

Use of range calculation formula

Range to the horizon is calculated by a simplified formula that also converts feet to miles. The formula assumes the earth is a sphere, the radius is 4000 miles and there is no refraction.

The formula is the square root of the height above ground times 1.3 equals the range in miles to the Horizon. The formula applies to vision and radio waves equally well. (The exact number is 1.224, according to Tom Skilling.)

Since the receiving station probably will not have its antenna on the ground, the range will actually be a little better (2 or 3 miles). This assumes line of sight, without buildings or other obstructions.

Some calculated values are:

Height (feet)	Range (miles)	Coverage area
1,600	52	8,495 sq miles
3,000	71	15,928 sq miles
3,200	73	16,742 sq miles
5,000	92	26,590 sq miles
10,000	126	49,876 sq miles
12,500	145	66,366 sq miles
28 miles	500	785,400 sq miles

Remember, the range runs all directions from the antenna.

The 3000 and 12500 were added with the border restrictions.