
**Road vehicles — LED lamp characteristics
for bulb compatible failure detection —**

**Part 1:
LED lamps used as direction indicators**

*Véhicules routiers — Caractéristiques des lampes LED pour détection
de défaut compatible avec l'ampoule —*

Partie 1: Lampes LED utilisées comme feux indicateurs de direction

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Foreword

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The main task of technical committees is to prepare International Standards. Draft International Standards adopted by the technical committees are circulated to the member bodies for voting. Publication as an International Standard requires approval by at least 75 % of the member bodies casting a vote.

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. ISO shall not be held responsible for identifying any or all such patent rights.

ISO 13207-1 was prepared by Technical Committee ISO/TC 22, *Road vehicles*, Subcommittee SC 3, *Electrical and electronic equipment*.

ISO 13207 consists of the following parts, under the general title *Road vehicles — LED lamp characteristics for bulb compatible failure detection*:

— *Part 1: LED lamps used as direction indicators*

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Road vehicles — LED lamp characteristics for bulb compatible failure detection —

Part 1: LED lamps used as direction indicators

1 Scope

This part of ISO 13207 specifies the characteristics of LED (Light Emitting Diode) lamps used as direction indicators when optionally monitored. It applies primarily to those lamps which are installed on 24V truck/trailer combinations. It will enable lamp-failure detection of LED lamps on the drawn vehicle to be compatible with that for bulbs when analysed by the towing unit.

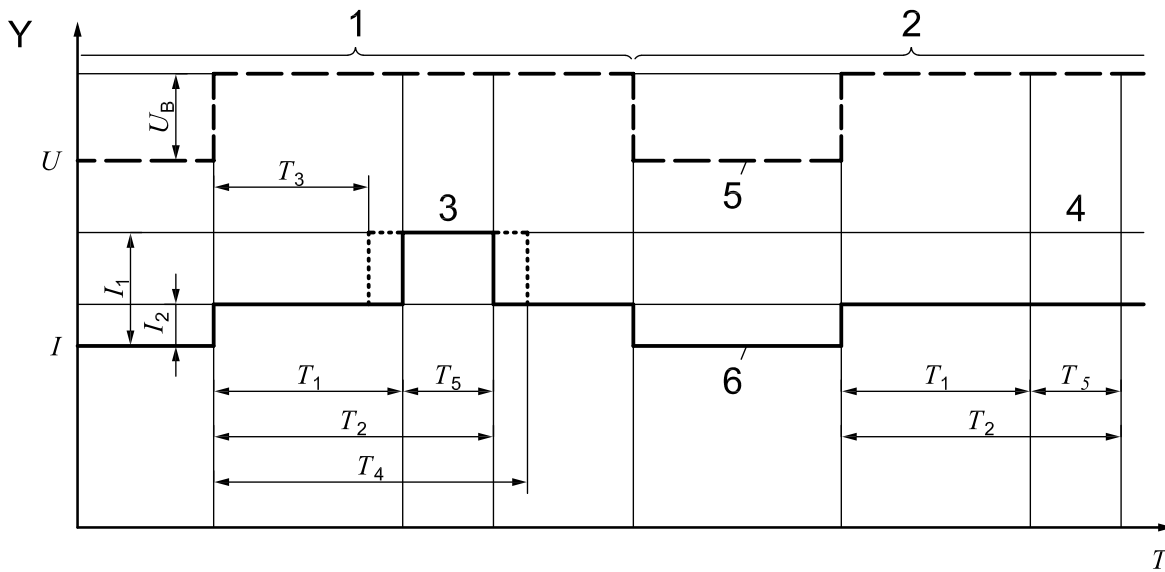
2 Terminals

The connection between the towing vehicle and the towed vehicle should be either as described in ISO 1185 and ISO 3731 or as described in ISO 12098. Towing vehicles should be equipped with electronic control units (ECUs), which drive the trailer direction indicator lamps as described in ISO 4082.

3 Functional description

3.1 Principle

Lamp-failure monitoring electronics are required for mandatory mounted direction-indicator functions. For this purpose, the LED direction-indicator function generates a current impulse at a certain time; this current impulse corresponds in terms of amount with the current of a conventional bulb lamp. If the LED direction indicator fails (in relation to the legal requirement of the photometric output), this pulse is not generated. An ECU or intelligent flasher interprets whether the LED direction indicator fails on the basis of this pulse. The result should be used to inform the driver accordingly.



Key

- 1 first process
- 2 second process
- 3 non-failure
- 4 failure
- 5 voltage: power supply of direction indicator during two flashing processes
- 6 current of LED direction indicator during two flashing processes, the first with, and second without, current control pulse added
- I* current
- I*₂ nominal LED lamp current
- I*₁ *I*₂ + control pulse current
- T* time
- T*₁ starting point of the designated pulse time frame
- T*₂ end of the designated pulse time frame
- T*₃ earliest start point for the control pulse
- T*₄ latest end point for the control pulse
- T*₅ time frame within which the designated control pulse should be detected by the monitoring circuit of the control unit
- U* voltage
- U*_B operational voltage
- Y* voltage, *U*, in volts; current, *I*, in amperes

Figure 1 — Profile diagram 1

The functional description of the profiles is shown in Figure 1. If a current as described in Figure 3 is detected in time frame *T*₅ in the first process, the condition of the lamp is recognized as a “non-failure”.

3.2 Parallel operation of LED and bulb lamps

The number of functioning direction indicators can be determined on the basis of the amplitude of the pulse when switching on several direction indicators in parallel. In the case of a lamp with mixed LED/21 W bulb light sources, the amplitude of the pulse also provides information about the number of functioning direction indicators connected.