

HF Field-Radio Antennas

By Al Klase – N3FRQ

MRCA 2008

GROUND WAVE

Short Range

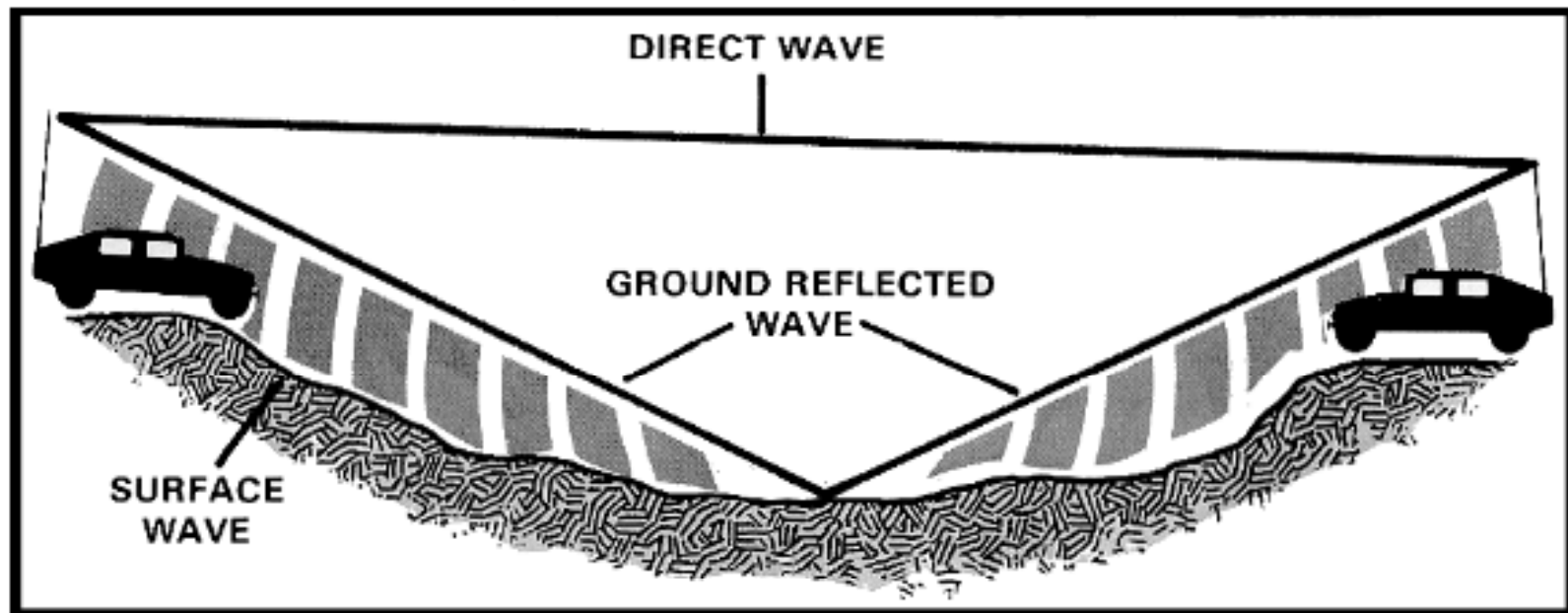
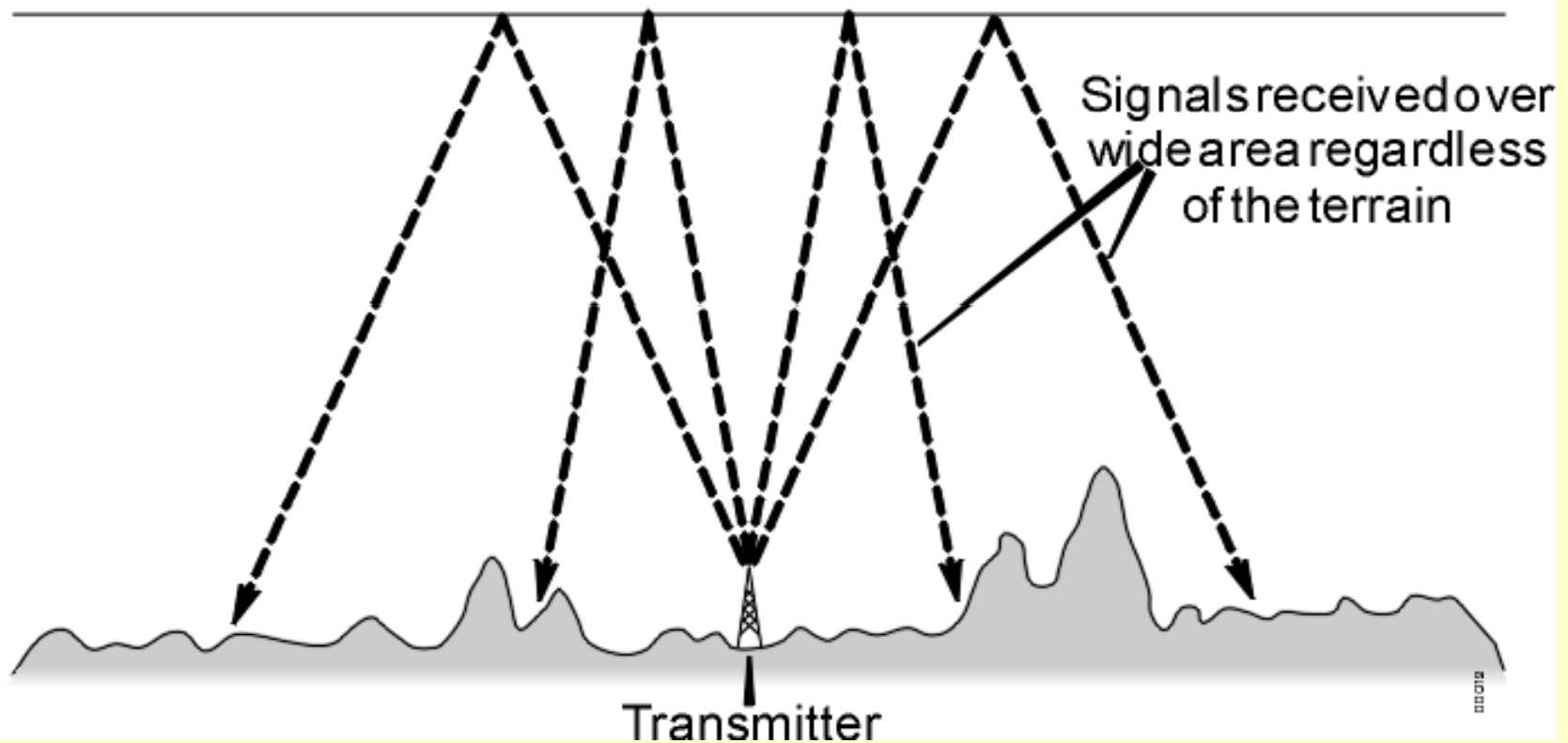


Figure 2-12. Possible routes for ground waves.

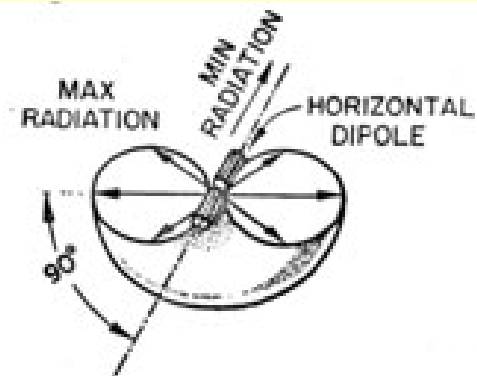
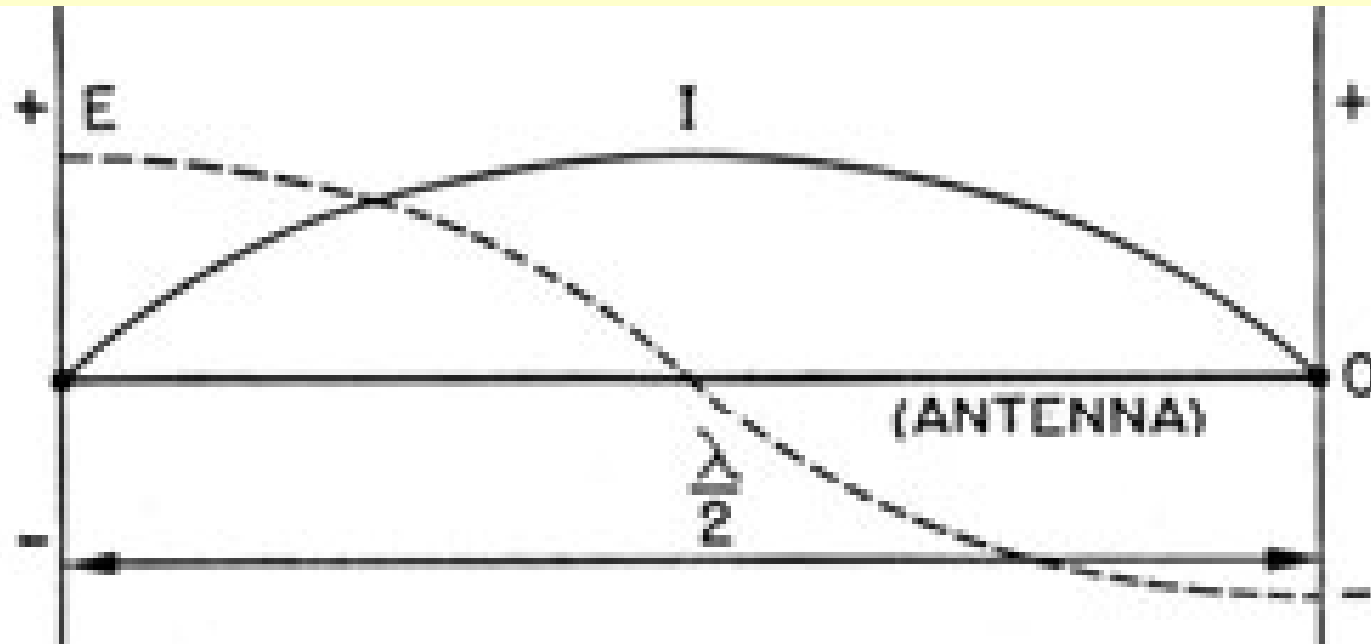
NVIS

Near-Vertical-Incident Sky-wave

Ionised region

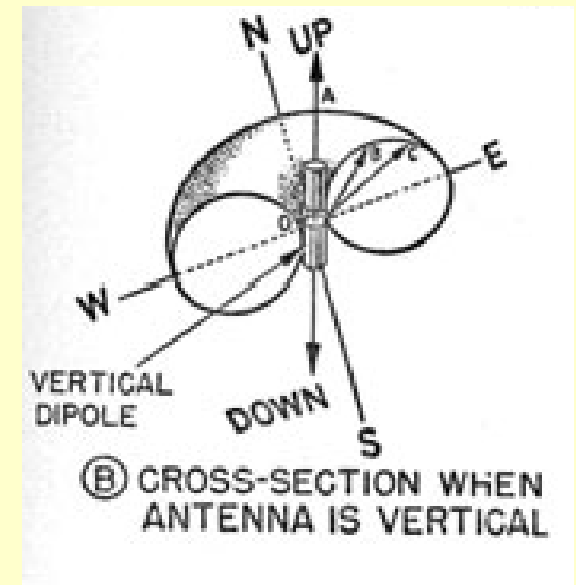
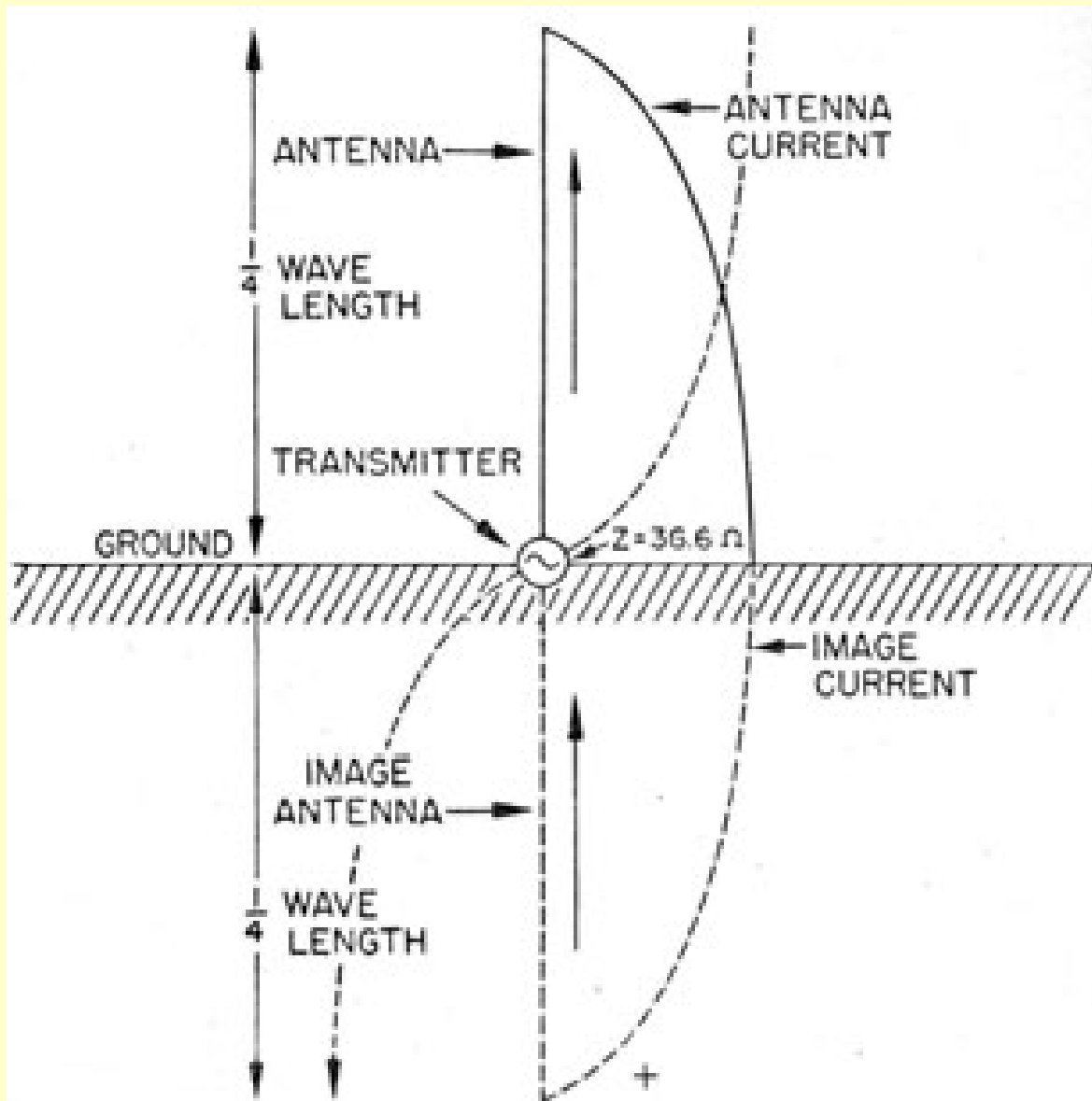


The Hertzian Antenna

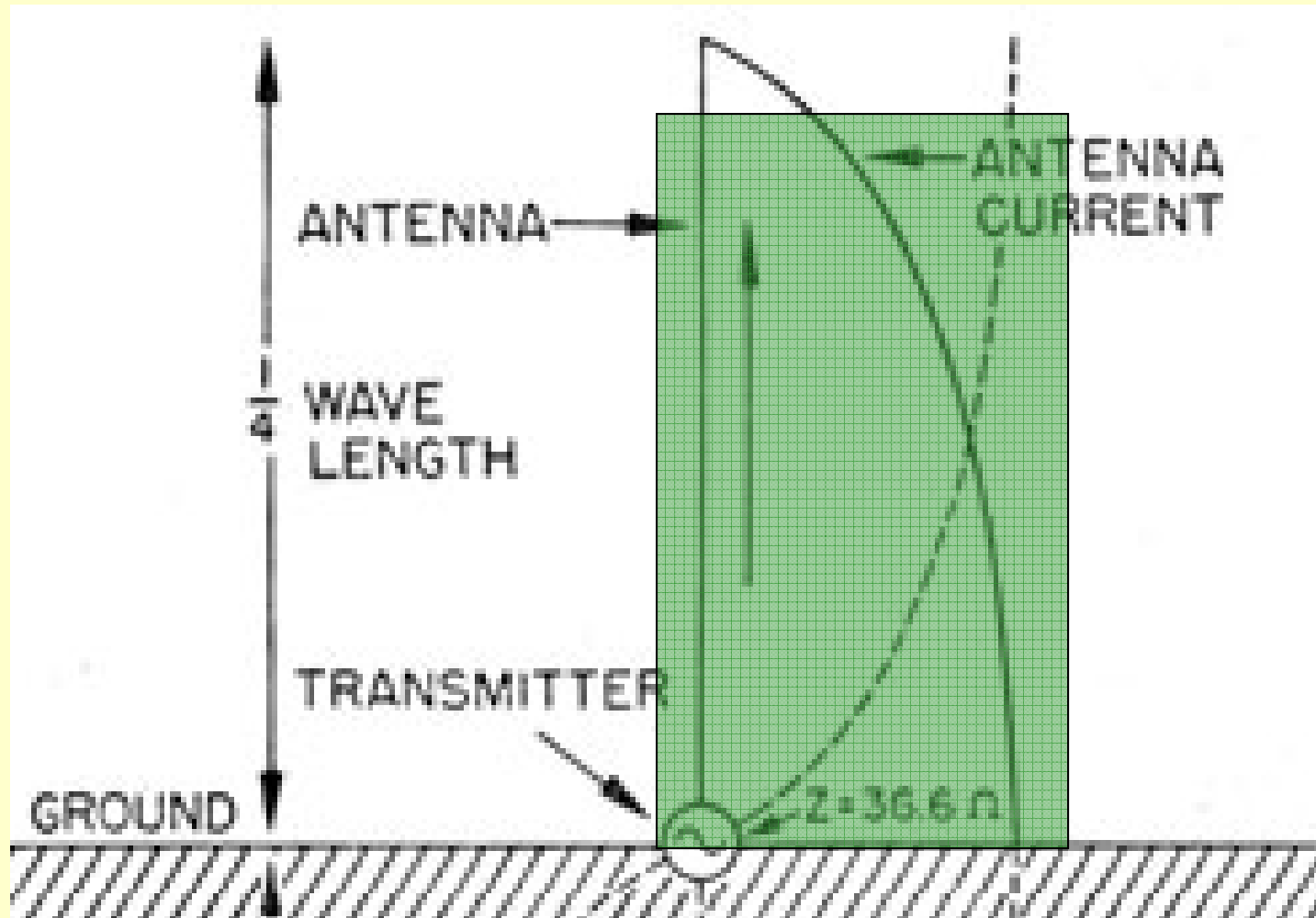


© CROSS-SECTION WHEN ANTENNA IS HORIZONTAL

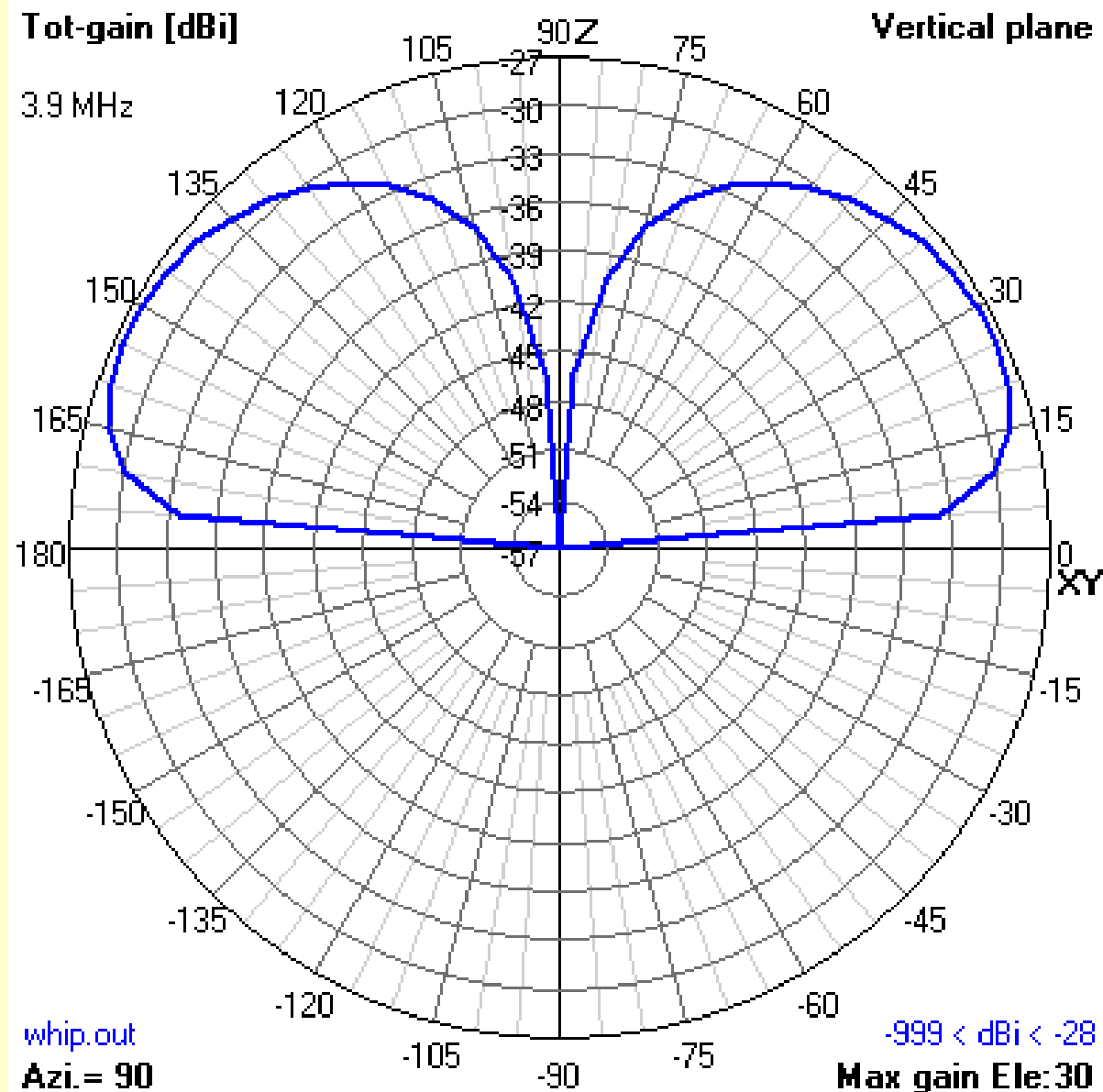
The Marconi Antenna



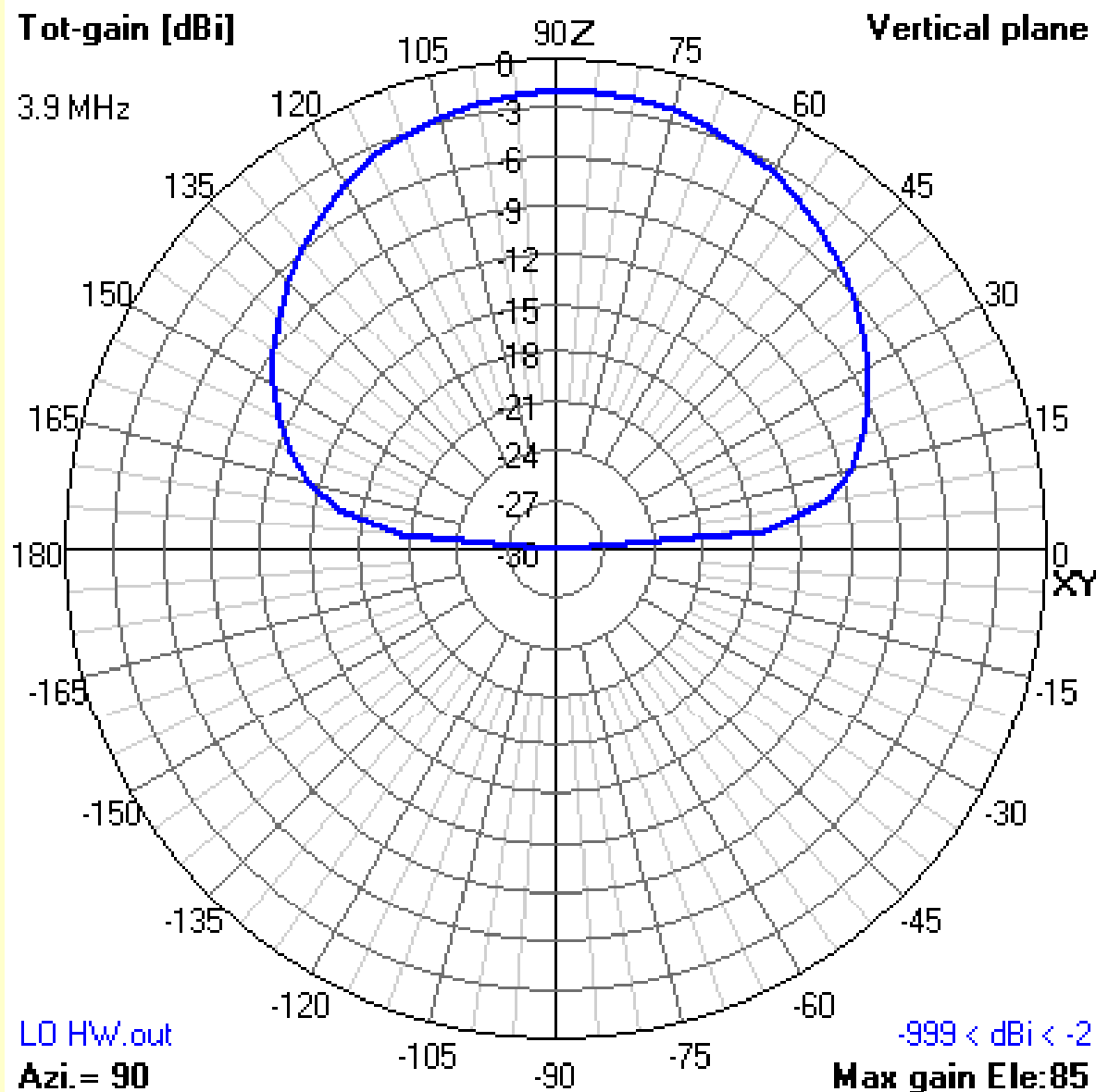
Short Vertical Antenna



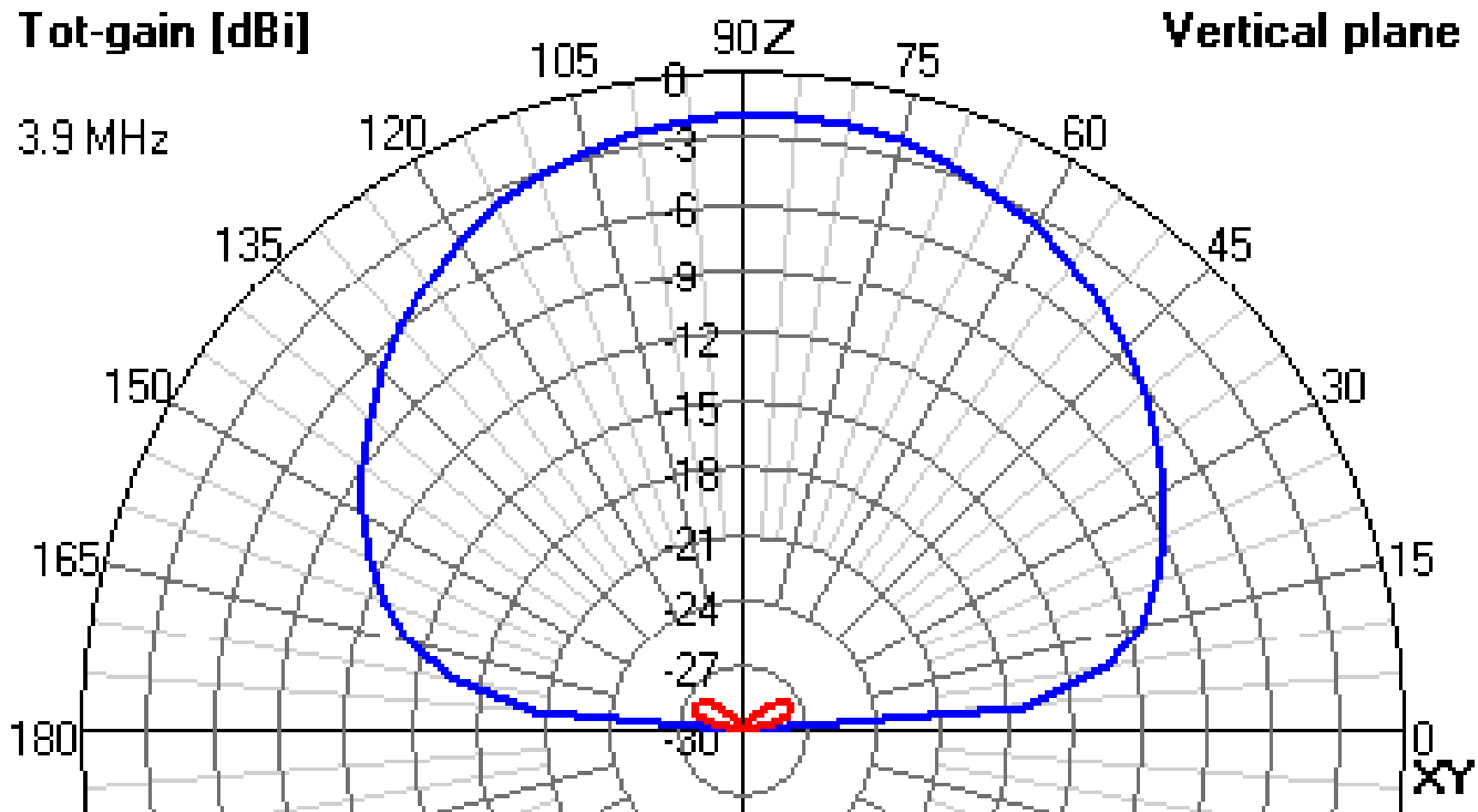
10-foot Whip



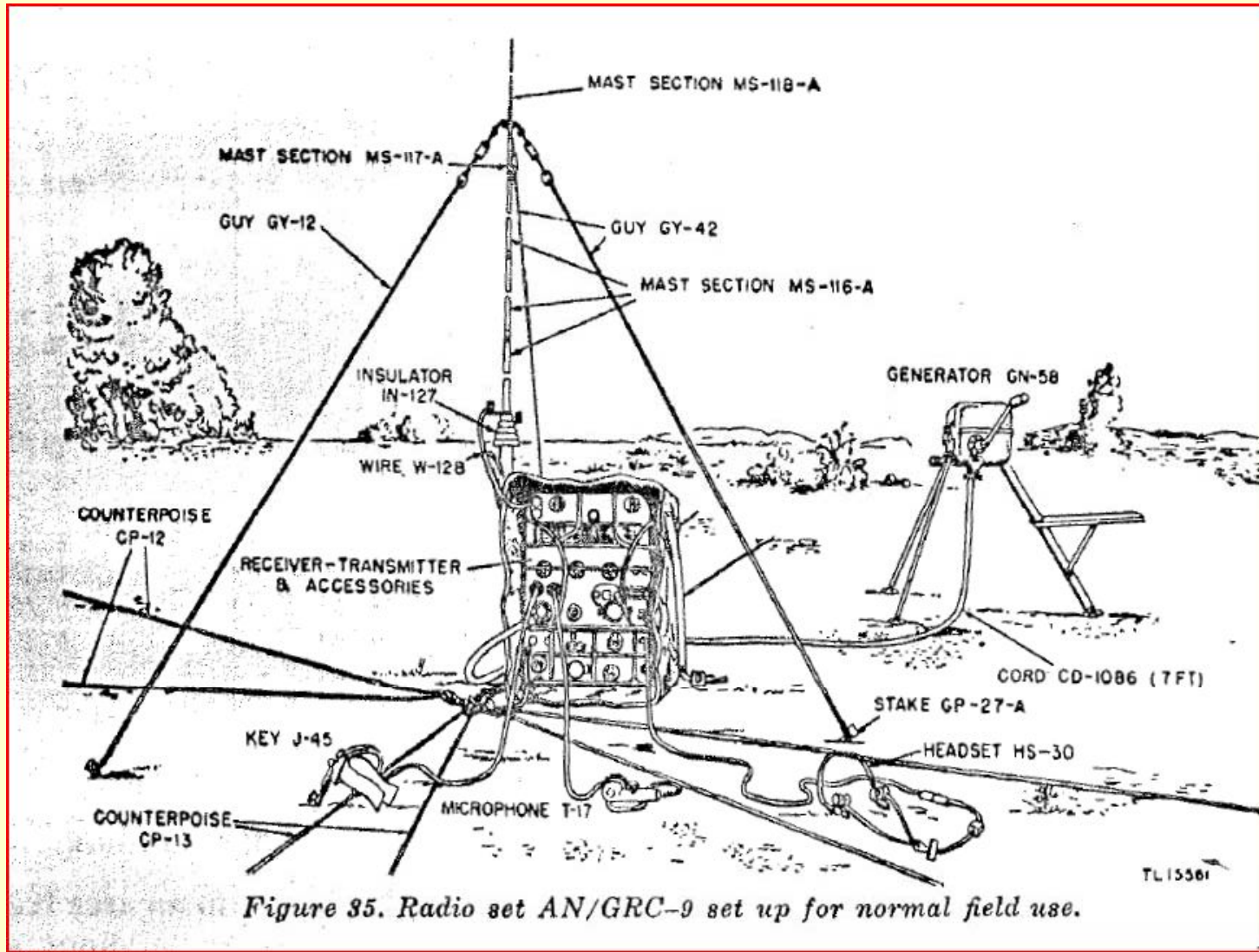
Low Half-Wave Wire



Comparison



15-Foot HF Whip



MRCA 2002



Relative Performance

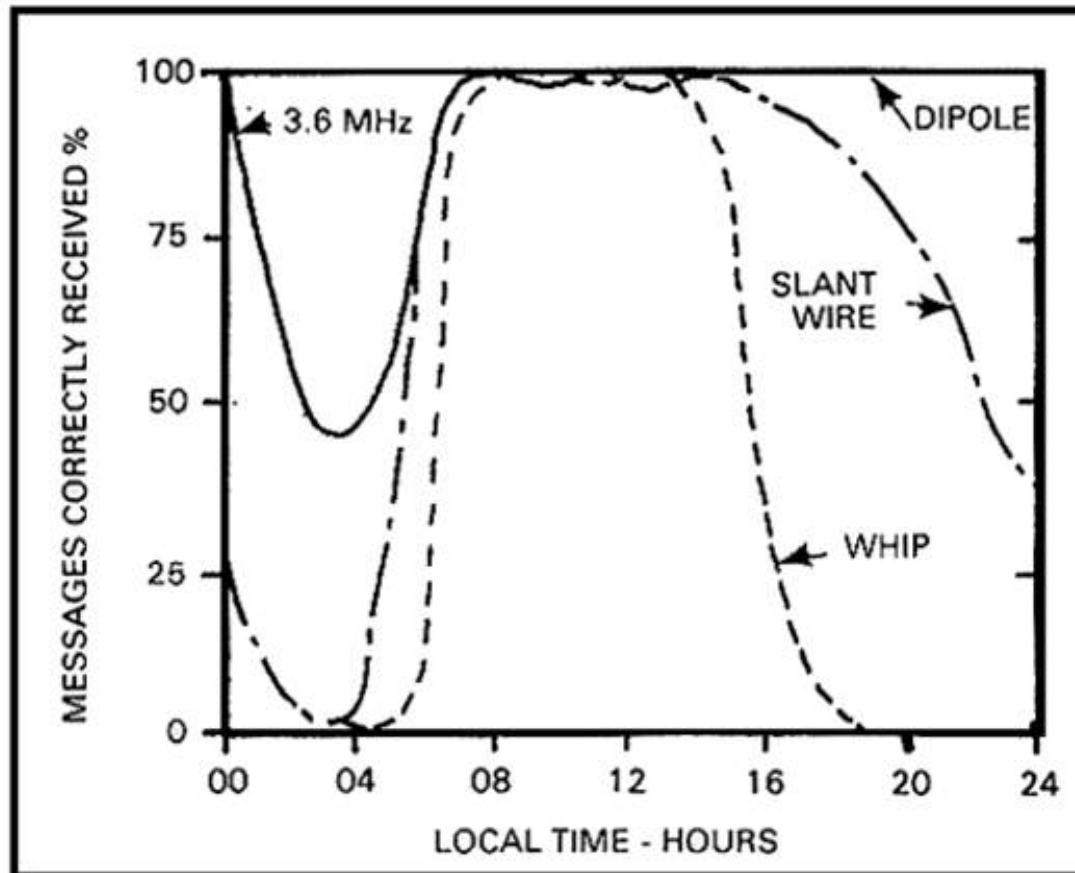


Figure M-14. Communications success with the AN/PRC-74 as a function of time of day and antenna type over a 12-mile path in low mountains, spring and summer 1963.

Another Comparison

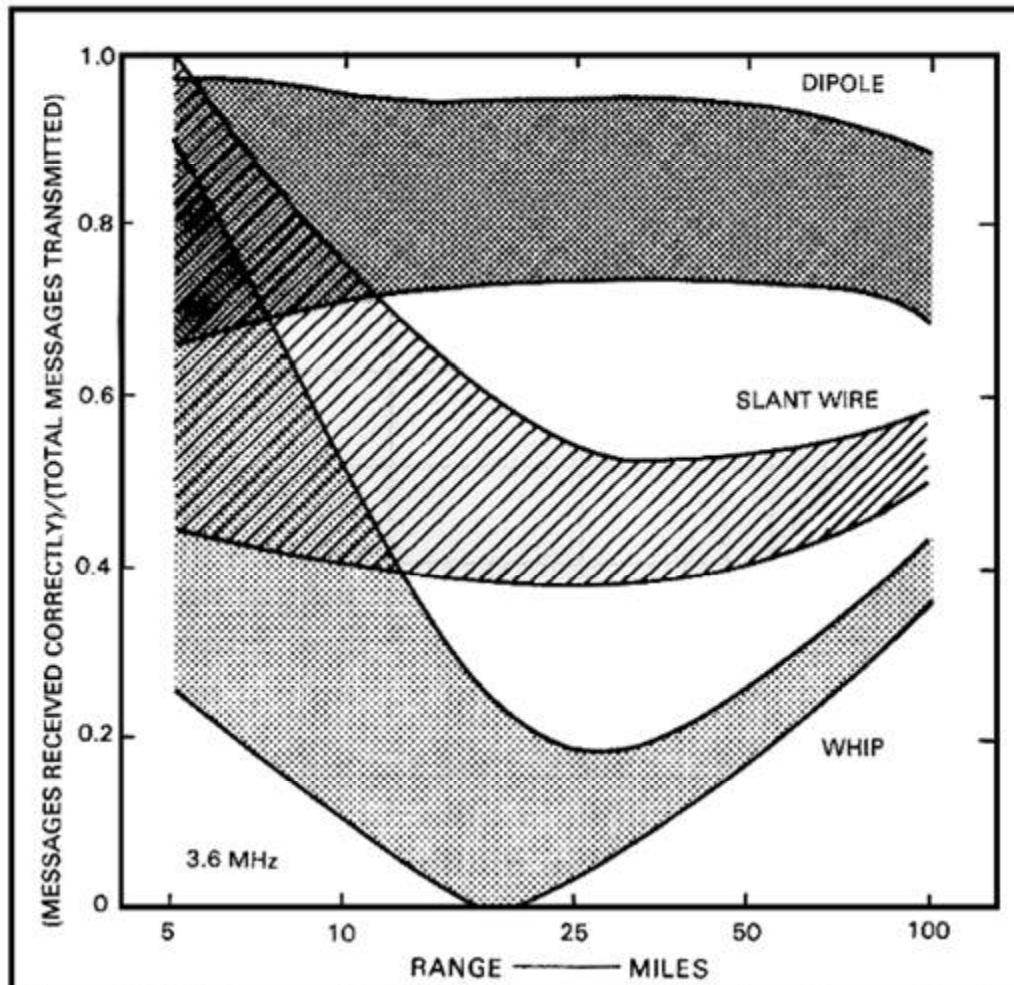


Figure M-15. Communications success as a function of range for the AN/PRC-74 in mountainous and varied terrain—including jungle in Thailand.

Modern NVIS Antenna

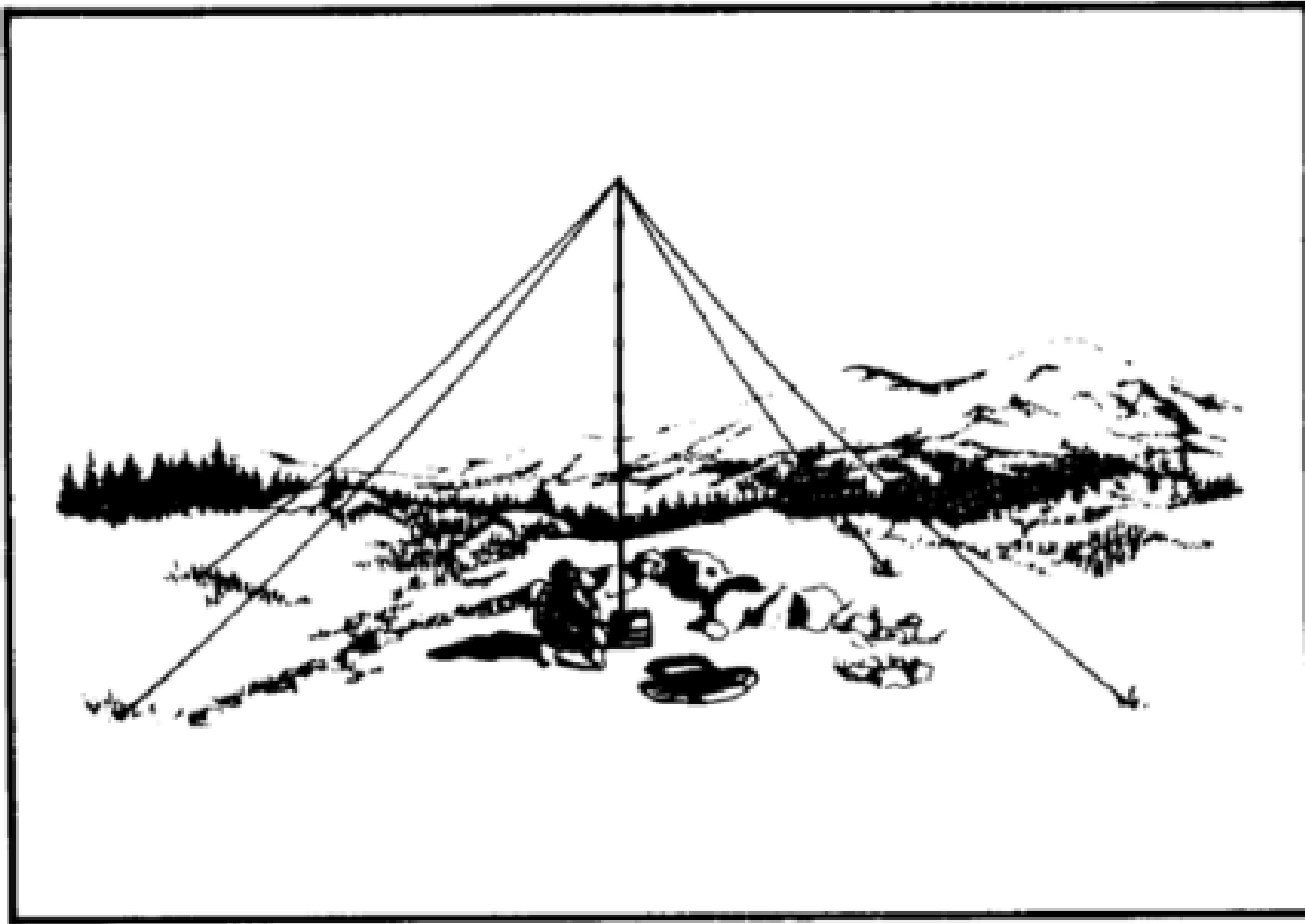


Figure 3-16. AS-2259/GR (NVIS).

AS-2259



Another Comparison

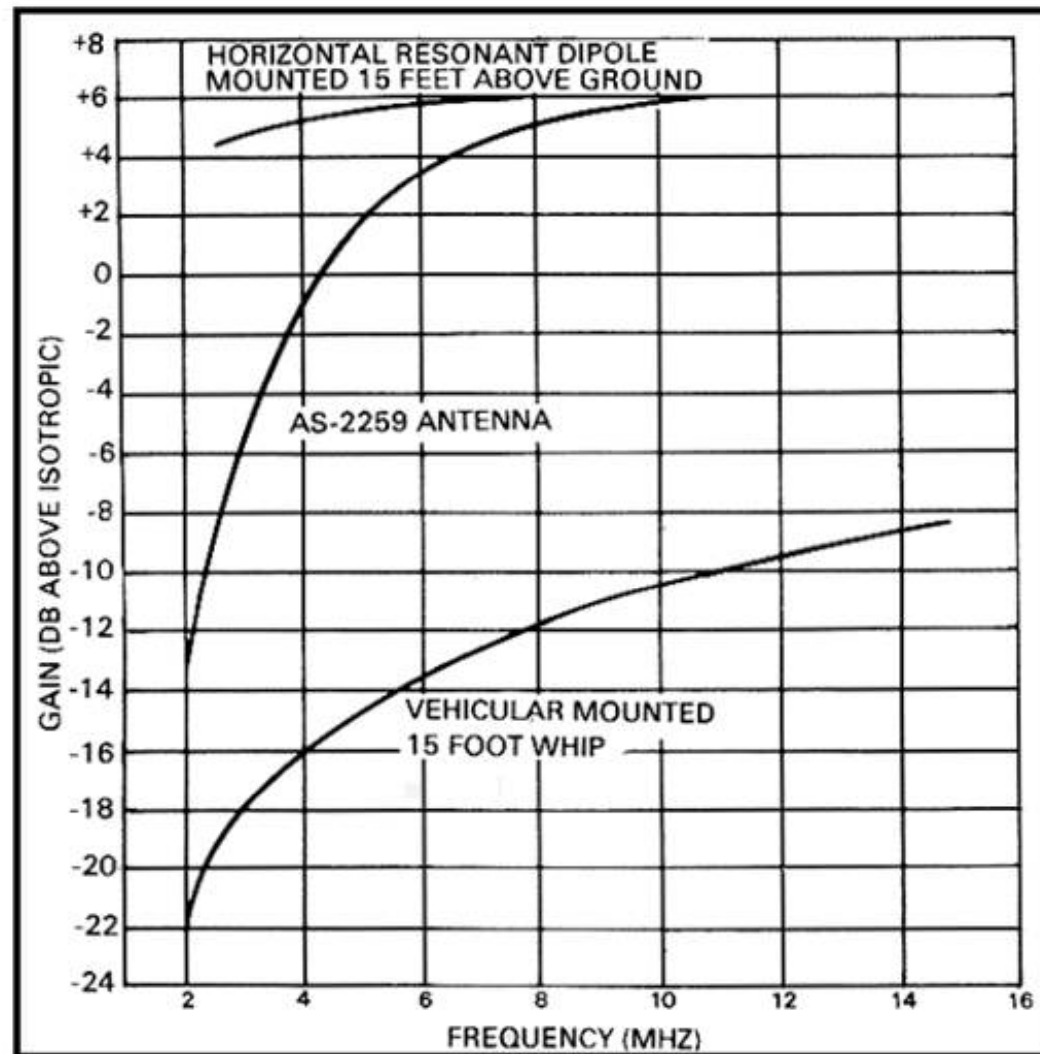


Figure M-5. Relative gain performance of AS-2259 antenna.

Traditional Dipole

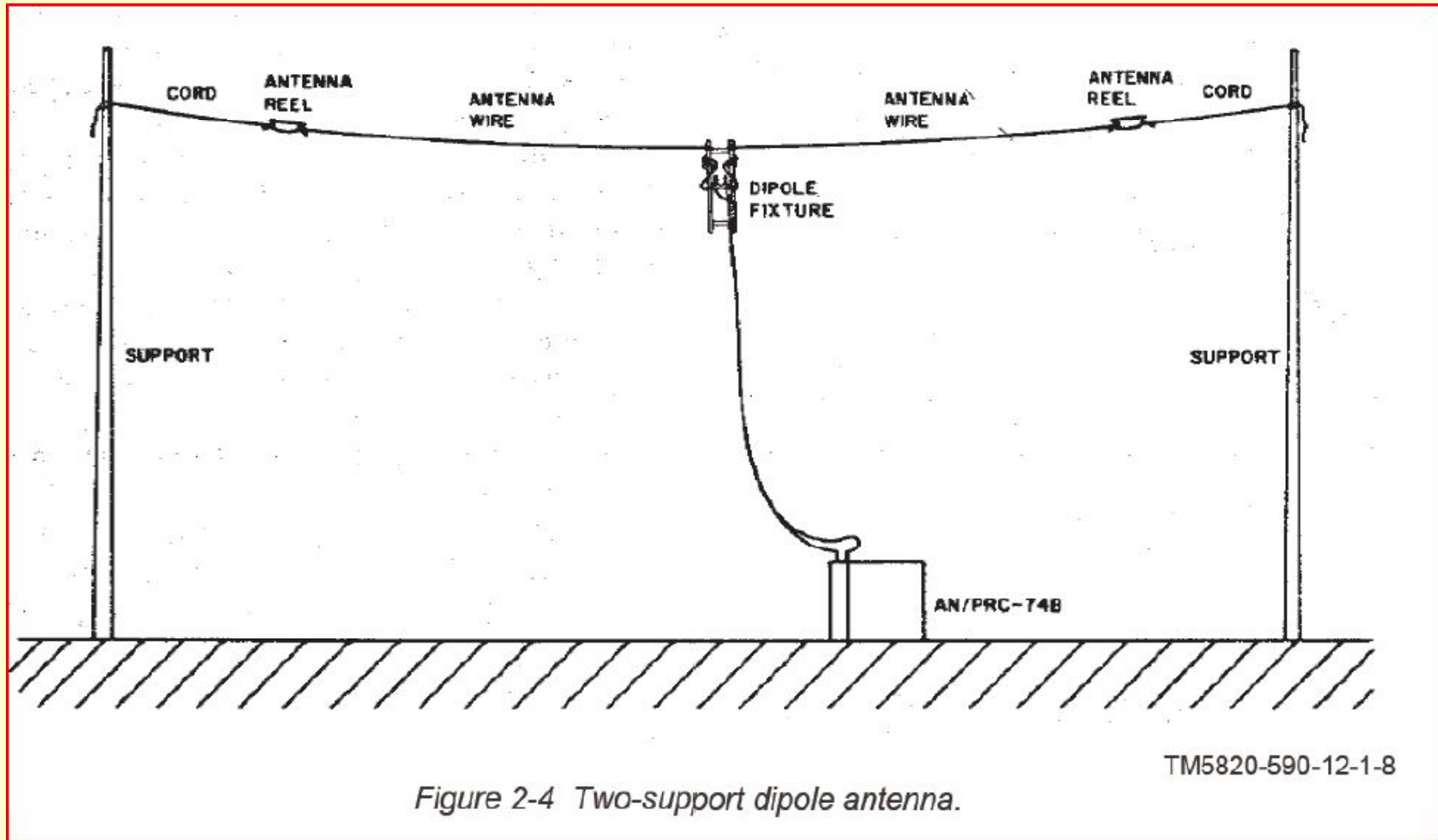


Figure 2-4 Two-support dipole antenna.

TM5820-590-12-1-8

Sloper

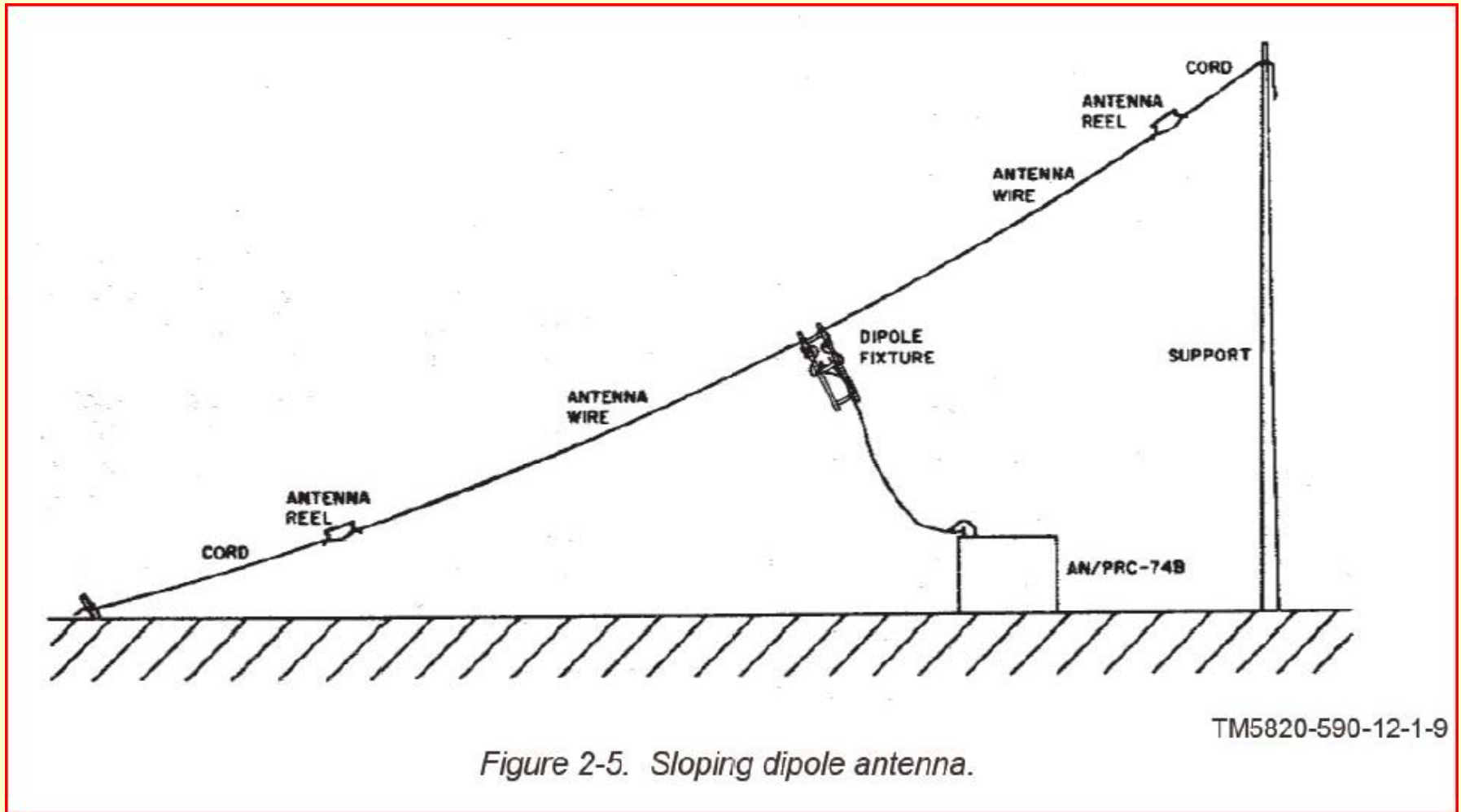
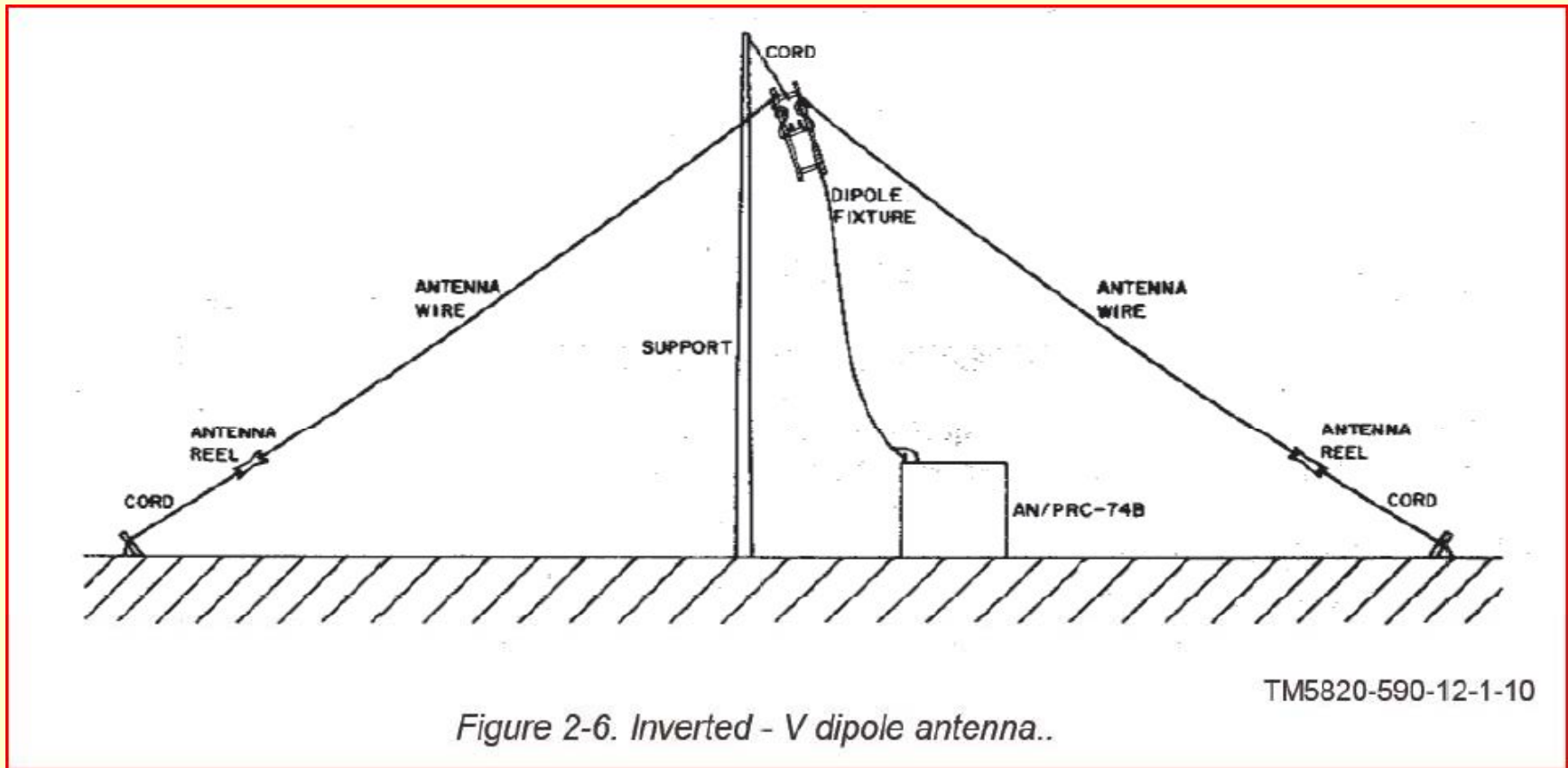


Figure 2-5. Sloping dipole antenna.

TM5820-590-12-1-9

Inverted-V



End-Fed Half-Wave

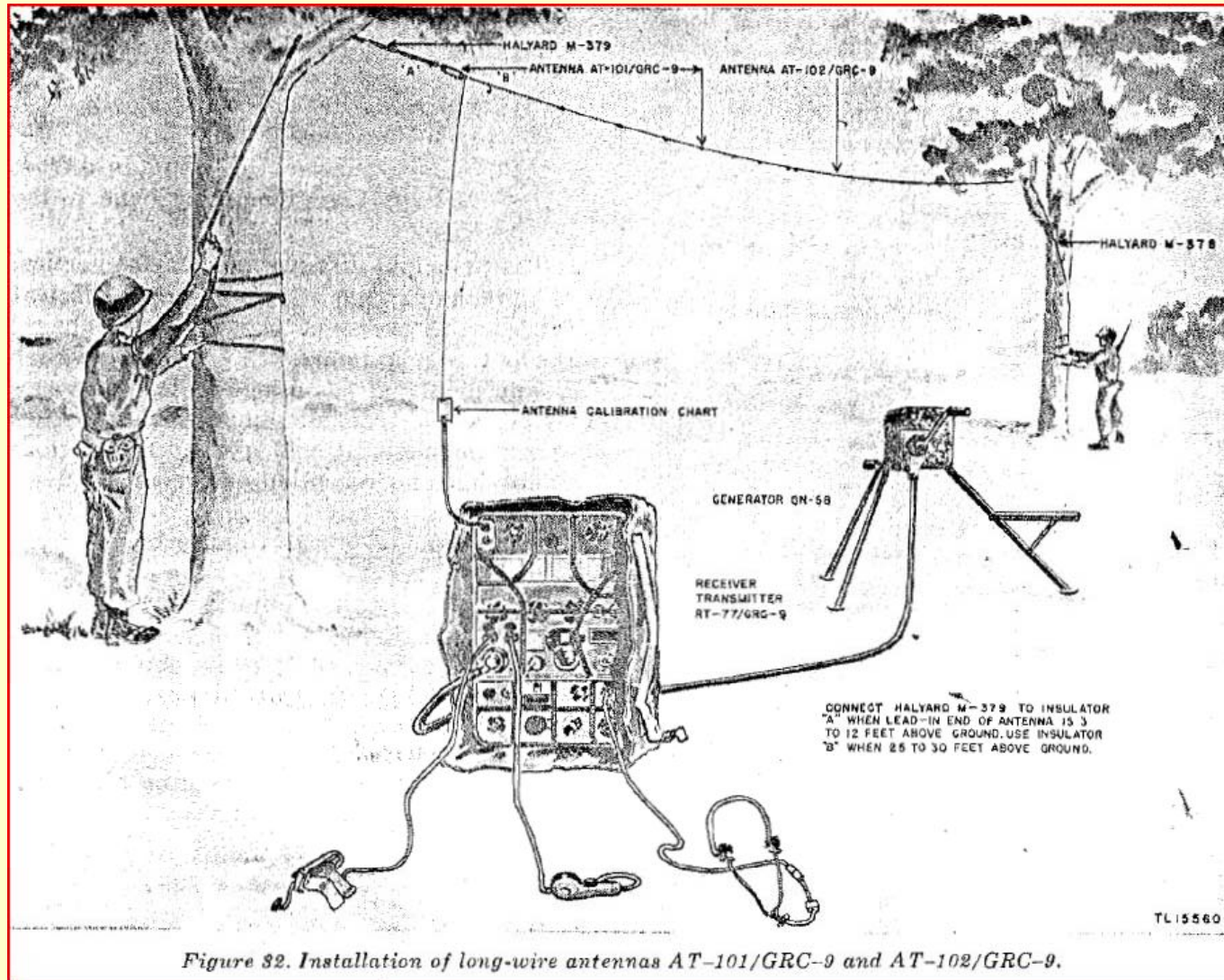


Figure 32. Installation of long-wire antennas AT-101/GRC-9 and AT-102/GRC-9.

GRC-9 Antenna Jumpers

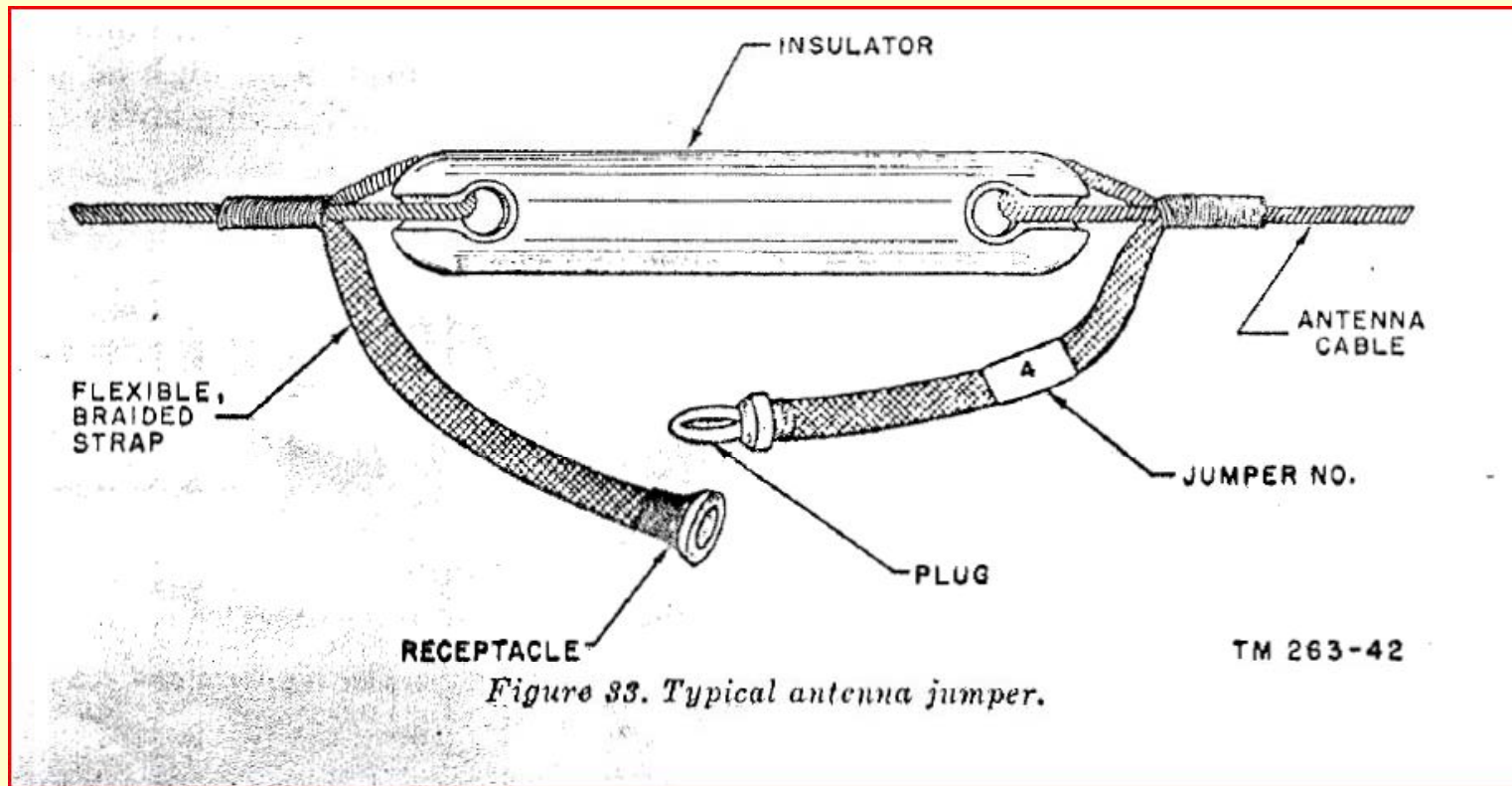


Figure 33. Typical antenna jumper.