

Laptop computer charging trolleys safety alert

Electrical risks from laptop computer charging trolleys used in schools.

1. Who is affected?

HSE is issuing this safety alert for the attention of schools that use laptop computer charging trolleys and those who manufacture / supply such products. This is to raise awareness of the potential electrical dangers and the steps to take to protect staff and pupils.

2. What is the risk?

A HSE investigation into an electric shock incident involving a laptop charging trolley found that when a 3-pin plug supplying the trolley was removed from the supply socket there was sufficient stored electric charge on the pins of the plug to give the user an electric shock. In addition some trolleys have been identified that have two supply cables contrary to good electrical engineering practice, inadequate plug and cable storage facilities and unsuitable earth terminations.

3. When can the risk arise?

The risk of electric shock from the pins of the plug arises during removal of the plug from the socket for a short period of time.

As many of the trolleys have trailing electrical cables and plugs they can be damaged during movement of the trolleys. If damage occurs to the cables or plugs this can give rise to a serious risk of electric shock to users.

4. Why has this problem arisen?

When electrical equipment is placed on the market in the UK the manufacturer / supplier should have established that the equipment is safe for intended use, constructed in accordance with good electrical engineering practice in relation to safety matters and that it is in conformity with the principal elements of the safety objectives for electrical equipment as set out in the Electrical Equipment (Safety) Regulations 1994.

The manufacturer should produce a written 'Declaration of Conformity' and affix a CE mark to the equipment.

Products that do not meet with the above should not be put on sale within the European Economic Area (EEA).

It was found that many laptop computer charging trolleys have been placed on the market and supplied without going through this process.

5. Recommended action to control the risk?

Not all trolleys are necessarily dangerous but for all laptop computer charging trolleys the following recommendations are made.

Manufacturers / Suppliers

It is a legal requirement that laptop computer charging trolleys go through the conformity assessment process and have a Declaration of Conformity issued before electrical products are offered for sale. Where in house personnel do not have the technical knowledge to carry out this work or if the product is innovative then competent electrical expertise should be sought.

There is no legal mechanism to retrospectively certify equipment under the Electrical Equipment (Safety) Regulations 1994. However, it is possible to demonstrate that products in use are safe. This could be achieved by having products of the type in use tested by a notified body. As the trolleys are intended to be used with a full complement of laptops it is important that any product testing carried out is representative of intended use. This should require either the installation of laptops and associated power supply units into the trolley during testing or by other methods that achieve the same electrical conditions. Any defects noted that affect safety should be notified to all end users along with a means for carrying out modifications to ensure the equipment is safe when in use.

Schools

Any laptop computer charging trolleys in use should be safe and fit for sale within the EEA. This can be established by checking for a CE mark and the Declaration of Conformity. The manufacturer or supplier will be able to confirm this.

Where a trolley does not have a Declaration of Conformity and a CE mark it may not be dangerous but assurances should be obtained in writing from the manufacturer that the product is safe for the intended use.

The following recommendations are for situations where laptop computer charging trolleys remain in use where there is no Declaration of Conformity and CE marking. Any modifications to electrical equipment and systems that are required should be carried out by a competent person and discussed with the manufacturer / supplier so as to avoid invalidating any warranty.

Laptop computer charging trolleys should only be used by adults. In circumstances where this can be assured the following precautions are necessary as a minimum.

- i. 3-pin plugs associated with mobile charging trolleys should be inserted and removed from a socket only when the socket is switched OFF.

- ii. Dedicated, switchable, RCD (residual current device) protected sockets for laptop chargers should be identified.
- iii. A warning notice should be posted adjacent to sockets and elsewhere, as necessary, to remind users of the need to switch sockets OFF before inserting or removing plugs.
- iv. Adults likely to insert / remove plugs should be advised of this procedure and the risks associated.
- v. A cable storage facility should be fitted to trolleys and used to prevent cables and plugs trailing on the floor.
- vi. A daily visual check of the condition of cables and plugs should be carried out.

Where use by adults only cannot be assured the following precautions are necessary.

- i. 3-pin plugs should be replaced with blue coloured euro-connectors to BS EN 60309 (This ensures that the plug pins remain out of immediate contact on insertion and removal)
- ii. Dedicated, switchable sockets for the euro-connectors should be installed.
- iii. A warning notice should be posted adjacent to remind users of the need to switch sockets OFF before inserting or removing plugs.
- iv. Trailing cables should be replaced with high abrasion cables having an earthed screen.
- v. A cable storage facility should be fitted to trolleys and used to prevent cables and plugs trailing on the floor.
- vi. A daily visual check of the condition of cables and plugs should be carried out and recorded by a nominated person.

It is important that all electrical equipment is maintained in a safe condition and used within manufacturer's guidelines.

Where electrical items are transported and used on a regular basis damage is more likely to occur especially to flexible cables, plugs and associated equipment. It is important that the condition of such equipment is monitored by a competent person who can visually check for damage before the electrical product is used. Advice on the maintenance of portable electrical appliances can be obtained from HSE publication HSG107 'Maintaining portable and transportable electrical equipment'. This can be downloaded at <http://www.hse.gov.uk/pubns/priced/hsg107.pdf>

6. Further Guidance

HSG 107 Maintaining portable and transportable electrical equipment (ISBN 978 0 7176 2805 6). This can be downloaded at <http://www.hse.gov.uk/pubns/priced/hsg107.pdf>