ISO/TS 21749:2005-02 (E)

Measurement and uncertainty for metrological applications - Repeated measurements and nested experiments

Contents

Page

Foreword iv

Introduction v

1 Scope 1

2 Normative references 1

3 Terms and definitions 2

4 Statistical methods of uncertainty evaluation 3
4.1 Approach of the Guide to the expression of uncertainty of measurement 3
4.2 Check standards 4
4.3 Steps in uncertainty evaluation 5
4.4 Examples in this Technical Specification 6

5 Type A evaluation of uncertainty 6
5.1 General 6
5.2 Role of time in Type A evaluation of uncertainty 7
5.3 Measurement configuration 14
5.4 Material inhomogeneity 16
5.5 Bias due to measurement configurations 17

6 Type B evaluation of uncertainty 26

7 Propagation of uncertainty 27
7.1 General 27
7.2 Formulae for functions of a single variable 28
7.3 Formulae for functions of two variables 28

8 Example -- Type A evaluation of uncertainty from a gauge study 30
8.1 Purpose and background 30
8.2 Data collection and check standards 30
8.3 Analysis of repeatability, day-to-day and long-term effects 31
8.4 Probe bias 31
8.5 Wiring bias 33
8.6 Uncertainty calculation 35

Annex A (normative) Symbols 37

Bibliography 38