

Chapter One



Fig. 1-5. *Build-and-fade method of locating ELT signals.*

these two major issues would be possible if there were no navigation and communication radios. Linking radios to the ground is the role of the antenna.

Usable radio frequencies range from 30 kHz (kilohertz or thousands of cycles per second) to 30,000 MHz (megahertz or millions of cycles per second). The lower the frequency, the greater the distance the signal will travel, but the more susceptible it is to environmental conditions such as lightning. Higher frequencies, while less likely to be bothered by the environment, have the limitation that they require line of sight between the transmitting and receiving antennas. Obviously, altitude becomes important with higher-frequency radios.

Antenna Size and Orientation

Antenna design is a function of the frequency band for which it is to be used. Wavelength is inversely proportional to frequency, so the higher the frequency, the smaller the wavelength and the smaller the antenna. Generally speaking, due to their different purposes, vertically mounted antennas are for communication, and horizontally mounted antennas are for navigation.