# VHF-SHF coverage

VHF (very high frequency) from 30-300MHz, wavelength 10 -1m

UHF (ultra high frequency) from 300MHz -3GHz, wavelength 1-0,1m

SHF (serious high frequency) from 3GHz – 30GHz, wavelength 10 -1cm

**Visual horizon**

Base for this formula is the effective earth radius of 8470km.

(average Earth radius * $\frac{4}{3}$)

$$\frac{Rg}{km} = 3{,}57\left(\sqrt{\frac{Hs}{m}} + \sqrt{\frac{He}{m}}\right)$$

Rg geometric horizon

Hs height of transmitter

He height of receiver

**Radio horizon**

Due to the bending (refraction) of the wave at the atmosphere the radio horizon is about 15% larger than the visual horizon

$$\frac{Rr}{km} = 4{,}12\left(\sqrt{\frac{Hs}{m}} + \sqrt{\frac{He}{m}}\right)$$

Rr = radio horizon

# Nomogram of VHF radio coverage