

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 dosimeters with respect to background ionizing radiation in the environment.....	12
Bibliography.....	14