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Photonic integrated circuits

Part 1: Introduction and roadmap for standardization

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National foreword

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Photonic integrated circuits –
Part 1: Introduction and roadmap for standardization

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colour inside

Photonic integrated circuits –
Part 1: Introduction and roadmap for standardization

INTERNATIONAL ELECTROTECHNICAL COMMISSION

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PHOTONIC INTEGRATED CIRCUITS –

Part 1: Introduction and roadmap for standardization

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IEC TR 62072-1, which is a Technical Report, has been prepared by subcommittee 86C: Fibre optic systems and active devices, of IEC technical committee 86: Fibre optics.

The text of this Technical Report is based on the following documents:

Enquiry draft	Report on voting
86C/1428/DTR	86C/1441/RVDTR

Full information on the voting for the approval of this technical report 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 in the IEC 63072-1 series, published under the general title *Photonic integrated circuits*, can be found on the IEC website.

The committee has decided that the contents of this document will remain unchanged until the stability date indicated on the IEC website under "http://webstore.iec.ch" in the data related to the specific document. At this date, the document will be

- reconfirmed,
- withdrawn,
- replaced by a revised edition, or
- amended.

A bilingual version of this publication may be issued at a later date.

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PHOTONIC INTEGRATED CIRCUITS –

Part 1: Introduction and roadmap for standardization

1 Scope

This part of IEC 63072, which is a Technical Report, provides an introduction to photonic integrated circuits (PICs) and describes a roadmap for the standardization of PIC technology over the next decade.

NOTE The trademarks and trade names mentioned in this document are given for the convenience of users of this document; this does not constitute an endorsement by IEC of these companies.

2 Normative references

There are no normative references in this document.

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
photonic integrated circuit
PIC
integrated circuit that contains optical structures to guide and process optical signals

3.2
III-V
three-five
compound semiconductor formed of materials from the third and fifth column of the periodic table

EXAMPLE 1 Indium phosphide

EXAMPLE 2 Gallium arsenide

3.3
through-silicon-via
TSV
metallised hole (via) through a silicon wafer enabling electrical conductivity from one surface of the silicon to the other

3.4
silicon photonics
structure or system of structures fabricated into a silicon wafer to guide light and enable passive and active optical processes to be carried out at the integrated circuit level