

LIF Technical Statement No. 51

Safety of LED T8 replacement tubes and modified luminaires

Introduction:

The Low Voltage Directive Administrative Cooperation (LVD ADCO) of the European Commission has seen reason to produce safety advice on the use of T8 LED tubes. A copy of their advice is reproduced below:

LVD ADCO

Recommendation – Adopted February 2011

Safety of LED T8 replacement tubes and modified luminaires Introduction:

LED T8 tubes are extensively marketed in the EU. These are intended to be replacements for traditional T8 Fluorescent tubes either in existing luminaires or in modified luminaires.

EU Market surveillance Authorities have expressed serious concerns with both the LED replacement tubes and with modifications carried out to existing luminaires. These concerns are in respect to their safety and many present an unacceptable risk to consumers and professionals.

This Recommendation is within the framework of the current Directive and as such is intended to provide clarification for particular products. It does not represent any change in the Directive.

Discussion:

Recent enforcement actions on the LED T8 replacement tubes by countries in the EEA have revealed that many of these products do not comply with safety requirements, e.g. protection against electric shock. A common failure is access to live parts e.g. with one end of the tube inserted in the luminaire the other end presents an easily accessible electric shock hazard.

As these products are within the scope of the Directive 2006/95/EC (the Low Voltage Directive (LVD)), these concerns were discussed at the LVD ADCO 26th Meeting on 17 & 18 Nov 2010, which concluded that generally economic operators (manufacturer, importer, distributor and retailer) are not fully aware of the safety risks relevant to the LED replacement tubes they manufacture, import or supply. It was also recognised that guidance, in the form of an ADCO Recommendation, would be helpful to assist the economic operators in understanding these risks and also the actions required to meet the requirements of the LVD.

LED T8 tubes

Economic operators placing on the market LED T8 tubes which are intended as either direct replacement in the original luminaire (retrofit type) or for use in a modified luminaire are responsible for ensuring that these products are safe and comply with the safety requirements of the LVD.

Modification kits and modified luminaires. For a modified luminaire, the manufacturer of the original luminaire will generally no longer be seen as responsible for the safety of the product. Any modifications made to the original luminaire may alter the characteristics of the original product e.g. safety aspects of the original luminaire, and hence risk assessment of hazards posed by the original luminaire may no longer be applicable to the modified luminaire. In this case, the modified luminaire would be considered as a new product.

Persons placing on the market modification kits for incorporation into an existing luminaire must ensure that the modified luminaire is safe when the kit is installed in accordance with the instructions.

A modified product when placed on the market is likely to need to comply with the safety requirements and conformity assessment procedures of the LVD as it would to a new product. Therefore, the economic operator responsible for placing such product on the market has the full responsibility for ensuring its safety and compliance with the LVD and any other applicable Directives. He is required to carry out all of those responsibilities of an original manufacturer including conformity assessment, drawing up of Technical Documentation, Declaration of Conformity and affixing of CE marking.

Where a luminaire is modified to use a LED T8 tube, the luminaire must still be safe if a T8 fluorescent lamp is installed, though they do not have to function.

Harmonised Standards. Currently, there are no specific standards for LED replacement tubes. However, the economic operators should be aware that a standardisation activity is ongoing for "double capped retrofit LED lamps"

Once the standard is published it will provide a presumption of conformity with the Directive, (limited to its scope and the relevant requirements that are covered).

1 Provisions under consideration include:

- Safety of the LED lamp in case a wrong starter-lamp combination is used.
- Safety of the LED lamp/Luminaire with different type of control gears (EM/HF);
- Safety of the lamp in case the luminaire control gear short circuits;
- Safety of user against accidental contact with live parts.

Recommendation:**a) General**

- It is important that the economic operators fully understand their responsibility with respect to compliance requirements of these products with the LVD and its safety objectives.
- The manufacturers, importer and distributors are responsible for ensuring that only those products that fulfil the LVD safety objectives (i.e. products are safe) are placed on the EEA market.
- The Directive requires that all products placed on the market meet the safety requirements; the conformity assessment demonstrates how these requirements have been met. A manufacturer may use harmonized standards to provide a presumption of conformity with the LVD, however, currently there are no specific standards for these products. Economic operators will need to use other means to assess the safety risks. For example, the standard EN 60598-1:2008, clause 8 could be used to form the basis of assessing risk of access to live parts.
- Thus, the Technical Documentation must contain, among others, an assessment of the risks, a description of the technical solutions adopted, and the procedures used for verification, providing a detailed explanation as to how the safety objectives and requirements of the Directive have been achieved.

b) Modification of luminaires

- The person who places a modification kit on the market to modify an existing luminaire ensure that incorporation of the kit does not render the luminaire unsafe. Besides must providing conforming components, this might require a precise definition of the types of luminaires suitable for conversion, clear instructions, and procedures on how to check procedures on how to check the modified luminaire. If the modified product is placed on the market, it will be subject to the requirements of the LVD as though it were a new products being placed on the market for the first time, and the conformity assessment procedure, drawing up of relevant documentation and markings as described in the Directive all need to be complied with.

c) Replacement tubes

- Those LED T8 replacement tubes that are intended for use as replacements in standard fluorescent luminaires i.e. where no modification of the original luminaire is required (retrofit type)² must meet the applicable specifications for a standard fluorescent tube; e.g. must not exceed the dimensions and operating parameters related to the safety of the original fluorescent tube (e.g. weight, power, temperature rise, electrical properties)
- ² The replacement of a glow starter compliant with IEC 60155 with other devices does not constitute a modification of the luminaire itself, however the use of such a starter needs to be safe when used in luminaires.

- Conformity assessment of the retrofit LED replacement tube and its starter replacement must take any combination of original and replacement components into account.
- LED tubes, which when one end of the tube is inserted into a luminaire expose a hazard caused by direct contact with live parts (e.g. contact pins) at the other end of the tube do not fulfil the safety objectives of the LVD.

Additional considerations:

This recommendation is made by LVD AdCo as such only the implications with regard to the LVD are considered. For many products other Directives (such as EMC, WEEE, RoHS, etc.) are also applicable. Economic operators are advised to consider their obligations with regard to the requirements of any other applicable Directive.”

A copy of the original document can be obtained via the following link to the LVD ADCO website: http://ec.europa.eu/enterprise/sectors/electrical/files/lvd-adco/recomm-led-replac-tubes_en.pdf

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