



Standard Guide for Measuring Horizontal Positioning During Measurements of Surface Water Depths¹

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1. Scope

1.1 This guide covers the selection of procedures commonly used to establish a measurement of horizontal position during investigations of surface water bodies that are as follows:

	Sections
Procedure A—Manual Measurement	7 to 12
Procedure B—Optical Measurement	13 to 17
Procedure C—Electronic Measurement	18 to 27

1.1.1 The narrative specifies horizontal positioning terminology and describes manual, optical, and electronic measuring equipment and techniques.

1.2 The references cited contain information that may help in the design of a high quality measurement program.

1.3 The information provided on horizontal positioning is descriptive in nature and not intended to endorse any particular item of manufactured equipment or procedure.

1.4 This guide pertains to determining horizontal position of a depth measurement in quiescent or low velocity flow.

1.5 The values stated in inch-pound units are to be regarded as the standard. The SI units in parentheses are for information only.

1.6 *This standard does not purport to address all of the safety concerns, if any, associated with its use. It is the responsibility of the user of this standard to establish appropriate safety and health practices and determine the applicability of regulatory limitations prior to use.*

2. Referenced Documents

2.1 *ASTM Standards:*²

D1129 Terminology Relating to Water

D3858 Test Method for Open-Channel Flow Measurement

¹ This guide is under the jurisdiction of ASTM Committee D19 on Water and is the direct responsibility of Subcommittee D19.07 on Sediments, Geomorphology, and Open-Channel Flow.

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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.

of Water by Velocity-Area Method

D4410 Terminology for Fluvial Sediment

D4581 Guide for Measurement of Morphologic Characteristics of Surface Water Bodies (Withdrawn 2013)³

D5073 Practice for Depth Measurement of Surface Water

D5173 Test Method for On-Line Monitoring of Carbon Compounds in Water by Chemical Oxidation, by UV Light Oxidation, by Both, or by High Temperature Combustion Followed by Gas Phase NDIR or by Electrolytic Conductivity

3. Terminology

3.1 *Definitions:* For definitions of terms used in this guide, refer to Terminology D1129.

3.2 *Definitions of Terms Specific to This Standard:*

3.2.1 *accuracy*—refers to how close a measurement is to the true or actual value. (See Terminology D1129.)

3.2.2 *baseline*—the primary reference line for use in measuring azimuth angles and positioning distances.

3.2.3 *continuous wave system*—an electronic positioning system in which the signal transmitted between the transmitter and responder stations travels as a wave having constant frequency and amplitude.

3.2.4 *electronic distance measurement (EDM)*—measurement of distance using pulsing or phase comparison systems.

3.2.5 *electronic positioning system (EPS)*—a system that receives two or more EDM to obtain a position.

3.2.6 *global positioning system (GPS)*—a global positioning system (GPS) is a satellite-based EDM system used in determining Cartesian coordinates (x, y, z) of a position by means of radio signals from NAVSTAR satellites.

3.2.7 *horizontal control*—a series of connected lines whose azimuths and lengths have been determined by triangulation, trilateration, and traversing.

3.2.8 *line of position (LOP)*—locus of points established along a rangeline.

³ The last approved version of this historical standard is referenced on www.astm.org.