



The University of Newcastle
Infrastructure and Facilities
Services
Test and Tagging Guidelines

17th January 2020



THE UNIVERSITY OF
NEWCASTLE
AUSTRALIA

Revision Required by: 18/12/2020					
Rev No.	Date	Description	Prepared by:	Checked by:	Approved by:
Draft	11/08/2017	Issued for Approval	R.Eyre	Tim Fox	M.Mazzitello
A	12/12/2017	Approved for Distribution.	R.Eyre	Tim Fox	M.Mazzitello
B	02/02/2018	Revise 4.7	R.Eyre	Tim Fox	M.Mazzitello
C	09/01/2020	Revise Section 4.7 and 4.8	R.Eyre	Tim Fox	M.Mazzitello

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1. Scope

The purpose of this document is to summarise how “Australian Standard AS3760:2010 In-Service Inspection and Testing of Electrical Equipment” applies to electrical equipment at the University of Newcastle. This document does not apply to electrical equipment used on a construction site, the test and tag of construction equipment is covered by AS3012.

This document is subject to an annual review to ensure compliance with current standard.

Test and tag for UON is managed by IFS (Infrastructure and Facilities Services). Contact IFS on 16500 or via email at 16500@newcastle.edu.au for any test and tag related issues.

2. Testing Frequency

Below are the test frequencies and determining factors.

2.1. Six Monthly Testing

The determining factor for equipment that requires six monthly testing is not the way the equipment is used or its construction, it is the environment in which the equipment is used.

Electrical equipment that is used in a factory, workshop, place of manufacture, assembly, maintenance of fabrication is to be tested every six months regardless of the manner in which it is used or its construction.

At UON areas that fall into this category include workshops in Engineering EB, EC, ED and physics. All buildings except NIER A and NIER C in the NIER precinct would also fall within this category. The list of areas above is not an exhaustive list, each area of UON should be considered individually to establish if the six monthly test applies.

2.2. Twelve Monthly Testing

The factors that determine the twelve monthly test and tag frequency include the way the equipment is used, the construction of the equipment and the environment in which it is used.

If the equipment or supply flexible cord is subject to flexing in normal use, the equipment requires twelve monthly testing. The ability to move a piece of equipment while it is plugged in does not necessarily dictate twelve monthly testing. If the equipment is typically moved and the cord is flexed while the equipment is being used, twelve monthly test and tag is required. Examples of this type of equipment are Lead Lights, Power Drills, Hair Dryers, and Clothes Irons etc.

This equipment requires more frequent testing as it is more likely to be subject to damage due to its regular movement and the equipment will likely be in the operators hand when a fault or equipment failure occurs increasing the chance of electrical injury.

In addition to the above, electrical equipment that is used in a hostile environment also requires testing every twelve months regardless of the manner the equipment is used or its construction. A hostile environment includes, but is not limited to an environment that may expose the equipment to mechanical damage, moisture, heat, vibration, corrosive chemicals, and dust.

At UON places that could be considered a hostile environment would include swimming areas of the Forum and various laboratories depending on the activities, equipment and the

environment within the lab. The list of areas above is not exhaustive and each area of UON should be considered individually to establish if the area would be considered a hostile environment.

2.3. Five Yearly Testing

The determining factor for equipment that requires five yearly test and tag is the way the equipment is used, the construction of the equipment and the environment in which it is used.

If the equipment does not have a flexible supply cord that is subject to flexing during normal use or operation and, does not fall under either of the two categories above, five yearly test and tag is sufficient for that equipment. The fact that a piece of equipment can be moved while being operated or used does not dictate a higher test and tag frequency. The typical use or operation of the equipment is what needs to be considered. Examples of this type of equipment are: Pedestal fans, desk top lamps, fridges, computer towers/screens.

The majority of the electrical equipment at UON will fall under this test frequency.

This equipment requires less frequent testing as it is not subject to damage due to regular movement and it is unlikely be in the operators hand when a fault or equipment failure occurs.

3. Exceptions to the above test frequencies

3.1. Accommodation

All electrical equipment within residential type areas of: hotels, institutions, motels, boarding houses, halls, hostel accommodation house and the like require a maximum two year test frequency.

This applies to all accommodation at UON. If equipment also falls within a more frequent testing requirement e.g. hand held hair driers, it must be tested at that higher frequency.

It should be clearly communicated to new students that all electrical equipment must be tested prior to use at UON.

3.2. Commercial Cleaning Equipment

All commercial cleaning equipment must be tested and tagged every six months.

The majority of cleaning equipment used at UON is owned by the cleaning contractor. It is the responsibility of that cleaning contractor to test and tag the equipment as per AS3670.

Any contract between UON and a cleaning contractor should contain a directive to complete the six monthly testing and an audit of the contractor should be completed periodically to ensure the testing is being done.

3.3. Hire or Loan Equipment Inspection

Any equipment that is hired out or loaned by UON must be inspected prior to every hire or loan event. No tag is required for this visual test. Tested and Tag frequency for hire or loan equipment is every three months. The three month test and tag frequency is appropriate as the conditions to which the equipment have been exposed are unknown by the owner of the equipment. While the equipment is on loan or hire, the responsibility to test and tag is with the holder of the equipment that is the hiree or loanee.

UON is responsible for the three monthly test and tag of any equipment under Hire or Loan to the University.

3.4. Kitchen Benchtop Appliances

All Kitchen Benchtop appliances that are free to be moved around the benchtop should be tested every 12 months regardless of the manner of use. Examples of these appliances are kettles, toasters, coffee machines, sandwich toasters, blenders, coffee grinders etc. Items that Do Not fall under this category are microwaves, fridges, Zip water boilers, plug in cookers or any other item that is mechanically fixed into position or over 18 kg.

3.5. Power Boards

Power Boards shall be tested every 5 years. Power boards and associated cords should be mounted off the floor, out of harm's way to prevent mechanical damage. Power boards should be mounted in a manner that ensures plugging or unplugging is done on the horizontal plain. If a power board or it associated cord is found in service, on the floor, they should be securely mounted out of harm's way, if this is not possible, the power board should be tagged "Out of Service" and left unplugged.

3.6. Construction and Demolition site equipment.

Construction Equipment test frequencies do not fall under AS3760. This equipment is addressed in AS3012. AS3012 states all "Transportable structures, fixed and transportable equipment and construction wiring including switchboards" shall be tested every six months and "Portable Equipment" shall be tested every three months. AS3012 should be referenced for any construction or Demolition site equipment.

4. Specific Items.

Below are items of equipment that often requires clarification with regard to test frequency. More frequent testing may be required depending on the location of the equipment and the environment in which it is housed.

4.1. Plug packs

These are the electronic power supplies that plug directly into the wall socket and typically provide power to a phone or tablet. The test and tag frequency on these devices is every five years as they are not being moved during normal operation. In addition, these devices do not have a flexible cord supplying the device that would be flexed during normal operation. They often have a flexible cord carrying "Extra Low Voltage" from the device. This does not dictate a higher test frequency.

4.2. Computer Towers and Screens

The test and tag frequency on these devices is every five years as they are not being moved during normal operation.

4.3. IEC Leads

These are the leads that typically plug into a Computer Tower, Laptop or Monitor. The leads are to be Tested and Tagged every five years as they are not being moved during normal operation.

Equipment that is supplied by an IEC lead shall have the IEC lead tested and the equipment being supplied by the IEC lead tested. The IEC lead shall be tested first, then that same lead shall be used to connect the device to the tester to complete the appropriate Class test for the equipment.

4.4. Extension leads

Extension leads are to be tested every twelve months as they are likely to be moved while they are being used and are often subject to damage.

4.5. Permanently install light fixtures

Often a permanently installed light fixture will have a 3 pin plug to connect it to the power source. These do not require any testing as they are more than 2.5 meters off the ground and do not come under the requirements of AS3760.

4.6. Laptop Power Supplies

Laptop power supplies can either be twelve monthly or five yearly test and tag depending on its use. If the power supply is connected to a docking station that is usually left in situ, the test frequency is five years. This type of installation has a five year frequency as it is unlikely to be moved during normal operation.

If the power supply is directly connected to a laptop and is subjected to being regularly plugged and unplugged, the test frequency is twelve months. The higher frequency is due to the increase risk from wear due to frequent connection and disconnection of the device and the higher likelihood of the device being in the operators hand when a failure occurs.

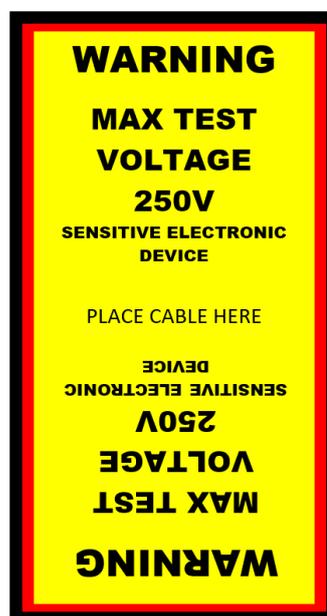
4.7. Bio-Medical Equipment

Medical device testing is a service that differs from standard electrical appliance testing, and requires the use of specialised Bio-medical test equipment for functional verification and electrical safety test. Safety test on Bio-Medical must comply with AS3551. Although the University of Newcastle have items of Bio-Medical equipment that would normally require specialised testing in accordance with AS3551, the equipment is for training purposes only and is not used on humans, and therefore, can be tested in the same manner as any standard appliance in accordance with AS3760.

Bio-Medical equipment as described above will be clearly marked "NOT FOR HUMAN USE".

4.8. Sensitive Equipment

Some of the equipment used at the University is very sensitive and cannot be tested using a standard appliance tester. This sensitive equipment will be tagged with a warning tag placed on the flexible supply lead, adjacent to the appliance test tag. An example of the sensitive equipment tag is shown below. If the tag below is attached to an item, that item should only be tested at the appliance/equipment rated voltage. Alternatively, if a tester is not available at the rated voltage of the appliance/equipment, and the appliance/equipment is stationary, a standard earth test and visual inspection can be completed as per Clause 1.2.3 (b) of AS3760.



It is the responsibility of the equipment owner to highlight the need for a sensitive equipment tag and place that tag on the relevant equipment. Tags can be obtained through IFS (Infrastructure and Facilities Services).

4.9. New Equipment

In Australia, when equipment is new, the supplier is deemed to be responsible for the initial electrical safety. New Equipment should be inspected for obvious damage. An initial “New to Service” tag can be placed on a device by the owner, person responsible for the equipment or other “Competent Person”.

Unless the equipment item is listed in Appendix B, the “New to Service” tag is valid for a maximum of one year. The test and tag Competent Person who replaces the “New to Service” tag will establish the new test frequency for the equipment and advise there UON representative of the new equipment and test frequency. Any 12 month “New to Service” tag shall be replaced with a standard tag when it is first encountered by the test and tag Competent Person, regardless of the retest date on the tag.

5. Testing

The actual tests to be conducted on the above equipment should be as per AS3760 however it should be noted that AS3760 states the following.

"Where the flexible cable or flexible cord is flexed on equipment which is moved only for restocking, maintenance or, cleaning, for example, in-service testing is required. For such fixed equipment or stationary equipment it is sufficient, for the purposes of this Standard, to do a visual inspection and earth test only since insulation testing requires disconnection"

This means, if UON has equipment such as fridges, freezers, test equipment or any other equipment that is disruptive to disconnect, a visual and earth test only can be conducted. There is no need to disconnect the equipment from the power supply for these tests. Fixed equipment means mechanically fixed in place. Stationary equipment is equipment over 18kg.

Appendix A.

Type of environment and/or equipment	Interval between inspection and tests				
	Equipment including Class I equipment, Class II equipment, cord sets, cord extension sets and EPODs	Residual current devices (RCDs)			
		Push-button test – by user		Operating time and push-button test	
(a)	(b)	Portable (c)	Fixed (d)	Portable (e)	Fixed (f)
1 Factories, workshops, places of manufacture, assembly, maintenance or fabrication	6 months	Daily, or before every use, whichever is the longer	6 months	12 months	12 months
2 Environment where the equipment or supply flexible cord is subject to flexing in normal use OR is open to abuse OR is in a hostile environment	12 months	3 months	6 months	12 months	12 months
3 Environment where the equipment or supply cord is NOT subject to flexing in normal use and is NOT open to abuse and is NOT in a hostile environment	5 years	3 months	6 months	2 years	2 years
4 Residential type areas of: hotels, residential institutions, motels, boarding houses, halls, hostels accommodation houses, and the like	2 years	6 months	6 months	2 years	2 years
5 Equipment used for commercial cleaning	6 months	Daily, or before every use, whichever is the longer	N/A	6 months	N/A
6 Hire equipment: Inspection	Prior to hire	Including push-button test by hirer prior to hire		N/A	N/A
Test and tag	3 months	N/A		3 months	12 months
7 Repaired, serviced and second-hand equipment	After repair or service which could affect electrical safety, or on reintroduction to service, refer to AS/NZS 5762.				
8 Equipment used on Construction and Demolition Sites. * Refer to AS3012	Fixed Equipment.	Portable Equipment.		N/A	N/A
	3 months	6 months			

Appendix B

1. IEC Leads
2. Desktop workstations.
3. Monitors.
4. Media Converters.
5. Rack mounted power supplies.
6. Modems.
7. Router.
8. Bridge.
9. Repeater.