

W300BV – Owego, NY
June 2009 Application for Minor Change
Exhibit 10B -- Description of Antenna System

The proposed W300BV transmit antenna system will consist of two vertically-polarized Kathrein-Scala model CA-2 dipole-reflectors oriented at azimuths of 95 and 240 degrees, and one horizontally-polarized Kathrein-Scala model CA-2 mounted 2 meters below the vertical pair at an azimuth of 95 degrees. Power will be fed from the transmitter to the antenna through a common transmission line and divided equally between the three radiators; therefore, the vertical pair will receive 66.7 percent of the power (divider loss 1.8 dB) and the horizontal will receive 33.3 percent (divider loss 4.8 dB).

As shown in Figure 1, the calculated array gain of the vertical pair of CA-2 radiators is 2.0 dB. Taking power divider loss into account, the overall vertically-polarized gain is 0.2 dB and maximum effective radiated power in the vertical polarization is 160 watts.

Figure 2 shows the azimuth pattern of the horizontally-polarized radiator, which has a rated gain of 4.0 dB by itself, and -0.8 dB when power divider loss is considered. This is 1.0 dB less than the vertically-polarized gain; therefore, effective radiated power in the horizontal polarization is 127 watts.

Figure 3 is a plot of the composite relative field pattern with the vertical component represented by a solid line and the horizontal component represented by dots in ten degree increments. Please note that the relative field values for the horizontally-polarized component include a correction factor of 0.891 to account for the -1.0 dB difference in gain following the power divider. The greater of the two values is tabulated in Section III-A-10 of the accompanying Form 349.

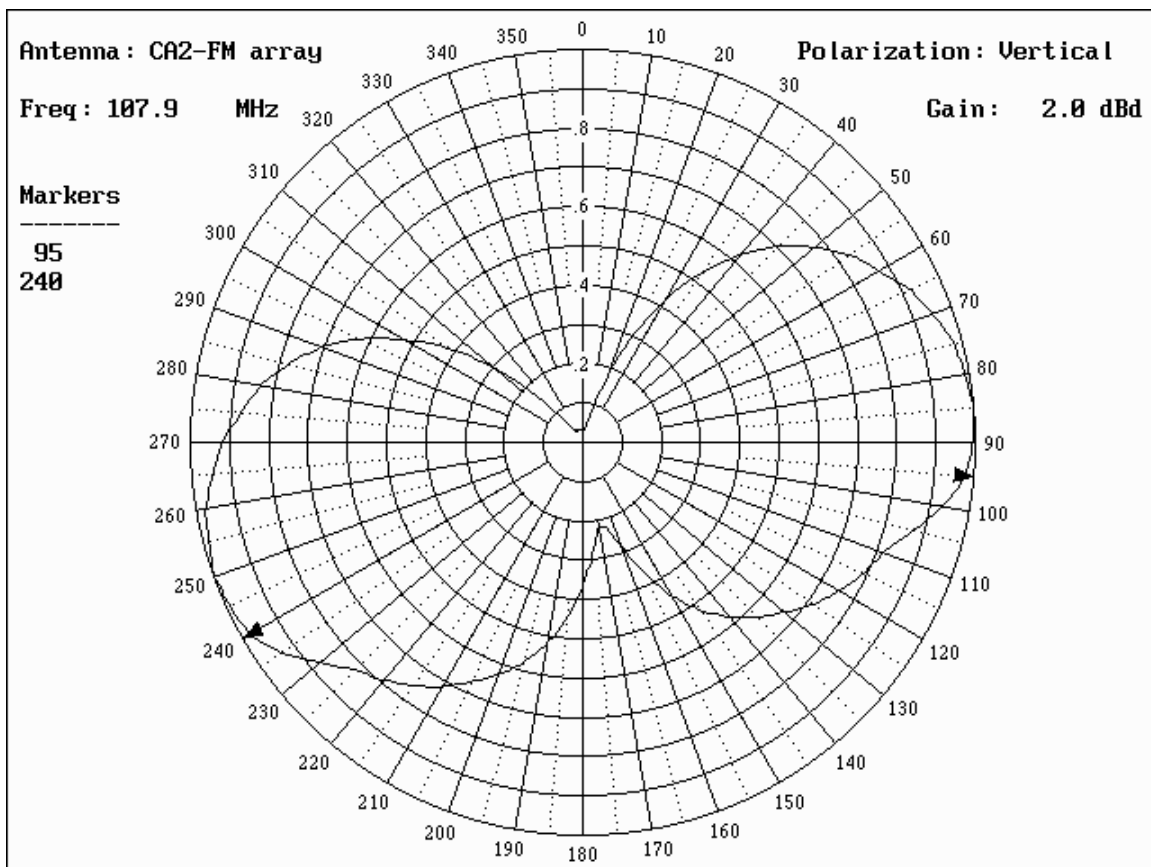


Figure 1 – Vertically-Polarized Azimuth Pattern
1.0 Relative Field = 160 W

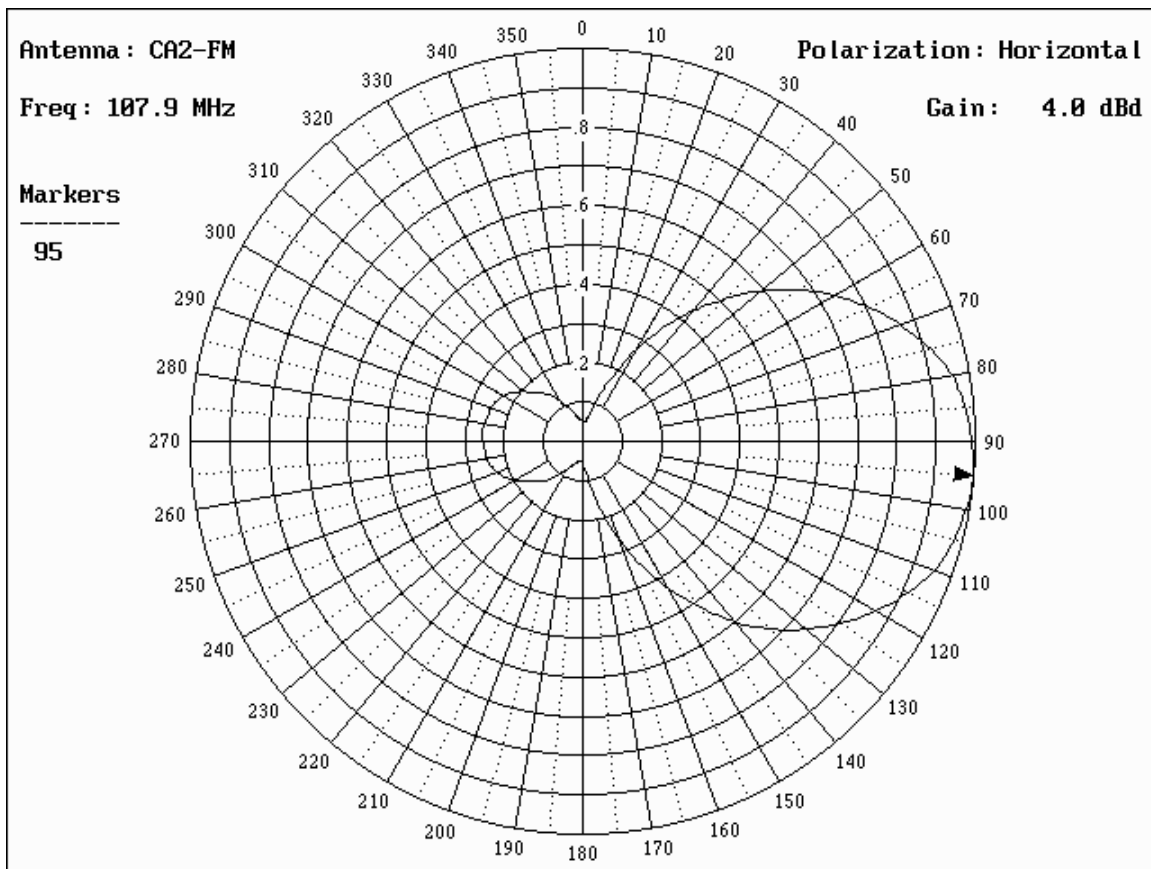


Figure 2 – Horizontally-Polarized Azimuth Pattern
1.0 Relative Field = 127 W

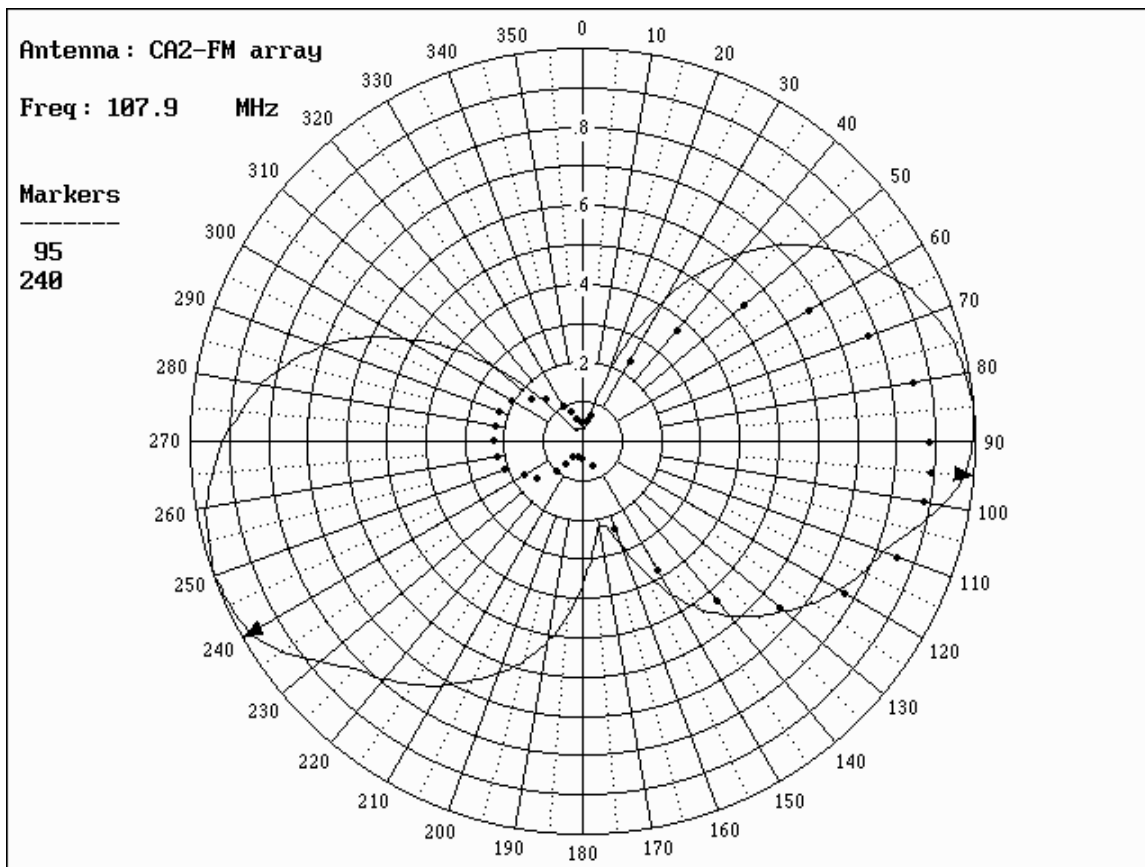


Figure 3 – Composite Azimuth Pattern
1.0 Relative Field = 160 W

Solid line is vertical component
Dotted line is scaled horizontal component