

# INTERNATIONAL STANDARD

## NORME INTERNATIONALE

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**Fibre optic active components and devices – Test and measurement  
procedures –  
Part 5: Wavelength channel tuning time of tuneable transmitters**

**Composants et dispositifs actifs à fibres optiques – Procédures d'essais et  
de mesures –  
Partie 5: Durée d'accordement des émetteurs accordables en longueur d'onde**



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## INTERNATIONAL ELECTROTECHNICAL COMMISSION

**FIBRE OPTIC ACTIVE COMPONENTS AND DEVICES –  
TEST AND MEASUREMENT PROCEDURES –**
**Part 5: Wavelength channel tuning time of tuneable transmitters**

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The text of this standard is based on the following documents:

FDIS	Report on voting
86C/1440/FDIS	86C/1445/RVD

Full information on the voting for the approval of this standard 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 62150 series, published under the general title *Fibre optic active components and devices – Test and measurement procedures*, 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- withdrawn,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.

## INTRODUCTION

This part of IEC 62150 specifies testing and measurement procedures for the wavelength channel tuning time of a tuneable transmitter. In a multiple-wavelength network, such as described in the ITU-T G.989 series, the tuneable transmitter is controlled to change its output wavelength during its operation. In order to provide different use cases, the tuneable transmitters are categorized into several wavelength channel tuning time classes. The test and measurement procedures of the wavelength channel tuning time are established to guarantee interoperability.

# FIBRE OPTIC ACTIVE COMPONENTS AND DEVICES – TEST AND MEASUREMENT PROCEDURES –

## Part 5: Wavelength channel tuning time of tuneable transmitters

### 1 Scope

This part of IEC 62150 specifies test and measurement procedures for the wavelength channel tuning time of tuneable transmitters. It applies to laser transmitters, and to the transmitter portion of transceivers. This procedure examines whether the device or module satisfies the appropriate performance specification.

The method described in this document uses optical filters to transfer the transition of the output wavelength to the transition of the optical power. This is because the transient response of the output wavelength before stabilization at steady-state of the target wavelength channel is too fast to measure using a wavelength meter or an optical spectrum analyser. Reference optical filter sets are described in Annex A.

### 2 Normative references

There are no normative references in this document.

### 3 Terms, definitions and abbreviated terms

#### 3.1 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>

##### 3.1.1

##### **tuneable transmitter**

transmitter which can select a specific output wavelength and can be tuned across a specified wavelength range

##### 3.1.2

##### **wavelength channel**

unidirectional optical communication channel characterized by a single unique centre frequency or a set of unique centre frequencies mapped to one wavelength multiplexer/demultiplexer tributary port

##### 3.1.3

##### **wavelength channel tuning time**

$T_{tu}$

maximum time taken for the optical power from the tuneable transmitter to begin to decrease in the original wavelength channel (after a wavelength-change control signal) to the time when the optical power from the tuneable transmitter appears and remains stable within the desired wavelength channel