

# ISO/TS 21749:2005-02 (E)

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

---

<b>Contents</b>		<b>Page</b>
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