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**Road Vehicles—Lighting and Light-Signaling Devices—
Environmental Endurance**

道路车辆 外部照明和光信号装置 环境耐久性

(English Translation)

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Road Vehicles—Lighting and Light-Signaling Devices—Environmental Endurance

1 SCOPE

This document specifies the environmental endurance test requirements for lighting and light-signaling devices (except retro-reflective devices) of road vehicles, e.g., thermal cycling test, seal test, thermal shock test, thermal distortion test, salt spray test, dustproof test, random vibration test, shock vibration test, waterproof test, test of resistance to lubricants, fuels and cleaning fluids, test of resistance to light source radiation, fog test, highly accelerated life test, highly accelerated stress screen test, and focusing test.

This document is applicable to the lighting and light-signaling devices for road vehicles of categories M, N, O and L.

2 NORMATIVE REFERENCES

The following normative documents contain provisions which, through normative reference in this text, constitute essential provision of this document. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendment) applies.

GB 4599 Motor vehicle headlamps equipped with filament lamps

GB 4785 Prescription for installation of the external lighting and light-signaling devices for motor vehicles and their trailers

GB/T 6495.9 Photovoltaic devices - Part 9: Solar simulator performance requirements

GB/T 32466-2015 Accelerated stress testing procedures for electric and electronic products—Guidance for highly accelerated stress screen

3 TERMS AND DEFINITIONS

For the purpose of this document, the terms and definitions established in GB 4785 and the following apply.

3.1 highly accelerated life test (HALT)

a test used to determine the limits of stress that can be withstood by a product by gradually increasing the test stress applied to the test sample

Note: Test stresses include temperature, vibration, rapid temperature change and vibration combined stress, etc.

3.2 operating limit (OL)

when the operating characteristics of the test sample no longer meet the requirements of the product's technical specifications, but after the test stress intensity is reduced, the test samples are still able to restore the test stress intensity withstood during normal operating characteristics

Note 1: Normal operating characteristics are defined by the manufacturer and include normal illumination of the luminaire, intact light emitting surface, etc.

Note 2: The operating limit includes upper operating limit (UOL) and lower operating limit (LOL); for vibration test, the operating limit is only the upper limit.

3.3 destruct limit (DL)

when the operating characteristics of the test sample no longer meet the requirements of the product's technical specifications, and after the test stress intensity is reduced, the test sample cannot restore the test stress intensity withstood during normal operating characteristics

Note: The destruct limit includes upper destruct limit (UDL) and lower destruct limit (LDL); for vibration test, the destruct limit is only the upper limit.

3.4 root-mean-square acceleration, G_{rms}

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