

# INTERNATIONAL STANDARD



**Semiconductor devices –  
Part 18-3: Semiconductor bio sensors – Fluid flow characteristics of lens-free  
CMOS photonic array sensor package modules with fluidic system**



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## INTERNATIONAL ELECTROTECHNICAL COMMISSION

## SEMICONDUCTOR DEVICES –

**Part 18-3: Semiconductor bio sensors – Fluid flow characteristics  
of lens-free CMOS photonic array sensor package modules  
with fluidic system**

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The text of this International Standard is based on the following documents:

|              |                  |
|--------------|------------------|
| FDIS         | Report on voting |
| 47E/682/FDIS | 47E/690/RVD      |

Full information on the voting for the approval of this International Standard can be found in the report on voting indicated in the above table.

This document has been drafted in accordance with the ISO/IEC Directives, Part 2.

A list of all parts of the IEC 60747 series, published under the general title *Semiconductor devices*, can be found on the IEC website.

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## INTRODUCTION

The IEC 60747-18 series on semiconductor bio sensors is composed of the following parts:

- IEC 60747-18-1 defines the test method and data analysis for calibration of lens-free CMOS photonic array sensors
- IEC 60747-18-2 defines the evaluation process of lens-free CMOS photonic array sensor package modules
- IEC 60747-18-3 defines the fluid flow characteristics of lens-free CMOS photonic array sensor package modules with fluidic system

The IEC 60747-18 series includes subjects such as noise analysis, long-term reliability tests, test methods for lens-free CMOS photonic array sensor package modules under patchable environments, test methods under implantable environments, etc.

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|                   |       |   |                              |
|-------------------|-------|---|------------------------------|
| KR1020170125673   | [SOL] | METHOD FOR EVALUATING FLUID FLOW CHARACTERISTICS OF LENS-FREE CMOS PHOTONIC ARRAY SENSOR PACKAGE MODULE WITH FLUIDIC SYSTEM | Subclause 4.4<br>Clause 5, 6 |
| PCT/KR2017/011031 | [SOL] | METHOD FOR EVALUATING FLUID FLOW CHARACTERISTICS OF LENS-FREE CMOS OPTICAL ARRAY SENSOR PACKAGE MODULE HAVING FLOW CHANNEL  | Subclause 4.4<br>Clause 5, 6 |
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## SEMICONDUCTOR DEVICES –

### Part 18-3: Semiconductor bio sensors – Fluid flow characteristics of lens-free CMOS photonic array sensor package modules with fluidic system

#### 1 Scope

This part of IEC 60747 specifies the fluid flow characteristics of lens-free CMOS photonic array sensor package modules with fluidic system for bio analysis. This document includes the measurement set-up, measurement and calculation at initial state flow, criteria of the fluidic system for quality assurance, measurement and calculation at steady-state flow, and test report.

#### 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 60747-18-1:2019, *Semiconductor devices – Part 18-1: Semiconductor bio sensors – Test method and data analysis for calibration of lens-free CMOS photonic array sensors*

IEC 60747-18-2<sup>1</sup>:-, *Semiconductor devices – Part 18-2: Semiconductor bio sensors – Evaluation process of lens-free CMOS photonic array sensor package modules*

#### 3 Terms and definitions

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

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

- IEC Electropedia available at <http://www.electropedia.org/>
- ISO Online browsing platform: available at <http://www.iso.org/obp>

##### 3.1

##### **lens-free CMOS photonic array sensor package modules with fluidic system**

device composed of the lens-free CMOS photonic array sensor, middle layer, user light (first light source, second light source), its own dark box and fluidic system on or over the sensor

SEE: Figure 1.

Note 1 to entry: Lens-free CMOS photonic array sensor package modules with fluidic system are extensively utilized in bio-diagnostic devices, healthcare devices, lens-free microscopes, and patchable/implantable medical devices as shown in Figure 1.

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<sup>1</sup> Under preparation. Stage at the time of publication: IEC/RFDIS 60747-18-2:2019.