ISO 14934-2:2013-03 (E)

Fire tests - Calibration and use of heat flux meters - Part 2: Primary calibration methods

Contents

Page

Foreword v

Introduction vi

1 Scope 1

2 Normative references 1

3 Terms and definitions 1

4 Principles 1
4.1 General principles 1
4.2 Principle of the vacuum black-body cavity (VBBC) method (method 1) 1
4.3 Principle of the spherical black-body cavity method (method 2) 2
4.4 Principle of the variable temperature black-body (VTBB) method (method 3) 2

5 Suitability of a gauge for calibration 2
5.1 Types of heat flux meters 2
5.2 Design of heat flux meters 3
5.3 Measuring range 3
5.4 Status of heat flux meter prior to calibration 3

6 Vacuum black-body cavity (VBBC) method (method 1) 3
6.1 Apparatus 3
6.2 Operating procedure 6
6.3 Uncertainty 6

7 Spherical black-body cavity method (method 2) 7
7.1 Apparatus 7
7.2 Operating procedure 11
7.3 Uncertainty 11

8 Variable-temperature black-body (VTBB) method (method 3) 14
8.1 Apparatus 14
8.2 Operating procedure 16
8.3 Uncertainty 18

9 Number of calibration levels 19

10 Expression of results 20

11 Calibration report 21

Annex A (normative) Operating procedure for vacuum black-body cavity method (VBBC) (method 1) 22

Annex B (normative) Calculating the irradiance from the vacuum black-body cavity (VBBC) to the heat flux meter 24

Annex C (informative) Examples of computer screens for calculating the irradiance from the vacuum black-body cavity (VBBC) 27

Annex D (normative) Operating procedure for spherical black-body cavity method (method 2) 29

Annex E (normative) Calculating the irradiance from the spherical black-body cavity to the heat flux meter 31

Annex F (normative) Drawings for the fixed and movable cooler to the spherical black- body cavity 34

Annex G (informative) Guidance notes for operators using the spherical black-body cavity method 38

Annex H (normative) Electrical substitution radiometer (ESR) operating procedure 39

Annex I (normative) Procedure for heat flux meter calibration using the 25-mm VTBB method (method 3) 41

Annex J (normative) Data reduction procedure for the VTBB method (method 3) 43

Annex K (informative) Precision of calibration 45

Bibliography 46