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# Test and Tag Safety Services - What We Do:

## Our Services:

### Commercial / Industrial

- Electrical Appliance testing & tagging
- Electrical thermal imaging (Thermography)
- RCD Testing – single and three phase
- Appliance testing of 3 phase equipment
- Electrical equipment risk assessment
- Light (LUX) level metering
- Microwave oven emission and efficiency testing
- Emergency and exit light testing
- Re-lamping

### Domestic

- Electrical appliance testing & tagging
- RCD (Safety switch) testing
- Electric blanket testing & scan
- Domestic smoke detector test and battery replacement
- Re-lamping

### General

- Minor repairs done on site
- After hours service available
- Competitive rates
- Reminder service for “Next Test Due Date”
- Electronic log book asset register
- Fully licensed “A” grade electricians
- Prompt courteous service



# Electrical Appliance Test & Tag

*Test and Tag Safety Services* are dedicated to providing you with the best service to make you totally compliant with testing and tagging. We will test all of your appliances to the Australian Standard and perform all other necessary tasks such as record keeping as is required by the Australian Standard. *Test and Tag Safety Services* uses a unique electronic data capture system. This system allows us to perform fast and accurate data capture. This means that we can perform up to three times as more work than hand written record keeping systems. This speed means less interruption to the daily routines of you and your staff members.

Once an appliance has passed its tests it shall have a barcode placed next to the male plug of the flexible lead, this barcode correlates to data that is kept on our database. We will then apply a test tag next to the barcode. This test tag shows that the appliance has been tested and is therefore ready for use.

Safety of your staff members and clients is paramount, which is why we have put in place a strict set of guidelines we follow. Whenever we find an appliance that has not passed inspection the appliance shall be marked accordingly with a failed tag and wherever possible physically removed from service and given to an appropriate member of your staff. We are trained professionals, we are experienced in relation to testing and tagging and know exactly what is required of us to ensure our customers gain compliance and are satisfied with the quality of our work. As well as being well trained in the field of electrical testing, you will find us to be very polite and understanding of your employees and customers needs.

Should you require it, once we have completed your testing and tagging, you can be supplied with a complete listing of your items. This register will include all information as required by AS/NZS 3760:2003. You can also be supplied with a certificate of compliance that states the appliances at your site have been tested.

Newly purchased items do not need to be tested, but simply tagged to indicate when they required to be tested next.

- Red Jan - Mar
- Green Apr - Jun
- Blue Jul - Sep
- Yellow Oct - Dec
- Orange 6 Monthly Jan - Jun
- White 6 Monthly Jul - Dec
- Black Annually
- Grey 2 Yearly
- Burgundy 5 Yearly



## What Does Test & Tag Involve?

The process of testing involves the following:

**Visual Inspection:** The most important test is a visual inspection of the device, especially leads. Cords should be firmly anchored in plugs, connections made solidly with no frayed ends. Copper terminals should be clean and not pitted.

**Electrical Testing:** The appliance will be tested with various test equipment to test for any unseen electrical faults. These tests include; an insulation resistance test; earth continuity, earth routine or earth bond test; a polarity test; and an earth leakage test.

**Record Keeping:** Although the AS/NZS 3760:2003 does not refer to record keeping upon completion of any test, various codes of practices refer to this. In spite of this we recommend all information be recorded comprehensively, whether in a database or by hand in a log book.

**Tags:** A safety tag must be placed on the appliance verifying its safe approval. This tag must clearly display:

- The name of the tester or test companies
- The date tested, or retests date
- Asset Id
- Test Results
- Date Tested
- Retest date
- Asset Description
- Serial Number The integrity of electrical appliance assets is determined by subjecting each asset to testing as required by the standard.

Using the latest test equipment, we carry out the following testing procedures, including:

- Physical inspection
- Insulation Tests
- Earth Circuit Test
- Continuity Test
- Functionality Test
- Run / Leakage Test
- Polarity wire Test
- Visual Inspections Include As per (AS/NZS 3760:2003)
- Check for obvious external damage
- Check defects-accessories, plugs or socket outlets
- Check defects on connectors
- Check supply cords
- No exposed inner cords, external sheath not cut abraded or damaged
- Check cords are not tangled or exposed for tripping
- All flexible cords are securely anchored and
- Power boards: Indicator for 'maximum load' is visible and legible

All electrical assets are tested and tagged with an identifiable bar code for continual identification purposes. All data collected, including location and test results is integrated into a centrally administered database and we can present all data in both electronic and print format. Ownership of all data collected (legal responsibility) will be that of our clients. The asset register and test certificates will include the following information:

- Appliance bar code identity
- Description / serial number (if required)
- Inspection Test Date
- Next Inspection Test Date
- Results of Inspection / Test

# Electrical Infra-Red Thermal Imaging (Thermography)

Electricity can cause heat as it travels through your wiring. Sometimes where high resistance joints and circuit overloading is present this heating can become excessive and potentially lead to a hazardous situation where an electrical fire may start. This is not only an issue due to the potential destruction from fire, but also due to the downtime caused by no power supply.

*Test and Tag Safety Services* are able to perform preventative maintenance to prevent this occurring. Our fully qualified electricians can thermally inspect your distribution boards to seek out any hotspots before they become a problem.

If any problems are found, our electricians are on site to take immediate action if required to prevent any possible electrical system failure or at worst, fire damage. Surveys of electrical systems can expose faults such as poor connections, overloaded circuits and imbalanced loads. Alternating current often loosens connections which in turn causes breakdowns. In today's industry, downtime is expensive, in terms of plant downtime, idle workforce and customer service. There is a further cost of repairs to be factored-in and potential damage caused by electrical fires which may result of electrical faults. The reason that Thermal Imaging is so applicable to the inspection and monitoring of electrical installations is that new electrical components begin to deteriorate as soon as they are installed.

Wherever the loading of a circuit, vibration, fatigue and age cause the loosening of electrical connections, while environmental conditions can hasten their corroding. Briefly stated all electrical connections will, over time, follow a path towards failure. If not found and repaired, then these failing connections will lead to faults. Fortunately a loose or corroded connection increases resistance at the connection and this increased resistance causes an increase in heat.

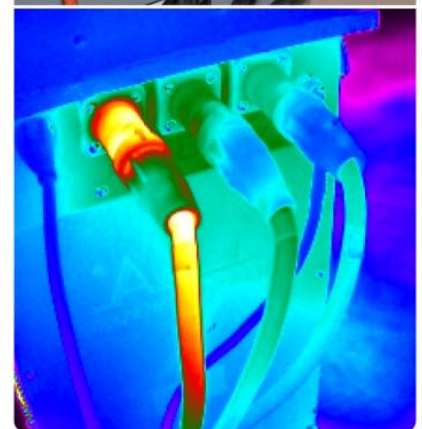
Electrical thermal imaging will detect this developing fault before it fails. Thermography is used as a proactive diagnostic tool, which allows the detection of developing faults, before they cause system failure or worse problems such as an electrical fire. Thermal imaging measures the radiant heat pattern which is emitted from electrical components in systems such as building power distribution or plant equipment.

## Benefits of Thermography

- Reduce likelihood of blackouts and system failures
- Reduce likelihood of productivity downtime
- Reduce likelihood of electrical fire
- Increase safety of staff, visitors and customers

## Cost Savings

- Replace only faulty components, rather than whole sections of a system
- Reduce unexpected maintenance costs
- Schedule proactive maintenance, rather than pay additional costs for emergency or unscheduled repairs.

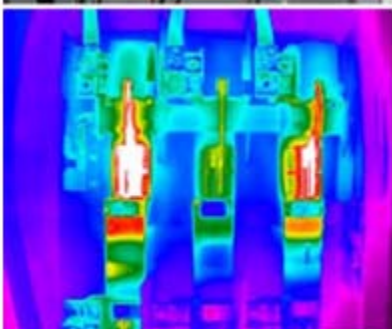


## What Electrical Distribution Equipment Should Be Checked?

- Utility substations, transformers and feed poles
- Main incoming services, plant main knives, capacitor banks, etc
- Main switchboards and disconnects
- Main distribution panels and main disconnects
- Uninterruptible power supplies
- Generator controls and transfer switches
- Main I-Line panels
- Lighting and receptacle panels
- Disconnects and combination starters
- Service disconnects for motors
- Machine control panels

## Test and Tag Safety Services provides:

- Services provided by licensed “A” grade electricians.
- Record of testing for your OH&S documentation.
- Re-test reminder service.
- Availability of after-hours and weekend services.
- On site repairs and maintenance – Should you require it.



## **RCD (Safety Switch) Testing**

A Residual Current Device (RCD), also known as a Safety Switch is a device located in the distribution boards of most sites. Just like your portable appliances, occupational health & safety act 2000 and occupational health & safety regulation 2001 requires that you test your RCDs to ensure that they are working correctly.

As part of our testing procedure we will test your RCDs and perform data capture to the Australian standard - AS/NZS 3760:2003.

We will perform both a "push button" and millisecond test to ensure that these devices are functioning within appropriate standards. The information from these tests shall be recorded and reported to you along with your appliance testing and tagging information.

These devices are designed to save lives, if you have gone to the effort to have these life saving devices installed in your workplace it only makes sense to ensure they work!

## **Light (LUX) Level Metering**

Poor light levels can be an Occupational Health and Safety concern causing problems for workers.

Eyestrain, general vision problems and headaches can all be caused from poor or defective lighting.

*Test and Tag Safety Services* are able to perform Light (LUX) level metering on your site taking multiple readings to give you an overall idea of the quality of the lighting systems at your site. Whilst inspecting the site, we are also able to pin point any specific problems on site that may require attention to prevent any problems with your workers.

On completion of the metering service a full report including general lighting information, raw data from the metering service as well as any recommendations for improving your lighting system will be presented.

## **Microwave Oven Emission and Efficiency Testing**

Even though there is no legal requirement for testing radiation leakage of microwave ovens in the work place, for those that are looking for that extra piece of mind *Test and Tag Safety Services* are now happy to offer the service of microwave oven leakage testing to our clients.

Not only will we ensure that your microwave ovens on site do not pose a threat of electric shock to you and your co-workers but we can also check that the unit is not leaking any potentially harmful radiation. We will inspect the unit for any obvious physical damage and then use a radiation leakage detector to ensure that any emissions are not excessive.

## **Emergency and Exit Light Testing**

In the case of an electrical failure or other emergency, it is imperative the emergency and exit lighting systems in your site are working 100% so that people may safely and quickly make their way out of the site.

*Test and Tag Safety Services* are able to perform on site testing of your emergency and exit light systems to Australian Standard 2293.2 (See table below) to ensure that in case of emergency these systems are fully functional. As we employ fully qualified electricians we will not only be able to identify faults within your system but rectify them as well.

## Emergency and Exit Light Testing - Australian Standard 2293.2

<b>Indirect systems</b>				Reflectance check of all reflecting surfaces Directional beams not directed in eyes of personnel
AS/NZS 2293.2 1995	Single point system	6 & 12 monthly test	Cleaning	Clean all light emitting and reflecting surfaces of luminaries and exit signs
			Luminaries/exit signs	Visual check to ensure correct relationship to the normal lighting in the designated area: Either a) time delay for units to accommodate re-strike of normal lighting b) installation of normal lighting which provides immediate lighting
			Battery replacement	Replace all cells in pack Replacement batteries shall be of the same type and ampere hour rating Discharge test shall be conducted as per 3.2.2 for 120 minutes

Code details	Type of System	Testing interval	Equipment/installation	Specific requirements
AS/NZS 2293.2	Single point system	6 monthly test No interruption to supply 16 hours prior to test	System check -manual discharge	Turn off battery charger/simulate mains failure Conduct discharge at 100% of system load Test to continue for 90 minutes Log all defective lamps Log battery charger operation indicator
			System check -automatic discharge	Visual check of the operational status of all luminaries and exit signs by means of the indications given at the controller/indicator panel Repair/replace units which failed the test Log the due date for the next test
<b>Indirect systems</b>				Reflectance check of all reflecting surfaces Directional beams not directed in eyes of personnel
AS/NZS 2293.2	Single point system	12 monthly test No interruption to supply 16 hours prior to test	System check -manual discharge	Turn off battery charger/simulate mains failure Conduct discharge at 100% of system load Test to continue for 90 minutes Log all defective lamps Log battery charger operation indicator
			System check -automatic discharge	Visual check of the operational status of all luminaries and exit signs by means of the indications given at the controller/indicator panel Repair/replace units which failed the test Log the due date for the next test



## Re-Lamping

Suffering from eyestrain or other vision problems? *Test and Tag Safety Services* are able to give your lighting system a complete revamp to ensure that your workers have adequate lighting for the tasks they are performing.

Over time lighting can become ineffectual for many reasons (dirty diffusers etc), this can lead to poor lighting in your workplace.

*Test and Tag Safety Services* are able to rectify these faults whether they are as simple as cleaning and replacing damaged diffusers, supplying new light bulbs, or the installation of new lighting fixtures as required.

## Smoke Detector Test and Battery Replacement (Domestic)

Checking your smoke alarm periodically is of absolute importance to the safety of you and your family. But testing your smoke alarm involves more than just testing or changing the battery, which is usually what you are testing when you "push" the test button on your smoke alarm. For complete peace of mind, *Test and Tag Safety Services* can perform a safety inspection and test of all the smoke alarms in your premises.

The *Test and Tag Safety Services* smoke alarm test includes:

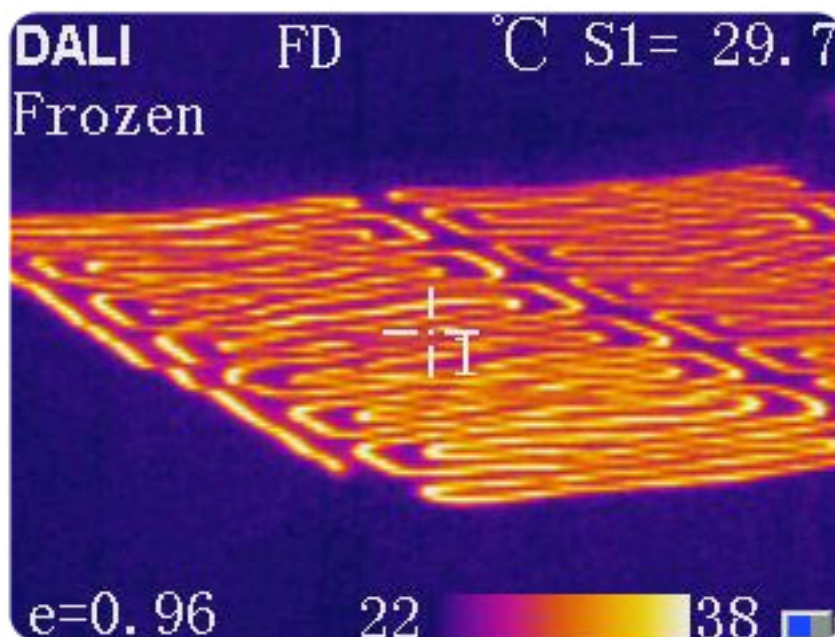
Spraying the unit with a special spray ensuring the unit will detect smoke in the event of a fire;

Cleaning the unit to ensure it is free from debris;

Replacement of the internal battery

## Electric Blanket Testing

Best practice suggests an electric blanket should be tested every three years and therefore this further compounds the need for regular blanket testing days. We will carry out both visual and electrical testing of blankets and are conversant with the relevant International Standards and any subsequent protocol changes. *Test and Tag Safety Services* carries all the latest test equipment for testing electric blankets and will perform leakage tests as well. We also take and infra-red scan of the blanket to ensure the heating element has not become undone or tangled within the blanket.



## LEGAL REGULATIONS TEST AND TAG REGULATIONS WESTERN AUSTRALIA

Regulation 4.37 of the Occupational Safety and Health Regulations 1996 places an obligation on a person who is an employer, a main contractor, a self employed person, a person having control of a workplace or a person having control of access to a workplace, to 'ensure that plant at the workplace is subject to appropriate checks, tests and inspections necessary to reduce the risk of injury or harm occurring to a person at the workplace.

An electrical testing and tagging regime for electrical equipment is the way to demonstrate compliance with the above regulation.

The following licensing requirements apply when testing electrical appliances and equipment in workplaces other than construction sites:

### **Electrical Testing using a plug-in tester:**

When testing is carried out by plugging equipment into a commercially available 'plug-in' PAT testing device, the person conducting the testing need not hold any electrical license and may fix the appropriate tag. Note that if the equipment is found to be defective, it can only be repaired by an appropriately licensed electrician.

### **Electrical Testing using electrical test instruments:**

Where testing is carried out using an instrument with hand-held probes or clip-on leads, such as an insulation resistance meter and the equipment needs to be partly dismantled, then the person performing the testing must hold an 'A' grade electrical mechanic's or electrical fitter's license or a restricted electrical license endorsed with the 'scope of work' relevant to the type of equipment being tested.

## **Construction sites**

Regulation 3.61 of the Occupational Safety and Health Regulations 1996 specifies that electrical installations, appliances and equipment on construction sites must comply with Australian New Zealand Standard AS/NZS 3012:2003 "Electrical Installations – Construction and demolition sites". Clause 3.6 of AS/NZS 3012:2003 specifies that electrical equipment shall be inspected and tested in accordance with AS/NZS 3760:2003 "In-service safety inspection and testing of electrical equipment". Regulation 3.62 of the Occupational Safety and Health Regulations 1996 requires that persons who test and place their license number on the tag must be electrical workers as defined in the Electricity (Licensing) Regulations 1991. The electrical worker must be the holder of either an 'A' grade electrical mechanic's or electrical fitter's license or a restricted electrical license endorsed with the 'scope of work' relevant to the type of equipment being tested.

## **Mine sites**

Regulation 5.27 of the Mines Safety and Inspection Regulations 1995 specifies that portable apparatus normally used in heavy operating environments must be examined, tested and tagged quarterly. The electrical licensing requirements for persons who carry out the testing at mine sites are the same as for "workplaces other than construction sites" above. In all cases, if the equipment or appliance requires dismantling or repair, only the holder of an electrical mechanic's or electrical fitter's license or a restricted electrical license endorsed with the 'scope of work' relevant to the type of equipment being dismantled or repaired, may carry out the necessary electrical work.

## **Advice to Employees**

Electrical testing and tagging of all portable appliances as per AS/NZS 3760:2003 should now be the norm in all workplaces. If this is not the case in your workplace, you as an employee should approach your employer and request that this be done as soon as possible. If it is not done, then the employer is breaching his/her duty under Regulation 4.37 of the Occupational Safety

### **What Equipment needs to be tested?**

Any appliance within a business that has a flexible cord that plugs into either a single phase 240V power outlet or 3 phase 415V power outlet needs to be tested regularly to ensure that the appliance is electrically safe to use within the workplace. These appliances include anything from computers to toasters, or drills and other tools to factory machinery. Any appliance within the workplace that is under 16kg or is over 16kg but has a carry handle (which makes it portable), needs to be tested, and continue to be tested in order to adhere to Occupational Health and Safety regulations, and comply with Australian Standards AS/NZS 3760:2003.

### **Occupational Health & Safety Requirements**

Occupational Health and Safety Act 2004 No.107 requires that all enterprises provide for their employees a safe workplace.

Legislation states that an Employer shall maintain a safe working environment without risk to health. It is every Employer's responsibility to ensure that all electrical appliances such as Computers, Printers, power boards, extension leads, power tools, etc are regularly tested and tagged.

*Are you Compliant?*

Links to OH & S sites - Western Australia:

<http://www.commerce.wa.gov.au/WorkSafe/>

<http://www.docep.wa.gov.au/EnergySafety/>

AuSafe OH&S

<http://www.ausafeohs.com.au>

## **Australian Standards: AS/NZS 3760: 2003**

The AS/NZS 3760: 2003 is document written by Australia and New Zealand Standards that specifies the procedures and criteria for the in-service safety inspection and testing of electrical equipment which is designed for connection by a flexible cord. It also applies to cord extension sets, portable outlet devices, and portable residual current devices.

This standard outlines the testing procedures for Class I (earthed) appliances and Class II (double insulated) appliances.

***Tests that should be performed are as follows:***

### **1. Visual Inspection**

The most important test is a Visual Inspection of the device, especially its leads. Cords should be firmly anchored in plugs, connections made solidly with no frayed ends. Copper terminals should be clean and not pitted. There should be no sign of heat or melting of plugs. Leads should be visually inspected for their entire length to ensure that there are no cuts, cracks or breaks. This test alone represents 80% of the testing process.

### **2. Polarity**

A Polarity test is done on leads, power boards, etc, and is functional check that Active, Neutral and especially Earth are not incorrectly wired.

### **3. Insulation Resistance**

This test is important on appliances which come in contact with water such as pumps, cleaning and cooking appliances etc, but must be performed on all items. This will reveal if there are any hairline cracks or cuts in the lead which will result in a low insulation resistance. The resistance is measured at 500V or 250V with appliances with MOVs (surge protectors) between active and neutral to earth. No less than 1M ohm resistance should be measured form live parts to exposed metal.

### **4. Earth Resistance**

This test will ensure that a class I appliance has a low resistance earth connected to any external metal No greater than 1 ohm resistance should be measured from the earthing conductor to external metal.

### **5. Current Leakage**

This test will test if any current is leaking out of the circuit. Kirchhoff's current laws state that the current input is equal to the current on the output. In appliance terms the current flowing through the active pin should equal to current flowing through the neutral pin. If it does not that the current is leaking somewhere else. This is normal due to a fault in the appliance.

This test must be performed on all appliances that must be energized to be switched on. That means that a current leakage test, must be performed if there is any electronic switching in the appliance (there is no way to know if there is electronic switching in a device so it is recommended that a leaking test is performed when possible.)

No more that 5mA in class I or 1mA in class II appliances should be measured.

## 6. The Tag Itself

A tag will be applied to the plug end of the appliance lead. It will clearly state the date of the test or date it is due to be retested, and who tested it or company that tested, at a minimum. But it is recommended that all these are recorded.

Even though there is no mention to record keeping in the standard, a complete test record should be completed. Including:

- Asset ID
- Test Results
- Date Tested
- Retest date
- Asset Description
- Serial Number

The frequency of inspection is outlined in Section 2.1 of the standard. There are recommendations in Table 4 (see below) but retest periods can be varied subject to a risk assessment. This table sets out testing and inspection intervals for various types of equipment from 3 months (for equipment that is high use, high risk, or hire equipment) to up to 5 years (for equipment that is not open to abuse, flexing of cords, etc).



TABLE 4

## Testing and inspection intervals for electrical equipment

(CAUTION: This page must be read in conjunction with the Standard as a whole, and particularly Clause 2.1)

Type of environment and/or equipment  (a)	Interval between inspection and tests						
	Class of equipment		Residual Current Devices (RCDs)				Cord sets and power boards  (h)
	Class I (protectively earthed)  (b)	Class II (double insulated)  (c)	Push-button test - by user		Operating time and push-button test		
			Portable  (d)	Fixed  (e)	Portable  (f)	Fixed  (g)	
1 Factories, workshops, places of work or repair, manufacturing, assembly, maintenance or fabrication	6 months	12 months	Daily, or before every use, whichever is the longer	6 months	12 months	12 months	6 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	12 months	3 months	6 months	12 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	5 years	19 3 months	6 months	2 years	2 years	AS/NZS 3760:2003 5 years
4 Residential type areas of: hotels, residential institutions, motels, boarding houses, halls, hostels accommodation houses, and the like	2 years	2 years	6 months	6 months	2 years	2 years	2 years
5 Equipment used for commercial cleaning	6 months	12 months	3 months	N/A	12 months	N/A	12 months
6 Hire Equipment:	Prior to hire		Including push-button test by hirer prior to hire		N/A	N/A	Prior to hire
Inspection							
Test and tag	3 months		N/A		3 months	12 months	3 months
7 Repaired, serviced and second-hand equipment	After repair or service which could affect electrical safety, or on reintroduction to service.						

NOTE 1 The actual sub-environment in which the equipment is located determines the row for the environment to be used in Table 4. e.g. A computer in a non-hostile environment in an office within a factory would attract a test/inspection action in accordance with Row 3.

NOTE 2 Regulatory authorities, other Standards, workplace safety requirements or manufacturers' instructions may specify intervals appropriate to particular industries or specific types of equipment.

NOTE 3 RCDs in transportable equipment shall be regarded as portable RCDs.

NOTE 4 The following Standards refer only to the inspection and testing method of Clause 2.3 of this Standard, but not to the intervals of testing in Table 4 above. Refer to the appropriate Standards for specific test intervals:

AS 1674.2	Safety in welding and allied processes - Electrical
AS/NZS 3001	Electrical installations – Re-locatable premises (including caravans and tents) and their site installations
AS/NZS 3002	Electrical installations – Shows and carnivals
AS/NZS 3003	Electrical installations – Patient treatment areas of hospitals and medical and dental practices and dialysing locations
AS/NZS 3004	Electrical installations – Marinas and pleasure craft at low voltage
AS/NZS 3012	Electrical installations – Construction and demolition sites
AS/NZS 4249	Electrical safety practices – Film, video and television sites

# Test & Tag Frequently Asked Questions:

## What is testing and tagging?

Testing and tagging is a process undertaken by a suitably qualified and competent person who visually inspects and then electrically tests on site electrical equipment for personal safety in accordance with but not limited to Occupational Health & Safety Regulations and Australian Standard AS/NZS 3760:2003

## Why must we have our appliances tested & tagged?

The main reasons businesses have their appliances Tested & Tagged is to comply with the relevant OSH Acts and Regulations as stated below: Section 19 of The Occupational Health and Safety Act 1984 (Duties of employers) states that:

(1) An employer shall, so far as is practicable, provide and maintain a working environment in which the employees of the employer (the “employees”) are not exposed to hazards.

The Occupational Health and Safety Regulations 1996 Western Australia, Part 6 states in part:

3.59. Electrical installations at workplaces. A person who, at a workplace, is an employer, the main contractor, a self-employed person or a person having control of the workplace must ensure that;

(a) All electrical installations at the workplace are designed, constructed, installed, protected, maintained and tested so as to minimize the risk of electrical shock or fire

## What do we need to get tested?

Any appliance within a business that has a flexible cord that plugs into either a single phase 240V power outlet or 3 phase 415V power outlet needs to be tested regularly to ensure that the appliance is electrically safe to use within the workplace. These appliances include anything from computers to toasters, or drills and other tools to factory machinery. Any appliance within the workplace that is under 16kg or is over 16kg but has a carry handle (which makes it portable), needs to be tested, and continue to be tested in order to adhere to Occupational Health and Safety regulations, and comply with Australian Standards AS/NZS 3760:2003.

Within your workplace you must inspect and test all electrical equipment that is:

- Low voltage single phase and three phase (i.e. Power Tools, Power Boards, Extension Leads)
- Portable, fixed or stationary supplied via a flexible supply cord and connecting device (i.e. Computers, Printers Laptop Chargers); and
- Not hard wired to the installation without a connecting device forming part of the installation.

This includes all types of safety switches (RCD's) including portable, fixed, hard-wired, built onto leads or equipment, incorporated in socket outlets or in switchboards.

Standard: you do not have to inspect and test;

-Equipment situated in locations at a height of 2.5 meters or greater where there is not a reasonable chance of a person coming into contact with earth or any electrical equipment in contact with earth; nor

-Electrical equipment new to service (In Australia) however must be tested in New Zealand.

## Can sensitive electronic equipment be tested without causing damage?

Yes, a Leakage test is performed which involves operating the appliance and measuring any leakage current that is present. This test is commonly performed on pc monitors, hard drives, laboratory and medical equipment.

## What Is AS/NZS 3760:2003?

A document written by Standards Australia that specifies the procedures and criteria for the in-service safety inspection and testing of electrical equipment which is designed for connection by a flexible cord. It also applies to cord extension sets, portable outlet devices, portable residual current devices and portable isolation transformers. Appendices include detailed test methods.

## Why should I test and tag my electrical equipment?

As individuals and the broader community alike become more aware and concerned with adhering to Occupational Health and Safety laws, great care has to be taken to avoid accidents in the workplace. The presence of regulations protecting employees against company negligence means that the prosecution of the employer in cases of negligence is much more likely and harsher penalties are faced, than were in the past.

A well planned program of preventive maintenance, with regular electrical safety checks, is the ideal way to avoid unnecessary and unfortunate accidents, as well as the legal ramifications that follow.

## How often do I have to get my equipment tested?

Every work situation is different and the frequency of testing depends on the harshness of the environment in question. There may be multiple environments in the one workplace, which means that some appliances may need to be retested in as little as 3 months if the surroundings are harsh. However, if the surrounding environment is less detrimental to the appliance itself, retest dates may extend to a period of anywhere up to 5 years.

Australian Standards AS/NZS 3760:2003 clearly outline how often portable appliances in different workplace environments must be tested as outlined in the document linked below.

Testing and inspection intervals for electrical equipment

## What Does Test And Tagging Involve?

The process of testing appliance involves the following:

**Visual Inspection:** The most important test is a Visual Inspection of the device, especially leads. Cords should be firmly anchored in plugs, connections made solidly with no frayed ends. Copper terminals should be clean and not pitted.

**Electrical Testing:** The appliance will be tested with various test equipment to test for any unseen electrical faults. These tests include; an insulation resistance test; earth continuity, earth routine or earth bond test; a polarity test; and an earth leakage test.

**Record Keeping:** Although the AS/NZS 3760:2003 does not refer to record keeping upon completion of any test, various codes of practices refer to this. In spite of this we recommend all information be recorded comprehensively, whether in a database or by hand in a log book.

**Tags:** A safety tag must be placed on the appliance verifying its safe approval. This tag must clearly display:

- The name of the tester or test companies
- The date tested or re-tests date

The above are the only things that are outlined in Australian Standards; however we recommend that the tag should contain both the name of the tester and the test company name, and both the date tested and the retest date.