

Portable Appliance Testing

Contents

1. Introduction	2
2. Responsibilities	2
2.1 Heads of Schools/Services	2
2.2 Line Managers/Supervisors.....	2
2.3 Employees	3
3. Portable Appliance Testing	3
3.1 Portable Equipment.....	3
3.2 Frequency of testing.....	4
3.2.1 Class I Equipment (Earthed).....	4
3.2.2 Class II Equipment (Double Insulated <input type="checkbox"/>).....	4
3.2.3 New Equipment	5
3.2.4 Second Hand Equipment.....	5
3.2.5 Hire Equipment.....	5
3.2.6 Computers and Laptops	5
3.2.7 Equipment from other organisations.....	6
3.2.8 Personal electrical equipment.....	6
4. Training and Competence	6
4.1 Employees	6
4.2 External Contractors	7
4.3 Test Equipment	7

1. Introduction

The Electricity at Work Regulations 1989, made under the Health and Safety at Work etc. Act 1974, apply to all places of work and to all work involving the use of electricity. The regulations are primarily concerned with the prevention of danger and injury from electric shock, electrical burns, fires of electrical origin, electrical arcing and explosions initiated or caused by electricity. These Regulations place duties on the University as an employer to control the risks arising from the use of electricity. The Regulations require that:

- All systems shall at all times be constructed so as to prevent danger.
- All systems shall be maintained in a safe condition, so as to prevent, so far as is reasonably practicable, such danger.
- In order to comply with the legislation, portable appliance testing (PAT), should be carried out by a competent person.

2. Responsibilities

2.1 Heads of Schools/Services

Heads of Schools/Services are responsible for statutory compliance within their School/Service. They are therefore responsible for ensuring that appropriate arrangements are in place to

- Ensure a suitable number of trained, competent staff are available or that arrangements are in place with a University Approved Contractor to carry out PAT maintenance.
- Ensure a suitable maintenance schedule for portable electrical equipment is established.
- Remove faulty equipment from use, carry out remedial work where necessary and retest equipment before returning it into service.
- Label compliant equipment with details of inspection/test date and tester.
- Ensure that records of inspection and testing are kept.

Details of the local arrangements should be communicated to staff via the School/Service local rules. Heads of Schools/Services may delegate the organisation of local arrangements to a competent person e.g SSA, but they retain the responsibility for ensuring these arrangements are in place and implemented.

2.2 Line Managers/Supervisors

Line managers/Supervisors should ensure that

- Equipment is made available for inspection and testing when this is required.

- Portable electrical equipment within their areas of responsibility has been inspected / tested within an appropriate maintenance schedule.
- Equipment that fails inspection / testing is immediately removed from use, remedial work is carried out and the equipment is re-examined before being returned to service.
- Arrangements are in place to maintain equipment in a safe working order.
- Staff are provided with information, instruction and training regards the risks posed by equipment and the control measures necessary to reduce those risks.

2.3 Employees

Employees are expected to

- Comply with arrangements outlined in the School/Service local rules.
- Use all equipment in accordance with instruction.
- Ensure that each time they use equipment, it has a current PAT label and is safe to use by carrying out a brief pre-use check (no loose wires, no obvious damage to equipment, cable, plug or socket, no evidence of over-heating).
- Report any defects or difficulties with the equipment.

3. Portable Appliance Testing

3.1 Portable Equipment

HSE define portable equipment as equipment that is intended to be connected to a generator or fixed installation by means of a cable and either plug and socket or a spur box. This includes hand operated equipment that is intended to be moved while connected to the supply, appliances that have been fixed for security purposes and extension leads, plugs, sockets and cord sets that supply portable equipment.

The regular planned formal inspection and testing of portable electrical equipment may include:

- Formal visual inspection for signs of damage and deterioration
- Electrical tests using a calibrated PAT device. As a minimum these electrical tests take the form of an earth continuity and leakage test (where an earth is present), and an insulation test.

The type of inspection and testing should be determined by risk assessment and be related to the type of equipment, environment it is to be used in and the activities it is used for.

PAT maintenance should be carried out by a competent person and recorded locally and the equipment labelled accordingly as “Passed” with the test date clearly visible.

Further guidance on the requirements for maintaining types of portable electrical equipment can be found using the following link.

<http://www.hse.gov.uk/pubns/priced/hsg107.pdf>

3.2 Frequency of testing.

The frequency of PAT maintenance depends upon the type of equipment and the environment it is used in. The Electricity at Work Regulations 1989 require all portable appliances to be maintained and inspected on a schedule that is determined by the risk presented by each unit. This should take account of the

- type of equipment,
- power rating, and class of electrical equipment,
- age of equipment,
- manufacturers recommendations,
- individuals using the equipment,
- frequency of use,
- working environment it is to be used in.

A combined inspection and test should also be carried out whenever there is reason to suppose the equipment is defective and this cannot be confirmed by visual inspection, and after any repair or modification work.

The HSE sets out suggested initial inspection frequency for a range of equipment via the following guidance document:

HSG107 Maintaining Portable Electrical Equipment

<http://www.hse.gov.uk/pubns/priced/hsg107.pdf>

3.2.1 Class I Equipment (Earthed).

Class I equipment has an earth connection. If there is a fault within the equipment there is a possibility that the outside of the equipment could cause an electric shock if the earth connection is lost. This type of equipment is considered a higher risk, and must be formally tested; the test schedule will be determined by risk assessment. All extension leads must be earthed and tested as Class I equipment.

3.2.2 Class II Equipment (Double Insulated).

This equipment does not require an earth connection to maintain safety and is regarded as low risk if the plug and lead are rarely disturbed and the equipment is used in a low-risk (e.g. office) environment. In such circumstances, then it will only require a formal visual test every 2-4 years depending on the frequency of use.

Class II equipment that may be used by students or the public may require an annual combined inspection and test, dependent on the risk of damage.

Class II equipment used in demanding conditions (e.g. outside, or in a laboratory or workshop environment), will need more frequent visual inspection and testing. The frequency and form of testing should be determined by a competent person with the knowledge, training and experience of the equipment, conditions of use and portable appliance test procedures.

3.2.3 New Equipment

New equipment must be supplied in a safe condition with a declaration of conformity to the EU Low Voltage Directive 2006/95/EC and an accompanying CE mark. Such equipment does not need a formal test but a visual inspection is recommended, items must be included on the School/Service inventory and a suitable frequency for future inspection/testing should be determined. Items that are to be used in higher risk environments may benefit from pre use testing to confirm they are safe to use in the intended work conditions.

3.2.4 Second Hand Equipment

Equipment purchased second hand must be safe to use and comply with European and UK legislation and standards governing the supply of electrical equipment. Schools/Services should ensure any second hand equipment has undergone a combined inspection and test before it is put into service.

3.2.5 Hire Equipment

Suppliers of hire/leased portable electrical equipment (including printers, photocopiers and vending machines) are responsible for formally inspecting and testing the equipment before each hire. Schools/Services should check the terms of the lease agreement regard the responsibilities for ongoing inspection and testing of the equipment during the rental period.

3.2.6 Computers and Laptops

Computers are unlikely to need to be electrically tested in their expected lifetime of 4-5 years. This is based not only on the risk of faults occurring, but also on the vulnerability of the equipment being damaged by the PAT test itself. During this period, it will be prudent to carry out formal visual checks every 2-3 years (depending on the positioning of the cables and frequency of being unplugged). If feasible, the IEC (kettle type) lead can be tested separately from the computer to assure earth continuity to the equipment, and the integrity of the insulation of the lead.

Laptops fall within the same guidelines, but there is more priority put on the lead

being tested, this should be done annually if it is regularly used as a portable unit. Remember that there may be more than one lead per laptop.

3.2.7 Equipment from other organisations

Where portable electrical equipment is loaned from other organisations the lender must ensure equipment has been formally tested. Staff borrowing equipment from other organisations should request documented confirmation of the testing, where this is not available, Schools/Services must make arrangements for the loaned equipment to be tested prior to it being used.

Where University equipment is to be loaned to another organisation the School/Service must ensure it has been formally tested beforehand.

3.2.8 Personal electrical equipment

Schools/Services should establish their own local arrangements for staff and students bringing personal electrical items into work and ensure these arrangements are communicated via the local rules. Personal electrical items used within the workplace, must be within a current PAT period, as determined by the School/Service.

4. Training and Competence

4.1 Employees

Schools/Services should ensure that staff who are appointed to carry out PAT maintenance are competent, have had suitable training, electrical knowledge and experience to undertake the testing and interpret the results. Staff must be instructed in appropriate test procedures and to operate the test equipment correctly. There are no statutory qualifications required, however it is the responsibility of managers and supervisors to determine the level of competency required by their staff as appropriate to the work to be carried out and to ensure they have been provided with appropriate training, instruction and information. HSG107 defines two levels of competency

- Level 1, individuals are not skilled in routine electrical work but use simple pass/fail test equipment where no interpretation of results is required.
- Level 2, individuals have appropriate electrical skills, experience and training to operate test equipment that require interpretation of the results.

Where managers identify a requirement for formal training and qualification, further information can be obtained through appropriate professional bodies such as the National Inspection Council for Electrical Installation Contracting (NICEIC) or Safety and Health Services.

4.2 External Contractors

If an external contractor is to be used to carry out portable appliance testing, they should be a University Approved Contractor; the current list is available on Proactis. Contracting companies should provide documented evidence that they are competent to carry out inspection and testing, as outlined in the HSE guidance HSG107, 3rd edition.

4.3 Test Equipment

All equipment used to perform PAT testing must be fully calibrated at the time of use. This calibration should be carried out by UKAS certified bodies.

Instruments must be calibrated at least annually, or in accordance with the manufacturer's instructions.

Schools/Services must ensure that up to date certificates of calibration are held for all test equipment.