



Designation: F 2099 – 01

Standard Guide for Use of Universal Transverse Mercator (UTM) Grids When Preparing and Using a Field Map for Land Search¹

This standard is issued under the fixed designation F 2099; 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 (ϵ) indicates an editorial change since the last revision or reapproval.

1. Scope

1.1 This guide describes one method of setting up a Universal Transverse Mercator (UTM) grid system on a base map for transfer to a field map.

1.2 This guide provides a uniform way of communicating UTM coordinates.

1.3 This guide is intended to be used with United States Geological Survey (USGS) 7.5-min quadrangle topographical maps with a scale of 1:24 000, with or without UTM grid lines.

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

1.5 *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 requirements prior to use.*

2. Referenced Documents

2.1 ASTM Standards:

F 1846 Practice for Symbols and Markings for Use with Land Search Maps²

3. Terminology

3.1 Definitions of Terms Specific to This Standard:

3.1.1 *field map, n*—a copy of a base map or portion thereof provided to search and rescue field teams or crews.

3.1.2 *grid overlay, n*—a transparent piece of material used for interpolating UTM coordinates on a USGS topographical map. For a 1:24 000 scale map, the overlay contains, as a minimum, lines representing at least two adjacent sides of a 1000-m square, with the lines subdivided into tenths.

3.1.3 *Universal Transverse Mercator (UTM), n*—a rectangular grid system that covers the earth between latitude 80° South and latitude 84° North.

3.1.4 *UTM grid lines, n*—a series of straight lines that connect the UTM tick marks having identical numbers on the top and bottom of the map, as well as a series of lines that similarly connect the left and right side UTM tick marks.

3.1.5 *UTM tick marks, n*—small vertical or horizontal lines on 1:24 000 USGS maps, light blue in color, approximately 0.3 cm ($\frac{1}{8}$ in.) in length spaced 1000 m (1 km) (scale) apart.

4. Significance and Use

4.1 The base map, field maps, and the UTM grid lines are used during search operations to ensure that field personnel and the command post can accurately communicate specific position information in the search area.

4.2 Section 5 verifies if the UTM grid lines are on the base map or not. If the UTM grid lines are not on the base map, Section 5 describes how to draw them on the map.

4.3 Section 6 establishes how to set up and prepare field maps for personnel to use in the field.

4.4 Section 7 describes the uniform way of determining and communicating UTM coordinates.

5. Verifying and Drawing UTM Grid Lines

5.1 Obtain the USGS quadrangle map (7.5 min or 1:24 000) with the area that is to be copied. Review the map to see if UTM grid lines are marked on the map. If so, proceed to Section 6, otherwise continue with 5.2.

5.2 Obtain a straightedge long enough to connect opposite UTM tick marks and which can be used to draw full-length straight lines in a single stroke, and a pen or pencil. Continue with 5.3.

5.3 Drawing Horizontal and Vertical UTM Grid Lines:

5.3.1 Starting at the top or bottom of the map, align the straightedge on the UTM tick marks at the left and right sides of the map, ensuring the numbers are the same. In a single stroke, draw a line connecting the tick marks. Move the straightedge to the next set of UTM tick marks and again draw a single line connecting them. Continue this process until all horizontal lines are drawn.

5.3.2 Starting at either side of the map, align the straightedge on the UTM tick marks at the top and bottom of the map, ensuring the numbers are the same. In a single stroke, draw a line connecting the tick marks. Move the straightedge to the

¹ This guide is under the jurisdiction of ASTM Committee F32 on Search and Rescue and is the direct responsibility of Subcommittee F32.02 on Management and Operations.

Current edition approved April 10, 2001. Published May 2001.

² *Annual Book of ASTM Standards*, Vol 13.02.