# ISO/TS 17915:2013-07 (E)

## Optics and photonics - Measurement method of semiconductor lasers for sensing

## Contents

Page

Foreword ..... iv

1 Scope ..... 1

2 Normative references ..... 1

3 Optical sensing using semiconductor lasers ..... 1
3.1 General ..... 1
3.2 Semiconductor laser ..... 1
3.3 Common sensing technique and equipment using semiconductor laser ..... 3
3.4 Temperature and current dependence of wavelength ..... 5
3.5 Effect of current injection on lasing wavelength ..... 7
3.6 Effect of ambient temperature on lasing wavelength ..... 8

4 Measurement method for temperature dependence of wavelength ..... 9
4.1 General ..... 9
4.2 Description of measurement setup and requirements ..... 9
4.3 Precautions to be observed ..... 10
4.4 Measurement procedures ..... 11

5 Measurement method for current dependence of wavelength ..... 11
5.1 General ..... 11
5.2 Description of measurement setup and requirements ..... 11
5.3 Precautions to be observed ..... 12
5.4 Measurement procedures ..... 13

6 Measurement method of spectral line width ..... 13
6.1 General ..... 13
6.2 Description of measurement setup and requirements ..... 14
6.3 Precautions to be observed ..... 17
6.4 Measurement procedures ..... 17

Annex A (informative) Essential ratings and characteristics ..... 19

Bibliography ..... 27