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IEEE Guide for Parameter Requirements and Test Method for Industrial Fiber Laser

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IEEE Guide for Parameter Requirements and Test Method for Industrial Fiber Laser

Developed by the

Standards Committee
of the
IEEE Photonics Society

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Abstract: The required parameters that should be included in an industrial fiber laser product, such as the terminology, classification, and test method for fiber laser products are specified in this guide. This guide is intended to be used by fiber-laser producers, laser-processing equipment integrators, and end-users. This standard specifies performance parameters and the test method for industrial fiber lasers. The purpose is to improve the mutual compatibility among laser manufacturers, system integrators and end users, provide a uniform specification, and promote the development of the industrial fiber laser sector.

Keywords: IEEE 2065™, industrial fiber laser, test method

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Introduction

This introduction is not part of IEEE Std 2065-2020, IEEE Guide for Parameter Requirements and Test Method for Industrial Fiber Laser.

This guide defines the terminology of industrial fiber lasers, and according to the difference in time domain characteristics, specifies the necessary parameters that should be included in the products of pulsed fiber lasers and continuous-wavelength fiber lasers, and gives corresponding test methods. Since picosecond lasers and femtosecond lasers are called ultrafast lasers, fiber lasers with pulse widths below nanoseconds are not included in this guide.

This guide aims to help manufacturers reliable industrial fiber lasers. At the same time, unified specifications will alleviate unnecessary confusion and technical obstacles caused by different parameters of different fiber laser providers, and facilitate the use of laser processing equipment integrators and end users.

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IEEE Guide for Parameter Requirements and Test Method for Industrial Fiber Laser

1. Overview

1.1 Scope

This guide specifies the required parameters that should be included in an industrial fiber laser product, such as the terminology, classification, test method, for fiber laser product. This guide is intended to be used by fiber-laser producers, laser-processing equipment integrators, and end-users.

1.2 Purpose

This guide aims to help manufacturers to produce reliable industrial fiber lasers that conform to the parameter requirements suggested by this guide. Having a uniform specification will help mitigate unnecessary confusion and technical obstacles caused by different parameters by different fiber laser providers.

1.3 Word usage

The word *shall* indicates mandatory requirements strictly to be followed in order to conform to the standard and from which no deviation is permitted (*shall* equals *is required to*).[1,2]

The word *should* indicates that among several possibilities one is recommended as particularly suitable, without mentioning or excluding others; or that a certain course of action is preferred but not necessarily required (*should* equals *is recommended that*).

The word *may* is used to indicate a course of action permissible within the limits of the standard (*may* equals *is permitted to*).

The word *can* is used for statements of possibility and capability, whether material, physical, or causal (*can* equals *is able to*).

[1]The use of the word *must* is deprecated and cannot be used when stating mandatory requirements; *must* is used only to describe unavoidable situations.
[2]The use of *will* is deprecated and cannot be used when stating mandatory requirements; *will* is only used in statements of fact.