

To provide equal illumination to all points in view (between S maximum and S minimum), apply the inverse square law

$$P = K/S^2$$

where

P is a relative power figure and
K is a constant of proportionality.

PTSE link margins specify 5 dB antenna gain for the worst case (longest distance) path so S max is referenced to this figure. The following table is produced from these equations.

Columns "A" and "accm %" are discussed below. A cross section of this pattern is plotted in Figure 1.

The ideal pattern radiates mostly toward the horizon which is, for this altitude, 62.7 degrees from the vertical axis. Gain inside 45 degrees from the vertical axis can be less than unity without compromising the system link margins. Any radiation more than 62.7 degrees from nadir is superfluous unless the system has users significantly above the surface of the earth (i.e., in orbit).

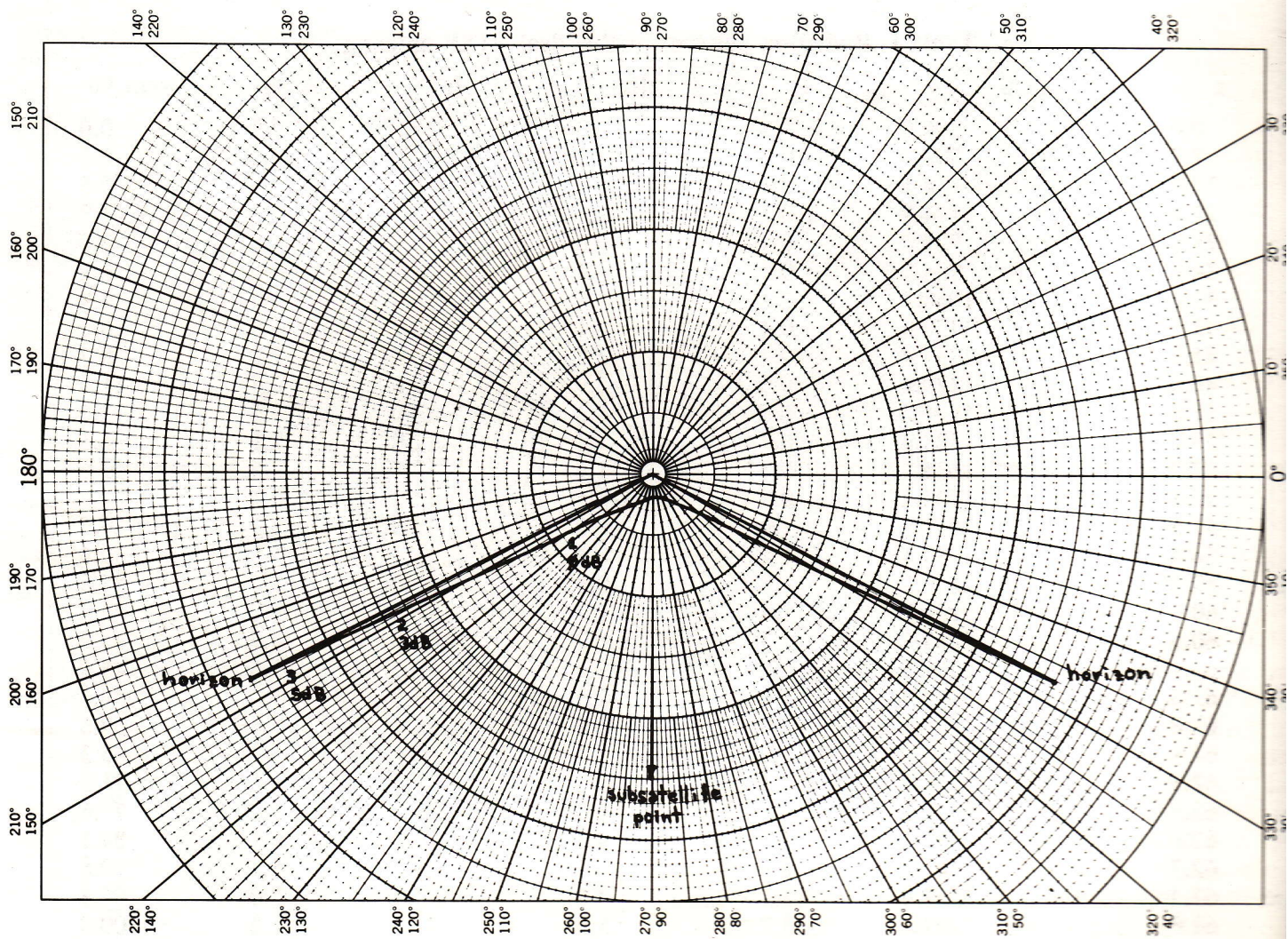


Figure 1: Cross-section of Satellite Pattern.