

CTL DECISION SHEET

Standard(s): IEC 61000-3-2 Ed.3	Sub clause(s): <u>Various</u>	DSH: 617
Subject: Classification of lighting chains	Key words: - Lighting chain - Dimmer - Harmonics	Decision approved by the CTL plenary meeting 2007
<p><u>Question:</u></p> <p>Lighting chains come in various configurations. Some are fed directly from the mains and some via a transformer. The light source can be either incandescent lamp or LED. Furthermore, some are equipped with a control box generating blinking light, “running” light, changing the brightness up and down and/or other functions.</p> <p>The first question is whether a lighting chain in general is classified as lighting equipment. The definition 3.19 has illuminated advertising signs and UV and IR radiation equipment as examples, implying a lighting chain would be included, even though a lighting chain is mostly used for decoration.</p> <p>The second question is if the control box generating various light sequences of a lighting chain can be considered a dimmer. In the case the control box is considered to be a dimmer, the controlled light source is of importance, since dimmers for incandescent lamps are excluded from the definition of lighting equipment.</p> <p>The third question is whether a LED is considered as a discharge lamp. This is of interest when an LED is controlled by a dimmer.</p> <p><u>Proposal:</u></p> <ol style="list-style-type: none"> 1. Lighting chains are in general to be classified as lighting equipment and shall comply with clause 7.3 “Limits for Class C equipment”. 2. Yes, the control box can be considered a dimmer in case the light sources are incandescent. 3. A LED cannot be considered an incandescent lamp because the relation between current and voltage is not linear. For more clarity in clause 7.3, one can regard the LED as a discharge lamp. <p>Examples of classifications and limits based on the above:</p> <ol style="list-style-type: none"> A. A lighting chain with incandescent lamps or LEDs, connected directly or via a transformer to the mains and which has no light regulation. The active input power is more than 25 W. Class C, Table 2 B. A lighting chain with LED, connected directly or via a transformer to the mains and which has no light regulation. The active input power is less than 25 W. Class C, 7.3 b. Table 3 column 2 or wave shape requirement C. A lighting chain with incandescent lamps where the lamps are controlled by a control box belonging to the equipment, generating e.g. blinking light. The active input power is more than 25 W. If phase control technology is used, Class A, Table 1. Other technology: Class C, Table 2 D. A lighting chain with LED where the lamps are controlled by a control box belonging to the equipment, generating e.g. blinking light. The active input power is less than 25 W. Class C, 7.3. b Table 3 column 2 or wave shape requirement 		

E. A lighting chain with LED where the lamps are controlled by a control box belonging to the equipment, generating e.g. blinking light. The active input power is more than 25 W.
Class C, Table 2

F. A lighting chain with incandescent lamps where the lamps are controlled by a built-in dimmer and the brightness is set manually by the user. The active input power is more than 25 W

Class A, Table 1

Decision:

Question 1: The lighting chain is lighting equipment (Class C).

Question 2: A lighting chain equipped with a dimmer is a Class C product but the limits are done in table 1 of the standard.

Question 3: A LED cannot be considered as an incandescent lamp, neither as discharge lamp. The clause 7.3 b of the standard give requirements for discharge lighting equipment with active power less than 25 W and these requirements are not applicable to LED. A future standard should contain a separate clause for LED based lighting after the influence of this new technology to the mains is known and/or the relation between current and voltage should be measured first as part of the new standard.