Paraxial Cassegrain Telescope Design

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Main Mirror Diameter, mm $D := 330$ $\frac{D}{25.4} = 12.992$

System Effective Focal Length, mm $f_{eff} := 3300$

$Fnum\_sys := \frac{f_{eff}}{D}$ $Fnum\_sys = 10$

F-number of Main Mirror $Fnum := 6$

$f_1 := Fnum \cdot D$ Focal length of main mirror, mm

$d_{max} := \frac{f_{eff} \cdot f_1}{f_1 + f_{eff}}$ Maximum spacing of secondary from primary for Cassegrain, mm

$d_{max} = 1.238 \times 10^3$ (Same as minimum spacing for a Gregorian configuration.)

$B(d) := \left(1 - \frac{d}{f_1}\right) \cdot f_{eff} - d$

$ii := 0 .. 100$

$d_{ii} := 0.5 \cdot d_{max} + 0.5 \cdot d_{max} \cdot \frac{ii}{100}$

$Bx_{ii} := B\left(d_{ii}\right)$

$D_{sec_{ii}} := \left(1 - \frac{d_{ii}}{f_1}\right) \cdot D$ Diameter of secondary, mm

$Aloss_{ii} := \left(\frac{D_{sec_{ii}}}{D}\right)^2 \cdot 100$ Aperture power loss, %, due to secondary

$f2_{ii} := f_{eff} \cdot \frac{\left(d_{ii} - f_1\right)}{f_{eff} - f_1}$