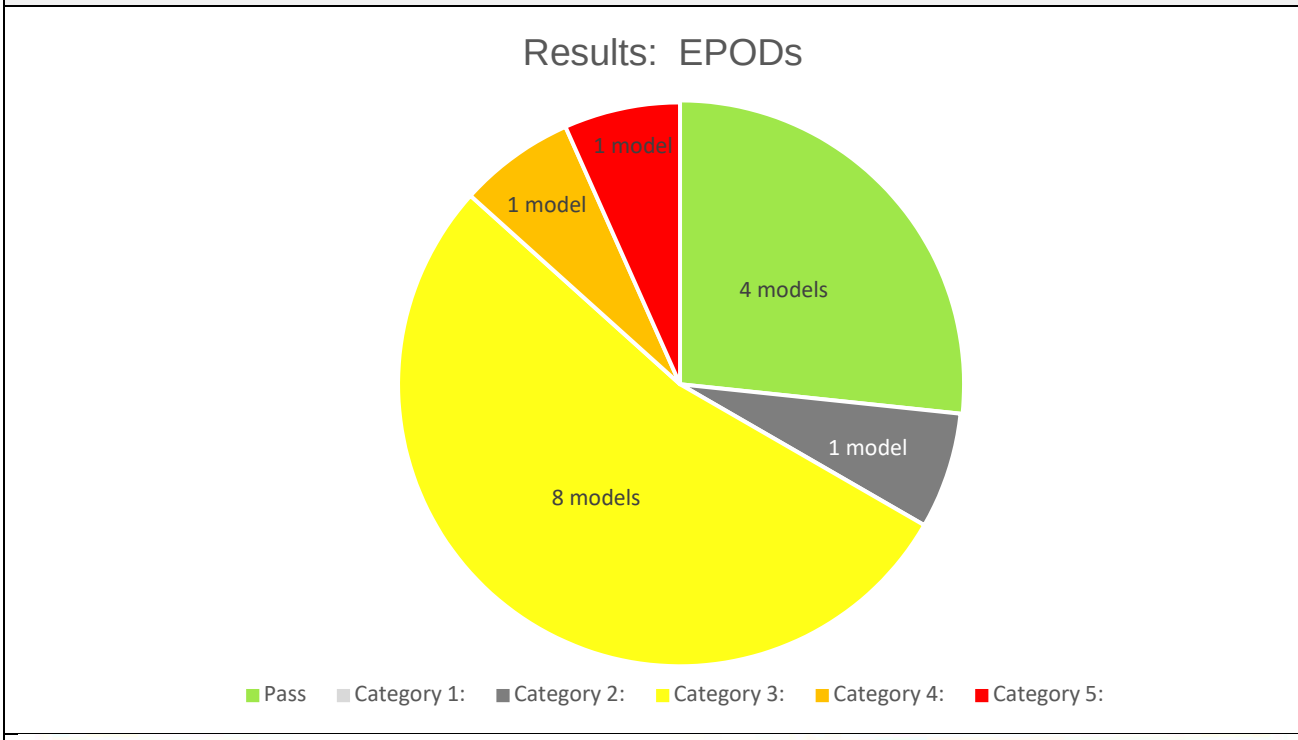
- Stop sale issued
- 2 models failed IP56NW test in one test facility, passed in another two test facilities – possible quality assurance issues (so classified severity 3 only)
- Flag models for retest

Electrical Portable Outlet Device (EPOD)

Equipment Type:	EPOD	
Number Assessed:	**Standards**	**Clauses**
15	AS/NZS 3105	Clause 5.5.2 socket outlets (in part - including AS/NZS 3112 clause 3.3.3 Entry or withdrawal, clause 3.3.4 Depth of contact and clause 3.14.8. Strength of contact tests) Table 2 test 1 Insulation resistance test Table 2 test 2 High voltage test Table 2 test 3 Test of earthing connection Table 2 test 10 Mechanical strength Table 2 test 12 Overload protection Table 2 test 14 Abnormal operation Table 2 test 20 Determination of ignitability & combustion propagation Table 2 test 22 Resistance to heat test

Non-Compliances:

- high voltage test failure
- socket outlet minimum distance from edge of any live pin aperture to the edge of the faceplate failure
- determination of ignitability and combustion propagation failure
- withdrawal force test failure
- depth of contact failure
- overload protection test failure
- Marking failure
- Resistance to heat test failure



Regulator Actions

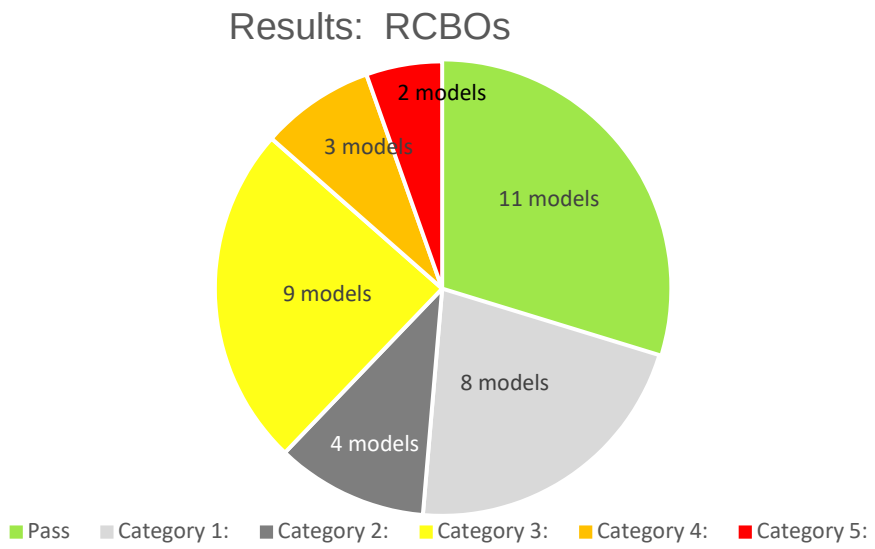
- Supplier conducted recall
- Stop sale issued
- Inform supplier to rectify
- Models flagged for retest

Residual Current Breaker Overcurrent (RCBO) – safety switch circuit breakers combination

Equipment Type:	RCBO	
Number Assessed:	**Standards**	**Clauses**
37	AS/NZS 61009.1	9.9.1.2a) Verification of correct operation in case of a steady increase of the residual current 9.9.1.2b) Verification of correct operation on closing on a residual current 9.9.1.2c) Verification of correct operation in case of sudden appearance of residual current 9.9.1.2d) Verification of correct operation in case of sudden appearance of residual currents between 5 $I_{\Delta n}$ and 500 A 9.9.1.2e) Verification of correct operation with load 9.9.1.2f) Tests at the temperature limits 9.9.2.1 Verification of the operating characteristic under overcurrent conditions - Test of time-(over)current characteristic 9.9.2.2 Verification of the operating characteristic under overcurrent conditions - Test of instantaneous tripping 9.12.11.4b) Test at service short circuit capacity above 1500A 9.15 Test of resistance to abnormal heat and to fire, glow wire test

Non-Compliances:

☐ Nuisance tripping	Fail blackspot test failure
☐ wire fuse rupture during fault current test failure	Fail to detect leakage current
☐ high voltage after fault current test failure	Fail to reset after fault current test



Regulator Actions

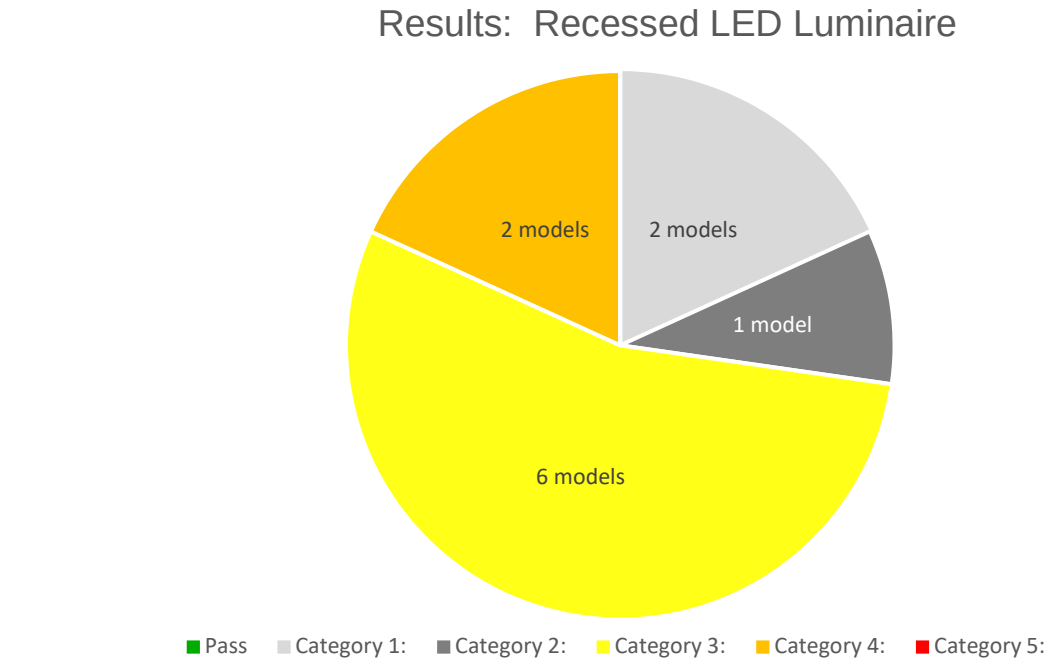
- Supplier informed to rectify
- Stop sale issued
- Testing identified inconsistency in application of test standard – raised with standards committee
- Recall

Recessed LED Luminaire

Equipment Type:	Recessed LED Luminaire	
Number Assessed:	**Standards**	**Clauses**
11	AS/NZS 60598.2.2 AS/NZS 61347.2.13	AS/NZS 60598.2.2 2.6 Marking 2.8 Creepage distances and clearances 2.13 Endurance tests and thermal tests 2.15 Insulation resistance and electric strength 2.16 Resistance to heat, fire & tracking AS/NZS 61347.2.13 14 Fault conditions 18 Creepage distances & clearances

Non-Compliances:

- Marking failure
- Thermal test failure
- High voltage test failure
- Resistance to heat failure



Regulator Actions

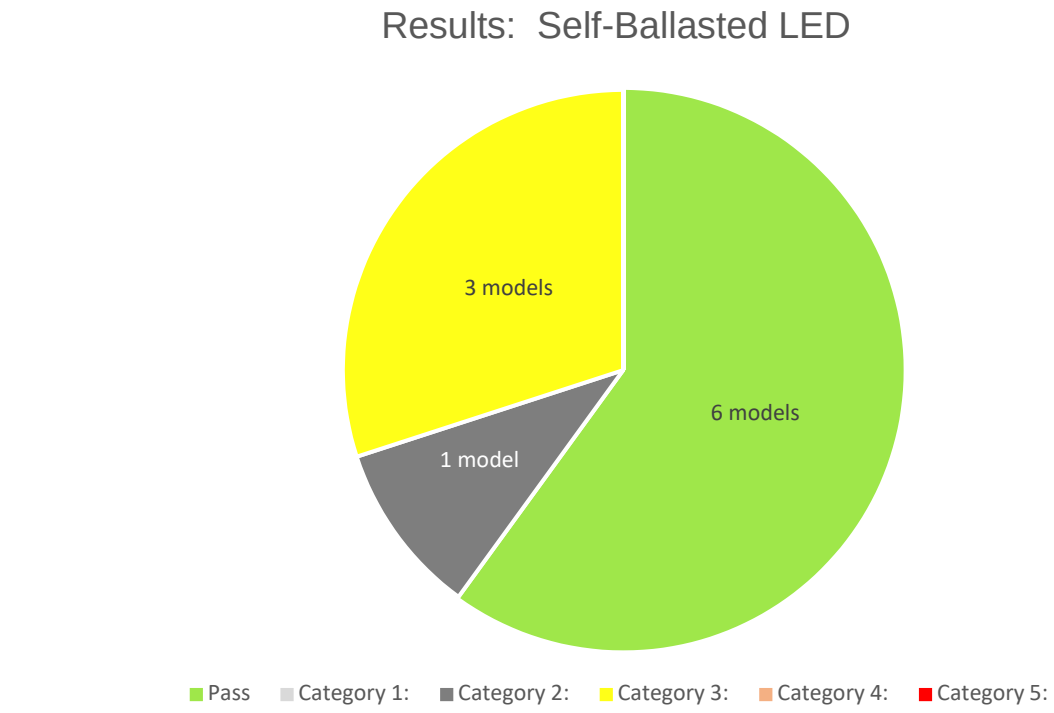
- Inform supplier to rectify (including quality assurance issues, multiple test facility testing, some samples pass, some samples fail)
- Stop sale issued
- Models flagged for retest and suppliers flagged for audits

Self-Ballasted LED

Equipment Type:	Self-Ballasted LED	
Number Assessed:	**Standards**	**Clauses**
10	AS/NZS 62560	8 Insulation resistance and electric strength 9 Mechanical strength 10 Endurance and thermal tests 12 Resistance to flame and ignition 14 Creepage distances and clearances (including Clause 14 Fault conditions of AS/NZS 61347.1) 15 Abnormal operation

Non-Compliances:

- Thermal test failure
- Axial strength of edison caps failure
- creepage distances failure
- clearances failure



Regulator Actions

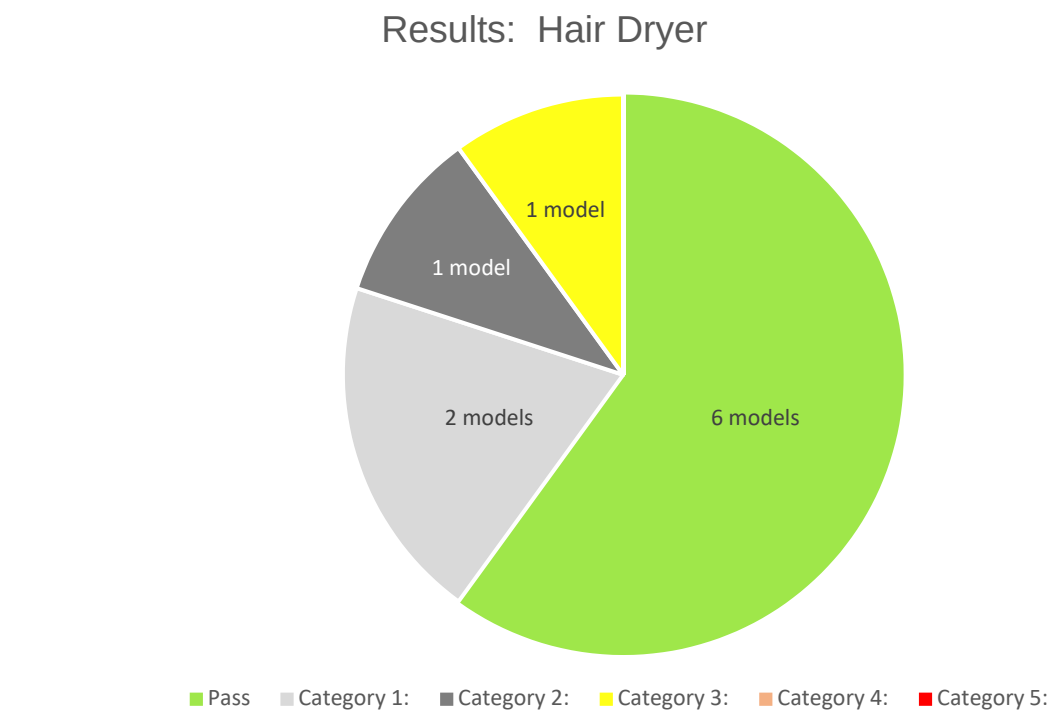
- Inform supplier to rectify
- Stop sale issued

Hair Dryer

Equipment Type:	Hair Dryer	
Number Assessed:	**Standards**	**Clauses**
10	AS/NZS 60335.2.23	11 Heating 13 Leakage current and electric strength at operating temperature 19 Abnormal operation 22 Construction 29 Clearances, creepage distances and solid insulation 30 Resistance to heat and fire

Non-Compliances:

- Heating test failure
- Failure of creepage distance
- Rated power failure



Regulator Actions

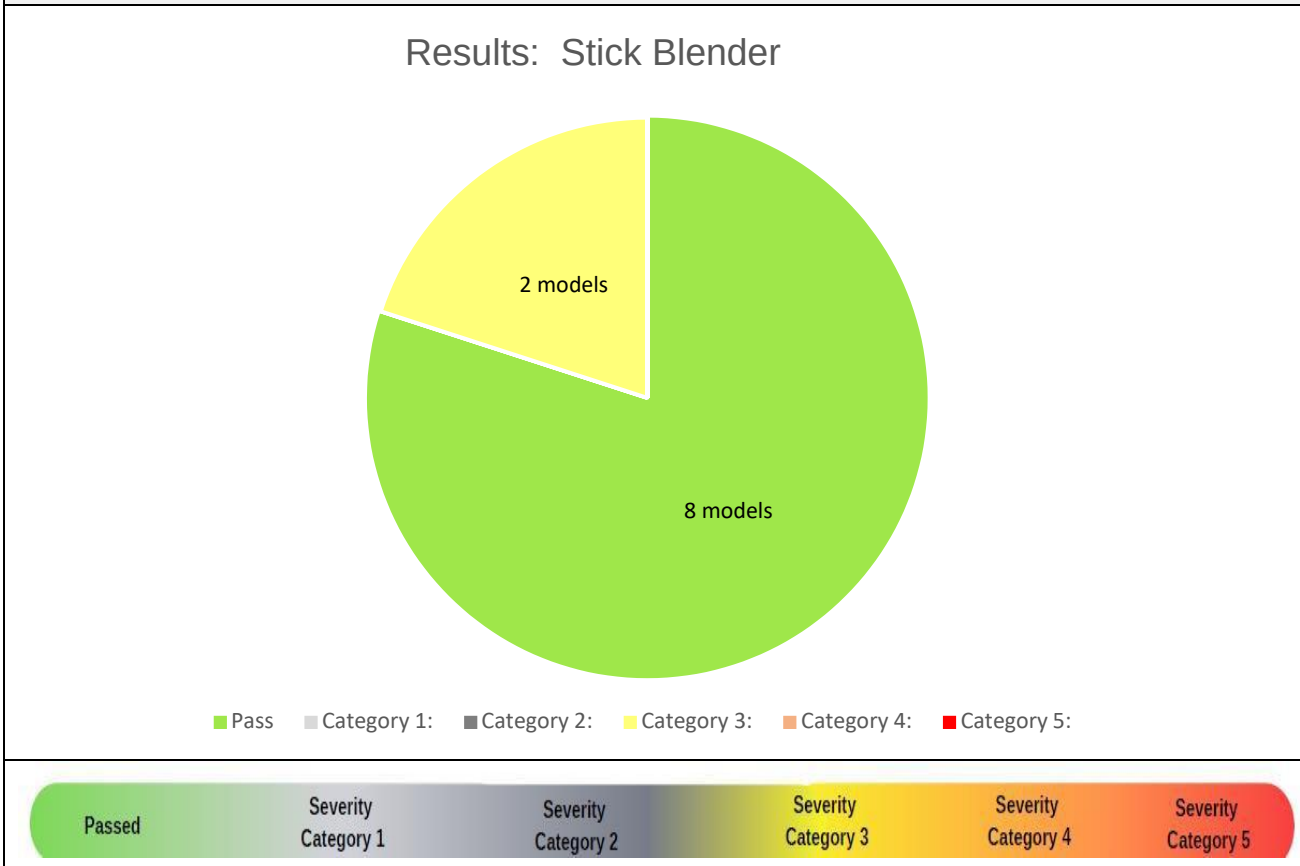
- Supplier informed to monitor (including quality assurance issues, multiple test facility testing, some samples pass, some samples fail)
- Models flag for retest
- Supplier informed and re-rated equipment

Stick Blender

Equipment Type:	Stick Blender	
Number Assessed:	**Standards**	**Clauses**
10	AS/NZS 60335.2.14	8 Protection against access to live parts 13 Leakage current and electric strength at operating temperature 25.14 Cord flexing

Non-Compliances:

- Cord flexing test failure



Regulator Actions

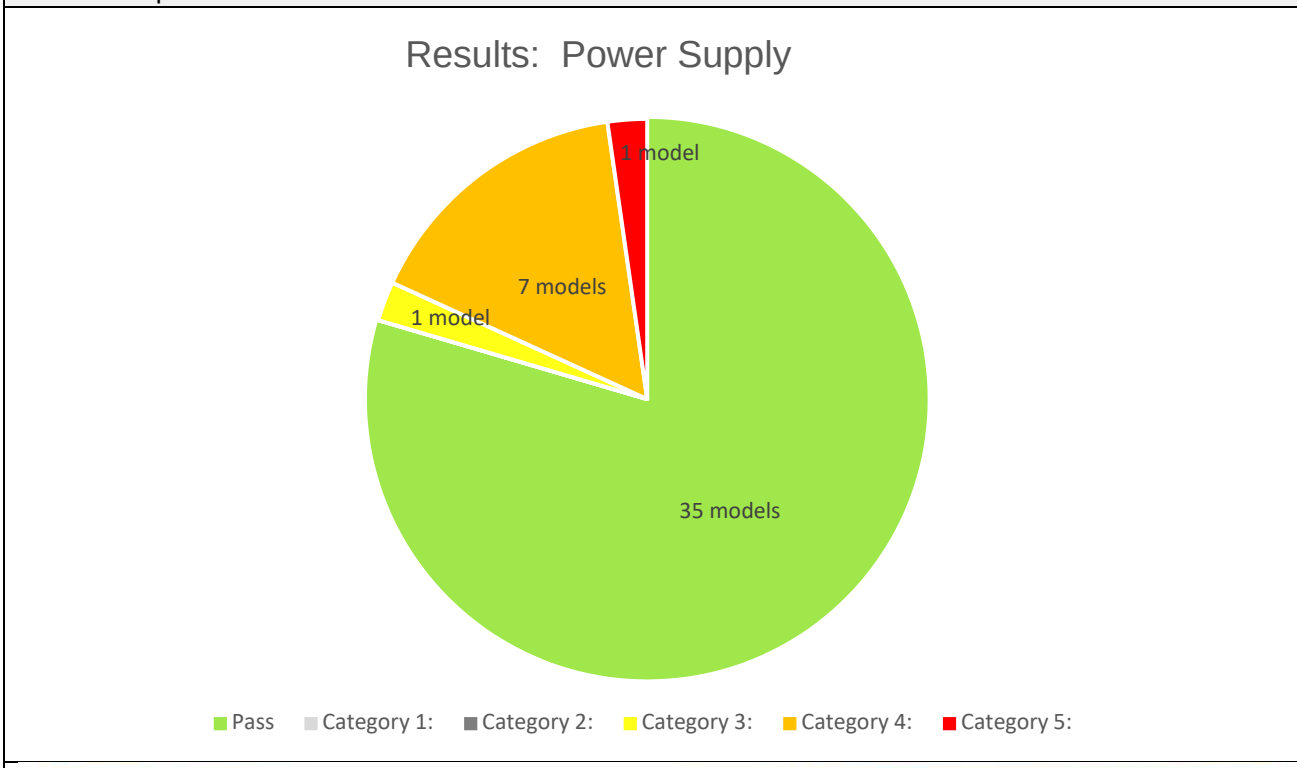
- Stop sale issued

Power Supply

Equipment Type:	Power Supply	
Number Assessed:	**Standards**	**Clauses**
44	AS/NZS 60950.1	2.10.3 Clearances 2.10.4 Creepage distances 4.2.4 Steady force test, 250N 4.2.5 Impact test 4.2.6 Drop test

Non-Compliances:

- creepage distance failure
- clearances failure
- drop test failure



Regulator Actions

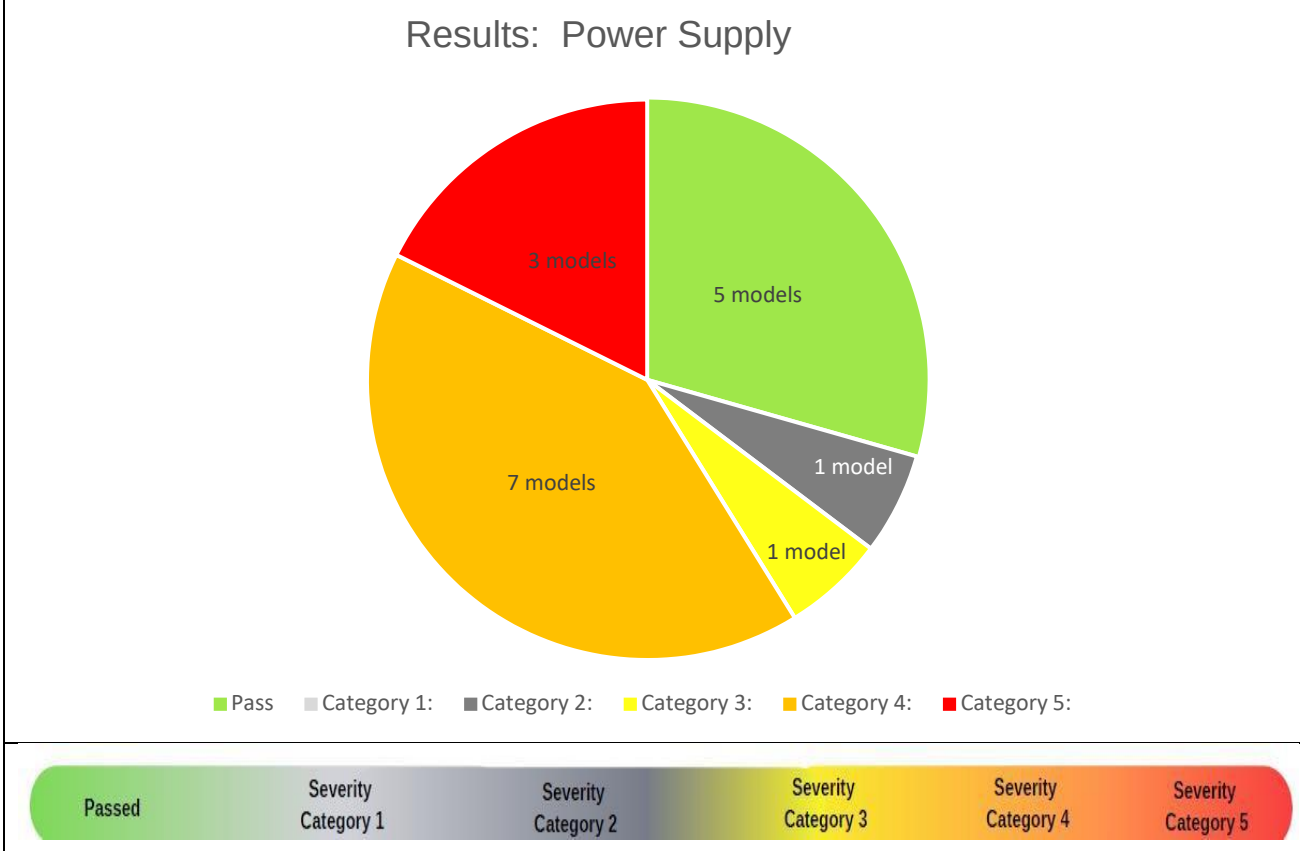
- Stop sale issued
- Supplier conducted recall
- Models flagged for retest
- Three models identified as counterfeit product (all severity category 4) – eBay suppliers no longer in existence

Plug Pack Power Supply

Equipment Type:	Power Supply	
Number Assessed:	**Standards**	**Clauses**
17	AS/NZS 3112	Appendix J (full assessment)

Non-Compliances:

- Access to live parts failure
- Ratings and dimensions for low-voltage plug portions failure
- resistance to heat failure
- tumble barrel test failure
- High voltage test failure
- Resistance to fire failure
- Required marking failure



Regulator Actions

- Stop sale issue
- Inform responsible supplier with request to rectify (monitor quality assurance issues – multiple tests some pass, some fail)
- Recall
- Models and suppliers flagged for retest