



Standard Guide for Selection and Use of Portable Radiological Survey Instruments for Performing In Situ Radiological Assessments to Support Unrestricted Release from Further Regulatory Controls¹

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1. Scope

1.1 This standard provides recommendations on the selection and use of portable instrumentation that is responsive to levels of radiation that are close to natural background. These instruments are employed to detect the presence of residual radioactivity that is at, or below, the criteria for release from further regulatory control of a component to be salvaged or reused, or a surface remaining at the conclusion of decontamination and/or decommissioning.

1.2 The choice of these instruments, their operating characteristics and the protocols by which they are calibrated and used will provide adequate assurance that the measurements of the residual radioactivity meet the requirements established for release from further regulatory control.

1.3 This standard is applicable to the in situ measurement of radioactive emissions that include:

- 1.3.1 alpha
- 1.3.2 beta (electrons)
- 1.3.3 gamma
- 1.3.4 characteristic x-rays

1.3.5 The measurement of neutron emissions is not included as part of this standard.

1.4 This standard does not address instrumentation used to assess residual radioactivity levels contained in air samples, surface contamination smears, bulk material removals, or half/whole body personnel monitors.

1.5 This standard does not address records retention requirements for calibration, maintenance, etc. as these topics are considered in several of the referenced documents.

1.6 The values stated in SI units are to be regarded as standard. No other units of measurement are included in this standard.

2. Referenced Documents

2.1 *ASTM Standards:*²

C998 Practice for Sampling Surface Soil for Radionuclides
C999 Practice for Soil Sample Preparation for the Determination of Radionuclides

C1000 Test Method for Radiochemical Determination of Uranium Isotopes in Soil by Alpha Spectrometry

C1133 Test Method for Nondestructive Assay of Special Nuclear Material in Low-Density Scrap and Waste by Segmented Passive Gamma-Ray Scanning

E170 Terminology Relating to Radiation Measurements and Dosimetry

E181 Test Methods for Detector Calibration and Analysis of Radionuclides

C1215 Guide for Preparing and Interpreting Precision and Bias Statements in Test Method Standards Used in the Nuclear Industry

2.2 *ANSI Standards:*

ANSI N323AB American National Standard for Radiation Protection Instrumentation Test and Calibration, Portable Survey Instrumentation³

ANSI N42.17A American National Standard for Performance Specifications for Health Physics Instrumentation-Portable Instrumentation for Use in Normal Environmental Conditions³

ANSI N42.17C American National Standard for Performance Specifications for Health Physics Instrumentation-Portable Instrumentation for Use in Extreme Environmental Conditions³

¹ This guide is under the jurisdiction of ASTM Committee E10 on Nuclear Technology and Applications and is the direct responsibility of Subcommittee E10.03 on Radiological Protection for Decontamination and Decommissioning of Nuclear Facilities and Components.

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² For referenced ASTM standards, visit the ASTM website, www.astm.org, or contact ASTM Customer Service at service@astm.org. For *Annual Book of ASTM Standards* volume information, refer to the standard's Document Summary page on the ASTM website.

³ Available from American National Standards Institute (ANSI), 25 W. 43rd St., 4th Floor, New York, NY 10036, <http://www.ansi.org>.