

# INTERNATIONAL STANDARD



**Semiconductor devices –  
Part 5-16: Optoelectronic devices – Light emitting diodes – Test method of the  
flat-band voltage of GaN-based light emitting diodes based on the photocurrent  
spectroscopy**



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IEC Secretariat  
3, rue de Varembe  
CH-1211 Geneva 20  
Switzerland

Tel.: +41 22 919 02 11  
[info@iec.ch](mailto:info@iec.ch)  
[www.iec.ch](http://www.iec.ch)

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## SEMICONDUCTOR DEVICES –

**Part 5-16: Optoelectronic devices – Light emitting diodes –  
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diodes based on the photocurrent spectroscopy**

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Full information on the voting for its approval can be found in the report on voting indicated in the above table.

The language used for the development of this International Standard is English.

This document was drafted in accordance with ISO/IEC Directives, Part 2, and developed in accordance with ISO/IEC Directives, Part 1 and ISO/IEC Directives, IEC Supplement, available at [www.iec.ch/members\\_experts/refdocs](http://www.iec.ch/members_experts/refdocs). The main document types developed by IEC are described in greater detail at [www.iec.ch/publications](http://www.iec.ch/publications).

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## SEMICONDUCTOR DEVICES –

### Part 5-16: Optoelectronic devices – Light emitting diodes – Test method of the flat-band voltage of GaN-based light emitting diodes based on the photocurrent spectroscopy

#### 1 Scope

This part of IEC 60747 specifies the measuring method of flat-band voltage of single GaN-based light emitting diode (LED) die or package without phosphor, based on the photocurrent (PC) spectroscopy. White LEDs for lighting applications are out of the scope of this part of IEC 60747.

#### 2 Normative references

The following documents are referred to in the text in such a way that some or all of their content constitutes requirements 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.

IEC 60747-5-6:2021, *Semiconductor devices – Part 5-6: Optoelectronic devices – Light emitting diodes*

IEC 60747-5-15:2022, *Semiconductor devices – Part 5-15: Optoelectronic devices – Light emitting diodes – Test method of the flat-band voltage based on the electroreflectance spectroscopy*

#### 3 Terms, definitions and abbreviated terms

For the purposes of this document, the following terms and definitions apply.

ISO and IEC maintain terminology databases for use in standardization at the following addresses:

- IEC Electropedia, available at <https://www.electropedia.org/>
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##### 3.1 Terms and definitions

###### 3.1.1 spectral radiant flux

$\Phi_{\lambda}(\lambda)$   
radiant flux per unit wavelength interval at a given wavelength ( $\lambda$ )

Note 1 to entry: Spectral radiant flux is typically denoted by  $\Phi_{\lambda}$ , which is equivalent to  $d\Phi/d\lambda$ , and is usually expressed in units of watts per nm.

[SOURCE: IEC 62607-3-1:2014 [1]<sup>1</sup>, 3.20, modified – A symbol has been added.]

<sup>1</sup> Numbers in square brackets refer to the Bibliography.