

ISO 20956:2023-09 (E)

Radiological protection - Low dose rate calibration of instruments for environmental and area monitoring

Contents

Page

Foreword.....	iv
Introduction.....	v
1 Scope.....	1
2 Normative references.....	1
3 Terms and definitions.....	1
4 Symbols.....	3
5 Calibration methods under laboratory conditions.....	3
5.1 Characterization of the radiation field using a reference source.....	3
5.1.1 General.....	3
5.1.2 Characterization procedure of the reference radiation field.....	3
5.1.3 Characterization procedure of the radiation field at a distance r	4
5.1.4 Uncertainty for the calibration of the radiation field using the reference source.....	4
5.2 Ground level facilities with normal background dose levels.....	4
5.2.1 General.....	4
5.2.2 Dose equivalent rate evaluation using the inverse square of distance.....	4
5.2.3 Detector calibration procedure.....	5
5.2.4 Uncertainty contributions to the detector calibration uncertainty.....	5
5.3 Ground level facilities with added shielding at lower than normal background levels.....	5
5.3.1 General.....	5
5.3.2 Description of the ground level facility with added shielding.....	5
5.3.3 Detector calibration procedure.....	5
5.3.4 Uncertainty contributions to the detector calibration uncertainty.....	6
5.4 Underground facilities with ultra-low background dose levels.....	6
5.4.1 General.....	6
5.4.2 Description of the facility.....	6
5.4.3 Uncertainty contributions to the detector calibration uncertainty.....	6
6 Routine checking.....	7
6.1 General.....	7
6.2 Description of the method.....	7
6.2.1 Introduction.....	7
6.2.2 Irradiation setup for regular checking.....	7
6.2.3 Criteria for routine checks.....	7
7 On-site calibration.....	8
7.1 General.....	8
7.2 The method using a portable calibrated radioactive source.....	8
7.2.1 General.....	8
7.2.2 Portable calibrated radioactive source.....	8
7.2.3 Procedure of calibration.....	8
7.2.4 Uncertainty contributions to the detector calibration uncertainty.....	8
7.3 The method using a reference standard instrument.....	8
7.3.1 General.....	8
7.3.2 The calibration instruments.....	9
7.3.3 Uncertainty contributions.....	9

Annex A (informative) Example of a ground level facility with added shielding..... 10
**Annex B (informative) Reference sites for characterization of environmental doseimeters
with respect to background ionizing radiation in the environment 12**
Bibliography..... 14