120" Optical Focus Drawings

120 in. CASE GRAIN.

[Diagram of optical focus drawings with measurements and calculations]

MINIMUM OR "IN" POSITION:

\[ X_{\text{min}} = \frac{148.115}{120.254} = 29.52 \text{ in.} \]

\[ f_{\text{min}} = 507.895 / 29.52 = 17.15 \text{ in.} \]

MAXIMUM OR "OUT" POSITION:

\[ X_{\text{max}} = \frac{151.115}{120.254} = 30.32 \text{ in.} \]

\[ f_{\text{max}} = 540.897 / 30.32 = 17.78 \text{ in.} \]

\[ f_{\text{med}} = \frac{17.4 + 17.524}{2} = 17.5 \text{ in.} \]

\[ A_F = 3 \left( \frac{17.5}{2} \right)^2 = 312.12 = 36.3^2 \text{ sq.in.} \]

SCALE OF CASS. FOCUS:

[Calculations and measurements related to scale and medium]

TOTAL FIELD = 13' arc

APPROX. UNLIMITED FIELD:

[Further calculations and measurements related to field of view]
120" Optical Focus Drawings

120 CASSEGRAIN
(CONT.)

MINIMUM OR "IN" POS.

S = 452.89, 418.07
418.48 x 452.89

\( d = \frac{142.978}{37.926} \times 120 = 37.926 \)

Primary seen in secondary

\( f = \frac{502.385 + 142.978}{37.92} = 17.016 \)

- Size of unvignetted field:

8 - \( \left( \frac{37.92}{502.385} \times 50 \right) = 5.99\%

Corresponding size at P.F.

\( \frac{1476 \times 50}{502.4} = 1.61\)

Beam at 45° flat

50/49 = 1.02

- Desired field thru 45° flat

2.405

\( \frac{50/49}{1.02} = 2.405 \)

- Appropriate hole

1.67\( \times \)2.85\( \times \)3.49\( \times \)\( \frac{1}{1.3} \)

Size of dia. mirrors \( \approx 12 \times 13\frac{1}{2} \)"

(Accommodating 8 in dia field)

\( \theta \)

\( \frac{12}{13\frac{1}{2}} \)

Rev. 6/16/71
120" Optical Focus Drawings

Optical Arrangement
Five Mirror
Coude System
\( f 138.77 \)

120 Inch Telescope (1962)
Redrawn - 16 March 2001  DRS