



# Standard Guide for Intermediate Wilderness GPS/GNSS Use (GPS/GNSS-IIW) Endorsement<sup>1</sup>

This standard is issued under the fixed designation F3072; the number immediately following the designation indicates the year of original adoption or, in the case of revision, the year of last revision. A number in parentheses indicates the year of last reapproval. A superscript epsilon ( $\epsilon$ ) indicates an editorial change since the last revision or reapproval.

## 1. Scope

1.1 This guide establishes the minimum knowledge, skills, and abilities required to use a GPS/GNSS<sup>2</sup> receiver to navigate in the wilderness.

1.2 This guide applies to the use of a GPS/GNSS receiver on land, on and off roads, and on small bodies of water, wherever GPS/GNSS signals can be received.

1.3 This guide applies to the use of a GPS/GNSS receiver in disaster areas where local positioning aids or references may be lost or damaged.

1.4 This guide does not apply to the use of a GPS/GNSS receiver on large bodies of water, at sea, or in the air.

1.5 This guide does not imply that a GPS/GNSS receiver is a replacement for a map and compass. Use of the latter is strongly recommended as a backup for GPS/GNSS navigation.

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:<sup>3</sup>

[F1633 Guide for Techniques in Land Search](#)

[F1773 Terminology Relating to Climbing, Mountaineering, Search and Rescue Equipment and Practices](#)

[F2209 Guide for Training of Level I Land Search Team Member](#)

<sup>1</sup> This test method is under the jurisdiction of ASTM Committee F32 on Search and Rescue and is the direct responsibility of Subcommittee F32.03 on Personnel, Training and Education.

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<sup>2</sup> This guide refers to GPS/GNSS, rather than GPS, receivers, due to the increasing number of global satellite navigation systems worldwide. Currently, only GPS and GLONASS are in operation and provide global satellite coverage. However, satellite navigation receivers are now manufactured which are capable of utilizing GPS, GLONASS, and Galileo satellites to determine a position on or above the earth's surface.

<sup>3</sup> For referenced ASTM standards, visit the ASTM website, [www.astm.org](http://www.astm.org), or contact ASTM Customer Service at [service@astm.org](mailto:service@astm.org). For *Annual Book of ASTM Standards* volume information, refer to the standard's Document Summary page on the ASTM website.

## [F3071 Guide for Basic Wilderness GPS/GNSS Use \(GPS/GNSS-IW\) Endorsement](#)

## 3. Terminology

### 3.1 Definitions of Terms Specific to This Standard:

3.1.1 *GNSS (Global Navigation Satellite System), n*—a navigation system utilizing a constellation of dedicated satellites to determine a location on or above the earth's surface.

3.1.2 *GPS (Global Positioning System), n*—the GNSS owned and operated by the United States government.

3.1.3 *navigate, v*—to plot a location on the earth, determine the direction and distance to that point, and travel to it; to direct a person to a particular location on the earth.

3.1.4 *route, n*—a series of waypoints which define a virtual path from one location to one or more other locations.

3.1.5 *track, n*—a three-dimensional trail defined by locations collected by a GPS/GNSS receiver at specific intervals of time.

3.1.6 *waypoint, n*—an intermediate point on a route or line of travel.

3.2 Definitions of terms not defined in this standard can be found in ASTM Guide [F1633](#), Guide [F1773](#), Guide [F2209](#), and Guide [F3071](#).

## 4. Significance and Use

4.1 This guide establishes the minimum knowledge, skills, and abilities required to use a GPS/GNSS receiver to navigate in the wilderness. A person trained to this guide shall be endorsed for Intermediate Wilderness GPS/GNSS Use (GPS/GNSS-IIW Endorsed).

4.1.1 Every person who is endorsed for Intermediate Wilderness GPS/GNSS Use shall have met the requirements of this guide.

4.2 This guide is the second level of training for wilderness GPS/GNSS use, and only establishes the minimum knowledge, skills, and abilities required for a person to navigate with a GPS/GNSS receiver in a wilderness environment. No other skills are included or implied.

4.3 In addition to meeting the requirements of this guide, a person endorsed for Intermediate Wilderness GPS/GNSS Use

shall also be adequately trained to travel and work in a wilderness environment.

4.4 Depending on the regulations or policies of the AHJ, additional knowledge, skills, or abilities may be required before a person who meets the requirements in this guide may use a GPS/GNSS receiver to navigate in a wilderness environment.

4.4.1 Nothing in this guide precludes an AHJ from adding additional requirements for its own members.

4.5 This guide by itself is not a complete training document. It only specifies the knowledge, skills, and abilities required for an individual to be endorsed for Intermediate Wilderness GPS/GNSS Use. This guide may, however, be used in the development of, or as part of, a complete training document or program.

4.6 Though this guide establishes only minimum training, it does not imply that a person endorsed for Intermediate Wilderness GPS/GNSS Use is a “trainee,” “probationary,” or other similar term member of an organization. The AHJ is responsible for determining the requirements and qualifications for member or employee ratings.

4.7 This guide can be used to evaluate a document to determine if its content includes the necessary topics for training a person to be endorsed for Intermediate Wilderness GPS/GNSS Use. Likewise, the guide can be used to evaluate an existing training program to see if it meets the requirements of this guide.

4.8 The information in the following sections is not presented in any particular order and does not represent a training sequence.

4.9 Except where a physical skill or ability must be shown, the AHJ is responsible for determining the best way to evaluate a person’s knowledge, skill, and ability. This may be by written exam, oral exam, demonstration, or some combination of the three.

## **5. Intermediate Wilderness. GPS/GNSS Navigation Skills and Abilities**

5.1 As a prerequisite, a person endorsed for Intermediate Wilderness GPS/GNSS Use shall meet all requirements of **F3071**, Standard Guide for Basic Wilderness GPS/GNSS Use (GPS/GNSS-IW) Endorsement.

5.2 A person endorsed for Intermediate Wilderness GPS/GNSS Use shall demonstrate the ability to prepare a GPS/GNSS receiver for use in the field by performing the following:

5.2.1 Calibrate the compass (if available);

5.2.2 Calibrate the altimeter (if available);

5.2.3 If the GPS/GNSS receiver allows, install a map or maps.

5.3 A person endorsed for Intermediate Wilderness GPS/GNSS Use shall demonstrate the ability to work with waypoints by performing the following:

5.3.1 Record a waypoint by:

5.3.1.1 Marking current position;

5.3.1.2 Entering position coordinates;

5.3.1.3 Selecting location on GPS/GNSS receiver’s map;

5.3.1.4 Projecting bearing and distance from a location.

5.3.2 Edit a waypoint;

5.3.3 Locate a particular waypoint stored in a GPS/GNSS receiver.

5.4 A person endorsed for Intermediate Wilderness GPS/GNSS Use shall demonstrate the ability to work with tracks by performing the following:

5.4.1 Clear a receiver’s track log;

5.4.2 Set up a track on a GPS/GNSS receiver;

5.4.3 Record a track;

5.4.4 Edit a track;

5.4.5 Save a track, with clear identification for future reference;

5.4.5.1 Explain how saving a track may reduce the track’s accuracy;<sup>4</sup>

5.4.6 Locate a particular track stored in a GPS/GNSS receiver.

5.5 A person endorsed for Intermediate Wilderness GPS/GNSS Use shall demonstrate the ability to work with routes by performing the following:

5.5.1 Create a route;

5.5.2 Edit a route;

5.5.3 If receiver allows, set proximity alarm along a route for a feature, location, waypoint, etc.;

5.5.4 Navigate using a route;

5.5.5 Locate a particular route stored in a GPS/GNSS receiver.

5.6 A person endorsed for Intermediate Wilderness GPS/GNSS Use shall demonstrate the ability to navigate with a GPS/GNSS receiver by performing the following:

5.6.1 Determine bearing and distance to a location;

5.6.2 Utilize “Go To” function to return to a location;

5.6.3 Plot the location of an individual and provide that person with directions to move to another location;

5.6.4 Follow GPS/GNSS receiver compass (if available) in the field;

5.6.5 Obtain altitude information (if available) from a GPS/GNSS receiver.

## **6. Keywords**

6.1 GNSS; GPS; navigation; wilderness

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<sup>4</sup> Some GPS receivers limit points in a track to a maximum number, thereby losing some track definition.

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