How to calculate you 8-digit grid square

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The Maidenhead Locator System is a method for identifying positions on the Earth and commonly used by VHF / UHF enthusiasts. A maidenhead locator represents a position on the Earth based on latitude and longitude. This position information is represented in a limited level of precision in order to limit the amount of characters needed for its transmission. Pairs of characters alternate between letters and numbers that indicate a zone or sub-zone. While it is common to represent a location using the first two or three pair's additional accuracy can be gained by including the fourth pair.

FIRST PAIR (AA-RR)

The world is divided into (18) 20 degree longitudinal by (18) 10 degree latitudinal zones commonly known as fields.   In order to avoid negative numbers the system also specifies that the latitude is measured from the South Pole to the North Pole and longitude is measured eastward from the antemeridian of Greenwich, giving the Prime Meridian a false easting of 180 degrees and the equator a false northing of 90 degrees. The first character encodes the longitude and the second encodes the latitude with letters "A" thru "R" (refer to example 1 below).

Example 1:

Longitude = -71.661962 degrees
     = (-72.661962) +180
     = (108.338038)
     = 108.338038 / 20
     = 5 remainder 8.338038
     = **F** (location in 6th zone)

Latitude = 42.664048 degrees
     = 42.664048 + 90
     = 132.664048
     = 132.664048 / 10
     = 13 remainder 2.664048
     = **N** (location in 14th zone)

SECOND PAIR (00-99)

Each field can be further divided into (10) 2 degree longitudinal by (10) 1 degree latitudinal zones commonly known as squares. The first character encodes the longitude and the second encodes the latitude with numbers "0" thru "9" (refer to example 2 below).

Examples 2:

Longitude = 8.338038 {refer to example 1}
   = 8.338038 / 2
   = 4 remainder 0.338038
   = **4** (location in 5th zone)

Latitude = 2.664048 {refer to example 1}
   = 2.664048 / 1
   = 2 remainder 0.664048
   = **2** (location in 3rd zone)

THIRD PAIR (aa-xx)

Each field can be further divided into (24) 5 minutes (0.083333 degrees) longitudinal by (24) 2.5 minute (0.0416665 degrees) latitudinal zones. The first character encodes the longitude and the second encodes the latitude with letters "a" thru "x" (refer to example 3 below).

Example 3:

Longitude = 0.338038 {Refer to example 2}
   = 0.338038 / 0.083333
   = 4 remainder 0.004706
   = **e** (location in 5th zone)

Latitude = 0.664048
   = 0.664048 / 0.0416665
   = 15 remainder 0.0390505
   = **p** (location in 16th zone)

FOURTH PAIR (00-99)

Each field can be further subdivided into (10) 30 seconds (0.008333 degrees) longitudinal by (10) 15 seconds (0.004166) latitudinal zones. The first character encodes the longitude and the second encodes the latitude with numbers "0" thru "9" (refer to example 4 below).

Example 4:

Longitude = 0.004706 {Refer to example 3}
　　　　= 0.004706 / 0.008333
　　　　= 0 remainder 0.004706
　　　　= **0** (location in 1st zone)

Latitude = 0.0390505 {Refer to example 3}
　　　　= 0.0390505 / 0.004166
　　　　= 9 remainder 0.001556
　　　　= **9** (location in 10th zone)

There are a number of online sources for tools to calculate a 4/6 digit grid square from a Latitude / Longitude or vice versa, listed below are several popular ones.

Online sources for Maidenhead Grid Square Calculators:

http://home.comcast.net/~lespeters/PROJECTS/Calculate 8-digit Grid.zip

http://www.amsat.org/amsat/toys/
http://www.dxzone.com/cgi-bin/dir/jump2.cgi?ID=6831
http://www.k3dn.org/grid.htm
http://www.qsl.net/vk4cp/gscalc.htm