IEC 62779-4

Edition 1.0 2020-02

INTERNATIONAL STANDARD

NORME INTERNATIONALE

colour inside

Semiconductor devices – Semiconductor interface for human body communication –
Part 4: Capsule endoscope

Dispositifs à semiconducteurs – Interface à semiconducteurs pour les communications via le corps humain –
Partie 4: Capsule endoscopique

IEC 62779-4:2020-02(en-fr)

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FOREWORD

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

FDIS	Report on voting
47/2600/FDIS	47/2611/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 in the IEC 62779 series, published under the general title *Semiconductor devices – Semiconductor interface for human body communication*, 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- withdrawn,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.

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INTRODUCTION

IEC 62779-1, IEC 62779-2 and IEC 62779-3 define the general requirements, measurement method and functional type of a semiconductor interface for human body communication. They include the general and functional specifications of the interface, the electrical performances of an electrode, and the operational conditions of the interface. However, an in-body to on-body channel for a capsule endoscope using galvanic coupling human body communication (HBC) is different from the channel that is described in IEC 62779-1, IEC 62779-2 and IEC 62779-3 using capacitive coupling human body communication (i.e. channel properties, such as signal loss and signal propagation mechanism, are different). Therefore, the semiconductor interface covered by IEC 62779-1, IEC 62779-2 and IEC 62779-3 cannot be used for the capsule endoscope using galvanic coupling human body communication. A common interface for a capsule endoscope using human body communication should be defined to secure communication compatibility between various capsule endoscope devices and receiving devices that are implemented on or inside the human body.

SEMICONDUCTOR DEVICES – SEMICONDUCTOR INTERFACE FOR HUMAN BODY COMMUNICATION –

Part 4: Capsule endoscope

1 Scope

This part of IEC 62779 defines general requirements on the electrical performances of a semiconductor interface for capsule endoscope using galvanic coupling human body communication. It includes general and functional specifications of the interface. The semiconductor interface that is covered in this document is the interface to handle or deliver an electrical signal between the capsule endoscope inside the human body and the HBC modem in the receiving device outside the human body.

NOTE Additional information on capsule endoscope using the human body communication is provided in Annex A.

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.

IEEE 802.15.6:2012, *IEEE Standard for Local and Metropolitan area networks – Part 15.6: Wireless Body Area Networks*

3 Terms, definitions and letter symbols

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

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

3.1 General terms

3.1.1
transmitting electrode
golden physical structure that transmits an electrical signal from a capsule endoscope to the human body while typically located inside the human body and adhering to the small bowel

Note 1 to entry: A transmitting electrode delivers an electrical signal to a non-metallic transmission channel, the human body.

3.1.2
capsule endoscope
small round and tube-shaped fixture that contains a LED module, lens module, sensor PCB, battery and power module