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Fibre optic interconnecting devices and passive components

Part 08: Study of optical power blocking measurement methods for adaptors with an optical power blocking shutter

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TECHNICAL REPORT

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Fibre optic interconnecting devices and passive components – Part 08: Study of optical power blocking measurement methods for adaptors with an optical power blocking shutter

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FIBRE OPTIC INTERCONNECTING DEVICES AND PASSIVE COMPONENTS –

Part 08: Study of optical power blocking measurement methods for adaptors with an optical power blocking shutter

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IEC TR 62627-08, which is a Technical Report, has been prepared by subcommittee 86B: Fibre optic interconnecting devices and passive components, of IEC technical committee 86: Fibre optics.

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

Enquiry draft	Report on voting
86B/3931/DTR	86B/3945/RVC

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

A list of all parts in the IEC 62627 series, published under the general title *Fibre optic interconnecting devices and passive components*, can be found on the IEC website.

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- withdrawn,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

In recent years, optical communication networks have made greater use of optical fibre amplifiers and distributed Raman amplifiers. Optical communication equipment usually has an adaptor on the front of the board as an optical input/output terminal. These adaptors sometimes emit 100 mW or higher optical power. For the purpose of blocking such optical power, an adaptor with an optical power blocking shutter is sometimes used.

This Technical Report details the proposed methods to evaluate the efficacy of these adaptor shutters.

This Technical Report is based on Optoelectronic Industry and Technology Development Association (OITDA) – Technical Paper (TP), TP19/CN-2014, *Investigation of examinations and measurements – Light-blocking performance of optical adaptor with shutter*.

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FIBRE OPTIC INTERCONNECTING DEVICES AND PASSIVE COMPONENTS –

Part 08: Study of optical power blocking measurement methods for adaptors with an optical power blocking shutter

1 Scope

This part of IEC 62627, which is a Technical Report, describes two methods used to measure the blocking characteristics of adaptors with an optical power blocking shutter. This document focuses on singlemode fibre (SMF) and two wavelengths, 1 310 nm and 1 550 nm.

2 Normative references

The following documents, in whole or in part, are normatively referenced in this document and are indispensable for its application. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

Void.

3 Terms and definitions

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

3.1
adaptor with an optical power blocking shutter
adaptor defined in IEC 61274-1 that has a shutter to block optical power emitted from its aperture

Note 1 to entry: An adaptor with a shutter may have a structure such that the shutter automatically moves to block the aperture when the outer plug is removed. There are two commercially available types of optical adaptors with shutters: one type blocks optical power and the other type blocks dust ingress. Products that focus on optical power blocking may have a metal shutter.

3.2
optical power blocking
attenuation a_b calculated by measuring the maximum emitted optical power when the shutter is fully open (or the shutter is removed) (P_{0max}) and the maximum emitted optical power when the shutter is closed (P_{1max})

$$a_b = -10 \log_{10} \left(\frac{P_{1max}}{P_{0max}} \right) (\text{dB}) \quad (1)$$

4 Background to the measurement method of blocking characteristics for adaptors with an optical power blocking shutter

4.1 Laser safety requirement for optical fibre communication systems

The safety of laser products are defined in IEC 60825-1 which prescribes the acceptable optical power as the laser safety class. IEC 60825-2, a subdivision standard, provides the safety standards for optical fibre communication systems. Optical communication equipment

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