



Electrical Equipment Safety System

Check Testing Report

2019-2020

STANDING COMMITTEE OF OFFICIALS (SCO)

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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 2019 and June 2020.

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 manufacturers 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
- 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 check testing program for 2019-2020 focused 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.

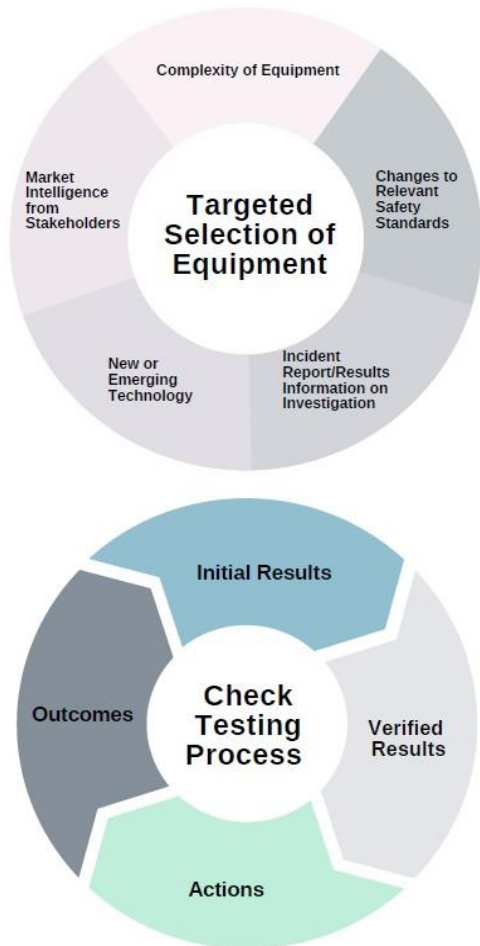
Testing included:

Building wire cables, DC Isolators, electric blankets, self-ballasted LED lamps, ceiling fans, electronic wall switches, mechanical air-break switches, and cord line switches (96 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 (and ageing on cables)
- 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.

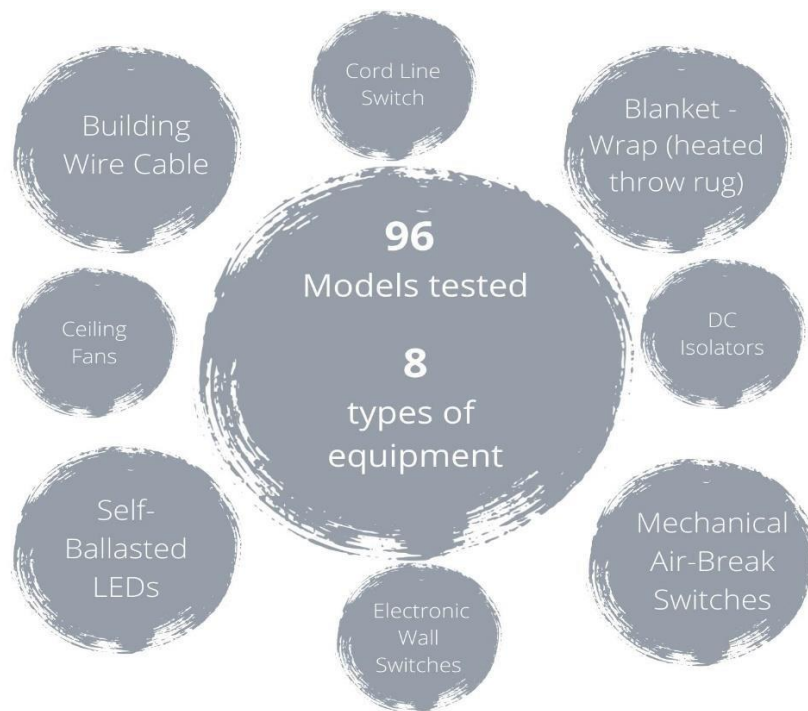
Passed	Minor non-compliance (e.g. failure of markings)	Medium non-compliance (e.g. failure of a safety related clause by a small margin that is within uncertainty /repeatability limits). Multiple minor non-compliances.	Mid-level non compliances. (e.g. clear failure to a safety related clause).	Major 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).
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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.

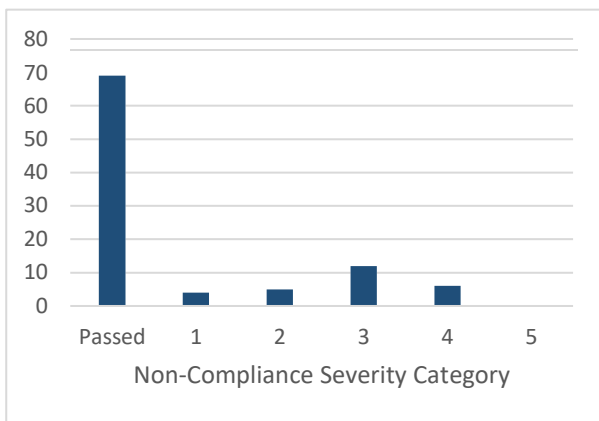


2019-2020 Check Testing Program



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.



0
Out of
96
Of the 96 models tested, there were no significant non-compliances reported (Severity category 5)

11
Out of
22
Self-ballasted LED lamps failed. (Two of two severity 4 equipment not registered. Five of nine severity 3 equipment not registered)

Highlights and Lowlights

Top Non-Compliance



100% fail for DC Isolators.
However, all non-compliances were marking or instruction related

Top Compliance



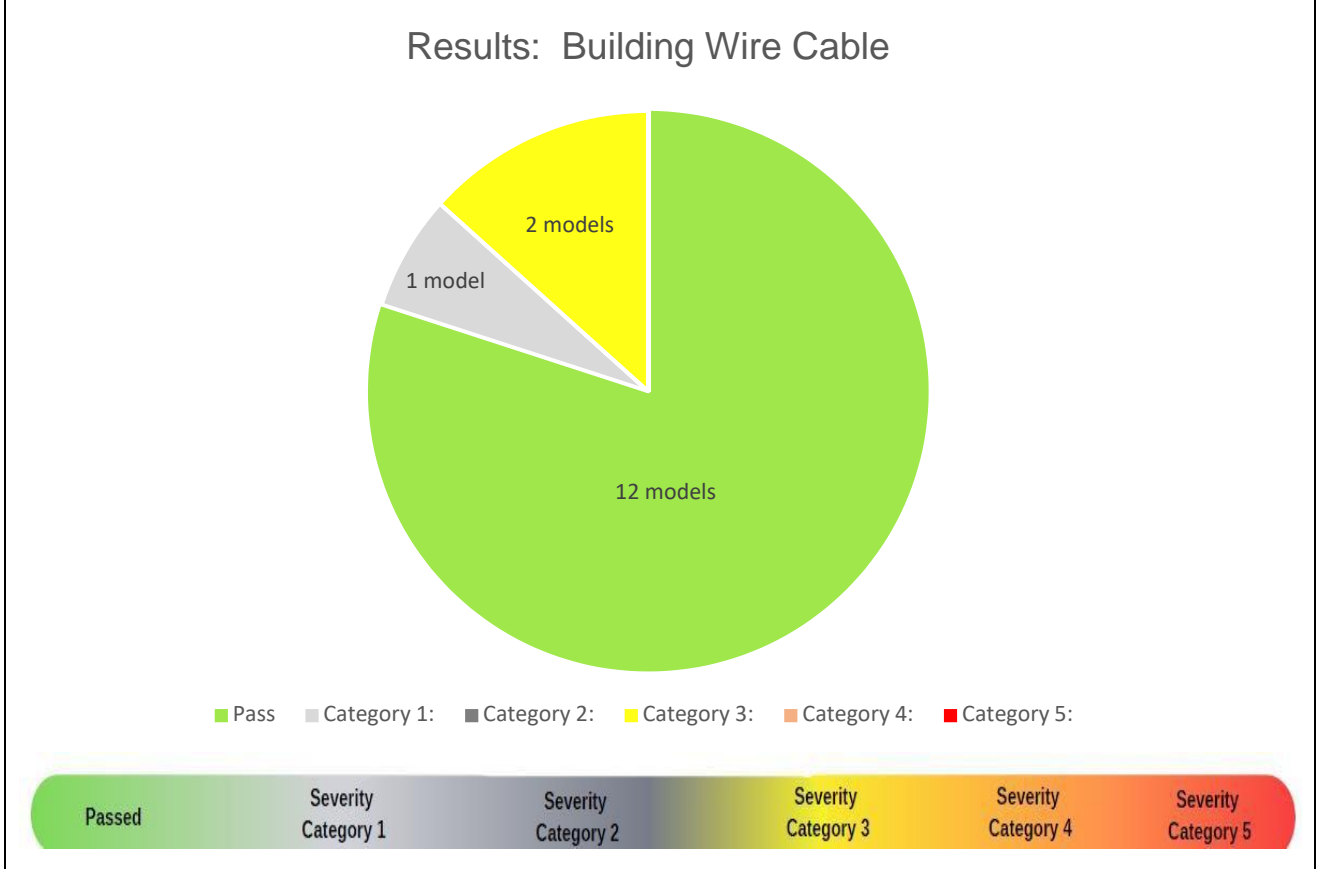
100% pass for Electronic Wall Switches

100% pass for Mechanical Air-Break Switches

Building Wire Cable

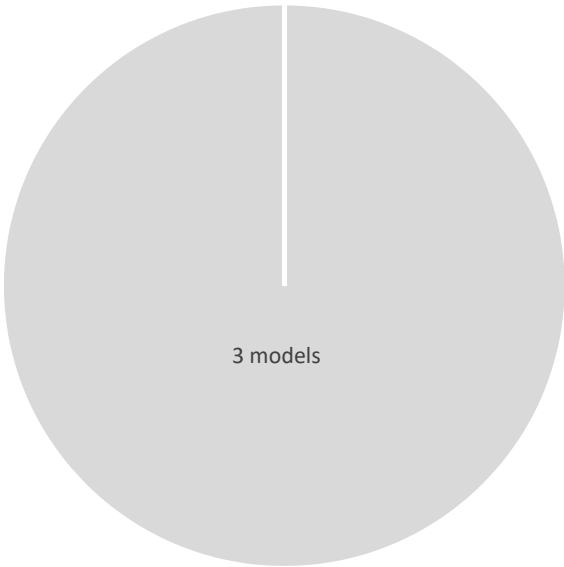
Equipment Type:		Building Wire Cable	
Number Assessed:	Standard:	Clauses:	
15	AS/NZS 5000.2 As/NZS 3808	AS/NZS 5000.2 table 3 test 2 - conductor resistance table 3 test 5 insulation thickness table 3 test 6 sheath thickness AS/NZS 3808 table 5 test A mechanical test without ageing on insulation table 5 test B mechanical test after ageing on insulation table 6 test C loss of mass on sheath table 6 test B mechanical test after ageing on sheath table 6 test C loss of mass on sheath	

Non-Compliances:
<ul style="list-style-type: none"> • Sheath material mechanical tests after ageing in air oven • Conductor resistance failure



Regulator Actions	
<ul style="list-style-type: none"> • Supplier informed – minor fail and supplier to monitor Quality Assurance issues 	
<ul style="list-style-type: none"> • Stop sale issued until supplier showed rectification - Supplier provided additional compliant test report 	

DC Isolators

Equipment Type:		DC Isolators	
Number Assessed:	Standard:	Clauses:	
3	AS 60947.3 Appendix ZZ	7.1.2.2 Glow wire testing 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:			
<ul style="list-style-type: none"> <input type="checkbox"/> Marking data not in required detail <input type="checkbox"/> Marking data not in required format <input type="checkbox"/> Required marking details not visible after mounting 			
<h3>Results: DC Isolators</h3>  <p>3 models</p> <p> <input type="checkbox"/> Pass <input type="checkbox"/> Category 1: <input type="checkbox"/> Category 2: <input type="checkbox"/> Category 3: <input type="checkbox"/> Category 4: <input type="checkbox"/> Category 5: </p> <div style="display: flex; justify-content: space-around; align-items: center; background-color: #f0f0f0; border-radius: 15px; padding: 5px;"> <div style="background-color: #4CAF50; color: white; padding: 5px 10px; border-radius: 10px;">Passed</div> <div style="background-color: #9E9E9E; padding: 5px 10px; border-radius: 10px;">Severity Category 1</div> <div style="background-color: #607D8B; padding: 5px 10px; border-radius: 10px;">Severity Category 2</div> <div style="background-color: #FFEB3B; padding: 5px 10px; border-radius: 10px;">Severity Category 3</div> <div style="background-color: #FF9800; padding: 5px 10px; border-radius: 10px;">Severity Category 4</div> <div style="background-color: #F44336; padding: 5px 10px; border-radius: 10px;">Severity Category 5</div> </div>			
Regulator Actions			
<ul style="list-style-type: none"> • Inform supplier to rectify 			

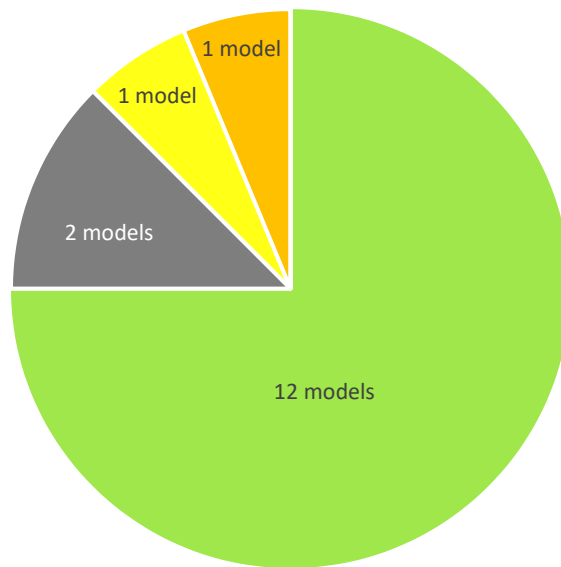
Blanket - Wrap (heated throw rug)

Equipment Type:	Blanket – Wrap (heated throw rug)	
Number Assessed:	Standard:	Clauses:
16	AS/NZS 60335.2.17	11.101 Heating - Risk of heatstroke 15.3 Moisture resistance - Humidity 15.101 Moisture resistance – Immersion in saline solution 16 Leakage current and electric strength 21.101 Mechanical strength – drop test on control unit 21.103 Mechanical strength – roller flexing 22.103 Construction – heating elements retained in position and no crossover points 25.14 Cord flexing 25.15 Cord anchorage 25.23 Interconnection cord 30.101 Resistance to heat and fire – resistant to ignition 30.102 Resistance to heat and fire – resistant to abnormal heat and to fire

Non-Compliances:

- ❓ Cord flex test failure
- ❓ Cord anchorage test failure
- ❓ Flexible heating wiring had cross over points

Results: Blankets - Wrap (heated throw rug)



■ Pass ■ Category 1: ■ Category 2: ■ Category 3: ■ Category 4: ■ Category 5:




Regulator Actions

- Informed supplier to rectify for quality assurance issues
- Stop sale issued

Self-Ballasted LEDs

Equipment Type:		Self-Ballasted LEDs	
Number Assessed:	Standard:	Clauses:	
22	AS/NZS 62560	8.2 Insulation resistance 8.3 Electric Strength 9 Mechanical Strength 10 Endurance and thermal tests 12 Resistance to flame and ignition 14 Creepage distances and clearances 15 Abnormal operation	
Non-Compliances:			
<ul style="list-style-type: none"> • electric strength test failure • Temperature test fail – accessible external surface & internal components • creepage distances failure • clearances failure 			
Results: Self-Ballasted LEDs			
<p>A pie chart titled 'Results: Self-Ballasted LEDs' showing the distribution of 22 models. The chart is divided into three segments: a large green segment representing 11 models that passed, a yellow segment representing 9 models in Category 3, and a small orange segment representing 2 models in Category 4. A legend below the chart identifies the colors: green for Pass, grey for Category 1, dark grey for Category 2, yellow for Category 3, orange for Category 4, and red for Category 5.</p>			
<p>A horizontal bar representing the severity scale. From left to right, it is divided into six colored sections: green (Passed), light grey (Severity Category 1), dark grey (Severity Category 2), yellow (Severity Category 3), orange (Severity Category 4), and red (Severity Category 5).</p>			
Regulator Actions			
<ul style="list-style-type: none"> • Stop sale issued 			

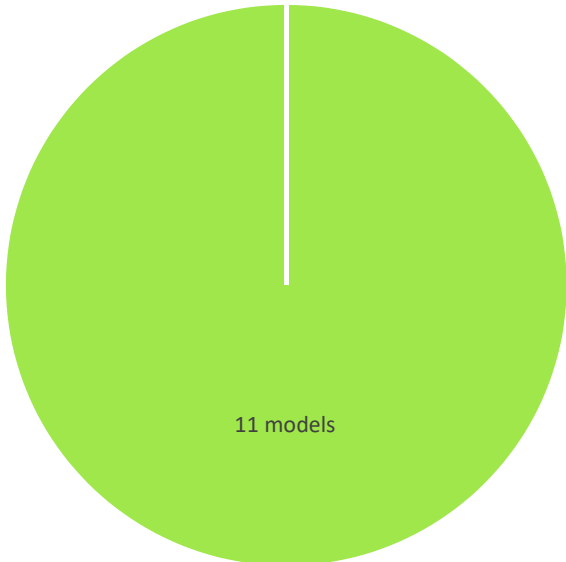

Ceiling Fans

Equipment Type:		Ceiling Fan
Number Assessed:	Standard:	Clauses:
10	AS/NZS 60335.2.80	8 Protection against access to live parts 11 Heating 19.7 Abnormal operation - Locked motor test 22 Construction (Mechanical stress tests on non-detachable parts and Suspension system test as applicable in standard at time of registration of the equipment) 27: Provision for earthing 30 Resistance to heat and fire (resistance to ignition and spread of fire)
Non-Compliances:		
<ul style="list-style-type: none"> Nil 		
<p>Results: Ceiling Fans</p>  <p>10 models</p> <p>■ Pass ■ Category 1: ■ Category 2: ■ Category 3: ■ Category 4: ■ Category 5:</p> <p>Passed Severity Category 1 Severity Category 2 Severity Category 3 Severity Category 4 Severity Category 5</p>		
Regulator Actions		
<ul style="list-style-type: none"> Nil 		

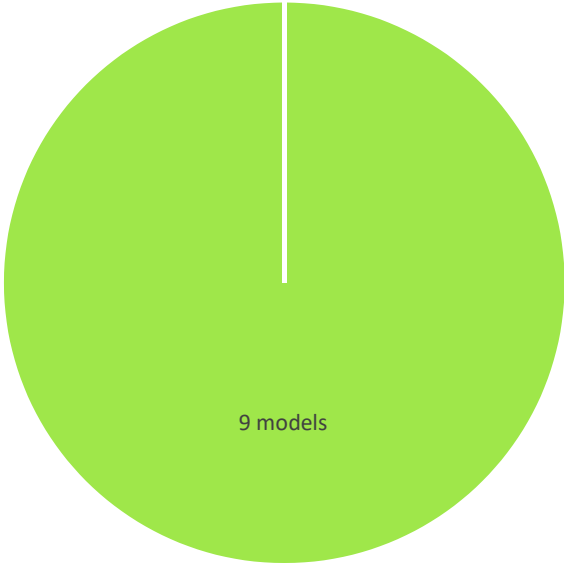

Cord Line Switches

Equipment Type:		Mechanical Air Break Switches	
Number Assessed:		Standard:	Clauses:
10		AS/NZS 3127	12.1 Compliance with AS/NZS 3133 12.2 Cord anchorage test 12.3 Resistance to fire test 12.5 Impact hammer test 12.6 Impact withstand test
Non-Compliances:			
<ul style="list-style-type: none"> Endurance test failure Resistance to fire test failure 			
<p>Results: Cord Line Switches</p> <p>■ Pass ■ Category 1: ■ Category 2: ■ Category 3: ■ Category 4: ■ Category 5:</p> <p>Passed Severity Category 1 Severity Category 2 Severity Category 3 Severity Category 4 Severity Category 5</p>			
Regulator Actions			
<ul style="list-style-type: none"> Advise supplier to rectify Stop sale issued Investigate certificate holder of cord line switch and Models flagged for retest 			

Mechanical Air Break Switches

Equipment Type:		Mechanical Air Break Switches	
Number Assessed:	Standard:	Clauses:	
11	AS/NZS 3133	3.1 general requirements of AS/NZS 3100 (Clause 8.8 Mechanical strength test) Table 1 test 2 High voltage test no. 1 Table 1 test 3 Endurance test Table 1 test 4 Temperature rise Table 1 test 5 High voltage test no. 2 Table 1 test 8 Determination of ignitability and combustion propagation Table 1 test 15 Fluorescent lamp load endurance test (where switch marked with fluorescent lamp load symbol) Table 1 test 16 temperature test Table 1 test 17 High voltage test no. 2	
Non-Compliances:			
<ul style="list-style-type: none"> nil 			
<h3>Results: Mechanical Air Break Switches</h3>  <p>11 models</p>			
<p> ■ Pass ■ Category 1: ■ Category 2: ■ Category 3: ■ Category 4: ■ Category 5: </p>			
			
Regulator Actions			
<ul style="list-style-type: none"> Nil 			

Electronic Wall Switches

Equipment Type:		Electronic Wall Switches	
Number Assessed:	Standard:	Clauses:	
9	AS/NZS 60669.2.1	16.2 Electric strength 17 Temperature rise 19.103 Semiconductor switching endurance 19.104 Mechanical control units incorporated in electronic switches endurance 20.1 Impact test 24.1 resistance to abnormal heat and fire	
Non-Compliances:			
<ul style="list-style-type: none"> Nil 			
<h3>Results: Electronic Wall Switches</h3>  <p>9 models</p> <p> ■ Pass ■ Category 1: ■ Category 2: ■ Category 3: ■ Category 4: ■ Category 5: </p>			
			
Regulator Actions			
<ul style="list-style-type: none"> Nil 			