

ISO 8932-2:2026-05 (E)

Meteorology - Radiosonde - Part 2: Laboratory test method for errors in radiosonde humidity sensor calibration

Contents

Page

Foreword.....	v
Introduction.....	vi
1 Scope.....	1
2 Normative references.....	1
3 Terms and definitions.....	2
4 Symbols and subscripts.....	4
4.1 Symbols.....	4
4.2 Subscript.....	4
5 Technical requirements for the laboratory setup.....	5
5.1 General.....	5
5.1.1 Temperature.....	5
5.1.2 Pressure.....	5
5.2 Precision hygrometer.....	6
5.2.1 Type.....	6
5.2.2 Installation.....	6
5.2.3 Operation.....	7
5.3 Humidity generator.....	8
5.3.1 Type.....	8
5.3.2 Installation.....	8
5.3.3 Operation.....	9
6 Test preparation.....	10
6.1 Laboratory environmental conditions.....	10
6.2 Preparation of the radiosonde.....	10
6.3 Examination of the laboratory setup.....	11
6.3.1 General.....	11
6.3.2 Examination of the dry gas generator.....	11
6.3.3 Examination of the liquid bath and climate chamber.....	11
6.3.4 Examination of the measurement system for the calculation of the reference relative humidity in the test cell.....	11
6.3.5 Examination of the radiosonde measurement software and the control software for the reference relative humidity.....	11
6.4 Installation of the radiosonde.....	11
7 Test methods and procedures.....	11
7.1 Operation.....	11
7.1.1 Purging the test cell.....	11
7.1.2 Temperature control of the test cell.....	12
7.1.3 Humidity from the humidity generator.....	12
7.1.4 Calculation of the reference relative humidity using the humidity generator.....	13
7.1.5 Calculation of the reference relative humidity using the precision hygrometer.....	13
7.2 Test procedure.....	13
8 Data processing.....	14
8.1 Calculation of the average values.....	14
8.2 Calculation of the measurement error.....	14
9 Evaluation of measurement uncertainty.....	14
9.1 General.....	14

9.2	Uncertainty evaluation for the reference relative humidity, $u(h_{ref})$	15
9.2.1	Uncertainty of the reference relative humidity.....	15
9.3	Uncertainty of the radiosonde relative humidity, $u(h_{rad})$	17
9.3.1	Uncertainty of the resolution of the radiosonde relative humidity, $u(h_{rad_res})$	17
9.3.2	Uncertainty of the repeatability of the radiosonde relative humidity, $u(h_{rad_rep})$	17
9.4	Calculation of the combined standard uncertainty of the measurement error, $u(h_{err})$	17
9.5	Calculation of expanded uncertainty.....	18
10	Method for reporting test results	18
Annex A	(informative) Calculation of the reference relative humidity	19
Bibliography	23