ISO 14934-2:2006-02 (E)

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

Contents

Page

Foreword v

Introduction vii

1 Scope 1

2 Normative references 1

3 Terms and definitions 1

4 Principles 5
4.1 General principles 5
4.2 Principle of the vacuum black-body cavity (VBBC) method (method 1) 5
4.3 Principle of the spherical black-body cavity method (method 2) 5
4.4 Principle of the variable temperature black-body (VTBB) method (method 3) 5

5 Suitability of a gauge for calibration 6
5.1 Types of heat flux meters 6
5.2 Design of heat flux meters 6
5.3 Measuring range 6
5.4 Status of heat flux meter prior to calibration 6

6 Relationship between output voltage and total heat flux 6

7 Vacuum black-body cavity (VBBC) method (method 1) 7
7.1 Apparatus 7
7.2 Operating procedure 10
7.3 Uncertainty 10

8 Spherical black-body cavity method (method 2) 11
8.1 Apparatus 11
8.2 Operating procedure 15
8.3 Uncertainty 15

9 Variable-temperature black-body (VTBB) method (method 3) 16
9.1 Apparatus 16
9.2 Operating procedure 18
9.3 Uncertainty 20

10 Number of calibration levels 21

11 Expression of results 22

12 Calibration report 22

Annex A (normative) Operating procedure for vacuum black-body cavity method (VBBC) (method 1) 24

Annex B (normative) Calculating the irradiance from the vacuum black-body cavity (VBBC) to the heat flux meter 26

Annex C (informative) Examples of computer screens for calculating the irradiance from the vacuum black-body cavity (VBBC) 29

Annex D (normative) Operating procedure for spherical black-body cavity method (method 2) 30

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 35

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

Bibliography 45