

INTERNATIONAL STANDARD

NORME INTERNATIONALE

Transmitting equipment for radiocommunication – Frequency response of optical-to-electric conversion device in high-frequency radio over fibre systems – Measurement method

Matériels émetteurs pour les radiocommunications – Réponse en fréquence des dispositifs de conversion optique-électrique dans des systèmes de transmission radio sur fibre haute fréquence – Méthode de mesure



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CONTENTS

FOREWORD.....	4
INTRODUCTION.....	6
1 Scope.....	7
2 Normative references.....	7
3 Terms, definitions and abbreviations.....	7
3.1 Terms and definitions.....	7
3.2 Abbreviations.....	9
4 Optical-to-electrical (O/E) conversion device.....	9
4.1 Photo diode (PD).....	9
4.1.1 General.....	9
4.1.2 Component parts.....	9
4.1.3 Structure.....	9
4.1.4 Requirements for PD.....	10
4.2 DFG device.....	10
4.2.1 General.....	10
4.2.2 Component parts.....	10
4.2.3 Structure.....	10
4.2.4 Requirements for DFG device.....	10
5 Sampling for quality control.....	11
5.1 Sampling.....	11
5.2 Sampling frequency.....	11
6 Measurement method of frequency response.....	11
6.1 Circuit diagram.....	11
6.2 Measurement condition.....	12
6.2.1 Temperature and environment.....	12
6.2.2 Warming up of measurement equipment.....	12
6.3 Principle of measurement method.....	12
6.4 Measurement procedure.....	13
Annex A (normative) Power balanced two-tone signal generation by using a high extinction-ratio MZM [2].....	15
Annex B (informative) Requirements for the optical amplifier with automatic level control.....	17
B.1 Introductory remark.....	17
B.2 Block diagram.....	17
B.2.1 Optical amplifier.....	17
B.2.2 Automatic level control.....	18
B.3 Function and capabilities.....	18
B.4 Requirements.....	19
B.4.1 Optical amplifier.....	19
B.4.2 Automatic level control (ALC).....	20
Annex C (informative) Frequency-response measurement system and automatic level control EDFA.....	21
C.1 Frequency response measurement system for optical-to-electric conversion devices with a two-tone generator.....	21
C.2 Automatic level control EDFA (ALC-EDFA).....	22
Bibliography.....	24

Figure 1 – Definition of "conversion efficiency "	8
Figure 2 – Optical-to-electrical conversion by photo diode	10
Figure 3 – DFG device	10
Figure 4 – Circuit diagram	11
Figure B.1 – Block diagram of the optical amplifier	17
Figure B.2 – Block diagram of the automatic level control	18
Figure B.3 – Frequency characteristics	19
Figure C.1 – System configuration for the frequency response measurement system.....	21
Figure C.2 – ALC-EDFA system configuration.....	22
Figure C.3 – Frequency response measurement examples	23
Table C.1 – Typical specifications of the frequency response measurement system	22
Table C.2 – Typical specifications of the ALC-EDFA system	23

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INTERNATIONAL ELECTROTECHNICAL COMMISSION

**TRANSMITTING EQUIPMENT FOR RADIOCOMMUNICATION –
FREQUENCY RESPONSE OF OPTICAL-TO-ELECTRIC CONVERSION
DEVICE IN HIGH-FREQUENCY RADIO OVER FIBRE SYSTEMS –
MEASUREMENT METHOD**

FOREWORD

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International Standard IEC 62803 has been prepared by IEC technical committee 103: Transmitting equipment for radiocommunication.

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

FDIS	Report on voting
103/147/FDIS	103/148/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.

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

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INTRODUCTION

A variety of microwave-photonic devices are used in wireless communication and broadcasting systems. A photo-receiver is an interface which converts an optical signal to an electronic signal. This International Standard has been prepared to provide methods for evaluating and calibrating high speed photo-receivers to be used in Radio over Fibre systems.

The method utilizes a Mach-Zehnder modulator for generating two-tone lightwaves as stimulus signals, to provide simpler and easier methods than the conventional method utilizing a complex two-laser system phase-locked with each other.

The International Electrotechnical Commission (IEC) draws attention to the fact that it is claimed that compliance with this document may involve the use of a patent concerning a calibration method and device for light intensity measuring instrument, as it relates to Clause 6.

Related part	Patent holder	Patent number
Clause 6	National Institute of Information and Communications Technology	JP 4753137B EP1956353A US7864330B

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TRANSMITTING EQUIPMENT FOR RADIOCOMMUNICATION – FREQUENCY RESPONSE OF OPTICAL-TO-ELECTRIC CONVERSION DEVICE IN HIGH-FREQUENCY RADIO OVER FIBRE SYSTEMS – MEASUREMENT METHOD

1 Scope

This International Standard provides a method for measuring the frequency response of optical-to-electric conversion devices in wireless communication and broadcasting systems.

The frequency range covered by this standard goes up to 100 GHz (practically limited up to 110 GHz by precise RF power measurement) and the wavelength band concerned is 0,8 μm to 2,0 μm .

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.

There are no normative references in this document.

3 Terms, definitions and abbreviations

3.1 Terms and definitions

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

3.1.1

conversion efficiency

ratio of the output current to the input optical power defined by

$$k = \frac{\Delta I_{\text{out}}}{\Delta P_{\text{in}}} \quad (1)$$

Note 1 to entry: See Figure 1.