

English version

**Use of LED signal heads
in road traffic signal systems**

This Technical Specification was approved by CENELEC on 2007-06-01.

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CENELEC

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Foreword

This Technical Specification was prepared by Working Group 1 'Use of LED signal heads in road traffic signal systems' of CENELEC BTTF 69-3 'Road traffic signal system'.

The text of the draft was submitted to vote in accordance with the Internal Regulations, Part 2, Subclause 11.3.3.3 and was approved by CENELEC as CLC/TS 50509 on 2007-06-01.

The following date was fixed:

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This document contains specifications for the use of LED signal heads in road traffic signal systems in the form of information with regard to the interpretation of existing standards and additional specifications, dealing with specific technical properties of LED signal heads, not previously described in the existing standards.

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Introduction

This document gives a specification for the mutual behaviour of traffic signal controllers and *light-emitting diode* (LED) based signal heads in road traffic signal systems. The specification was written to contribute to safe and reliable operation, while at the same time allowing the compatible operation of various types and brands of signals and controllers.

Whilst the performance requirements for LED signals heads, as specified in the standards, remain unchanged, various properties of composite LED signals that were implicit for incandescent lamps now need to be described.

The market for LED signals has developed rapidly; products show considerable national or even regional technical differences. This document intends to give guidance to the market for future development and harmonisation.

It is the aim of this document to establish a minimum set of requirements that would allow both controllers and signal heads to be tested separately. Where a controller or signal has been verified as compatible with a class specified in this document, it would be deemed to function safely and securely in cooperation with a signal or controller verified as compatible with the same class.

1 Scope

This Technical Specification considers only newly manufactured and installed signal controllers and signal heads for road traffic applications, using appropriate cabling.

This Technical Specification considers only LED optical units with 200 mm and 300 mm roundels as standardised in EN 12368. It does not consider configurations such as an arrow or a pedestrian symbol, created by specifically positioned patterns of LEDs.

This Technical Specification does not consider railway signalling applications.

2 Normative references

The following referenced documents are indispensable for the application of this document. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

EN 12368, *Traffic control equipment – Signal heads*

EN 12675, *Traffic Signal Controllers – Functional safety requirements*

EN 50293, *Electromagnetic compatibility – Road traffic signal systems – Product standard*

EN 55015, *Limits and methods of measurement of radio disturbance characteristics of electrical lighting and similar equipment (CISPR 15)*

EN 60825 series, *Safety of laser products (IEC 60825 series)*

EN 60950 series, *Information technology equipment – Safety (IEC 60950 series)*

EN 61000-2-2, *Electromagnetic compatibility (EMC) – Part 2-2: Environment – Compatibility levels for low-frequency conducted disturbances and signalling in public low-voltage power supply systems (IEC 61000-2-2)*

EN 61000-3-2, *Electromagnetic compatibility (EMC) – Part 3-2: Limits for harmonic current emissions (equipment input current up to and including 16 A per phase) (IEC 61000-3-2)*

EN 61508 series, *Functional safety of electrical/electronic/programmable electronic safety-related systems (IEC 61508 series)*

HD 638 S1, *Road Traffic Signal Systems*

3 Definitions and abbreviations

3.1 General definitions

3.1.1

road traffic signal system

see HD 638 S1

3.1.2

traffic signal controller

see EN 12675