



Focal Length 18 mm

Circle of Confusion 0.025 mm

T/No	1.8	2	2.2	2.5
Hyperfocal Distance (ft-inch)	26' 6.5"	23' 8.69"	21' 2.61"	18' 11.76"

T/No	1.8		2		2.2		2.5	
Focus Distance (ft-inch)	Short Focus (ft-inch)	Long Focus (ft-inch)	Short Focus (ft-inch)	Long Focus (ft-inch)	Short Focus (ft-inch)	Long Focus (ft-inch)	Short Focus (ft-inch)	Long Focus (ft-inch)
Infinity	26' 5.76"	Infinity	23' 7.97"	Infinity	21' 1.86"	Infinity	18' 11.04"	Infinity
120' 0"	21' 10.78"	Infinity	19' 11.48"	Infinity	18' 1.93"	Infinity	16' 6.07"	Infinity
60' 0"	18' 8.01"	Infinity	17' 3.04"	Infinity	15' 10.9"	Infinity	14' 7.65"	Infinity
40' 0"	16' 3.21"	Infinity	15' 2.33"	Infinity	14' 1.83"	Infinity	13' 1.78"	Infinity
30' 0"	14' 4.96"	Infinity	13' 6.88"	Infinity	12' 8.94"	Infinity	11' 11.2"	Infinity
25' 0"	13' 2.5"	408' 4.23"	12' 6.07"	Infinity	11' 9.67"	Infinity	11' 1.34"	Infinity
20' 0"	11' 8.84"	76' 11.52"	11' 2.23"	120' 0.33"	10' 7.56"	326' 5.76"	10' 0.86"	Infinity
17' 0"	10' 8.22"	44' 10.24"	10' 2.79"	56' 6.22"	9' 9.25"	80' 0.45"	9' 3.63"	151' 2.18"
15' 0"	9' 10.77"	32' 8.67"	9' 6.14"	38' 5.32"	9' 1.39"	47' 10.88"	8' 8.53"	66' 4.61"
14' 0"	9' 5.68"	28' 1.3"	9' 1.46"	32' 2.33"	8' 9.11"	38' 6.24"	8' 4.65"	49' 6.3"
13' 0"	9' 0.32"	24' 2.11"	8' 8.51"	27' 1.32"	8' 4.57"	31' 5.03"	8' 0.51"	38' 3.64"
12' 0"	8' 6.67"	20' 9.41"	8' 3.27"	22' 10.72"	7' 11.74"	25' 10.31"	7' 8.09"	30' 3.57"
11' 0"	8' 0.71"	17' 9.94"	7' 9.72"	19' 4.08"	7' 6.6"	21' 4.66"	7' 3.35"	24' 3.57"
10' 0"	7' 6.41"	15' 2.77"	7' 3.82"	16' 3.65"	7' 1.11"	17' 8.57"	6' 10.28"	19' 7.61"
9' 6"	7' 3.12"	14' 0.55"	7' 0.74"	14' 11.35"	6' 10.23"	16' 1.35"	6' 7.6"	17' 8.05"
9' 0"	6' 11.74"	12' 11.15"	6' 9.55"	13' 8.16"	6' 7.24"	14' 7.7"	6' 4.82"	15' 10.86"
8' 6"	6' 8.25"	11' 10.48"	6' 6.26"	12' 5.97"	6' 4.15"	13' 3.44"	6' 1.93"	14' 3.69"
8' 0"	6' 4.66"	10' 10.5"	6' 2.86"	11' 4.68"	6' 0.95"	12' 0.41"	5' 10.94"	12' 10.26"
7' 6"	6' 0.96"	9' 11.15"	5' 11.35"	10' 4.21"	5' 9.64"	10' 10.47"	5' 7.82"	11' 6.35"
7' 0"	5' 9.15"	9' 0.38"	5' 7.72"	9' 4.49"	5' 6.19"	9' 9.52"	5' 4.57"	10' 3.77"
6' 6"	5' 5.21"	8' 2.15"	5' 3.96"	8' 5.45"	5' 2.62"	8' 9.45"	5' 1.19"	9' 2.36"
6' 0"	5' 1.15"	7' 4.42"	5' 0.07"	7' 7.03"	4' 10.91"	7' 10.17"	4' 9.66"	8' 1.98"
5' 6"	4' 8.95"	6' 7.15"	4' 8.04"	6' 9.18"	4' 7.05"	6' 11.6"	4' 5.98"	7' 2.52"
5' 0"	4' 4.62"	5' 10.31"	4' 3.86"	5' 11.86"	4' 3.03"	6' 1.69"	4' 2.14"	6' 3.88"
4' 9"	4' 2.4"	5' 6.04"	4' 1.71"	5' 7.38"	4' 0.96"	5' 8.96"	4' 0.16"	5' 10.84"
4' 6"	4' 0.14"	5' 1.87"	3' 11.52"	5' 3.02"	3' 10.85"	5' 4.37"	3' 10.13"	5' 5.98"
4' 3"	3' 9.84"	4' 9.79"	3' 9.29"	4' 10.77"	3' 8.7"	4' 11.92"	3' 8.05"	5' 1.27"
4' 0"	3' 7.5"	4' 5.8"	3' 7.02"	4' 6.63"	3' 6.5"	4' 7.6"	3' 5.92"	4' 8.73"
3' 9"	3' 5.13"	4' 1.9"	3' 4.71"	4' 2.59"	3' 4.25"	4' 3.4"	3' 3.75"	4' 4.34"
3' 6"	3' 2.71"	3' 10.09"	3' 2.35"	3' 10.66"	3' 1.95"	3' 11.32"	3' 1.52"	4' 0.08"
3' 3"	3' 0.24"	3' 6.35"	2' 11.94"	3' 6.81"	2' 11.61"	3' 7.35"	2' 11.24"	3' 7.97"
3' 0"	2' 9.74"	3' 2.7"	2' 9.48"	3' 3.07"	2' 9.21"	3' 3.49"	2' 8.9"	3' 3.98"
2' 9"	2' 7.19"	2' 11.12"	2' 6.98"	2' 11.41"	2' 6.76"	2' 11.73"	2' 6.51"	3' 0.11"
2' 6"	2' 4.59"	2' 7.62"	2' 4.43"	2' 7.83"	2' 4.25"	2' 8.08"	2' 4.06"	2' 8.36"
2' 3"	2' 1.94"	2' 4.19"	2' 1.82"	2' 4.34"	2' 1.69"	2' 4.52"	2' 1.54"	2' 4.73"
2' 0"	1' 11.25"	2' 0.83"	1' 11.16"	2' 0.94"	1' 11.07"	2' 1.06"	1' 10.96"	2' 1.2"
1' 10"	1' 9.43"	1' 10.63"	1' 9.36"	1' 10.71"	1' 9.28"	1' 10.8"	1' 9.2"	1' 10.9"
1' 9"	1' 8.51"	1' 9.53"	1' 8.45"	1' 9.6"	1' 8.38"	1' 9.68"	1' 8.31"	1' 9.77"
1' 6"	1' 5.71"	1' 6.31"	1' 5.68"	1' 6.35"	1' 5.64"	1' 6.39"	1' 5.6"	1' 6.44"
1' 3"	1' 2.86"	1' 3.14"	1' 2.85"	1' 3.16"	1' 2.83"	1' 3.18"	1' 2.81"	1' 3.21"
1' 2"	1' 1.9"	1' 2.1"	1' 1.89"	1' 2.12"	1' 1.87"	1' 2.13"	1' 1.86"	1' 2.15"



2.8	3.2	3.5	4	4.5
16' 11.86"	15' 2.6"	13' 7.62"	12' 2.73"	10' 11.65"

2.8		3.2		3.5		4		4.5	
Short Focus (ft-inch)	Long Focus (ft-inch)	Short Focus (ft-inch)	Long Focus (ft-inch)	Short Focus (ft-inch)	Long Focus (ft-inch)	Short Focus (ft-inch)	Long Focus (ft-inch)	Short Focus (ft-inch)	Long Focus (ft-inch)
16' 11.14"	Infinity	15' 1.86"	Infinity	13' 6.89"	Infinity	12' 1.99"	Infinity	10' 10.94"	Infinity
14' 11.82"	Infinity	13' 7.11"	Infinity	12' 3.84"	Infinity	11' 1.93"	Infinity	10' 1.28"	Infinity
13' 5.29"	Infinity	12' 3.86"	Infinity	11' 3.33"	Infinity	10' 3.69"	Infinity	9' 4.93"	Infinity
12' 2.22"	Infinity	11' 3.21"	Infinity	10' 4.76"	Infinity	9' 6.91"	Infinity	8' 9.66"	Infinity
11' 1.72"	Infinity	10' 4.55"	Infinity	9' 7.72"	Infinity	8' 11.29"	Infinity	8' 3.26"	Infinity
10' 5.16"	Infinity	9' 9.15"	Infinity	9' 1.38"	Infinity	8' 5.88"	Infinity	7' 10.67"	Infinity
9' 6.18"	Infinity	8' 11.57"	Infinity	8' 5.06"	Infinity	7' 10.71"	Infinity	7' 4.53"	Infinity
8' 9.98"	Infinity	8' 4.32"	Infinity	7' 10.71"	Infinity	7' 5.17"	Infinity	6' 11.73"	Infinity
8' 3.61"	117' 9.88"	7' 10.65"	965' 9.35"	7' 5.69"	Infinity	7' 0.76"	Infinity	6' 7.88"	Infinity
8' 0.11"	73' 2.28"	7' 7.51"	159' 7.27"	7' 2.89"	Infinity	6' 10.28"	Infinity	6' 5.71"	Infinity
7' 8.35"	50' 11.21"	7' 4.14"	81' 3.78"	6' 11.87"	251' 5.31"	6' 7.6"	Infinity	6' 3.35"	Infinity
7' 4.33"	37' 7.2"	7' 0.5"	51' 8.71"	6' 8.61"	90' 1.62"	6' 4.69"	575' 8"	6' 0.76"	Infinity
7'	28' 8.62"	6' 8.56"	36' 2.11"	6' 5.06"	51' 3.34"	6' 1.5"	97' 6.19"	5' 9.93"	Infinity
6' 7.34"	22' 4.54"	6' 4.3"	26' 7.07"	6' 1.19"	33' 9.64"	5' 10.01"	48' 10.27"	5' 6.8"	98' 11.92"
6' 4.86"	19' 10.12"	6' 2.03"	23' 0.65"	5' 11.12"	28' 2.83"	5' 8.14"	37' 10.93"	5' 5.11"	62' 1.44"
6' 2.29"	17' 7.51"	5' 11.66"	20' 1.06"	5' 8.95"	23' 10.43"	5' 6.17"	30' 4.3"	5' 3.33"	43' 11.32"
5' 11.61"	15' 8.03"	5' 9.19"	17' 6.76"	5' 6.68"	20' 4.24"	5' 4.1"	24' 9.98"	5' 1.46"	33' 1.43"
5' 8.81"	13' 11.17"	5' 6.6"	15' 4.66"	5' 4.29"	17' 5.53"	5' 1.92"	20' 7.36"	4' 11.47"	25' 11.24"
5' 5.9"	12' 4.5"	5' 3.89"	13' 5.95"	5' 1.79"	15' 0.49"	4' 11.61"	17' 3.44"	4' 9.37"	20' 9.87"
5' 2.85"	10' 11.7"	5' 1.04"	11' 10"	4' 11.15"	12' 11.82"	4' 9.18"	14' 7.17"	4' 7.15"	16' 11.96"
4' 11.67"	9' 8.5"	4' 10.06"	10' 4.34"	4' 8.38"	11' 2.61"	4' 6.61"	12' 4.53"	4' 4.78"	14' 0.31"
4' 8.34"	8' 6.69"	4' 6.93"	9' 0.6"	4' 5.45"	9' 8.17"	4' 3.89"	10' 6.16"	4' 2.26"	11' 7.83"
4' 4.85"	7' 6.08"	4' 3.63"	7' 10.48"	4' 2.35"	8' 4.01"	4' 1"	8' 11.13"	3' 11.58"	9' 8.55"
4' 1.19"	6' 6.52"	4' 0.16"	6' 9.73"	3' 11.07"	7' 1.71"	3' 9.92"	7' 6.72"	3' 8.7"	8' 1.18"
3' 11.29"	6' 1.09"	3' 10.36"	6' 3.82"	3' 9.36"	6' 7.17"	3' 8.31"	6' 11.34"	3' 7.19"	7' 4.65"
3' 9.34"	5' 7.88"	3' 8.5"	5' 10.18"	3' 7.6"	6' 0.98"	3' 6.64"	6' 4.44"	3' 5.63"	6' 8.79"
3' 7.35"	5' 2.88"	3' 6.6"	5' 4.8"	3' 5.79"	5' 7.13"	3' 4.92"	5' 9.97"	3' 4"	6' 1.51"
3' 5.3"	4' 10.07"	3' 4.63"	4' 11.66"	3' 3.92"	5' 1.57"	3' 3.14"	5' 3.9"	3' 2.32"	5' 6.76"
3' 3.21"	4' 5.44"	3' 2.62"	4' 6.74"	3' 1.99"	4' 8.3"	3' 1.3"	4' 10.18"	3' 0.58"	5' 0.47"
3' 1.05"	4' 0.98"	3' 0.54"	4' 2.04"	2' 11.99"	4' 3.29"	2' 11.4"	4' 4.79"	2' 10.76"	4' 6.6"
2' 10.84"	3' 8.69"	2' 10.41"	3' 9.53"	2' 9.94"	3' 10.52"	2' 9.43"	3' 11.7"	2' 8.88"	4' 1.11"
2' 8.57"	3' 4.54"	2' 8.21"	3' 5.2"	2' 7.81"	3' 5.98"	2' 7.38"	3' 6.89"	2' 6.92"	3' 7.97"
2' 6.24"	3' 0.55"	2' 5.94"	3' 1.05"	2' 5.62"	3' 1.64"	2' 5.27"	3' 2.33"	2' 4.88"	3' 3.14"
2' 3.84"	2' 8.69"	2' 3.61"	2' 9.06"	2' 3.35"	2' 9.5"	2' 3.07"	2' 10"	2' 2.76"	2' 10.6"
2' 1.38"	2' 4.96"	2' 1.2"	2' 5.23"	2' 1"	2' 5.54"	2' 0.78"	2' 5.89"	2' 0.55"	2' 6.31"
1' 10.84"	2' 1.36"	1' 10.71"	2' 1.54"	1' 10.57"	2' 1.75"	1' 10.41"	2' 1.99"	1' 10.24"	2' 2.26"
1' 9.11"	1' 11.02"	1' 9.01"	1' 11.15"	1' 8.9"	1' 11.31"	1' 8.77"	1' 11.49"	1' 8.64"	1' 11.69"
1' 8.23"	1' 9.87"	1' 8.15"	1' 9.98"	1' 8.05"	1' 10.12"	1' 7.94"	1' 10.27"	1' 7.82"	1' 10.44"
1' 5.55"	1' 6.5"	1' 5.5"	1' 6.56"	1' 5.44"	1' 6.63"	1' 5.37"	1' 6.72"	1' 5.3"	1' 6.81"
1' 2.78"	1' 3.23"	1' 2.76"	1' 3.26"	1' 2.73"	1' 3.29"	1' 2.7"	1' 3.33"	1' 2.66"	1' 3.37"
1' 1.84"	1' 2.17"	1' 1.82"	1' 2.19"	1' 1.8"	1' 2.21"	1' 1.78"	1' 2.24"	1' 1.75"	1' 2.27"



5	5.6	6.3	7.1	8
9' 10.27"	8' 10.3"	7' 11.67"	7' 2.18"	6' 5.72"

5		5.6		6.3		7.1		8	
Short Focus (ft-inch)	Long Focus (ft-inch)	Short Focus (ft-inch)	Long Focus (ft-inch)	Short Focus (ft-inch)	Long Focus (ft-inch)	Short Focus (ft-inch)	Long Focus (ft-inch)	Short Focus (ft-inch)	Long Focus (ft-inch)
9' 9.53"	Infinity	8' 9.58"	Infinity	7' 10.94"	Infinity	7' 1.45"	Infinity	6' 5.01"	Infinity
9' 1.8"	Infinity	8' 3.4"	Infinity	7' 6"	Infinity	6' 9.52"	Infinity	6' 1.87"	Infinity
8' 7.02"	Infinity	7' 9.9"	Infinity	7' 1.55"	Infinity	6' 5.92"	Infinity	5' 10.97"	Infinity
8' 1.02"	Infinity	7' 4.97"	Infinity	6' 9.52"	Infinity	6' 2.63"	Infinity	5' 8.29"	Infinity
7' 7.67"	Infinity	7' 0.53"	Infinity	6' 5.84"	Infinity	5' 11.6"	Infinity	5' 5.8"	Infinity
7' 3.8"	Infinity	6' 9.28"	Infinity	6' 3.13"	Infinity	5' 9.34"	Infinity	5' 3.93"	Infinity
6' 10.57"	Infinity	6' 4.85"	Infinity	5' 11.39"	Infinity	5' 6.21"	Infinity	5' 1.32"	Infinity
6' 6.44"	Infinity	6' 1.32"	Infinity	5' 8.39"	Infinity	5' 3.67"	Infinity	4' 11.19"	Infinity
6' 3.1"	Infinity	5' 10.44"	Infinity	5' 5.92"	Infinity	5' 1.57"	Infinity	4' 9.4"	Infinity
6' 1.2"	Infinity	5' 8.79"	Infinity	5' 4.51"	Infinity	5' 0.36"	Infinity	4' 8.37"	Infinity
5' 11.13"	Infinity	5' 6.99"	Infinity	5' 2.95"	Infinity	4' 11.02"	Infinity	4' 7.23"	Infinity
5' 8.86"	Infinity	5' 5"	Infinity	5' 1.22"	Infinity	4' 9.53"	Infinity	4' 5.95"	Infinity
5' 6.35"	Infinity	5' 2.8"	Infinity	4' 11.29"	Infinity	4' 7.86"	Infinity	4' 4.51"	Infinity
5' 3.57"	Infinity	5' 0.34"	Infinity	4' 9.13"	Infinity	4' 5.97"	Infinity	4' 2.88"	Infinity
5' 2.06"	227' 11.52"	4' 11"	Infinity	4' 7.95"	Infinity	4' 4.94"	Infinity	4' 1.98"	Infinity
5' 0.47"	89' 7.66"	4' 9.58"	Infinity	4' 6.7"	Infinity	4' 3.84"	Infinity	4' 1.02"	Infinity
4' 10.78"	53' 5.16"	4' 8.07"	178' 0.63"	4' 5.36"	Infinity	4' 2.65"	Infinity	3' 11.98"	Infinity
4' 8.99"	36' 8.94"	4' 6.46"	70' 0.77"	4' 3.92"	Infinity	4' 1.39"	Infinity	3' 10.87"	Infinity
4' 7.08"	27' 1.76"	4' 4.75"	41' 6.48"	4' 2.39"	105' 6.22"	4' 0.02"	Infinity	3' 9.66"	Infinity
4' 5.05"	20' 10.92"	4' 2.91"	28' 4.32"	4' 0.74"	47' 10.25"	3' 10.55"	225' 6.38"	3' 8.36"	Infinity
4' 2.89"	16' 6.39"	4' 0.95"	20' 9.21"	3' 10.97"	29' 4.38"	3' 8.96"	55' 10.45"	3' 6.94"	Infinity
4' 0.57"	13' 3.49"	3' 10.83"	15' 9.96"	3' 9.05"	20' 3.03"	3' 7.23"	29' 9.4"	3' 5.4"	64' 10.03"
3' 10.09"	10' 9.53"	3' 8.56"	12' 4.36"	3' 6.97"	14' 9.91"	3' 5.35"	19' 2.5"	3' 3.7"	29' 0.95"
3' 7.43"	8' 9.73"	3' 6.1"	9' 9.53"	3' 4.72"	11' 2.71"	3' 3.3"	13' 5.77"	3' 1.84"	17' 6.25"
3' 6.02"	7' 11.59"	3' 4.79"	8' 8.93"	3' 3.51"	9' 10.13"	3' 2.2"	11' 6"	3' 0.84"	14' 3"
3' 4.55"	7' 2.38"	3' 3.43"	7' 9.78"	3' 2.26"	8' 7.94"	3' 1.04"	9' 10.66"	2' 11.79"	11' 9.68"
3' 3.03"	6' 6"	3' 2.01"	6' 11.84"	3' 0.94"	7' 7.66"	2' 11.83"	8' 6.62"	2' 10.67"	9' 10.94"
3' 1.45"	5' 10.34"	3' 0.53"	6' 2.92"	2' 11.56"	6' 8.93"	2' 10.55"	7' 5.11"	2' 9.5"	8' 4.79"
2' 11.8"	5' 3.3"	2' 10.98"	5' 6.87"	2' 10.12"	5' 11.46"	2' 9.21"	6' 5.56"	2' 8.26"	7' 1.96"
2' 10.08"	4' 8.82"	2' 9.36"	4' 11.57"	2' 8.6"	5' 3.06"	2' 7.79"	5' 7.58"	2' 6.95"	6' 1.62"
2' 8.29"	4' 2.83"	2' 7.67"	4' 4.93"	2' 7"	4' 7.54"	2' 6.3"	4' 10.87"	2' 5.56"	5' 3.2"
2' 6.42"	3' 9.27"	2' 5.89"	3' 10.85"	2' 5.32"	4' 0.78"	2' 4.72"	4' 3.2"	2' 4.08"	4' 6.27"
2' 4.47"	3' 4.11"	2' 4.03"	3' 5.27"	2' 3.55"	3' 6.67"	2' 3.04"	3' 8.39"	2' 2.5"	3' 10.55"
2' 2.43"	2' 11.29"	2' 2.07"	3' 0.12"	2' 1.68"	3' 1.11"	2' 1.27"	3' 2.32"	2' 0.82"	3' 3.79"
2' 0.29"	2' 6.8"	2' 0.01"	2' 7.37"	1' 11.71"	2' 8.05"	1' 11.38"	2' 8.85"	1' 11.03"	2' 9.83"
1' 10.05"	2' 2.59"	1' 9.84"	2' 2.96"	1' 9.61"	2' 3.4"	1' 9.37"	2' 3.92"	1' 9.11"	2' 4.54"
1' 8.49"	1' 11.93"	1' 8.33"	2' 0.2"	1' 8.15"	2' 0.52"	1' 7.96"	2' 0.89"	1' 7.75"	2' 1.32"
1' 7.69"	1' 10.64"	1' 7.55"	1' 10.86"	1' 7.4"	1' 11.13"	1' 7.23"	1' 11.44"	1' 7.04"	1' 11.8"
1' 5.22"	1' 6.92"	1' 5.14"	1' 7.05"	1' 5.04"	1' 7.19"	1' 4.93"	1' 7.35"	1' 4.82"	1' 7.55"
1' 2.62"	1' 3.42"	1' 2.58"	1' 3.48"	1' 2.53"	1' 3.54"	1' 2.48"	1' 3.61"	1' 2.42"	1' 3.7"
1' 1.73"	1' 2.3"	1' 1.69"	1' 2.34"	1' 1.66"	1' 2.38"	1' 1.62"	1' 2.44"	1' 1.58"	1' 2.49"



9	10	11	13	14
5' 10.2"	5' 3.5"	4' 9.52"	4' 4.2"	3' 11.48"

9		10		11		13		14	
Short Focus (ft-inch)	Long Focus (ft-inch)	Short Focus (ft-inch)	Long Focus (ft-inch)	Short Focus (ft-inch)	Long Focus (ft-inch)	Short Focus (ft-inch)	Long Focus (ft-inch)	Short Focus (ft-inch)	Long Focus (ft-inch)
5' 9.48"	Infinity	5' 2.77"	Infinity	4' 8.8"	Infinity	4' 3.48"	Infinity	3' 10.74"	Infinity
5' 6.98"	Infinity	5' 0.78"	Infinity	4' 7.22"	Infinity	4' 2.22"	Infinity	3' 9.74"	Infinity
5' 4.65"	Infinity	4' 10.91"	Infinity	4' 5.72"	Infinity	4' 1.02"	Infinity	3' 8.78"	Infinity
5' 2.47"	Infinity	4' 9.15"	Infinity	4' 4.29"	Infinity	3' 11.87"	Infinity	3' 7.85"	Infinity
5' 0.44"	Infinity	4' 7.49"	Infinity	4' 2.94"	Infinity	3' 10.77"	Infinity	3' 6.97"	Infinity
4' 10.9"	Infinity	4' 6.22"	Infinity	4' 1.91"	Infinity	3' 9.93"	Infinity	3' 6.28"	Infinity
4' 8.73"	Infinity	4' 4.43"	Infinity	4' 0.43"	Infinity	3' 8.72"	Infinity	3' 5.29"	Infinity
4' 6.94"	Infinity	4' 2.94"	Infinity	3' 11.19"	Infinity	3' 7.7"	Infinity	3' 4.45"	Infinity
4' 5.44"	Infinity	4' 1.68"	Infinity	3' 10.15"	Infinity	3' 6.83"	Infinity	3' 3.73"	Infinity
4' 4.57"	Infinity	4' 0.95"	Infinity	3' 9.53"	Infinity	3' 6.32"	Infinity	3' 3.31"	Infinity
4' 3.6"	Infinity	4' 0.13"	Infinity	3' 8.84"	Infinity	3' 5.74"	Infinity	3' 2.83"	Infinity
4' 2.5"	Infinity	3' 11.2"	Infinity	3' 8.06"	Infinity	3' 5.09"	Infinity	3' 2.28"	Infinity
4' 1.27"	Infinity	3' 10.16"	Infinity	3' 7.17"	Infinity	3' 4.34"	Infinity	3' 1.66"	Infinity
3' 11.87"	Infinity	3' 8.95"	Infinity	3' 6.15"	Infinity	3' 3.47"	Infinity	3' 0.93"	Infinity
3' 11.09"	Infinity	3' 8.29"	Infinity	3' 5.58"	Infinity	3' 2.99"	Infinity	3' 0.52"	Infinity
3' 10.25"	Infinity	3' 7.57"	Infinity	3' 4.97"	Infinity	3' 2.47"	Infinity	3' 0.08"	Infinity
3' 9.35"	Infinity	3' 6.79"	Infinity	3' 4.3"	Infinity	3' 1.89"	Infinity	2' 11.59"	Infinity
3' 8.38"	Infinity	3' 5.94"	Infinity	3' 3.57"	Infinity	3' 1.27"	Infinity	2' 11.06"	Infinity
3' 7.32"	Infinity	3' 5.02"	Infinity	3' 2.77"	Infinity	3' 0.59"	Infinity	2' 10.48"	Infinity
3' 6.18"	Infinity	3' 4.02"	Infinity	3' 1.9"	Infinity	2' 11.83"	Infinity	2' 9.83"	Infinity
3' 4.92"	Infinity	3' 2.92"	Infinity	3' 0.94"	Infinity	2' 11"	Infinity	2' 9.11"	Infinity
3' 3.55"	Infinity	3' 1.71"	Infinity	2' 11.88"	Infinity	2' 10.08"	Infinity	2' 8.31"	Infinity
3' 2.04"	71' 3.35"	3' 0.36"	Infinity	2' 10.69"	Infinity	2' 9.04"	Infinity	2' 7.41"	Infinity
3' 0.36"	26' 9.06"	2' 10.87"	68' 5.18"	2' 9.37"	Infinity	2' 7.87"	Infinity	2' 6.39"	Infinity
2' 11.46"	19' 7.98"	2' 10.06"	35' 0.61"	2' 8.64"	Infinity	2' 7.23"	Infinity	2' 5.82"	Infinity
2' 10.5"	15' 2.4"	2' 9.19"	22' 9.03"	2' 7.87"	53' 8.09"	2' 6.54"	Infinity	2' 5.22"	Infinity
2' 9.49"	12' 1.56"	2' 8.28"	16' 4.29"	2' 7.05"	27' 5.28"	2' 5.81"	129' 11.12"	2' 4.57"	Infinity
2' 8.42"	9' 10.68"	2' 7.31"	12' 5.25"	2' 6.17"	17' 8.75"	2' 5.03"	35' 1.3"	2' 3.87"	Infinity
2' 7.28"	8' 2.19"	2' 6.27"	9' 9.47"	2' 5.23"	12' 8.03"	2' 4.18"	19' 3.1"	2' 3.12"	49' 1.39"
2' 6.07"	6' 10.06"	2' 5.16"	7' 10.56"	2' 4.23"	9' 6.78"	2' 3.27"	12' 8.74"	2' 2.3"	20' 8.86"
2' 4.78"	5' 9.04"	2' 3.97"	6' 5.26"	2' 3.14"	7' 5.59"	2' 2.28"	9' 1.99"	2' 1.41"	12' 5.76"
2' 3.4"	4' 10.29"	2' 2.7"	5' 3.73"	2' 1.97"	5' 11.43"	2' 1.22"	6' 11.06"	2' 0.44"	8' 6.53"
2' 1.93"	4' 1.29"	2' 1.33"	4' 4.87"	2' 0.7"	4' 9.7"	2' 0.05"	5' 4.55"	1' 11.38"	6' 2.89"
2' 0.35"	3' 5.62"	1' 11.85"	3' 7.95"	1' 11.33"	3' 10.97"	1' 10.78"	4' 3.04"	1' 10.21"	4' 8.75"
1' 10.65"	2' 11.02"	1' 10.25"	3' 0.49"	1' 9.83"	3' 2.35"	1' 9.39"	3' 4.75"	1' 8.92"	3' 7.93"
1' 8.82"	2' 5.28"	1' 8.52"	2' 6.17"	1' 8.19"	2' 7.27"	1' 7.85"	2' 8.64"	1' 7.48"	2' 10.39"
1' 7.52"	2' 1.84"	1' 7.28"	2' 2.47"	1' 7.01"	2' 3.22"	1' 6.73"	2' 4.14"	1' 6.43"	2' 5.28"
1' 6.84"	2' 0.23"	1' 6.63"	2' 0.74"	1' 6.39"	2' 1.36"	1' 6.14"	2' 2.1"	1' 5.88"	2' 3.01"
1' 4.69"	1' 7.77"	1' 4.56"	1' 8.03"	1' 4.41"	1' 8.34"	1' 4.25"	1' 8.7"	1' 4.07"	1' 9.14"
1' 2.36"	1' 3.79"	1' 2.28"	1' 3.9"	1' 2.21"	1' 4.03"	1' 2.12"	1' 4.17"	1' 2.03"	1' 4.34"
1' 1.53"	1' 2.56"	1' 1.48"	1' 2.63"	1' 1.42"	1' 2.72"	1' 1.35"	1' 2.82"	1' 1.29"	1' 2.94"



16	18	20	22
3' 7.23"	3' 3.49"	3' 0.14"	2' 9.15"

16		18		20		22	
Short Focus (ft-inch)	Long Focus (ft-inch)	Short Focus (ft-inch)	Long Focus (ft-inch)	Short Focus (ft-inch)	Long Focus (ft-inch)	Short Focus (ft-inch)	Long Focus (ft-inch)
3' 6.51"	Infinity	3' 2.75"	Infinity	2' 11.4"	Infinity	2' 8.41"	Infinity
3' 5.72"	Infinity	3' 2.12"	Infinity	2' 10.9"	Infinity	2' 8.01"	Infinity
3' 4.95"	Infinity	3' 1.51"	Infinity	2' 10.41"	Infinity	2' 7.63"	Infinity
3' 4.21"	Infinity	3' 0.91"	Infinity	2' 9.93"	Infinity	2' 7.25"	Infinity
3' 3.49"	Infinity	3' 0.34"	Infinity	2' 9.47"	Infinity	2' 6.87"	Infinity
3' 2.94"	Infinity	2' 11.89"	Infinity	2' 9.11"	Infinity	2' 6.58"	Infinity
3' 2.13"	Infinity	2' 11.23"	Infinity	2' 8.58"	Infinity	2' 6.15"	Infinity
3' 1.44"	Infinity	2' 10.67"	Infinity	2' 8.12"	Infinity	2' 5.78"	Infinity
3' 0.85"	Infinity	2' 10.18"	Infinity	2' 7.72"	Infinity	2' 5.46"	Infinity
3' 0.5"	Infinity	2' 9.9"	Infinity	2' 7.49"	Infinity	2' 5.27"	Infinity
3' 0.1"	Infinity	2' 9.57"	Infinity	2' 7.22"	Infinity	2' 5.05"	Infinity
2' 11.65"	Infinity	2' 9.19"	Infinity	2' 6.91"	Infinity	2' 4.79"	Infinity
2' 11.13"	Infinity	2' 8.76"	Infinity	2' 6.55"	Infinity	2' 4.5"	Infinity
2' 10.52"	Infinity	2' 8.26"	Infinity	2' 6.13"	Infinity	2' 4.15"	Infinity
2' 10.18"	Infinity	2' 7.97"	Infinity	2' 5.9"	Infinity	2' 3.96"	Infinity
2' 9.8"	Infinity	2' 7.66"	Infinity	2' 5.63"	Infinity	2' 3.74"	Infinity
2' 9.4"	Infinity	2' 7.31"	Infinity	2' 5.35"	Infinity	2' 3.5"	Infinity
2' 8.95"	Infinity	2' 6.93"	Infinity	2' 5.03"	Infinity	2' 3.24"	Infinity
2' 8.45"	Infinity	2' 6.52"	Infinity	2' 4.68"	Infinity	2' 2.95"	Infinity
2' 7.9"	Infinity	2' 6.05"	Infinity	2' 4.29"	Infinity	2' 2.62"	Infinity
2' 7.29"	Infinity	2' 5.53"	Infinity	2' 3.85"	Infinity	2' 2.25"	Infinity
2' 6.6"	Infinity	2' 4.94"	Infinity	2' 3.35"	Infinity	2' 1.82"	Infinity
2' 5.82"	Infinity	2' 4.27"	Infinity	2' 2.78"	Infinity	2' 1.34"	Infinity
2' 4.93"	Infinity	2' 3.5"	Infinity	2' 2.12"	Infinity	2' 0.78"	Infinity
2' 4.44"	Infinity	2' 3.08"	Infinity	2' 1.75"	Infinity	2' 0.46"	Infinity
2' 3.91"	Infinity	2' 2.62"	Infinity	2' 1.35"	Infinity	2' 0.12"	Infinity
2' 3.34"	Infinity	2' 2.12"	Infinity	2' 0.92"	Infinity	1' 11.75"	Infinity
2' 2.72"	Infinity	2' 1.57"	Infinity	2' 0.45"	Infinity	1' 11.34"	Infinity
2' 2.05"	Infinity	2' 0.98"	Infinity	1' 11.93"	Infinity	1' 10.89"	Infinity
2' 1.32"	79' 6.29"	2' 0.34"	Infinity	1' 11.36"	Infinity	1' 10.4"	Infinity
2' 0.52"	21' 8.13"	1' 11.63"	167' 6.75"	1' 10.74"	Infinity	1' 9.85"	Infinity
1' 11.65"	11' 9.35"	1' 10.85"	21' 3.43"	1' 10.04"	Infinity	1' 9.23"	Infinity
1' 10.69"	7' 8.18"	1' 9.98"	10' 6.57"	1' 9.27"	18' 11.03"	1' 8.54"	Infinity
1' 9.62"	5' 5.29"	1' 9.01"	6' 7.31"	1' 8.39"	8' 10.31"	1' 7.76"	14' 10.99"
1' 8.43"	4' 0.34"	1' 7.93"	4' 6.77"	1' 7.41"	5' 4.98"	1' 6.88"	6' 11.47"
1' 7.1"	3' 0.67"	1' 6.7"	3' 3.75"	1' 6.28"	3' 8.11"	1' 5.85"	4' 2.68"
1' 6.12"	2' 6.73"	1' 5.79"	2' 8.6"	1' 5.44"	2' 11.12"	1' 5.08"	3' 2.64"
1' 5.6"	2' 4.15"	1' 5.3"	2' 5.61"	1' 4.99"	2' 7.52"	1' 4.66"	2' 10.11"
1' 3.89"	1' 9.66"	1' 3.69"	1' 10.3"	1' 3.48"	1' 11.1"	1' 3.25"	2' 0.1"
1' 1.93"	1' 4.55"	1' 1.82"	1' 4.78"	1' 1.7"	1' 5.07"	1' 1.58"	1' 5.41"
1' 1.21"	1' 3.07"	1' 1.13"	1' 3.23"	1' 1.04"	1' 3.42"	1' 0.94"	1' 3.64"



Focal Length 21 mm

Circle of Confusion 0.025 mm

T/No	1.8	2	2.2	2.5
Hyperfocal Distance (ft-inch)	36' 3"	32' 4.39"	28' 10.85"	25' 9.84"

T/No	1.8		2		2.2		2.5	
Focus Distance (ft-inch)	Short Focus (ft-inch)	Long Focus (ft-inch)	Focus Distance	Short Focus (ft-inch)	Long Focus (ft-inch)	Focus Distance	Short Focus (ft-inch)	Long Focus (ft-inch)
Infinity	36' 2.13"	Infinity	32' 3.52"	Infinity	28' 10"	Infinity	25' 9"	Infinity
120' 0"	28' 0.17"	Infinity	25' 7.79"	Infinity	23' 5.25"	Infinity	21' 4.53"	Infinity
60' 0"	22' 10.27"	Infinity	21' 3.26"	Infinity	19' 8.9"	Infinity	18' 3.28"	Infinity
40' 0"	19' 3.61"	Infinity	18' 2.04"	Infinity	17' 0.63"	Infinity	15' 11.47"	Infinity
30' 0"	16' 8.43"	168' 2.58"	15' 10.29"	395' 2.77"	15' 0.09"	Infinity	14' 1.92"	Infinity
25' 0"	15' 0.95"	77' 10.55"	14' 4.7"	105' 9.21"	13' 8.32"	177' 4.26"	12' 11.88"	749' 2.94"
20' 0"	13' 1.91"	43' 1.64"	12' 7.67"	50' 4.86"	12' 1.25"	62' 2.66"	11' 6.69"	84' 6.99"
17' 0"	11' 9.96"	30' 11.46"	11' 4.95"	34' 5.79"	10' 11.75"	39' 6.77"	10' 6.38"	47' 5.41"
15' 0"	10' 10.26"	24' 8.93"	10' 6.07"	26' 11.09"	10' 1.69"	29' 10.7"	9' 9.14"	34' 1.61"
14' 0"	10' 4.06"	22' 0.69"	10' 0.27"	23' 9.14"	9' 8.3"	26' 0.34"	9' 4.16"	29' 1.99"
13' 0"	9' 9.59"	19' 7.23"	9' 6.21"	20' 11.12"	9' 2.64"	22' 7.82"	8' 10.92"	24' 11.67"
12' 0"	9' 2.85"	17' 4.19"	8' 11.86"	18' 4.44"	8' 8.7"	19' 8.09"	8' 5.39"	21' 4.63"
11' 0"	8' 7.82"	15' 3.3"	8' 5.21"	16' 0.63"	8' 2.45"	17' 0.35"	7' 11.54"	18' 3.39"
10' 0"	8' 0.47"	13' 4.3"	7' 10.24"	13' 11.3"	7' 7.87"	14' 7.96"	7' 5.36"	15' 6.87"
9' 6"	7' 8.67"	12' 5.45"	7' 6.63"	12' 11.47"	7' 4.45"	13' 6.87"	7' 2.13"	14' 4.1"
9' 0"	7' 4.79"	11' 7"	7' 2.92"	12' 0.15"	7' 0.93"	12' 6.43"	6' 10.81"	13' 2.21"
8' 6"	7' 0.81"	10' 8.92"	6' 11.13"	11' 1.3"	6' 9.32"	11' 6.61"	6' 7.39"	12' 1.12"
8' 0"	6' 8.75"	9' 11.2"	6' 7.23"	10' 2.89"	6' 5.6"	10' 7.35"	6' 3.86"	11' 0.77"
7' 6"	6' 4.58"	9' 1.81"	6' 3.23"	9' 4.91"	6' 1.78"	9' 8.61"	6' 0.22"	10' 1.09"
7' 0"	6' 0.32"	8' 4.75"	5' 11.13"	8' 7.31"	5' 9.85"	8' 10.37"	5' 8.46"	9' 2.03"
6' 6"	5' 7.96"	7' 7.99"	5' 6.92"	7' 10.09"	5' 5.8"	8' 0.58"	5' 4.59"	8' 3.54"
6' 0"	5' 3.49"	6' 11.52"	5' 2.6"	7' 1.22"	5' 1.63"	7' 3.22"	5' 0.58"	7' 5.58"
5' 6"	4' 10.91"	6' 3.33"	4' 10.16"	6' 4.68"	4' 9.34"	6' 6.26"	4' 8.45"	6' 8.12"
5' 0"	4' 6.21"	5' 7.4"	4' 5.59"	5' 8.45"	4' 4.91"	5' 9.67"	4' 4.17"	5' 11.1"
4' 9"	4' 3.82"	5' 3.53"	4' 3.26"	5' 4.45"	4' 2.65"	5' 5.51"	4' 1.98"	5' 6.76"
4' 6"	4' 1.4"	4' 11.72"	4' 0.9"	5' 0.51"	4' 0.35"	5' 1.44"	3' 11.75"	5' 2.51"
4' 3"	3' 10.95"	4' 7.97"	3' 10.5"	4' 8.65"	3' 10.01"	4' 9.45"	3' 9.48"	4' 10.37"
4' 0"	3' 8.46"	4' 4.27"	3' 8.07"	4' 4.86"	3' 7.64"	4' 5.54"	3' 7.17"	4' 6.32"
3' 9"	3' 5.94"	4' 0.64"	3' 5.6"	4' 1.13"	3' 5.23"	4' 1.7"	3' 4.82"	4' 2.36"
3' 6"	3' 3.4"	3' 9.06"	3' 3.1"	3' 9.47"	3' 2.78"	3' 9.94"	3' 2.43"	3' 10.49"
3' 3"	3' 0.81"	3' 5.53"	3' 0.56"	3' 5.87"	3' 0.29"	3' 6.26"	2' 11.99"	3' 6.7"
3' 0"	2' 10.2"	3' 2.06"	2' 9.99"	3' 2.33"	2' 9.76"	3' 2.64"	2' 9.51"	3' 3"
2' 9"	2' 7.54"	2' 10.64"	2' 7.38"	2' 10.85"	2' 7.19"	2' 11.1"	2' 6.99"	2' 11.38"
2' 6"	2' 4.86"	2' 7.27"	2' 4.72"	2' 7.43"	2' 4.58"	2' 7.62"	2' 4.42"	2' 7.84"
2' 3"	2' 2.13"	2' 3.95"	2' 2.03"	2' 4.07"	2' 1.92"	2' 4.21"	2' 1.8"	2' 4.37"
2' 0"	1' 11.37"	2' 0.68"	1' 11.3"	2' 0.76"	1' 11.22"	2' 0.86"	1' 11.13"	2' 0.97"
1' 10"	1' 9.51"	1' 10.52"	1' 9.46"	1' 10.59"	1' 9.39"	1' 10.66"	1' 9.32"	1' 10.75"



2.8	3.2	3.5	4	4.5
23' 0.89"	20' 7.52"	18' 5.38"	16' 6.07"	14' 9.28"

2.8		3.2		3.5		4		4.5	
Focus Distance	Short Focus (ft-inch)	Long Focus (ft-inch)	Focus Distance	Short Focus (ft-inch)	Long Focus (ft-inch)	Focus Distance	Short Focus (ft-inch)	Long Focus (ft-inch)	Focus Distance
23' 0.04"	Infinity	20' 6.68"	Infinity	18' 4.52"	Infinity	16' 5.21"	Infinity	14' 8.45"	Infinity
19' 5.6"	Infinity	17' 8.41"	Infinity	16' 0.9"	Infinity	14' 6.99"	Infinity	13' 2.59"	Infinity
16' 10.46"	Infinity	15' 6.5"	Infinity	14' 3.43"	Infinity	13' 1.26"	Infinity	12' 0.01"	Infinity
14' 10.65"	Infinity	13' 10.22"	Infinity	12' 10.25"	Infinity	11' 10.79"	Infinity	10' 11.88"	Infinity
13' 3.84"	Infinity	12' 5.91"	Infinity	11' 8.2"	Infinity	10' 10.76"	Infinity	10' 1.63"	Infinity
12' 3.42"	Infinity	11' 7"	Infinity	10' 10.67"	Infinity	10' 2.49"	Infinity	9' 6.51"	Infinity
11' 0.03"	142' 3.29"	10' 5.31"	618' 11.45"	9' 10.58"	Infinity	9' 3.88"	Infinity	8' 9.26"	Infinity
10' 0.89"	61' 2.63"	9' 7.29"	91' 0.56"	9' 1.63"	202' 6.63"	8' 7.94"	Infinity	8' 2.26"	Infinity
9' 4.45"	40' 7.72"	8' 11.63"	51' 9.51"	8' 6.73"	75' 0.69"	8' 1.76"	152' 6.44"	7' 8.77"	Infinity
8' 11.88"	33' 9.07"	8' 7.46"	41' 0.6"	8' 2.95"	54' 3.7"	7' 10.36"	85' 6.66"	7' 5.72"	245' 3.25"
8' 7.04"	28' 2.83"	8' 3.03"	33' 1.49"	7' 10.92"	41' 2.13"	7' 6.71"	56' 9.46"	7' 2.45"	99' 5.64"
8' 1.92"	23' 8.56"	7' 10.32"	27' 0.43"	7' 6.61"	32' 1.43"	7' 2.8"	40' 9.5"	6' 10.91"	58' 8.92"
7' 8.49"	19' 11.27"	7' 5.3"	22' 2.54"	7' 1.99"	25' 5.92"	6' 10.59"	30' 7.28"	6' 7.09"	39' 7.11"
7' 2.71"	16' 8.92"	6' 11.94"	18' 3.55"	6' 9.04"	20' 5.24"	6' 6.04"	23' 6.62"	6' 2.95"	28' 5.55"
6' 11.69"	15' 3.86"	6' 9.11"	16' 7.22"	6' 6.42"	18' 3.98"	6' 3.63"	20' 9.36"	6' 0.74"	24' 5.76"
6' 8.56"	14' 0.01"	6' 6.19"	15' 0.64"	6' 3.71"	16' 5.4"	6' 1.12"	18' 4.53"	5' 10.43"	21' 2.25"
6' 5.33"	12' 9.25"	6' 3.17"	13' 7.59"	6' 0.89"	14' 9.09"	5' 10.5"	16' 3.3"	5' 8.02"	18' 5.03"
6' 2"	11' 7.47"	6' 0.03"	12' 3.89"	5' 9.95"	13' 2.72"	5' 7.77"	14' 5.04"	5' 5.5"	16' 0.71"
5' 10.55"	10' 6.57"	5' 8.78"	11' 1.39"	5' 6.9"	11' 10.03"	5' 4.92"	12' 9.25"	5' 2.86"	14' 0.29"
5' 6.98"	9' 6.48"	5' 5.4"	9' 11.95"	5' 3.72"	10' 6.8"	5' 1.95"	11' 3.54"	5' 0.08"	12' 3.01"
5' 3.28"	8' 7.11"	5' 1.89"	8' 11.46"	5' 0.4"	9' 4.84"	4' 10.83"	9' 11.6"	4' 9.17"	10' 8.3"
4' 11.45"	7' 8.41"	4' 10.24"	7' 11.83"	4' 8.95"	8' 4"	4' 7.57"	8' 9.18"	4' 6.11"	9' 3.72"
4' 7.48"	6' 10.32"	4' 6.45"	7' 0.96"	4' 5.34"	7' 4.16"	4' 4.15"	7' 8.07"	4' 2.89"	8' 0.93"
4' 3.37"	6' 0.79"	4' 2.5"	6' 2.79"	4' 1.56"	6' 5.19"	4' 0.56"	6' 8.1"	3' 11.49"	6' 11.65"
4' 1.25"	5' 8.22"	4' 0.46"	5' 9.95"	3' 11.61"	6' 0.01"	3' 10.7"	6' 2.49"	3' 9.72"	6' 5.51"
3' 11.09"	5' 3.77"	3' 10.38"	5' 5.26"	3' 9.62"	5' 7.02"	3' 8.79"	5' 9.12"	3' 7.91"	5' 11.67"
3' 8.89"	4' 11.44"	3' 8.26"	5' 0.7"	3' 7.57"	5' 2.19"	3' 6.83"	5' 3.97"	3' 6.04"	5' 6.1"
3' 6.65"	4' 7.23"	3' 6.09"	4' 8.29"	3' 5.48"	4' 9.54"	3' 4.83"	4' 11.02"	3' 4.11"	5' 0.79"
3' 4.37"	4' 3.12"	3' 3.88"	4' 4.01"	3' 3.34"	4' 5.05"	3' 2.76"	4' 6.27"	3' 2.14"	4' 7.73"
3' 2.04"	3' 11.12"	3' 1.61"	3' 11.85"	3' 1.15"	4' 0.7"	3' 0.65"	4' 1.7"	3' 0.1"	4' 2.89"
2' 11.66"	3' 7.22"	2' 11.3"	3' 7.81"	2' 10.9"	3' 8.5"	2' 10.47"	3' 9.31"	2' 10"	3' 10.25"
2' 9.24"	3' 3.41"	2' 8.93"	3' 3.89"	2' 8.6"	3' 4.43"	2' 8.24"	3' 5.07"	2' 7.84"	3' 5.82"
2' 6.76"	2' 11.7"	2' 6.51"	3' 0.07"	2' 6.24"	3' 0.5"	2' 5.94"	3' 0.99"	2' 5.62"	3' 1.57"
2' 4.24"	2' 8.08"	2' 4.04"	2' 8.36"	2' 3.82"	2' 8.69"	2' 3.58"	2' 9.06"	2' 3.32"	2' 9.49"
2' 1.66"	2' 4.55"	2' 1.51"	2' 4.75"	2' 1.34"	2' 4.99"	2' 1.15"	2' 5.26"	2' 0.95"	2' 5.57"
1' 11.03"	2' 1.1"	1' 10.91"	2' 1.24"	1' 10.79"	2' 1.41"	1' 10.65"	2' 1.6"	1' 10.5"	2' 1.81"
1' 9.24"	1' 10.84"	1' 9.15"	1' 10.95"	1' 9.06"	1' 11.08"	1' 8.95"	1' 11.22"	1' 8.83"	1' 11.39"



5	5.6	6.3	7.1	8
13' 2.82"	11' 10.32"	10' 7.64"	9' 6.57"	8' 6.91"

5		5.6		6.3		7.1		8	
Short Focus (ft-inch)	Long Focus (ft-inch)	Focus Distance	Short Focus (ft-inch)	Long Focus (ft-inch)	Focus Distance	Short Focus (ft-inch)	Long Focus (ft-inch)	Focus Distance	Short Focus (ft-inch)
13' 1.95"	Infinity	11' 9.47"	Infinity	10' 6.79"	Infinity	9' 5.71"	Infinity	8' 6.05"	Infinity
11' 11.62"	Infinity	10' 9.99"	Infinity	9' 9.59"	Infinity	8' 10.35"	Infinity	8' 0.18"	Infinity
10' 11.67"	Infinity	10' 0.22"	Infinity	9' 1.64"	Infinity	8' 3.89"	Infinity	7' 6.94"	Infinity
10' 1.55"	Infinity	9' 3.82"	Infinity	8' 6.69"	Infinity	7' 10.16"	Infinity	7' 2.24"	Infinity
9' 4.87"	Infinity	8' 8.51"	Infinity	8' 0.56"	Infinity	7' 5.05"	Infinity	6' 10"	Infinity
8' 10.77"	Infinity	8' 3.31"	Infinity	7' 8.16"	Infinity	7' 1.35"	Infinity	6' 6.89"	Infinity
8' 2.76"	Infinity	7' 8.41"	Infinity	7' 2.26"	Infinity	6' 8.33"	Infinity	6' 2.65"	Infinity
7' 8.62"	Infinity	7' 3.08"	Infinity	6' 9.65"	Infinity	6' 4.36"	Infinity	5' 11.26"	Infinity
7' 3.77"	Infinity	6' 10.82"	Infinity	6' 5.94"	Infinity	6' 1.15"	Infinity	5' 8.5"	Infinity
7' 1.07"	Infinity	6' 8.43"	Infinity	6' 3.84"	Infinity	5' 11.33"	Infinity	5' 6.92"	Infinity
6' 10.15"	669' 10.5"	6' 5.84"	Infinity	6' 1.56"	Infinity	5' 9.34"	Infinity	5' 5.19"	Infinity
6' 6.98"	117' 1.79"	6' 3.02"	Infinity	5' 11.07"	Infinity	5' 7.15"	Infinity	5' 3.28"	Infinity
6' 3.54"	59' 3.9"	5' 11.94"	136' 5.55"	5' 8.33"	Infinity	5' 4.73"	Infinity	5' 1.16"	Infinity
5' 11.78"	37' 3.17"	5' 8.56"	57' 4.68"	5' 5.31"	148' 5.21"	5' 2.05"	Infinity	4' 10.79"	Infinity
5' 9.77"	30' 7.98"	5' 6.75"	42' 11.75"	5' 3.68"	79' 0.12"	5' 0.59"	Infinity	4' 9.5"	Infinity
5' 7.67"	25' 7.5"	5' 4.84"	33' 7.28"	5' 1.96"	51' 11.99"	4' 11.05"	137' 8.51"	4' 8.13"	Infinity
5' 5.46"	21' 7.79"	5' 2.83"	27' 0.28"	5' 0.14"	37' 7.55"	4' 9.42"	67' 11.51"	4' 6.68"	Infinity
5' 3.14"	18' 5.2"	5' 0.71"	22' 1.74"	4' 10.22"	28' 8.5"	4' 7.69"	43' 3.61"	4' 5.13"	102' 10.08"
5' 0.7"	15' 9.34"	4' 10.48"	18' 4.63"	4' 8.19"	22' 7.58"	4' 5.85"	30' 8.27"	4' 3.47"	51' 7.47"
4' 10.14"	13' 6.59"	4' 8.11"	15' 4.8"	4' 6.03"	18' 2.71"	4' 3.89"	23' 0.36"	4' 1.7"	32' 10.9"
4' 7.43"	11' 7.81"	4' 5.61"	12' 11.65"	4' 3.73"	14' 10.61"	4' 1.79"	17' 10.61"	3' 11.8"	23' 2.52"
4' 4.57"	10' 0.18"	4' 2.96"	10' 11.48"	4' 1.29"	12' 3.17"	3' 11.55"	14' 2.27"	3' 9.76"	17' 3.32"
4' 1.55"	8' 7.09"	4' 0.15"	9' 3.1"	3' 10.67"	10' 1.85"	3' 9.14"	11' 4.89"	3' 7.56"	13' 3.27"
3' 10.35"	7' 4.08"	3' 9.15"	7' 9.7"	3' 7.88"	8' 5.02"	3' 6.56"	9' 2.85"	3' 5.18"	10' 4.66"
3' 8.68"	6' 9.24"	3' 7.58"	7' 1.92"	3' 6.41"	7' 7.93"	3' 5.19"	8' 3.87"	3' 3.91"	9' 2.75"
3' 6.96"	6' 2.79"	3' 5.95"	6' 6.66"	3' 4.89"	6' 11.58"	3' 3.77"	7' 5.97"	3' 2.59"	8' 2.54"
3' 5.18"	5' 8.69"	3' 4.27"	5' 11.89"	3' 3.31"	6' 3.89"	3' 2.29"	6' 9.01"	3' 1.22"	7' 3.74"
3' 3.35"	5' 2.93"	3' 2.54"	5' 5.54"	3' 1.67"	5' 8.77"	3' 0.75"	6' 0.85"	2' 11.78"	6' 6.13"
3' 1.46"	4' 9.47"	3' 0.74"	4' 11.58"	2' 11.97"	5' 2.17"	2' 11.15"	5' 5.4"	2' 10.28"	5' 9.51"
2' 11.51"	4' 4.29"	2' 10.88"	4' 5.98"	2' 10.2"	4' 8.04"	2' 9.48"	4' 10.57"	2' 8.71"	5' 1.74"
2' 9.5"	3' 11.37"	2' 8.95"	4' 0.71"	2' 8.36"	4' 2.32"	2' 7.73"	4' 4.28"	2' 7.06"	4' 6.7"
2' 7.42"	3' 6.69"	2' 6.95"	3' 7.73"	2' 6.45"	3' 8.97"	2' 5.91"	3' 10.46"	2' 5.34"	4' 0.29"
2' 5.26"	3' 2.24"	2' 4.88"	3' 3.03"	2' 4.46"	3' 3.96"	2' 4.01"	3' 5.08"	2' 3.53"	3' 6.43"
2' 3.03"	2' 9.99"	2' 2.72"	2' 10.58"	2' 2.38"	2' 11.26"	2' 2.02"	3' 0.08"	2' 1.62"	3' 1.05"
2' 0.73"	2' 5.94"	2' 0.48"	2' 6.36"	2' 0.22"	2' 6.84"	1' 11.93"	2' 7.42"	1' 11.62"	2' 8.1"
1' 10.34"	2' 2.06"	1' 10.16"	2' 2.35"	1' 9.96"	2' 2.68"	1' 9.74"	2' 3.07"	1' 9.51"	2' 3.52"
1' 8.7"	1' 11.57"	1' 8.55"	1' 11.79"	1' 8.4"	2' 0.04"	1' 8.22"	2' 0.32"	1' 8.03"	2' 0.66"



9	10	11	13	14
7' 8.52"	6' 11.27"	6' 3.04"	5' 7.72"	5' 1.14"

9		10		11		13		14	
Long Focus (ft-inch)	Focus Distance	Short Focus (ft-inch)	Long Focus (ft-inch)	Focus Distance	Short Focus (ft-inch)	Long Focus (ft-inch)	Focus Distance	Short Focus (ft-inch)	Long Focus (ft-inch)
7' 7.67"	Infinity	6' 10.42"	Infinity	6' 2.18"	Infinity	5' 6.84"	Infinity	5' 0.3"	Infinity
7' 2.98"	Infinity	6' 6.68"	Infinity	5' 11.2"	Infinity	5' 4.47"	Infinity	4' 10.41"	Infinity
6' 10.75"	Infinity	6' 3.26"	Infinity	5' 8.45"	Infinity	5' 2.26"	Infinity	4' 8.64"	Infinity
6' 6.9"	Infinity	6' 0.13"	Infinity	5' 5.9"	Infinity	5' 0.19"	Infinity	4' 6.96"	Infinity
6' 3.39"	Infinity	5' 9.24"	Infinity	5' 3.53"	Infinity	4' 10.25"	Infinity	4' 5.38"	Infinity
6' 0.8"	Infinity	5' 7.09"	Infinity	5' 1.75"	Infinity	4' 8.79"	Infinity	4' 4.18"	Infinity
5' 9.23"	Infinity	5' 4.1"	Infinity	4' 11.26"	Infinity	4' 6.72"	Infinity	4' 2.48"	Infinity
5' 6.36"	Infinity	5' 1.67"	Infinity	4' 9.22"	Infinity	4' 5.02"	Infinity	4' 1.06"	Infinity
5' 3.99"	Infinity	4' 11.66"	Infinity	4' 7.52"	Infinity	4' 3.59"	Infinity	3' 11.87"	Infinity
5' 2.64"	Infinity	4' 10.5"	Infinity	4' 6.54"	Infinity	4' 2.76"	Infinity	3' 11.17"	Infinity
5' 1.14"	Infinity	4' 9.22"	Infinity	4' 5.45"	Infinity	4' 1.83"	Infinity	3' 10.39"	Infinity
4' 11.48"	Infinity	4' 7.79"	Infinity	4' 4.22"	Infinity	4' 0.79"	Infinity	3' 9.51"	Infinity
4' 9.64"	Infinity	4' 6.19"	Infinity	4' 2.85"	Infinity	3' 11.61"	Infinity	3' 8.51"	Infinity
4' 7.56"	Infinity	4' 4.39"	Infinity	4' 1.29"	Infinity	3' 10.27"	Infinity	3' 7.36"	Infinity
4' 6.43"	Infinity	4' 3.4"	Infinity	4' 0.43"	Infinity	3' 9.53"	Infinity	3' 6.72"	Infinity
4' 5.22"	Infinity	4' 2.34"	Infinity	3' 11.5"	Infinity	3' 8.73"	Infinity	3' 6.04"	Infinity
4' 3.93"	Infinity	4' 1.21"	Infinity	3' 10.51"	Infinity	3' 7.87"	Infinity	3' 5.3"	Infinity
4' 2.55"	Infinity	3' 11.99"	Infinity	3' 9.44"	Infinity	3' 6.94"	Infinity	3' 4.49"	Infinity
4' 1.08"	232' 10.43"	3' 10.68"	Infinity	3' 8.29"	Infinity	3' 5.93"	Infinity	3' 3.61"	Infinity
3' 11.49"	64' 5.41"	3' 9.27"	Infinity	3' 7.04"	Infinity	3' 4.83"	Infinity	3' 2.66"	Infinity
3' 9.78"	35' 1.82"	3' 7.74"	85' 4.29"	3' 5.68"	Infinity	3' 3.64"	Infinity	3' 1.61"	Infinity
3' 7.93"	22' 11.76"	3' 6.08"	36' 10.86"	3' 4.2"	120' 8.65"	3' 2.32"	Infinity	3' 0.45"	Infinity
3' 5.93"	16' 3.77"	3' 4.27"	22' 1.24"	3' 2.58"	37' 2.89"	3' 0.87"	174' 6.26"	2' 11.17"	Infinity
3' 3.75"	12' 1.3"	3' 2.29"	14' 11.19"	3' 0.79"	20' 4.49"	2' 11.27"	35' 0.45"	2' 9.74"	204' 9.51"
3' 2.59"	10' 6.45"	3' 1.22"	12' 6.9"	2' 11.83"	16' 1.79"	2' 10.4"	23' 11.66"	2' 8.96"	54' 2.52"
3' 1.37"	9' 2.54"	3' 0.11"	10' 8.4"	2' 10.81"	13' 1.54"	2' 9.49"	17' 9.04"	2' 8.14"	29' 10.36"
3' 0.1"	8' 0.93"	2' 10.94"	9' 2.09"	2' 9.74"	10' 10.34"	2' 8.52"	13' 9.23"	2' 7.27"	19' 10.78"
2' 10.77"	7' 1.15"	2' 9.71"	7' 10.89"	2' 8.62"	9' 1.18"	2' 7.49"	10' 11.98"	2' 6.34"	14' 5.73"
2' 9.37"	6' 2.86"	2' 8.42"	6' 10.08"	2' 7.42"	7' 8.25"	2' 6.4"	8' 11.53"	2' 5.34"	11' 0.84"
2' 7.9"	5' 5.79"	2' 7.05"	5' 11.12"	2' 6.16"	6' 6.39"	2' 5.24"	7' 4.78"	2' 4.28"	8' 8.75"
2' 6.35"	4' 9.74"	2' 5.61"	5' 1.65"	2' 4.82"	5' 6.83"	2' 4"	6' 1.95"	2' 3.15"	7' 0.27"
2' 4.73"	4' 2.54"	2' 4.08"	4' 5.39"	2' 3.4"	4' 9.06"	2' 2.68"	5' 1.93"	2' 1.93"	5' 8.68"
2' 3.01"	3' 8.07"	2' 2.46"	3' 10.11"	2' 1.88"	4' 0.68"	2' 1.26"	4' 3.99"	2' 0.62"	4' 8.4"
2' 1.2"	3' 2.22"	2' 0.74"	3' 3.65"	2' 0.26"	3' 5.41"	1' 11.75"	3' 7.63"	1' 11.21"	3' 10.5"
1' 11.28"	2' 8.9"	1' 10.92"	2' 9.88"	1' 10.53"	2' 11.05"	1' 10.11"	3' 0.51"	1' 9.67"	3' 2.33"
1' 9.25"	2' 4.05"	1' 8.97"	2' 4.69"	1' 8.67"	2' 5.44"	1' 8.35"	2' 6.36"	1' 8.01"	2' 7.48"
1' 7.83"	2' 1.05"	1' 7.6"	2' 1.51"	1' 7.36"	2' 2.06"	1' 7.1"	2' 2.71"	1' 6.82"	2' 3.49"



16	18	20	22
4' 7.31"	4' 2.16"	3' 9.51"	3' 5.38"

16		18		20		22	
Focus Distance	Short Focus (ft-inch)	Long Focus (ft-inch)	Focus Distance	Short Focus (ft-inch)	Long Focus (ft-inch)	Focus Distance	Short Focus (ft-inch)
4' 6.48"	Infinity	4' 1.29"	Infinity	3' 8.66"	Infinity	3' 4.54"	Infinity
4' 4.97"	Infinity	4' 0.09"	Infinity	3' 7.71"	Infinity	3' 3.79"	Infinity
4' 3.55"	Infinity	3' 10.95"	Infinity	3' 6.8"	Infinity	3' 3.06"	Infinity
4' 2.2"	Infinity	3' 9.86"	Infinity	3' 5.93"	Infinity	3' 2.36"	Infinity
4' 0.92"	Infinity	3' 8.82"	Infinity	3' 5.09"	Infinity	3' 1.68"	Infinity
3' 11.93"	Infinity	3' 8.02"	Infinity	3' 4.44"	Infinity	3' 1.16"	Infinity
3' 10.53"	Infinity	3' 6.88"	Infinity	3' 3.5"	Infinity	3' 0.39"	Infinity
3' 9.36"	Infinity	3' 5.91"	Infinity	3' 2.7"	Infinity	2' 11.74"	Infinity
3' 8.36"	Infinity	3' 5.08"	Infinity	3' 2.02"	Infinity	2' 11.18"	Infinity
3' 7.78"	Infinity	3' 4.6"	Infinity	3' 1.62"	Infinity	2' 10.85"	Infinity
3' 7.12"	Infinity	3' 4.05"	Infinity	3' 1.17"	Infinity	2' 10.48"	Infinity
3' 6.38"	Infinity	3' 3.43"	Infinity	3' 0.65"	Infinity	2' 10.05"	Infinity
3' 5.54"	Infinity	3' 2.72"	Infinity	3' 0.06"	Infinity	2' 9.55"	Infinity
3' 4.57"	Infinity	3' 1.9"	Infinity	2' 11.37"	Infinity	2' 8.98"	Infinity
3' 4.02"	Infinity	3' 1.44"	Infinity	2' 10.98"	Infinity	2' 8.66"	Infinity
3' 3.44"	Infinity	3' 0.94"	Infinity	2' 10.56"	Infinity	2' 8.3"	Infinity
3' 2.8"	Infinity	3' 0.4"	Infinity	2' 10.1"	Infinity	2' 7.92"	Infinity
3' 2.11"	Infinity	2' 11.81"	Infinity	2' 9.6"	Infinity	2' 7.49"	Infinity
3' 1.35"	Infinity	2' 11.16"	Infinity	2' 9.05"	Infinity	2' 7.02"	Infinity
3' 0.52"	Infinity	2' 10.45"	Infinity	2' 8.44"	Infinity	2' 6.5"	Infinity
2' 11.61"	Infinity	2' 9.66"	Infinity	2' 7.76"	Infinity	2' 5.92"	Infinity
2' 10.6"	Infinity	2' 8.78"	Infinity	2' 7"	Infinity	2' 5.27"	Infinity
2' 9.47"	Infinity	2' 7.79"	Infinity	2' 6.14"	Infinity	2' 4.54"	Infinity
2' 8.21"	Infinity	2' 6.68"	Infinity	2' 5.18"	Infinity	2' 3.7"	Infinity
2' 7.52"	Infinity	2' 6.07"	Infinity	2' 4.64"	Infinity	2' 3.23"	Infinity
2' 6.78"	140' 11.02"	2' 5.42"	Infinity	2' 4.07"	Infinity	2' 2.73"	Infinity
2' 6"	40' 11.42"	2' 4.73"	Infinity	2' 3.46"	Infinity	2' 2.19"	Infinity
2' 5.16"	22' 9.66"	2' 3.98"	68' 5.08"	2' 2.79"	Infinity	2' 1.61"	Infinity
2' 4.27"	15' 2.38"	2' 3.18"	26' 9.12"	2' 2.08"	233' 3.19"	2' 0.98"	Infinity
2' 3.31"	11' 0.18"	2' 2.31"	15' 9.69"	2' 1.31"	31' 11.98"	2' 0.29"	Infinity
2' 2.27"	8' 4.43"	2' 1.38"	10' 9.05"	2' 0.46"	16' 0.96"	1' 11.54"	38' 1.78"
2' 1.16"	6' 6.53"	2' 0.36"	7' 10.14"	1' 11.55"	10' 2.39"	1' 10.72"	15' 8.37"
1' 11.95"	5' 2.51"	1' 11.26"	5' 11.45"	1' 10.54"	7' 1.66"	1' 9.81"	9' 3.5"
1' 10.64"	4' 2.29"	1' 10.05"	4' 7.52"	1' 9.44"	5' 3.13"	1' 8.8"	6' 3.1"
1' 9.21"	3' 4.66"	1' 8.72"	3' 7.72"	1' 8.21"	3' 11.9"	1' 7.68"	4' 5.88"
1' 7.65"	2' 8.87"	1' 7.26"	2' 10.63"	1' 6.86"	3' 0.91"	1' 6.43"	3' 3.97"
1' 6.52"	2' 4.46"	1' 6.2"	2' 5.65"	1' 5.86"	2' 7.15"	1' 5.51"	2' 9.09"



Focal Length 25 mm

Circle of Confusion 0.025 mm

T/No	1.8	2	2.2	2.5
Hyperfocal Distance (ft-inch)	47' 3.32"	42' 2.22"	37' 7.85"	33' 7.39"

T/No	1.8		2		2.2		2.5	
Focus Distance (ft-inch)	Short Focus (ft-inch)	Long Focus (ft-inch)	Focus Distance	Short Focus (ft-inch)	Long Focus (ft-inch)	Focus Distance	Short Focus (ft-inch)	Long Focus (ft-inch)
Infinity	47' 2.32"	Infinity	42' 1.26"	Infinity	37' 6.86"	Infinity	33' 6.39"	Infinity
120' 0"	34' 1.34"	Infinity	31' 4.75"	Infinity	28' 9.93"	Infinity	26' 4.92"	Infinity
60' 0"	26' 8.49"	Infinity	25' 0.35"	Infinity	23' 4.61"	Infinity	21' 9.39"	Infinity
40' 0"	21' 11.33"	253' 5.52"	20' 9.7"	750' 2.73"	19' 8.03"	Infinity	18' 6.41"	Infinity
30' 0"	18' 7.46"	80' 0.76"	17' 9.67"	100' 11.62"	16' 11.67"	143' 0.12"	16' 1.55"	269' 3.73"
25' 0"	16' 7.32"	51' 8.95"	15' 11.55"	59' 7.98"	15' 3.54"	72' 1.03"	14' 7.34"	94' 1.97"
20' 0"	14' 3.52"	33' 9.73"	13' 9.8"	36' 11.74"	13' 3.84"	41' 4.06"	12' 9.65"	47' 8.03"
17' 0"	12' 8.73"	25' 10.72"	12' 4.22"	27' 8.28"	11' 11.48"	30' 0.44"	11' 6.53"	33' 2.47"
15' 0"	11' 7.17"	21' 5.19"	11' 3.45"	22' 7.64"	10' 11.52"	24' 1.98"	10' 7.39"	26' 1.84"
14' 0"	11' 0.05"	19' 4.84"	10' 8.72"	20' 4.54"	10' 5.18"	21' 7.21"	10' 1.45"	23' 2"
13' 0"	10' 4.69"	17' 5.91"	10' 1.73"	18' 3.3"	9' 10.59"	19' 2.95"	9' 7.26"	20' 5.63"
12' 0"	9' 9.08"	15' 8.28"	9' 6.49"	16' 3.74"	9' 3.72"	17' 0.88"	9' 0.78"	18' 0.26"
11' 0"	9' 1.2"	13' 11.84"	8' 10.96"	14' 5.69"	8' 8.57"	15' 0.78"	8' 6.01"	15' 9.49"
10' 0"	8' 5.04"	12' 4.5"	8' 3.14"	12' 9"	8' 1.1"	13' 2.41"	7' 10.92"	13' 8.98"
9' 6"	8' 0.84"	11' 7.21"	7' 11.11"	11' 11.14"	7' 9.25"	12' 3.83"	7' 7.24"	12' 9.49"
9' 0"	7' 8.58"	10' 10.17"	7' 7"	11' 1.57"	7' 5.31"	11' 5.61"	7' 3.48"	11' 10.47"
8' 6"	7' 4.23"	10' 1.36"	7' 2.81"	10' 4.28"	7' 1.28"	10' 7.74"	6' 11.63"	10' 11.88"
8' 0"	6' 11.81"	9' 4.77"	6' 10.54"	9' 7.27"	6' 9.16"	9' 10.21"	6' 7.68"	10' 1.71"
7' 6"	6' 7.3"	8' 8.4"	6' 6.17"	8' 10.51"	6' 4.95"	9' 0.99"	6' 3.63"	9' 3.93"
7' 0"	6' 2.7"	8' 0.24"	6' 1.72"	8' 2.01"	6' 0.64"	8' 4.08"	5' 11.48"	8' 6.52"
6' 6"	5' 10.02"	7' 4.27"	5' 9.17"	7' 5.74"	5' 8.23"	7' 7.45"	5' 7.22"	7' 9.45"
6' 0"	5' 5.25"	6' 8.5"	5' 4.52"	6' 9.7"	5' 3.72"	6' 11.09"	5' 2.85"	7' 0.71"
5' 6"	5' 0.39"	6' 0.92"	4' 11.77"	6' 1.88"	4' 11.1"	6' 2.99"	4' 10.36"	6' 4.28"
5' 0"	4' 7.43"	5' 5.52"	4' 6.92"	5' 6.27"	4' 6.37"	5' 7.14"	4' 5.76"	5' 8.15"
4' 9"	4' 4.91"	5' 1.88"	4' 4.46"	5' 2.54"	4' 3.96"	5' 3.31"	4' 3.41"	5' 4.19"
4' 6"	4' 2.37"	4' 10.29"	4' 1.96"	4' 10.86"	4' 1.52"	4' 11.53"	4' 1.03"	5' 0.3"
4' 3"	3' 11.8"	4' 6.73"	3' 11.44"	4' 7.23"	3' 11.05"	4' 7.81"	3' 10.61"	4' 8.47"
4' 0"	3' 9.21"	4' 3.22"	3' 8.9"	4' 3.65"	3' 8.55"	4' 4.14"	3' 8.16"	4' 4.71"
3' 9"	3' 6.59"	3' 11.75"	3' 6.32"	4' 0.11"	3' 6.02"	4' 0.53"	3' 5.68"	4' 1.01"
3' 6"	3' 3.95"	3' 8.32"	3' 3.72"	3' 8.62"	3' 3.46"	3' 8.97"	3' 3.17"	3' 9.37"
3' 3"	3' 1.28"	3' 4.93"	3' 1.08"	3' 5.18"	3' 0.86"	3' 5.46"	3' 0.62"	3' 5.79"
3' 0"	2' 10.58"	3' 1.57"	2' 10.42"	3' 1.78"	2' 10.23"	3' 2.01"	2' 10.03"	3' 2.27"
2' 9"	2' 7.85"	2' 10.26"	2' 7.72"	2' 10.42"	2' 7.57"	2' 10.6"	2' 7.41"	2' 10.81"
2' 6"	2' 5.1"	2' 6.98"	2' 4.99"	2' 7.1"	2' 4.88"	2' 7.24"	2' 4.75"	2' 7.4"
2' 3"	2' 2.32"	2' 3.73"	2' 2.24"	2' 3.83"	2' 2.15"	2' 3.93"	2' 2.05"	2' 4.05"
2' 0"	1' 11.5"	2' 0.53"	1' 11.45"	2' 0.59"	1' 11.38"	2' 0.67"	1' 11.31"	2' 0.75"
1' 10"	1' 9.61"	1' 10.41"	1' 9.57"	1' 10.46"	1' 9.52"	1' 10.52"	1' 9.46"	1' 10.58"



2.8	3.2	3.5	4	4.5
30' 0.2"	26' 9.73"	23' 11.44"	21' 4.93"	19' 1.72"

2.8		3.2		3.5		4		4.5	
Focus Distance	Short Focus (ft-inch)	Long Focus (ft-inch)	Focus Distance	Short Focus (ft-inch)	Long Focus (ft-inch)	Focus Distance	Short Focus (ft-inch)	Long Focus (ft-inch)	Focus Distance
29' 11.21"	Infinity	26' 8.74"	Infinity	23' 10.47"	Infinity	21' 3.93"	Infinity	19' 0.73"	Infinity
24' 1.75"	Infinity	22' 0.42"	Infinity	20' 0.89"	Infinity	18' 3.12"	Infinity	16' 7.04"	Infinity
20' 2.8"	Infinity	18' 8.91"	Infinity	17' 3.81"	Infinity	15' 11.55"	Infinity	14' 8.17"	Infinity
17' 4.93"	Infinity	16' 3.67"	Infinity	15' 2.72"	Infinity	14' 2.14"	Infinity	13' 2.01"	Infinity
15' 3.35"	Infinity	14' 5.16"	Infinity	13' 7.03"	Infinity	12' 9.03"	Infinity	11' 11.23"	Infinity
13' 10.99"	143' 9.42"	13' 2.56"	354' 2.28"	12' 6.09"	Infinity	11' 9.64"	Infinity	11' 1.26"	Infinity
12' 3.28"	57' 7.33"	11' 8.75"	75' 3.79"	11' 2.11"	115' 3.28"	10' 7.4"	287' 3.32"	10' 0.66"	Infinity
11' 1.38"	37' 8.23"	10' 8.06"	44' 5.35"	10' 2.6"	55' 8.62"	9' 9.02"	78' 0.73"	9' 3.37"	142' 7.97"
10' 3.06"	28' 9.91"	9' 10.56"	32' 6.95"	9' 5.9"	38' 2.24"	9' 1.11"	47' 4.69"	8' 8.23"	65' 1.39"
9' 9.53"	25' 2.71"	9' 5.44"	28' 0.42"	9' 1.2"	32' 0.75"	8' 8.82"	38' 3.18"	8' 4.32"	48' 11.53"
9' 3.75"	22' 0.59"	9' 0.07"	24' 1.79"	8' 8.23"	27' 0.68"	8' 4.26"	31' 3.71"	8' 0.16"	38' 0.8"
8' 9.67"	19' 2.69"	8' 6.4"	20' 9.46"	8' 2.98"	22' 10.66"	7' 11.41"	25' 9.99"	7' 7.73"	30' 2.67"
8' 3.3"	16' 8.37"	8' 0.43"	17' 10.23"	7' 9.41"	19' 4.36"	7' 6.26"	21' 4.89"	7' 2.98"	24' 3.66"
7' 8.59"	14' 5.07"	7' 6.12"	15' 3.19"	7' 3.51"	16' 4.13"	7' 0.76"	17' 9.1"	6' 9.9"	19' 8.19"
7' 5.1"	13' 4.42"	7' 2.83"	14' 1.02"	7' 0.41"	14' 11.89"	6' 9.88"	16' 1.97"	6' 7.22"	17' 8.76"
7' 1.53"	12' 4.37"	6' 11.44"	12' 11.64"	6' 9.23"	13' 8.74"	6' 6.89"	14' 8.37"	6' 4.43"	15' 11.65"
6' 9.85"	11' 4.88"	6' 7.96"	11' 10.99"	6' 5.94"	12' 6.57"	6' 3.8"	13' 4.14"	6' 1.55"	14' 4.52"
6' 6.08"	10' 5.92"	6' 4.37"	10' 11.02"	6' 2.54"	11' 5.28"	6' 0.6"	12' 1.12"	5' 10.55"	12' 11.11"
6' 2.2"	9' 7.44"	6' 0.67"	9' 11.66"	5' 11.03"	10' 4.81"	5' 9.28"	10' 11.18"	5' 7.43"	11' 7.19"
5' 10.22"	8' 9.41"	5' 8.86"	9' 0.88"	5' 7.4"	9' 5.07"	5' 5.84"	9' 10.2"	5' 4.19"	10' 4.59"
5' 6.12"	7' 11.81"	5' 4.93"	8' 2.63"	5' 3.65"	8' 6"	5' 2.28"	8' 10.1"	5' 0.82"	9' 3.14"
5' 1.9"	7' 2.62"	5' 0.87"	7' 4.87"	4' 11.77"	7' 7.55"	4' 10.57"	7' 10.78"	4' 9.3"	8' 2.71"
4' 9.56"	6' 5.79"	4' 8.69"	6' 7.57"	4' 7.74"	6' 9.67"	4' 6.73"	7' 0.17"	4' 5.63"	7' 3.19"
4' 5.09"	5' 9.32"	4' 4.37"	5' 10.69"	4' 3.58"	6' 0.3"	4' 2.73"	6' 2.21"	4' 1.81"	6' 4.49"
4' 2.81"	5' 5.21"	4' 2.15"	5' 6.41"	4' 1.44"	5' 7.81"	4' 0.66"	5' 9.46"	3' 11.83"	5' 11.42"
4' 0.49"	5' 1.18"	3' 11.9"	5' 2.22"	3' 11.26"	5' 3.42"	3' 10.56"	5' 4.84"	3' 9.81"	5' 6.52"
3' 10.13"	4' 9.23"	3' 9.61"	4' 10.12"	3' 9.04"	4' 11.15"	3' 8.42"	5' 0.36"	3' 7.74"	5' 1.78"
3' 7.74"	4' 5.36"	3' 7.28"	4' 6.11"	3' 6.78"	4' 6.99"	3' 6.23"	4' 8.01"	3' 5.63"	4' 9.21"
3' 5.32"	4' 1.56"	3' 4.91"	4' 2.19"	3' 4.47"	4' 2.92"	3' 3.99"	4' 3.78"	3' 3.47"	4' 4.78"
3' 2.85"	3' 9.83"	3' 2.51"	3' 10.35"	3' 2.12"	3' 10.96"	3' 1.71"	3' 11.67"	3' 1.25"	4' 0.49"
3' 0.35"	3' 6.17"	3' 0.06"	3' 6.6"	2' 11.73"	3' 7.1"	2' 11.38"	3' 7.67"	2' 10.99"	3' 8.34"
2' 9.81"	3' 2.58"	2' 9.56"	3' 2.92"	2' 9.29"	3' 3.32"	2' 8.99"	3' 3.78"	2' 8.67"	3' 4.31"
2' 7.23"	2' 11.05"	2' 7.02"	2' 11.32"	2' 6.8"	2' 11.64"	2' 6.56"	3'	2' 6.29"	3' 0.41"
2' 4.6"	2' 7.59"	2' 4.44"	2' 7.8"	2' 4.27"	2' 8.04"	2' 4.07"	2' 8.31"	2' 3.86"	2' 8.63"
2' 1.94"	2' 4.19"	2' 1.81"	2' 4.34"	2' 1.68"	2' 4.52"	2' 1.53"	2' 4.72"	2' 1.36"	2' 4.95"
1' 11.23"	2' 0.85"	1' 11.14"	2' 0.96"	1' 11.04"	2' 1.08"	1' 10.93"	2' 1.23"	1' 10.8"	2' 1.39"
1' 9.4"	1' 10.66"	1' 9.32"	1' 10.74"	1' 9.25"	1' 10.84"	1' 9.16"	1' 10.94"	1' 9.06"	1' 11.07"



5	5.6	6.3	7.1	8
17' 1.47"	15' 3.9"	13' 8.65"	12' 3.52"	11' 0.24"

5		5.6		6.3		7.1		8	
Short Focus (ft-inch)	Long Focus (ft-inch)	Focus Distance	Short Focus (ft-inch)	Long Focus (ft-inch)	Focus Distance	Short Focus (ft-inch)	Long Focus (ft-inch)	Focus Distance	Short Focus (ft-inch)
17' 0.5"	Infinity	15' 2.91"	Infinity	13' 7.67"	Infinity	12' 2.54"	Infinity	10' 11.27"	Infinity
15' 0.6"	Infinity	13' 7.7"	Infinity	12' 4.25"	Infinity	11' 2.17"	Infinity	10' 1.37"	Infinity
13' 5.69"	Infinity	12' 4.13"	Infinity	11' 3.48"	Infinity	10' 3.73"	Infinity	9' 4.85"	Infinity
12' 2.37"	Infinity	11' 3.26"	Infinity	10' 4.73"	Infinity	9' 6.79"	Infinity	8' 9.45"	Infinity
11' 1.69"	Infinity	10' 4.45"	Infinity	9' 7.55"	Infinity	8' 11.05"	Infinity	8' 2.95"	Infinity
10' 5.02"	Infinity	9' 8.96"	Infinity	9' 1.13"	Infinity	8' 5.57"	Infinity	7' 10.3"	Infinity
9' 5.94"	Infinity	8' 11.28"	Infinity	8' 4.73"	Infinity	7' 10.32"	Infinity	7' 4.09"	Infinity
8' 9.67"	Infinity	8' 3.98"	Infinity	7' 10.32"	Infinity	7' 4.73"	Infinity	6' 11.25"	Infinity
8' 3.27"	112' 9.45"	7' 10.27"	656' 0.88"	7' 5.27"	Infinity	7' 0.29"	Infinity	6' 7.37"	Infinity
7' 11.74"	71' 6.83"	7' 7.11"	149' 9.7"	7' 2.45"	Infinity	6' 9.8"	Infinity	6' 5.18"	Infinity
7' 7.98"	50' 4.13"	7' 3.72"	79' 3.09"	6' 11.42"	226' 6.81"	6' 7.11"	Infinity	6' 2.81"	Infinity
7' 3.94"	37' 4.87"	7' 0.07"	51' 1.89"	6' 8.14"	87' 7.55"	6' 4.18"	456' 3.71"	6' 0.21"	Infinity
6' 11.6"	28' 8.32"	6' 8.12"	36' 0.67"	6' 4.58"	50' 9.79"	6' 0.98"	94' 9.5"	5' 9.37"	Infinity
6' 6.92"	22' 5.13"	6' 3.85"	26' 7.53"	6' 0.7"	33' 9.48"	5' 9.49"	48' 7.27"	5' 6.23"	96' 8.68"
6' 4.45"	19' 10.93"	6' 1.58"	23' 1.52"	5' 10.63"	28' 3.62"	5' 7.61"	37' 10.98"	5' 4.54"	61' 8.24"
6' 1.87"	17' 8.45"	5' 11.21"	20' 2.16"	5' 8.46"	23' 11.72"	5' 5.64"	30' 5.65"	5' 2.77"	43' 11.87"
5' 11.19"	15' 9.04"	5' 8.73"	17' 7.99"	5' 6.19"	20' 5.75"	5' 3.57"	24' 11.88"	5' 0.89"	33' 3.74"
5' 8.39"	14' 0.19"	5' 6.14"	15' 5.93"	5' 3.8"	17' 7.13"	5' 1.39"	20' 9.42"	4' 10.91"	26' 2.04"
5' 5.48"	12' 5.52"	5' 3.44"	13' 7.2"	5' 1.3"	15' 2.06"	4' 11.09"	17' 5.49"	4' 8.81"	21' 0.67"
5' 2.44"	11' 0.68"	5' 0.6"	11' 11.21"	4' 10.67"	13' 1.33"	4' 8.66"	14' 9.11"	4' 6.59"	17' 2.57"
4' 11.26"	9' 9.43"	4' 9.62"	10' 5.48"	4' 7.9"	11' 4.01"	4' 6.1"	12' 6.32"	4' 4.23"	14' 2.67"
4' 7.94"	8' 7.56"	4' 6.5"	9' 1.65"	4' 4.98"	9' 9.46"	4' 3.39"	10' 7.78"	4' 1.72"	11' 9.91"
4' 4.46"	7' 6.87"	4' 3.22"	7' 11.43"	4' 1.9"	8' 5.17"	4' 0.51"	9' 0.56"	3' 11.05"	9' 10.37"
4' 0.82"	6' 7.24"	3' 11.76"	6' 10.59"	3' 10.64"	7' 2.74"	3' 9.45"	7' 7.98"	3' 8.2"	8' 2.73"
3' 10.93"	6' 1.77"	3' 9.97"	6' 4.62"	3' 8.94"	6' 8.13"	3' 7.85"	7' 0.51"	3' 6.7"	7' 6.09"
3' 9"	5' 8.52"	3' 8.12"	5' 10.94"	3' 7.19"	6' 1.88"	3' 6.2"	6' 5.52"	3' 5.14"	6' 10.11"
3' 7.01"	5' 3.48"	3' 6.23"	5' 5.5"	3' 5.39"	5' 7.96"	3' 4.49"	5' 10.97"	3' 3.53"	6' 2.72"
3' 4.98"	4' 10.62"	3' 4.28"	5' 0.31"	3' 3.53"	5' 2.34"	3' 2.72"	5' 4.81"	3' 1.87"	5' 7.86"
3' 2.9"	4' 5.95"	3' 2.28"	4' 7.34"	3' 1.61"	4' 9"	3' 0.9"	4' 11.01"	3' 0.14"	5' 1.46"
3' 0.76"	4' 1.45"	3' 0.22"	4' 2.58"	2' 11.64"	4' 3.93"	2' 11.01"	4' 5.54"	2' 10.34"	4' 7.5"
2' 10.56"	3' 9.11"	2' 10.1"	3' 10.02"	2' 9.6"	3' 11.1"	2' 9.06"	4' 0.38"	2' 8.48"	4' 1.91"
2' 8.31"	3' 4.93"	2' 7.92"	3' 5.65"	2' 7.5"	3' 6.49"	2' 7.04"	3' 7.49"	2' 6.54"	3' 8.68"
2' 6"	3' 0.89"	2' 5.67"	3' 1.45"	2' 5.32"	3' 2.09"	2' 4.94"	3' 2.86"	2' 4.53"	3' 3.76"
2' 3.62"	2' 8.99"	2' 3.36"	2' 9.41"	2' 3.08"	2' 9.89"	2' 2.77"	2' 10.46"	2' 2.44"	2' 11.13"
2' 1.18"	2' 5.22"	2' 0.98"	2' 5.52"	2' 0.76"	2' 5.88"	2' 0.52"	2' 6.29"	2' 0.25"	2' 6.76"
1' 10.67"	2' 1.57"	1' 10.52"	2' 1.79"	1' 10.35"	2' 2.03"	1' 10.17"	2' 2.31"	1' 9.98"	2' 2.64"
1' 8.95"	1' 11.21"	1' 8.84"	1' 11.37"	1' 8.71"	1' 11.56"	1' 8.56"	1' 11.77"	1' 8.4"	2' 0.01"



9	10	11	13	14
9' 10.66"	8' 10.54"	7' 11.75"	7' 2.1"	6' 5.56"

9		10		11		13		14	
Long Focus (ft-inch)	Focus Distance	Short Focus (ft-inch)	Long Focus (ft-inch)	Focus Distance	Short Focus (ft-inch)	Long Focus (ft-inch)	Focus Distance	Short Focus (ft-inch)	Long Focus (ft-inch)
9' 9.67"	Infinity	8' 9.55"	Infinity	7' 10.76"	Infinity	7' 1.14"	Infinity	6' 4.57"	Infinity
9' 1.75"	Infinity	8' 3.22"	Infinity	7' 5.71"	Infinity	6' 9.11"	Infinity	6' 1.36"	Infinity
8' 6.82"	Infinity	7' 9.61"	Infinity	7' 1.16"	Infinity	6' 5.44"	Infinity	5' 10.4"	Infinity
8' 0.72"	Infinity	7' 4.59"	Infinity	6' 9.05"	Infinity	6' 2.09"	Infinity	5' 7.67"	Infinity
7' 7.29"	Infinity	7' 0.08"	Infinity	6' 5.32"	Infinity	5' 11.01"	Infinity	5' 5.15"	Infinity
7' 3.37"	Infinity	6' 8.79"	Infinity	6' 2.57"	Infinity	5' 8.72"	Infinity	5' 3.25"	Infinity
6' 10.08"	Infinity	6' 4.3"	Infinity	5' 10.79"	Infinity	5' 5.55"	Infinity	5' 0.61"	Infinity
6' 5.91"	Infinity	6' 0.73"	Infinity	5' 7.76"	Infinity	5' 2.99"	Infinity	4' 10.45"	Infinity
6' 2.54"	Infinity	5' 9.83"	Infinity	5' 5.27"	Infinity	5' 0.87"	Infinity	4' 8.66"	Infinity
6' 0.63"	Infinity	5' 8.18"	Infinity	5' 3.84"	Infinity	4' 11.65"	Infinity	4' 7.62"	Infinity
5' 10.55"	Infinity	5' 6.37"	Infinity	5' 2.28"	Infinity	4' 10.3"	Infinity	4' 6.47"	Infinity
5' 8.27"	Infinity	5' 4.37"	Infinity	5' 0.54"	Infinity	4' 8.81"	Infinity	4' 5.19"	Infinity
5' 5.75"	Infinity	5' 2.16"	Infinity	4' 10.61"	Infinity	4' 7.13"	Infinity	4' 3.74"	Infinity
5' 2.96"	Infinity	4' 11.69"	Infinity	4' 8.45"	Infinity	4' 5.24"	Infinity	4' 2.11"	Infinity
5' 1.45"	214' 4.88"	4' 10.35"	Infinity	4' 7.26"	Infinity	4' 4.21"	Infinity	4' 1.21"	Infinity
4' 11.86"	88' 8.19"	4' 8.93"	Infinity	4' 6.01"	Infinity	4' 3.11"	Infinity	4' 0.24"	Infinity
4' 10.17"	53' 7"	4' 7.42"	174' 1.91"	4' 4.67"	Infinity	4' 1.92"	Infinity	3' 11.21"	Infinity
4' 8.38"	37' 0.98"	4' 5.82"	70' 6.53"	4' 3.24"	Infinity	4' 0.66"	Infinity	3' 10.1"	Infinity
4' 6.48"	27' 5.9"	4' 4.1"	42' 1.76"	4' 1.71"	107' 4.28"	3' 11.3"	Infinity	3' 8.9"	Infinity
4' 4.46"	21' 2.69"	4' 2.28"	28' 10.48"	4' 0.06"	48' 11.93"	3' 9.83"	239' 8.03"	3' 7.6"	Infinity
4' 2.3"	16' 9.67"	4' 0.32"	21' 2.2"	3' 10.3"	30' 1.44"	3' 8.25"	58' 1.23"	3' 6.19"	Infinity
4'	13' 6.3"	3' 10.22"	16' 1.98"	3' 8.39"	20' 9.46"	3' 6.53"	30' 10.35"	3' 4.65"	69' 2.95"
3' 9.53"	10' 11.9"	3' 7.95"	12' 7.6"	3' 6.33"	15' 2.67"	3' 4.67"	19' 10.45"	3' 2.98"	30' 6.38"
3' 6.88"	8' 11.72"	3' 5.51"	10' 0.14"	3' 4.09"	11' 6.31"	3' 2.63"	13' 11.15"	3' 1.13"	18' 3.46"
3' 5.48"	8' 1.39"	3' 4.22"	8' 11.27"	3' 2.9"	10' 1.28"	3' 1.54"	11' 10.52"	3' 0.14"	14' 10.17"
3' 4.03"	7' 4.03"	3' 2.87"	7' 11.87"	3' 1.65"	8' 10.71"	3' 0.4"	10' 2.49"	2' 11.1"	12' 3.4"
3' 2.52"	6' 7.49"	3' 1.46"	7' 1.71"	3' 0.35"	7' 10.08"	2' 11.2"	8' 9.88"	2' 10"	10' 3.59"
3' 0.96"	5' 11.68"	3'	6' 4.58"	2' 10.99"	6' 11.04"	2' 9.94"	7' 7.89"	2' 8.84"	8' 8.61"
2' 11.33"	5' 4.5"	2' 10.47"	5' 8.34"	2' 9.56"	6' 1.31"	2' 8.61"	6' 7.93"	2' 7.62"	7' 5.13"
2' 9.63"	4' 9.89"	2' 8.87"	5' 0.87"	2' 8.06"	5' 4.67"	2' 7.22"	5' 9.61"	2' 6.33"	6' 4.26"
2' 7.86"	4' 3.78"	2' 7.19"	4' 6.07"	2' 6.49"	4' 8.94"	2' 5.74"	5' 0.6"	2' 4.96"	5' 5.4"
2' 6.01"	3' 10.11"	2' 5.44"	3' 11.84"	2' 4.84"	4' 1.98"	2' 4.19"	4' 4.66"	2' 3.51"	4' 8.1"
2' 4.09"	3' 4.83"	2' 3.61"	3' 6.12"	2' 3.09"	3' 7.69"	2' 2.55"	3' 9.63"	2' 1.97"	4' 0.06"
2' 2.07"	2' 11.91"	2' 1.68"	3' 0.85"	2' 1.26"	3' 1.98"	2' 0.81"	3' 3.34"	2' 0.32"	3' 5.03"
1' 11.97"	2' 7.32"	1' 11.66"	2' 7.98"	1' 11.32"	2' 8.76"	1' 10.96"	2' 9.7"	1' 10.57"	2' 10.83"
1' 9.76"	2' 3.02"	1' 9.53"	2' 3.46"	1' 9.27"	2' 3.98"	1' 8.99"	2' 4.6"	1' 8.7"	2' 5.33"
1' 8.23"	2' 0.3"	1' 8.04"	2' 0.62"	1' 7.84"	2' 1.01"	1' 7.61"	2' 1.46"	1' 7.37"	2' 1.99"



16	18	20	22
5' 9.92"	5' 3.11"	4' 9.05"	4' 3.65"

16		18		20		22	
Focus Distance	Short Focus (ft-inch)	Long Focus (ft-inch)	Focus Distance	Short Focus (ft-inch)	Long Focus (ft-inch)	Focus Distance	Short Focus (ft-inch)
5' 8.94"	Infinity	5' 2.14"	Infinity	4' 8.08"	Infinity	4' 2.68"	Infinity
5' 6.38"	Infinity	5' 0.1"	Infinity	4' 6.46"	Infinity	4' 1.4"	Infinity
5' 4"	Infinity	4' 10.2"	Infinity	4' 4.93"	Infinity	4' 0.17"	Infinity
5' 1.79"	Infinity	4' 8.4"	Infinity	4' 3.48"	Infinity	3' 11.01"	Infinity
4' 11.72"	Infinity	4' 6.71"	Infinity	4' 2.11"	Infinity	3' 9.89"	Infinity
4' 10.16"	Infinity	4' 5.43"	Infinity	4' 1.06"	Infinity	3' 9.04"	Infinity
4' 7.97"	Infinity	4' 3.62"	Infinity	3' 11.57"	Infinity	3' 7.81"	Infinity
4' 6.16"	Infinity	4' 2.12"	Infinity	3' 10.32"	Infinity	3' 6.79"	Infinity
4' 4.65"	Infinity	4' 0.85"	Infinity	3' 9.27"	Infinity	3' 5.91"	Infinity
4' 3.77"	Infinity	4' 0.11"	Infinity	3' 8.65"	Infinity	3' 5.39"	Infinity
4' 2.79"	Infinity	3' 11.29"	Infinity	3' 7.96"	Infinity	3' 4.82"	Infinity
4' 1.7"	Infinity	3' 10.36"	Infinity	3' 7.17"	Infinity	3' 4.16"	Infinity
4' 0.46"	Infinity	3' 9.3"	Infinity	3' 6.28"	Infinity	3' 3.41"	Infinity
3' 11.06"	Infinity	3' 8.1"	Infinity	3' 5.26"	Infinity	3' 2.55"	Infinity
3' 10.28"	Infinity	3' 7.43"	Infinity	3' 4.69"	Infinity	3' 2.06"	Infinity
3' 9.44"	Infinity	3' 6.71"	Infinity	3' 4.07"	Infinity	3' 1.54"	Infinity
3' 8.54"	Infinity	3' 5.94"	Infinity	3' 3.41"	Infinity	3' 0.97"	Infinity
3' 7.57"	Infinity	3' 5.09"	Infinity	3' 2.68"	Infinity	3' 0.35"	Infinity
3' 6.52"	Infinity	3' 4.18"	Infinity	3' 1.89"	Infinity	2' 11.67"	Infinity
3' 5.38"	Infinity	3' 3.18"	Infinity	3' 1.02"	Infinity	2' 10.92"	Infinity
3' 4.13"	Infinity	3' 2.09"	Infinity	3' 0.07"	Infinity	2' 10.09"	Infinity
3' 2.77"	Infinity	3' 0.88"	Infinity	2' 11.01"	Infinity	2' 9.17"	Infinity
3' 1.27"	79' 3.77"	2' 11.55"	Infinity	2' 9.84"	Infinity	2' 8.15"	Infinity
2' 11.61"	28' 6.2"	2' 10.08"	79' 10.03"	2' 8.53"	Infinity	2' 7"	Infinity
2' 10.72"	20' 9.78"	2' 9.27"	38' 8.13"	2' 7.82"	Infinity	2' 6.37"	Infinity
2' 9.77"	16' 0.2"	2' 8.42"	24' 7.29"	2' 7.06"	64' 5.38"	2' 5.69"	Infinity
2' 8.77"	12' 8.88"	2' 7.52"	17' 6.06"	2' 6.25"	30' 9.15"	2' 4.97"	247' 6.37"
2' 7.72"	10' 4.33"	2' 6.56"	13' 2.66"	2' 5.39"	19' 4.69"	2' 4.2"	42' 1.04"
2' 6.6"	8' 6.65"	2' 5.55"	10' 4.29"	2' 4.47"	13' 8.13"	2' 3.37"	21' 8.67"
2' 5.41"	7' 1.63"	2' 4.46"	8' 3.68"	2' 3.48"	10' 2.89"	2' 2.48"	14' 0.08"
2' 4.15"	5' 11.91"	2' 3.3"	6' 9.19"	2' 2.42"	7' 11.35"	2' 1.52"	9' 11.38"
2' 2.8"	5' 0.62"	2' 2.05"	5' 6.8"	2' 1.28"	6' 3.66"	2' 0.48"	7' 5.33"
2' 1.36"	4' 3.17"	2' 0.71"	4' 7.27"	2' 0.04"	5' 0.88"	1' 11.35"	5' 8.94"
1' 11.81"	3' 7.14"	1' 11.27"	3' 9.83"	1' 10.71"	4' 1.38"	1' 10.11"	4' 6.21"
1' 10.16"	3' 0.22"	1' 9.72"	3' 1.96"	1' 9.25"	3' 4.17"	1' 8.76"	3' 7.05"
1' 8.37"	2' 6.22"	1' 8.03"	2' 7.3"	1' 7.67"	2' 8.64"	1' 7.28"	2' 10.32"
1' 7.11"	2' 2.63"	1' 6.83"	2' 3.4"	1' 6.53"	2' 4.33"	1' 6.21"	2' 5.48"



Focal Length 29 mm

Circle of Confusion 0.025 mm

T/No	1.8	2	2.2	2.5
Hyperfocal Distance (ft-inch)	68' 1.36"	60' 9.02"	54' 2.35"	48' 4.24"

T/No	1.8		2		2.2		2.5	
Focus Distance (ft-inch)	Short Focus (ft-inch)	Long Focus (ft-inch)	Short Focus (ft-inch)	Long Focus (ft-inch)	Short Focus (ft-inch)	Long Focus (ft-inch)	Short Focus (ft-inch)	Long Focus (ft-inch)
Infinity	68' 0.17"	Infinity	60' 7.85"	Infinity	54' 1.16"	Infinity	48' 3.05"	Infinity
120' 0"	43' 8.24"	Infinity	40' 6.68"	Infinity	37' 6.52"	Infinity	34' 7.92"	Infinity
60' 0"	32' 2.12"	494' 10.78"	30' 5.55"	4746' 10.92"	28' 8.96"	Infinity	27' 0.49"	Infinity
40' 0"	25' 5.59"	95' 2.66"	24' 4.69"	114' 9.69"	23' 3.47"	149' 4.39"	22' 2.01"	225' 10.26"
30' 0"	21' 0.86"	52' 8.17"	20' 4.04"	58' 1.31"	19' 6.87"	65' 8.73"	18' 9.38"	77' 1.21"
25' 0"	18' 6.18"	38' 9.73"	17' 11.4"	41' 7.85"	17' 4.28"	45' 4.74"	16' 8.84"	50' 5.96"
20' 0"	15' 7.97"	27' 9.88"	15' 3.15"	29' 2.84"	14' 10.04"	31' 0.09"	14' 4.64"	33' 3.31"
17' 0"	13' 9.49"	22' 3.16"	13' 5.78"	23' 1.78"	13' 1.82"	24' 2.79"	12' 9.61"	25' 6.96"
15' 0"	12' 5.58"	18' 10.86"	12' 2.57"	19' 6.4"	11' 11.35"	20' 3.5"	11' 7.9"	21' 2.62"
14' 0"	11' 9.33"	17' 3.83"	11' 6.66"	17' 10.1"	11' 3.79"	18' 5.62"	11' 0.7"	19' 2.74"
13' 0"	11' 0.88"	15' 9.49"	10' 10.53"	16' 2.65"	10' 8"	16' 8.8"	10' 5.27"	17' 4.2"
12' 0"	10' 4.21"	14' 3.8"	10' 2.17"	14' 8"	9' 11.96"	15' 0.97"	9' 9.59"	15' 6.91"
11' 0"	9' 7.32"	12' 10.73"	9' 5.57"	13' 2.09"	9' 3.68"	13' 6.06"	9' 1.64"	13' 10.76"
10' 0"	8' 10.19"	11' 6.25"	8' 8.73"	11' 8.9"	8' 7.14"	12'	8' 5.41"	12' 3.65"
9' 6"	8' 5.54"	10' 10.22"	8' 4.21"	11' 0.55"	8' 2.76"	11' 3.27"	8' 1.19"	11' 6.47"
9' 0"	8' 0.83"	10' 2.33"	7' 11.63"	10' 4.37"	7' 10.32"	10' 6.74"	7' 8.89"	10' 9.52"
8' 6"	7' 8.05"	9' 6.57"	7' 6.98"	9' 8.34"	7' 5.8"	9' 10.4"	7' 4.52"	10' 0.8"
8' 0"	7' 3.21"	8' 10.94"	7' 2.26"	9' 0.46"	7' 1.21"	9' 2.23"	7' 0.06"	9' 4.29"
7' 6"	6' 10.31"	8' 3.43"	6' 9.46"	8' 4.73"	6' 8.54"	8' 6.24"	6' 7.52"	8' 7.99"
7' 0"	6' 5.34"	7' 8.05"	6' 4.6"	7' 9.15"	6' 3.79"	7' 10.42"	6' 2.9"	7' 11.89"
6' 6"	6' 0.3"	7' 0.78"	5' 11.66"	7' 1.7"	5' 10.96"	7' 2.76"	5' 10.2"	7' 3.98"
6' 0"	5' 7.19"	6' 5.64"	5' 6.65"	6' 6.39"	5' 6.06"	6' 7.26"	5' 5.4"	6' 8.27"
5' 6"	5' 2.01"	5' 10.6"	5' 1.56"	5' 11.22"	5' 1.06"	5' 11.92"	5' 0.52"	6' 0.73"
5' 0"	4' 8.76"	5' 3.68"	4' 8.39"	5' 4.17"	4' 7.99"	5' 4.73"	4' 7.53"	5' 5.36"
4' 9"	4' 6.11"	5' 0.26"	4' 5.78"	5' 0.69"	4' 5.41"	5' 1.18"	4' 5.01"	5' 1.74"
4' 6"	4' 3.44"	4' 8.87"	4' 3.14"	4' 9.25"	4' 2.82"	4' 9.68"	4' 2.46"	4' 10.16"
4' 3"	4' 0.75"	4' 5.5"	4' 0.49"	4' 5.83"	4' 0.2"	4' 6.2"	3' 11.88"	4' 6.63"
4' 0"	3' 10.04"	4' 2.17"	3' 9.81"	4' 2.45"	3' 9.56"	4' 2.77"	3' 9.28"	4' 3.13"
3' 9"	3' 7.31"	3' 10.85"	3' 7.11"	3' 11.09"	3' 6.9"	3' 11.36"	3' 6.65"	3' 11.67"
3' 6"	3' 4.56"	3' 7.56"	3' 4.4"	3' 7.76"	3' 4.21"	3' 7.99"	3' 4"	3' 8.25"
3' 3"	3' 1.8"	3' 4.3"	3' 1.66"	3' 4.47"	3' 1.5"	3' 4.66"	3' 1.32"	3' 4.87"
3' 0"	2' 11.01"	3' 1.06"	2' 10.89"	3' 1.2"	2' 10.76"	3' 1.35"	2' 10.62"	3' 1.53"
2' 9"	2' 8.2"	2' 9.85"	2' 8.11"	2' 9.96"	2' 8"	2' 10.08"	2' 7.89"	2' 10.22"
2' 6"	2' 5.37"	2' 6.66"	2' 5.3"	2' 6.74"	2' 5.22"	2' 6.84"	2' 5.13"	2' 6.95"
2' 3"	2' 2.53"	2' 3.5"	2' 2.47"	2' 3.56"	2' 2.41"	2' 3.63"	2' 2.34"	2' 3.71"
2' 0"	1' 11.66"	2' 0.36"	1' 11.62"	2' 0.4"	1' 11.57"	2' 0.45"	1' 11.52"	2' 0.51"
1' 9"	1' 8.77"	1' 9.24"	1' 8.74"	1' 9.27"	1' 8.71"	1' 9.3"	1' 8.67"	1' 9.34"
1' 6"	1' 5.86"	1' 6.15"	1' 5.84"	1' 6.16"	1' 5.82"	1' 6.18"	1' 5.8"	1' 6.21"
1' 3"	1' 2.93"	1' 3.08"	1' 2.92"	1' 3.09"	1' 2.91"	1' 3.1"	1' 2.9"	1' 3.11"
1' 2"	1' 1.94"	1' 2.06"	1' 1.94"	1' 2.06"	1' 1.93"	1' 2.07"	1' 1.92"	1' 2.08"



2.8	3.2	3.5	4	4.5
43' 1.8"	38' 6.13"	34' 4.56"	30' 8.39"	27' 5.06"

2.8		3.2		3.5		4		4.5	
Short Focus (ft-inch)	Long Focus (ft-inch)	Short Focus (ft-inch)	Long Focus (ft-inch)	Short Focus (ft-inch)	Long Focus (ft-inch)	Short Focus (ft-inch)	Long Focus (ft-inch)	Short Focus (ft-inch)	Long Focus (ft-inch)
43' 0.6"	Infinity	38' 4.96"	Infinity	34' 3.39"	Infinity	30' 7.22"	Infinity	27' 3.88"	Infinity
31' 10.99"	Infinity	29' 3.82"	Infinity	26' 10.45"	Infinity	24' 6.92"	Infinity	22' 5.23"	Infinity
25' 4.28"	Infinity	23' 8.45"	Infinity	22' 1.12"	Infinity	20' 6.4"	Infinity	19' 0.37"	Infinity
21' 0.4"	533' 1.22"	19' 10.73"	Infinity	18' 9.1"	Infinity	17' 7.58"	Infinity	16' 6.27"	Infinity
17' 11.63"	95' 8.94"	17' 1.67"	131' 6.75"	16' 3.57"	227' 4.09"	15' 5.38"	1264' 7.71"	14' 7.18"	Infinity
16' 1.12"	57' 9.71"	15' 5.16"	69' 0.82"	14' 8.99"	88' 5.71"	14' 0.67"	129' 5.5"	13' 4.25"	270' 10.88"
13' 10.97"	36' 3.13"	13' 5.05"	40' 4.01"	12' 10.91"	46' 2.11"	12' 4.57"	55' 2.14"	11' 10.07"	70' 8.65"
12' 5.15"	27' 3.45"	12' 0.46"	29' 6.06"	11' 7.55"	32' 5.73"	11' 2.44"	36' 7.62"	10' 9.15"	42' 9.76"
11' 4.22"	22' 4.42"	11' 0.34"	23' 9.86"	10' 8.24"	25' 8.42"	10' 3.95"	28' 2.52"	9' 11.48"	31' 8.37"
10' 9.41"	20' 1.94"	10' 5.92"	21' 3.93"	10' 2.23"	22' 9.75"	9' 10.35"	24' 9.05"	9' 6.29"	27' 4.58"
10' 2.36"	18' 1.22"	9' 11.25"	19' 0.34"	9' 7.95"	20' 2.32"	9' 4.48"	21' 8.27"	9' 0.83"	23' 7.97"
9' 7.03"	16' 2.08"	9' 4.31"	16' 10.84"	9' 1.4"	17' 9.7"	8' 10.33"	18' 11.42"	8' 7.09"	20' 5.15"
8' 11.44"	14' 4.38"	8' 9.07"	14' 11.19"	8' 6.55"	15' 7.53"	8' 3.87"	16' 5.9"	8' 1.03"	17' 7.06"
8' 3.55"	12' 8"	8' 1.54"	13' 1.2"	7' 11.38"	13' 7.5"	7' 9.08"	14' 3.24"	7' 6.64"	15' 0.88"
7' 11.48"	11' 10.26"	7' 9.65"	12' 2.77"	7' 7.67"	12' 8.22"	7' 5.56"	13' 2.85"	7' 3.31"	13' 11.05"
7' 7.34"	11' 0.8"	7' 5.67"	11' 4.7"	7' 3.87"	11' 9.37"	7' 1.95"	12' 3.03"	6' 11.89"	12' 9.98"
7' 3.12"	10' 3.62"	7' 1.61"	10' 6.96"	6' 11.98"	10' 10.95"	6' 10.24"	11' 3.75"	6' 8.36"	11' 9.59"
6' 10.81"	9' 6.7"	6' 9.46"	9' 9.54"	6' 8"	10' 0.92"	6' 6.43"	10' 4.96"	6' 4.74"	10' 9.85"
6' 6.42"	8' 10.03"	6' 5.22"	9' 0.43"	6' 3.92"	9' 3.26"	6' 2.51"	9' 6.64"	6' 1"	9' 10.69"
6' 1.93"	8' 1.6"	6' 0.88"	8' 3.6"	5' 11.73"	8' 5.96"	5' 10.49"	8' 8.75"	5' 9.16"	9' 0.08"
5' 9.36"	7' 5.4"	5' 8.44"	7' 7.05"	5' 7.44"	7' 8.99"	5' 6.36"	7' 11.27"	5' 5.19"	8' 1.97"
5' 4.68"	6' 9.42"	5' 3.9"	6' 10.77"	5' 3.04"	7' 0.34"	5' 2.11"	7' 2.17"	5' 1.1"	7' 4.34"
4' 11.91"	6' 1.66"	4' 11.25"	6' 2.73"	4' 10.53"	6' 3.98"	4' 9.74"	6' 5.44"	4' 8.89"	6' 7.15"
4' 7.04"	5' 6.09"	4' 6.49"	5' 6.94"	4' 5.9"	5' 7.91"	4' 5.24"	5' 9.04"	4' 4.53"	5' 10.37"
4' 4.56"	5' 2.39"	4' 4.07"	5' 3.13"	4' 3.53"	5' 3.98"	4' 2.95"	5' 4.97"	4' 2.3"	5' 6.12"
4' 2.06"	4' 10.73"	4' 1.62"	4' 11.37"	4' 1.14"	5' 0.11"	4' 0.61"	5' 0.97"	4' 0.04"	5' 1.97"
3' 11.53"	4' 7.11"	3' 11.14"	4' 7.67"	3' 10.72"	4' 8.31"	3' 10.25"	4' 9.05"	3' 9.73"	4' 9.9"
3' 8.97"	4' 3.55"	3' 8.63"	4' 4.02"	3' 8.26"	4' 4.57"	3' 7.84"	4' 5.2"	3' 7.39"	4' 5.93"
3' 6.39"	4' 0.02"	3' 6.09"	4' 0.43"	3' 5.77"	4' 0.89"	3' 5.41"	4' 1.42"	3' 5.01"	4' 2.03"
3' 3.77"	3' 8.55"	3' 3.52"	3' 8.88"	3' 3.24"	3' 9.27"	3' 2.93"	3' 9.71"	3' 2.59"	3' 10.22"
3' 1.13"	3' 5.11"	3' 0.92"	3' 5.39"	3' 0.68"	3' 5.71"	3' 0.42"	3' 6.07"	3' 0.13"	3' 6.49"
2' 10.46"	3' 1.72"	2' 10.28"	3' 1.95"	2' 10.08"	3' 2.2"	2' 9.87"	3' 2.5"	2' 9.62"	3' 2.83"
2' 7.76"	2' 10.37"	2' 7.61"	2' 10.55"	2' 7.45"	2' 10.76"	2' 7.27"	2' 10.99"	2' 7.08"	2' 11.25"
2' 5.02"	2' 7.07"	2' 4.91"	2' 7.2"	2' 4.78"	2' 7.36"	2' 4.64"	2' 7.54"	2' 4.49"	2' 7.74"
2' 2.26"	2' 3.8"	2' 2.17"	2' 3.9"	2' 2.07"	2' 4.02"	2' 1.97"	2' 4.15"	2' 1.85"	2' 4.3"
1' 11.46"	2' 0.57"	1' 11.4"	2' 0.64"	1' 11.33"	2' 0.73"	1' 11.25"	2' 0.82"	1' 11.16"	2' 0.93"
1' 8.64"	1' 9.38"	1' 8.59"	1' 9.43"	1' 8.54"	1' 9.49"	1' 8.49"	1' 9.55"	1' 8.43"	1' 9.62"
1' 5.78"	1' 6.23"	1' 5.75"	1' 6.26"	1' 5.72"	1' 6.3"	1' 5.69"	1' 6.33"	1' 5.65"	1' 6.38"
1' 2.88"	1' 3.12"	1' 2.87"	1' 3.14"	1' 2.85"	1' 3.15"	1' 2.83"	1' 3.17"	1' 2.82"	1' 3.19"
1' 1.91"	1' 2.09"	1' 1.9"	1' 2.1"	1' 1.89"	1' 2.12"	1' 1.87"	1' 2.13"	1' 1.86"	1' 2.15"



5	5.6	6.3	7.1	8
24' 6.02"	21' 10.76"	19' 6.96"	17' 6.16"	15' 8.07"

5		5.6		6.3		7.1		8	
Short Focus (ft-inch)	Long Focus (ft-inch)	Short Focus (ft-inch)	Long Focus (ft-inch)	Short Focus (ft-inch)	Long Focus (ft-inch)	Short Focus (ft-inch)	Long Focus (ft-inch)	Short Focus (ft-inch)	Long Focus (ft-inch)
24' 4.83"	Infinity	21' 9.6"	Infinity	19' 5.78"	Infinity	17' 4.99"	Infinity	15' 6.91"	Infinity
20' 5.35"	Infinity	18' 7.24"	Infinity	16' 10.84"	Infinity	15' 4.08"	Infinity	13' 10.88"	Infinity
17' 7.11"	Infinity	16' 2.68"	Infinity	14' 11.12"	Infinity	13' 8.46"	Infinity	12' 6.72"	Infinity
15' 5.25"	Infinity	14' 4.59"	Infinity	13' 4.37"	Infinity	12' 4.62"	Infinity	11' 5.41"	Infinity
13' 9.03"	Infinity	12' 11.01"	Infinity	12' 1.16"	Infinity	11' 3.56"	Infinity	10' 6.25"	Infinity
12' 7.78"	Infinity	11' 11.32"	Infinity	11' 2.93"	Infinity	10' 6.65"	Infinity	9' 10.55"	Infinity
11' 3.45"	103' 7.71"	10' 8.75"	218' 3.96"	10' 2.02"	Infinity	9' 7.29"	Infinity	9' 0.61"	Infinity
10' 3.71"	52' 10.39"	9' 10.15"	71' 11.07"	9' 4.51"	121' 3.45"	8' 10.82"	540' 4.67"	8' 5.13"	Infinity
9' 6.86"	36' 9.97"	9' 2.1"	45' 0.81"	8' 9.23"	60' 3.47"	8' 4.28"	97' 5.99"	7' 11.29"	322' 9.62"
9' 2.07"	31' 1.25"	8' 9.72"	36' 8.88"	8' 5.24"	46' 2.27"	8' 0.68"	65' 1.32"	7' 8.06"	121' 3.58"
8' 9.03"	26' 4.48"	8' 5.08"	30' 3.41"	8' 1.01"	36' 4.5"	7' 8.84"	47' 0.85"	7' 4.59"	70' 6.23"
8' 3.69"	22' 4.79"	8' 0.15"	25' 1.6"	7' 8.49"	29' 1.81"	7' 4.72"	35' 6.9"	7' 0.87"	47' 4.6"
7' 10.04"	19' 0.17"	7' 6.92"	20' 11.13"	7' 3.67"	23' 7.32"	7' 0.3"	27' 7.3"	6' 8.84"	34' 1.77"
7' 4.06"	16' 1.15"	7' 1.34"	17' 5.14"	6' 10.5"	19' 2.72"	6' 7.55"	21' 9.15"	6' 4.49"	25' 6.93"
7' 0.93"	14' 9.39"	6' 10.41"	15' 10.69"	6' 7.78"	17' 4.33"	6' 5.03"	19' 4.64"	6' 2.18"	22' 4.01"
6' 9.7"	13' 6.64"	6' 7.39"	14' 5.67"	6' 4.96"	15' 8.06"	6' 2.41"	17' 3.48"	5' 11.77"	19' 6.91"
6' 6.37"	12' 4.82"	6' 4.26"	13' 1.92"	6' 2.03"	14' 1.62"	5' 11.69"	15' 5.11"	5' 9.25"	17' 2.43"
6' 2.93"	11' 3.84"	6' 1.02"	11' 11.3"	5' 10.99"	12' 8.77"	5' 8.86"	13' 9.09"	5' 6.63"	15' 1.66"
5' 11.39"	10' 3.62"	5' 9.66"	10' 9.7"	5' 7.83"	11' 5.31"	5' 5.9"	12' 3.07"	5' 3.88"	13' 3.92"
5' 7.72"	9' 4.1"	5' 6.19"	9' 9.01"	5' 4.55"	10' 3.09"	5' 2.82"	10' 10.77"	5' 1"	11' 8.69"
5' 3.93"	8' 5.22"	5' 2.58"	8' 9.14"	5' 1.14"	9' 1.95"	4' 11.61"	9' 7.94"	4' 9.98"	10' 3.55"
5' 0.01"	7' 6.92"	4' 10.84"	7' 10.02"	4' 9.58"	8' 1.78"	4' 8.24"	8' 6.41"	4' 6.82"	9' 0.19"
4' 7.96"	6' 9.17"	4' 6.96"	6' 11.58"	4' 5.88"	7' 2.47"	4' 4.73"	7' 5.99"	4' 3.5"	7' 10.33"
4' 3.76"	5' 11.92"	4' 2.92"	6' 1.76"	4' 2.02"	6' 3.94"	4' 1.05"	6' 6.58"	4'	6' 9.78"
4' 1.6"	5' 7.47"	4' 0.84"	5' 9.06"	4' 0.02"	5' 10.94"	3' 11.14"	6' 1.2"	3' 10.19"	6' 3.93"
3' 11.41"	5' 3.13"	3' 10.72"	5' 4.5"	3' 9.98"	5' 6.11"	3' 9.19"	5' 8.03"	3' 8.33"	5' 10.34"
3' 9.17"	4' 10.9"	3' 8.56"	5' 0.06"	3' 7.9"	5' 1.44"	3' 7.18"	5' 3.06"	3' 6.41"	5' 5"
3' 6.9"	4' 6.77"	3' 6.36"	4' 7.76"	3' 5.77"	4' 8.91"	3' 5.13"	4' 10.27"	3' 4.45"	4' 11.89"
3' 4.58"	4' 2.74"	3' 4.11"	4' 3.57"	3' 3.59"	4' 4.53"	3' 3.03"	4' 5.66"	3' 2.43"	4' 6.99"
3' 2.22"	3' 10.81"	3' 1.81"	3' 11.49"	3' 1.36"	4' 0.28"	3' 0.88"	4' 1.21"	3' 0.35"	4' 2.3"
2' 11.81"	3' 6.97"	2' 11.46"	3' 7.52"	2' 11.08"	3' 8.16"	2' 10.67"	3' 8.91"	2' 10.22"	3' 9.79"
2' 9.36"	3' 3.22"	2' 9.07"	3' 3.66"	2' 8.75"	3' 4.17"	2' 8.4"	3' 4.77"	2' 8.02"	3' 5.46"
2' 6.86"	2' 11.55"	2' 6.62"	2' 11.9"	2' 6.36"	3' 0.3"	2' 6.07"	3' 0.76"	2' 5.76"	3' 1.3"
2' 4.31"	2' 7.97"	2' 4.12"	2' 8.24"	2' 3.91"	2' 8.54"	2' 3.68"	2' 8.89"	2' 3.43"	2' 9.29"
2' 1.72"	2' 4.47"	2' 1.57"	2' 4.66"	2' 1.41"	2' 4.89"	2' 1.23"	2' 5.14"	2' 1.03"	2' 5.44"
1' 11.07"	2' 1.05"	1' 10.96"	2' 1.18"	1' 10.84"	2' 1.34"	1' 10.71"	2' 1.52"	1' 10.56"	2' 1.72"
1' 8.36"	1' 9.7"	1' 8.29"	1' 9.79"	1' 8.21"	1' 9.89"	1' 8.12"	1' 10.01"	1' 8.02"	1' 10.14"
1' 5.61"	1' 6.42"	1' 5.56"	1' 6.48"	1' 5.51"	1' 6.54"	1' 5.45"	1' 6.61"	1' 5.39"	1' 6.69"
1' 2.79"	1' 3.22"	1' 2.77"	1' 3.25"	1' 2.74"	1' 3.28"	1' 2.71"	1' 3.31"	1' 2.68"	1' 3.35"
1' 1.84"	1' 2.16"	1' 1.82"	1' 2.19"	1' 1.8"	1' 2.21"	1' 1.78"	1' 2.24"	1' 1.75"	1' 2.27"



9	10	11	13	14
14' 0.43"	12' 6.91"	11' 3.28"	10' 1.38"	9' 0.98"

9		10		11		13		14	
Short Focus (ft-inch)	Long Focus (ft-inch)	Short Focus (ft-inch)	Long Focus (ft-inch)	Short Focus (ft-inch)	Long Focus (ft-inch)	Short Focus (ft-inch)	Long Focus (ft-inch)	Short Focus (ft-inch)	Long Focus (ft-inch)
13' 11.24"	Infinity	12' 5.71"	Infinity	11' 2.1"	Infinity	10' 0.19"	Infinity	8' 11.79"	Infinity
12' 7.16"	Infinity	11' 4.82"	Infinity	10' 3.77"	Infinity	9' 3.93"	Infinity	8' 5.19"	Infinity
11' 5.89"	Infinity	10' 5.96"	Infinity	9' 6.92"	Infinity	8' 8.72"	Infinity	7' 11.35"	Infinity
10' 6.76"	Infinity	9' 8.7"	Infinity	8' 11.24"	Infinity	8' 2.39"	Infinity	7' 6.14"	Infinity
9' 9.29"	Infinity	9' 0.7"	Infinity	8' 4.52"	Infinity	7' 8.77"	Infinity	7' 1.47"	Infinity
9' 2.67"	Infinity	8' 7.05"	Infinity	7' 11.72"	Infinity	7' 4.72"	Infinity	6' 10.07"	Infinity
8' 6.03"	Infinity	7' 11.59"	Infinity	7' 5.32"	Infinity	6' 11.26"	Infinity	6' 5.44"	Infinity
7' 11.45"	Infinity	7' 5.85"	Infinity	7' 0.34"	Infinity	6' 6.97"	Infinity	6' 1.76"	Infinity
7' 6.28"	Infinity	7' 1.29"	Infinity	6' 8.36"	Infinity	6' 3.51"	Infinity	5' 10.77"	Infinity
7' 3.4"	Infinity	6' 10.74"	Infinity	6' 6.12"	Infinity	6' 1.55"	Infinity	5' 9.07"	Infinity
7' 0.3"	161' 8.13"	6' 7.99"	Infinity	6' 3.68"	Infinity	5' 11.41"	Infinity	5' 7.21"	Infinity
6' 8.95"	75' 10.75"	6' 4.99"	238' 6.14"	6' 1.02"	Infinity	5' 9.07"	Infinity	5' 5.16"	Infinity
6' 5.31"	46' 7.85"	6' 1.73"	79' 8.88"	5' 10.11"	407' 8.8"	5' 6.49"	Infinity	5' 2.89"	Infinity
6' 1.36"	31' 10.9"	5' 10.16"	44' 4.07"	5' 6.91"	79' 5.37"	5' 3.64"	788' 11.02"	5' 0.37"	Infinity
5' 11.25"	26' 11.69"	5' 8.24"	35' 3.32"	5' 5.18"	54' 2.36"	5' 2.1"	138' 7.88"	4' 10.99"	Infinity
5' 9.04"	23' 0.24"	5' 6.23"	28' 9"	5' 3.37"	40' 0.68"	5' 0.47"	72' 4.68"	4' 9.54"	Infinity
5' 6.73"	19' 9.37"	5' 4.12"	23' 9.9"	5' 1.46"	31' 0.2"	4' 10.74"	47' 2.32"	4' 8"	116' 0.08"
5' 4.3"	17' 0.93"	5' 1.9"	19' 11.72"	4' 11.43"	24' 8.86"	4' 8.91"	33' 11.03"	4' 6.36"	58' 8.26"
5' 1.76"	14' 9.47"	4' 11.56"	16' 10.64"	4' 9.3"	20' 1.49"	4' 6.98"	25' 8.69"	4' 4.61"	37' 7.57"
4' 11.09"	12' 9.9"	4' 9.1"	14' 4.22"	4' 7.04"	16' 7.08"	4' 4.91"	20' 1.93"	4' 2.74"	26' 8.32"
4' 8.28"	11' 1.47"	4' 6.49"	12' 2.8"	4' 4.64"	13' 9.56"	4' 2.72"	16' 1.65"	4' 0.75"	19' 11.93"
4' 5.32"	9' 7.57"	4' 3.74"	10' 5.25"	4' 2.09"	11' 6.4"	4' 0.38"	13' 1.11"	3' 10.61"	15' 5.64"
4' 2.2"	8' 3.78"	4' 0.82"	8' 10.75"	3' 11.38"	9' 7.94"	3' 9.87"	10' 8.48"	3' 8.3"	12' 2.51"
3' 10.9"	7' 1.73"	3' 9.72"	7' 6.69"	3' 8.48"	8' 1.06"	3' 7.18"	8' 9.46"	3' 5.82"	9' 8.96"
3' 9.18"	6' 7.27"	3' 8.1"	6' 11.43"	3' 6.96"	7' 4.7"	3' 5.76"	7' 11.56"	3' 4.5"	8' 8.75"
3' 7.41"	6' 1.15"	3' 6.43"	6' 4.62"	3' 5.39"	6' 8.97"	3' 4.29"	7' 2.53"	3' 3.13"	7' 9.87"
3' 5.58"	5' 7.35"	3' 4.7"	5' 10.22"	3' 3.76"	6' 1.78"	3' 2.76"	6' 6.28"	3' 1.71"	7' 0.12"
3' 3.71"	5' 1.83"	3' 2.91"	5' 4.19"	3' 2.07"	5' 7.09"	3' 1.17"	5' 10.71"	3' 0.22"	6' 3.32"
3' 1.77"	4' 8.59"	3' 1.07"	4' 10.5"	3' 0.32"	5' 0.84"	2' 11.52"	5' 3.72"	2' 10.67"	5' 7.35"
2' 11.78"	4' 3.59"	2' 11.17"	4' 5.13"	2' 10.51"	4' 6.99"	2' 9.8"	4' 9.27"	2' 9.05"	5' 0.1"
2' 9.73"	3' 10.82"	2' 9.2"	4' 0.05"	2' 8.62"	4' 1.51"	2' 8.01"	4' 3.29"	2' 7.36"	4' 5.46"
2' 7.6"	3' 6.27"	2' 7.16"	3' 7.23"	2' 6.67"	3' 8.36"	2' 6.15"	3' 9.72"	2' 5.59"	3' 11.38"
2' 5.42"	3' 1.92"	2' 5.04"	3' 2.65"	2' 4.64"	3' 3.51"	2' 4.2"	3' 4.54"	2' 3.73"	3' 5.77"
2' 3.15"	2' 9.76"	2' 2.85"	2' 10.3"	2' 2.53"	2' 10.94"	2' 2.17"	2' 11.7"	2' 1.78"	3' 0.59"
2' 0.82"	2' 5.77"	2' 0.58"	2' 6.17"	2' 0.33"	2' 6.62"	2' 0.05"	2' 7.16"	1' 11.74"	2' 7.79"
1' 10.4"	2' 1.96"	1' 10.23"	2' 2.23"	1' 10.03"	2' 2.54"	1' 9.82"	2' 2.9"	1' 9.59"	2' 3.32"
1' 7.9"	1' 10.29"	1' 7.78"	1' 10.47"	1' 7.65"	1' 10.67"	1' 7.5"	1' 10.9"	1' 7.33"	1' 11.17"
1' 5.32"	1' 6.78"	1' 5.24"	1' 6.88"	1' 5.15"	1' 6.99"	1' 5.06"	1' 7.13"	1' 4.95"	1' 7.28"
1' 2.64"	1' 3.4"	1' 2.6"	1' 3.45"	1' 2.55"	1' 3.51"	1' 2.5"	1' 3.57"	1' 2.44"	1' 3.65"
1' 1.72"	1' 2.3"	1' 1.69"	1' 2.34"	1' 1.65"	1' 2.38"	1' 1.61"	1' 2.43"	1' 1.57"	1' 2.49"



16	18	20	22
8' 1.91"	7' 4.11"	6' 7.33"	5' 11.54"

16		18		20		22	
Short Focus (ft-inch)	Long Focus (ft-inch)	Short Focus (ft-inch)	Long Focus (ft-inch)	Short Focus (ft-inch)	Long Focus (ft-inch)	Short Focus (ft-inch)	Long Focus (ft-inch)
8' 0.75"	Infinity	7' 2.92"	Infinity	6' 6.15"	Infinity	5' 10.35"	Infinity
7' 7.48"	Infinity	6' 10.71"	Infinity	6' 2.8"	Infinity	5' 7.68"	Infinity
7' 2.75"	Infinity	6' 6.89"	Infinity	5' 11.73"	Infinity	5' 5.2"	Infinity
6' 10.49"	Infinity	6' 3.41"	Infinity	5' 8.89"	Infinity	5' 2.9"	Infinity
6' 6.62"	Infinity	6' 0.22"	Infinity	5' 6.27"	Infinity	5' 0.76"	Infinity
6' 3.77"	Infinity	5' 9.85"	Infinity	5' 4.31"	Infinity	4' 11.14"	Infinity
5' 11.87"	Infinity	5' 6.58"	Infinity	5' 1.57"	Infinity	4' 8.87"	Infinity
5' 8.74"	Infinity	5' 3.93"	Infinity	4' 11.35"	Infinity	4' 7"	Infinity
5' 6.18"	Infinity	5' 1.74"	Infinity	4' 9.49"	Infinity	4' 5.44"	Infinity
5' 4.71"	Infinity	5' 0.49"	Infinity	4' 8.42"	Infinity	4' 4.53"	Infinity
5' 3.1"	Infinity	4' 11.1"	Infinity	4' 7.24"	Infinity	4' 3.53"	Infinity
5' 1.32"	Infinity	4' 9.56"	Infinity	4' 5.91"	Infinity	4' 2.4"	Infinity
4' 11.33"	Infinity	4' 7.84"	Infinity	4' 4.43"	Infinity	4' 1.12"	Infinity
4' 9.11"	Infinity	4' 5.9"	Infinity	4' 2.75"	Infinity	3' 11.68"	Infinity
4' 7.9"	Infinity	4' 4.84"	Infinity	4' 1.82"	Infinity	3' 10.88"	Infinity
4' 6.61"	Infinity	4' 3.71"	Infinity	4' 0.83"	Infinity	3' 10.02"	Infinity
4' 5.24"	Infinity	4' 2.5"	Infinity	3' 11.77"	Infinity	3' 9.09"	Infinity
4' 3.78"	349' 0.1"	4' 1.2"	Infinity	3' 10.63"	Infinity	3' 8.1"	Infinity
4' 2.22"	79' 7.13"	3' 11.81"	Infinity	3' 9.4"	Infinity	3' 7.02"	Infinity
4' 0.54"	42' 3.66"	3' 10.31"	127' 2.24"	3' 8.07"	Infinity	3' 5.85"	Infinity
3' 10.73"	27' 5.65"	3' 8.69"	47' 10.95"	3' 6.63"	321' 1.88"	3' 4.57"	Infinity
3' 8.79"	19' 6.03"	3' 6.94"	27' 9.07"	3' 5.06"	53' 9.27"	3' 3.17"	Infinity
3' 6.69"	14' 6.35"	3' 5.03"	18' 6.59"	3' 3.35"	27' 1.54"	3' 1.64"	57' 8.55"
3' 4.41"	11' 1.55"	3' 2.96"	13' 3.3"	3' 1.47"	17' 0.32"	2' 11.95"	25' 2.11"
3' 3.2"	9' 9.63"	3' 1.85"	11' 4.81"	3' 0.46"	14' 0.14"	2' 11.04"	18' 11.89"
3' 1.93"	8' 7.89"	3' 0.68"	9' 10.29"	2' 11.39"	11' 8.53"	2' 10.07"	14' 11.08"
3' 0.61"	7' 7.91"	2' 11.46"	8' 6.76"	2' 10.28"	9' 10.77"	2' 9.06"	12' 0.55"
2' 11.22"	6' 9.36"	2' 10.18"	7' 5.55"	2' 9.1"	8' 5.17"	2' 7.98"	9' 10.82"
2' 9.78"	6' 0.02"	2' 8.84"	6' 6.18"	2' 7.86"	7' 2.65"	2' 6.84"	8' 2.91"
2' 8.26"	5' 3.67"	2' 7.42"	5' 8.29"	2' 6.54"	6' 2.47"	2' 5.63"	6' 11.05"
2' 6.66"	4' 8.17"	2' 5.93"	4' 11.62"	2' 5.15"	5' 4.1"	2' 4.34"	5' 10.12"
2' 4.99"	4' 1.4"	2' 4.35"	4' 3.94"	2' 3.68"	4' 7.16"	2' 2.98"	4' 11.37"
2' 3.23"	3' 7.26"	2' 2.69"	3' 9.09"	2' 2.12"	3' 11.38"	2' 1.51"	4' 2.3"
2' 1.37"	3' 1.66"	2' 0.93"	3' 2.96"	2' 0.45"	3' 4.55"	1' 11.95"	3' 6.53"
1' 11.41"	2' 8.53"	1' 11.06"	2' 9.42"	1' 10.68"	2' 10.5"	1' 10.27"	2' 11.81"
1' 9.34"	2' 3.82"	1' 9.07"	2' 4.41"	1' 8.78"	2' 5.11"	1' 8.47"	2' 5.94"
1' 7.16"	1' 11.48"	1' 6.96"	1' 11.84"	1' 6.75"	2' 0.27"	1' 6.52"	2' 0.77"
1' 4.84"	1' 7.46"	1' 4.71"	1' 7.66"	1' 4.57"	1' 7.9"	1' 4.42"	1' 8.18"
1' 2.38"	1' 3.73"	1' 2.31"	1' 3.83"	1' 2.23"	1' 3.94"	1' 2.14"	1' 4.08"
1' 1.52"	1' 2.55"	1' 1.47"	1' 2.62"	1' 1.41"	1' 2.71"	1' 1.34"	1' 2.8"



Focal Length 35 mm

Circle of Confusion 0.025 mm

T/No	1.8	2	2.2	2.5
Hyperfocal Distance (ft-inch)	93' 8.8"	83' 6.91"	74' 6.33"	66' 5.6"

T/No	1.8		2		2.2		2.5	
Focus Distance (ft-inch)	Short Focus (ft-inch)	Long Focus (ft-inch)	Short Focus (ft-inch)	Long Focus (ft-inch)	Short Focus (ft-inch)	Long Focus (ft-inch)	Short Focus (ft-inch)	Long Focus (ft-inch)
Infinity	93' 7.39"	Infinity	83' 5.52"	Infinity	74' 4.95"	Infinity	66' 4.22"	Infinity
120' 0"	52' 10.53"	Infinity	49' 6.09"	Infinity	46' 2.48"	Infinity	42' 11.94"	Infinity
60' 0"	36' 10.12"	164' 7.82"	35' 2.28"	209' 8.8"	33' 6.07"	302' 11.85"	31' 9.59"	605' 10.24"
40' 0"	28' 3.24"	68' 10.96"	27' 3.55"	75' 7.83"	26' 3.37"	84' 11.95"	25' 2.75"	98' 8.4"
30' 0"	22' 11.2"	43' 6.92"	22' 3.53"	46' 1.81"	21' 7.43"	49' 5.19"	20' 10.91"	53' 8.74"
25' 0"	19' 11.09"	33' 8.08"	19' 5.33"	35' 2.13"	18' 11.19"	37' 0.44"	18' 4.68"	39' 4.52"
20' 0"	16' 7.77"	25' 1.35"	16' 3.78"	25' 11.15"	15' 11.49"	26' 10.96"	15' 6.89"	28' 1.35"
17' 0"	14' 6.45"	20' 6.14"	14' 3.43"	21' 0.57"	14' 0.17"	21' 8.21"	13' 8.65"	22' 5.37"
15' 0"	13' 0.79"	17' 7.67"	12' 10.37"	18' 0.37"	12' 7.74"	18' 5.89"	12' 4.9"	19' 0.46"
14' 0"	12' 3.71"	16' 3.09"	12' 1.57"	16' 7.04"	11' 11.24"	16' 11.68"	11' 8.72"	17' 5.17"
13' 0"	11' 6.46"	14' 10.91"	11' 4.59"	15' 2.21"	11' 2.55"	15' 6.07"	11' 0.34"	15' 10.6"
12' 0"	10' 9.03"	13' 7.13"	10' 7.41"	13' 9.85"	10' 5.65"	14' 1.01"	10' 3.74"	14' 4.71"
11' 0"	9' 11.42"	12' 3.74"	9' 10.05"	12' 5.94"	9' 8.55"	12' 8.49"	9' 6.91"	12' 11.47"
10' 0"	9' 1.62"	11' 0.71"	9' 0.47"	11' 2.46"	8' 11.22"	11' 4.49"	8' 9.85"	11' 6.84"
9' 6"	8' 8.64"	10' 5.32"	8' 7.61"	10' 6.88"	8' 6.47"	10' 8.67"	8' 5.23"	10' 10.75"
9' 0"	8' 3.62"	9' 10.03"	8' 2.69"	9' 11.4"	8' 1.67"	10' 0.97"	8' 0.54"	10' 2.79"
8' 6"	7' 10.55"	9' 2.82"	7' 9.72"	9' 4.02"	7' 8.8"	9' 5.39"	7' 7.8"	9' 6.97"
8' 0"	7' 5.43"	8' 7.7"	7' 4.69"	8' 8.73"	7' 3.88"	8' 9.92"	7' 2.98"	8' 11.29"
7' 6"	7' 0.26"	8' 0.66"	6' 11.61"	8' 1.54"	6' 10.89"	8' 2.56"	6' 10.1"	8' 3.73"
7' 0"	6' 7.03"	7' 5.7"	6' 6.47"	7' 6.45"	6' 5.84"	7' 7.31"	6' 5.16"	7' 8.31"
6' 6"	6' 1.76"	6' 10.81"	6' 1.27"	6' 11.45"	6' 0.73"	7' 0.17"	6' 0.14"	7' 1"
6' 0"	5' 8.42"	6' 4.01"	5' 8.01"	6' 4.54"	5' 7.56"	6' 5.14"	5' 7.06"	6' 5.82"
5' 6"	5' 3.04"	5' 9.29"	5' 2.7"	5' 9.71"	5' 2.32"	5' 10.2"	5' 1.9"	5' 10.76"
5' 0"	4' 9.6"	5' 2.64"	4' 9.32"	5' 2.98"	4' 9.01"	5' 3.37"	4' 8.67"	5' 3.81"
4' 9"	4' 6.86"	4' 11.34"	4' 6.61"	4' 11.64"	4' 6.33"	4' 11.98"	4' 6.02"	5' 0.37"
4' 6"	4' 4.1"	4' 8.06"	4' 3.88"	4' 8.33"	4' 3.63"	4' 8.63"	4' 3.36"	4' 8.97"
4' 3"	4' 1.33"	4' 4.8"	4' 1.14"	4' 5.03"	4' 0.92"	4' 5.29"	4' 0.68"	4' 5.59"
4' 0"	3' 10.55"	4' 1.56"	3' 10.38"	4' 1.76"	3' 10.19"	4' 1.99"	3' 9.98"	4' 2.24"
3' 9"	3' 7.75"	3' 10.34"	3' 7.6"	3' 10.51"	3' 7.44"	3' 10.7"	3' 7.26"	3' 10.92"
3' 6"	3' 4.94"	3' 7.13"	3' 4.81"	3' 7.27"	3' 4.67"	3' 7.44"	3' 4.51"	3' 7.62"
3' 3"	3' 2.11"	3' 3.94"	3' 2"	3' 4.06"	3' 1.89"	3' 4.2"	3' 1.75"	3' 4.35"
3' 0"	2' 11.27"	3' 0.77"	2' 11.18"	3' 0.87"	2' 11.08"	3' 0.98"	2' 10.97"	3' 1.1"
2' 9"	2' 8.41"	2' 9.62"	2' 8.34"	2' 9.7"	2' 8.26"	2' 9.78"	2' 8.17"	2' 9.88"
2' 6"	2' 5.54"	2' 6.48"	2' 5.48"	2' 6.54"	2' 5.42"	2' 6.61"	2' 5.35"	2' 6.69"
2' 3"	2' 2.65"	2' 3.36"	2' 2.61"	2' 3.41"	2' 2.56"	2' 3.46"	2' 2.51"	2' 3.52"
2' 0"	1' 11.75"	2' 0.26"	1' 11.71"	2' 0.29"	1' 11.68"	2' 0.33"	1' 11.64"	2' 0.37"
1' 9"	1' 8.83"	1' 9.18"	1' 8.81"	1' 9.2"	1' 8.78"	1' 9.22"	1' 8.76"	1' 9.25"
1' 6"	1' 5.89"	1' 6.11"	1' 5.88"	1' 6.12"	1' 5.87"	1' 6.14"	1' 5.85"	1' 6.15"



2.8	3.2	3.5	4	4.5
59' 3.42"	52' 10.65"	47' 2.26"	42' 1.31"	37' 7.02"

2.8		3.2		3.5		4		4.5	
Short Focus (ft-inch)	Long Focus (ft-inch)	Short Focus (ft-inch)	Long Focus (ft-inch)	Short Focus (ft-inch)	Long Focus (ft-inch)	Short Focus (ft-inch)	Long Focus (ft-inch)	Short Focus (ft-inch)	Long Focus (ft-inch)
59' 2.04"	Infinity	52' 9.26"	Infinity	47' 0.86"	Infinity	41' 11.93"	Infinity	37' 5.64"	Infinity
39' 10.65"	Infinity	36' 10.81"	Infinity	34' 0.55"	Infinity	31' 3.98"	Infinity	28' 9.18"	Infinity
30' 1"	Infinity	28' 4.42"	Infinity	26' 7.99"	Infinity	24' 11.84"	Infinity	23' 4.1"	Infinity
24' 1.77"	120' 6.7"	23' 0.48"	160' 6.64"	21' 10.97"	256' 1.93"	20' 9.34"	776' 7.39"	19' 7.66"	Infinity
20' 2.01"	59' 6.57"	19' 4.76"	67' 9.68"	18' 7.2"	80' 4.15"	17' 9.39"	101' 5.51"	16' 11.39"	144' 0.99"
17' 9.81"	42' 4.65"	17' 2.62"	46' 4.52"	16' 7.11"	51' 10.42"	15' 11.32"	59' 10.12"	15' 3.3"	72' 4.44"
15' 2"	29' 7.15"	14' 8.82"	31' 5.55"	14' 3.36"	33' 10.39"	13' 9.63"	37' 0.61"	13' 3.65"	41' 5.26"
13' 4.88"	23' 4.48"	13' 0.86"	24' 6.11"	12' 8.59"	25' 11.13"	12' 4.08"	27' 8.79"	11' 11.33"	30' 1.1"
12' 1.84"	19' 8.31"	11' 10.56"	20' 5.82"	11' 7.05"	21' 5.48"	11' 3.33"	22' 7.99"	10' 11.39"	24' 2.42"
11' 6"	17' 11.69"	11' 3.08"	18' 7.54"	10' 11.94"	19' 5.08"	10' 8.61"	20' 4.84"	10' 5.06"	21' 7.58"
10' 9.95"	16' 3.97"	10' 7.37"	16' 10.38"	10' 4.6"	17' 6.11"	10' 1.63"	18' 3.55"	9' 10.48"	19' 3.25"
10' 1.66"	14' 9.07"	9' 11.41"	15' 2.25"	9' 8.99"	15' 8.45"	9' 6.4"	16' 3.94"	9' 3.62"	17' 1.13"
9' 5.13"	13' 2.96"	9' 3.2"	13' 7.08"	9' 1.12"	13' 11.98"	8' 10.88"	14' 5.85"	8' 8.48"	15' 0.97"
8' 8.35"	11' 9.59"	8' 6.73"	12' 0.81"	8' 4.97"	12' 4.61"	8' 3.07"	12' 9.13"	8' 1.02"	13' 2.57"
8' 3.87"	11' 1.16"	8' 2.39"	11' 3.99"	8' 0.78"	11' 7.31"	7' 11.05"	11' 11.25"	7' 9.17"	12' 3.97"
7' 11.31"	10' 4.9"	7' 9.98"	10' 7.37"	7' 8.52"	10' 10.26"	7' 6.94"	11' 1.67"	7' 5.24"	11' 5.73"
7' 6.69"	9' 8.81"	7' 5.49"	9' 10.94"	7' 4.18"	10' 1.44"	7' 2.76"	10' 4.37"	7' 1.22"	10' 7.85"
7' 2"	9' 0.87"	7' 0.93"	9' 2.7"	6' 11.76"	9' 4.84"	6' 10.48"	9' 7.35"	6' 9.1"	9' 10.31"
6' 9.24"	8' 5.08"	6' 8.29"	8' 6.65"	6' 7.25"	8' 8.46"	6' 6.12"	8' 10.58"	6' 4.9"	9' 1.08"
6' 4.4"	7' 9.45"	6' 3.57"	7' 10.76"	6' 2.66"	8' 0.29"	6' 1.67"	8' 2.07"	6' 0.59"	8' 4.15"
5' 11.49"	7' 1.96"	5' 10.77"	7' 3.05"	5' 9.99"	7' 4.32"	5' 9.13"	7' 5.79"	5' 8.19"	7' 7.51"
5' 6.5"	6' 6.61"	5' 5.89"	6' 7.51"	5' 5.22"	6' 8.55"	5' 4.48"	6' 9.75"	5' 3.68"	6' 11.14"
5' 1.43"	5' 11.39"	5' 0.92"	6' 0.12"	5' 0.36"	6' 0.96"	4' 11.74"	6' 1.92"	4' 11.06"	6' 3.04"
4' 8.29"	5' 4.31"	4' 7.87"	5' 4.89"	4' 7.4"	5' 5.55"	4' 6.89"	5' 6.31"	4' 6.33"	5' 7.18"
4' 5.68"	5' 0.82"	4' 5.3"	5' 1.33"	4' 4.89"	5' 1.91"	4' 4.43"	5' 2.57"	4' 3.93"	5' 3.34"
4' 3.06"	4' 9.36"	4' 2.72"	4' 9.8"	4' 2.35"	4' 10.31"	4' 1.94"	4' 10.89"	4' 1.49"	4' 11.56"
4' 0.41"	4' 5.93"	4' 0.11"	4' 6.32"	3' 11.78"	4' 6.76"	3' 11.42"	4' 7.26"	3' 11.02"	4' 7.84"
3' 9.74"	4' 2.53"	3' 9.48"	4' 2.86"	3' 9.19"	4' 3.24"	3' 8.88"	4' 3.67"	3' 8.53"	4' 4.17"
3' 7.05"	3' 11.17"	3' 6.83"	3' 11.45"	3' 6.58"	3' 11.77"	3' 6.3"	4' 0.14"	3' 6"	4' 0.55"
3' 4.34"	3' 7.83"	3' 4.15"	3' 8.07"	3' 3.94"	3' 8.34"	3' 3.7"	3' 8.64"	3' 3.44"	3' 8.99"
3' 1.61"	3' 4.52"	3' 1.45"	3' 4.72"	3' 1.27"	3' 4.94"	3' 1.07"	3' 5.19"	3' 0.84"	3' 5.48"
2' 10.85"	3' 1.24"	2' 10.72"	3' 1.4"	2' 10.57"	3' 1.58"	2' 10.4"	3' 1.79"	2' 10.22"	3' 2.02"
2' 8.07"	2' 10"	2' 7.96"	2' 10.12"	2' 7.84"	2' 10.27"	2' 7.71"	2' 10.43"	2' 7.56"	2' 10.62"
2' 5.27"	2' 6.78"	2' 5.19"	2' 6.87"	2' 5.09"	2' 6.99"	2' 4.98"	2' 7.11"	2' 4.87"	2' 7.25"
2' 2.45"	2' 3.58"	2' 2.38"	2' 3.66"	2' 2.31"	2' 3.74"	2' 2.23"	2' 3.83"	2' 2.14"	2' 3.94"
1' 11.6"	2' 0.42"	1' 11.55"	2' 0.47"	1' 11.5"	2' 0.53"	1' 11.44"	2' 0.6"	1' 11.37"	2' 0.68"
1' 8.73"	1' 9.28"	1' 8.69"	1' 9.32"	1' 8.66"	1' 9.36"	1' 8.62"	1' 9.4"	1' 8.57"	1' 9.45"
1' 5.83"	1' 6.17"	1' 5.81"	1' 6.2"	1' 5.79"	1' 6.22"	1' 5.76"	1' 6.25"	1' 5.73"	1' 6.28"



5	5.6	6.3	7.1	8
33' 6.64"	29' 11.57"	26' 9.18"	23' 10.97"	21' 4.5"

5		5.6		6.3		7.1		8	
Short Focus (ft-inch)	Long Focus (ft-inch)	Short Focus (ft-inch)	Long Focus (ft-inch)	Short Focus (ft-inch)	Long Focus (ft-inch)	Short Focus (ft-inch)	Long Focus (ft-inch)	Short Focus (ft-inch)	Long Focus (ft-inch)
33' 5.27"	Infinity	29' 10.18"	Infinity	26' 7.79"	Infinity	23' 9.59"	Infinity	21' 3.12"	Infinity
26' 4.2"	Infinity	24' 1.06"	Infinity	21' 11.75"	Infinity	20' 0.25"	Infinity	18' 2.5"	Infinity
21' 8.89"	Infinity	20' 2.3"	Infinity	18' 8.42"	Infinity	17' 3.32"	Infinity	15' 11.07"	Infinity
18' 6.04"	Infinity	17' 4.55"	Infinity	16' 3.29"	Infinity	15' 2.33"	Infinity	14' 1.75"	Infinity
16' 1.25"	273' 5.42"	15' 3.05"	Infinity	14' 4.85"	Infinity	13' 6.71"	Infinity	12' 8.71"	Infinity
14' 7.09"	94' 8.27"	13' 10.74"	145' 1.28"	13' 2.29"	362' 10.54"	12' 5.81"	Infinity	11' 9.35"	Infinity
12' 9.46"	47' 9.75"	12' 3.07"	57' 10.04"	11' 8.54"	75' 8.77"	11' 1.89"	116' 3.71"	10' 7.17"	294' 1.6"
11' 6.37"	33' 3.35"	11' 1.21"	37' 9.46"	10' 7.88"	44' 7.19"	10' 2.4"	55' 11.7"	9' 8.82"	78' 7.13"
10' 7.24"	26' 2.41"	10' 2.91"	28' 10.66"	9' 10.4"	32' 7.99"	9' 5.73"	38' 3.76"	9' 0.93"	47' 7.18"
10' 1.32"	23' 2.46"	9' 9.39"	25' 3.3"	9' 5.29"	28' 1.21"	9' 1.04"	32' 1.86"	8' 8.65"	38' 4.86"
9' 7.14"	20' 6"	9' 3.62"	22' 1.05"	8' 11.93"	24' 2.4"	8' 8.08"	27' 1.49"	8' 4.1"	31' 4.88"
9' 0.67"	18' 0.56"	8' 9.56"	19' 3.06"	8' 6.28"	20' 9.92"	8' 2.84"	22' 11.26"	7' 11.27"	25' 10.81"
8' 5.91"	15' 9.72"	8' 3.19"	16' 8.65"	8' 0.31"	17' 10.59"	7' 9.29"	19' 4.81"	7' 6.13"	21' 5.48"
7' 10.83"	13' 9.17"	7' 8.49"	14' 5.29"	7' 6.01"	15' 3.46"	7' 3.4"	16' 4.46"	7' 0.64"	17' 9.53"
7' 7.16"	12' 9.66"	7' 5.02"	13' 4.62"	7' 2.73"	14' 1.25"	7' 0.31"	15' 0.18"	6' 9.76"	16' 2.33"
7' 3.41"	11' 10.61"	7' 1.44"	12' 4.54"	6' 11.35"	12' 11.85"	6' 9.13"	13' 8.99"	6' 6.78"	14' 8.68"
6' 11.56"	11' 0.01"	6' 9.78"	11' 5.03"	6' 7.87"	11' 11.17"	6' 5.85"	12' 6.78"	6' 3.7"	13' 4.4"
6' 7.61"	10' 1.83"	6' 6.01"	10' 6.05"	6' 4.29"	10' 11.17"	6' 2.46"	11' 5.47"	6' 0.51"	12' 1.34"
6' 3.57"	9' 4.03"	6' 2.14"	9' 7.55"	6' 0.6"	9' 11.79"	5' 10.95"	10' 4.97"	5' 9.2"	10' 11.37"
5' 11.42"	8' 6.6"	5' 10.16"	8' 9.51"	5' 8.79"	9' 0.99"	5' 7.33"	9' 5.2"	5' 5.77"	9' 10.36"
5' 7.17"	7' 9.52"	5' 6.06"	7' 11.9"	5' 4.87"	8' 2.72"	5' 3.58"	8' 6.12"	5' 2.21"	8' 10.23"
5' 2.8"	7' 0.77"	5' 1.85"	7' 2.69"	5' 0.82"	7' 4.95"	4' 11.71"	7' 7.65"	4' 10.51"	7' 10.89"
4' 10.32"	6' 4.34"	4' 9.52"	6' 5.85"	4' 8.64"	6' 7.64"	4' 7.69"	6' 9.75"	4' 6.67"	7' 0.27"
4' 5.72"	5' 8.19"	4' 5.05"	5' 9.37"	4' 4.32"	5' 10.75"	4' 3.53"	6' 0.37"	4' 2.67"	6' 2.29"
4' 3.38"	5' 4.23"	4' 2.77"	5' 5.26"	4' 2.11"	5' 6.46"	4' 1.39"	5' 7.87"	4' 0.62"	5' 9.53"
4' 1"	5' 0.33"	4' 0.45"	5' 1.23"	3' 11.86"	5' 2.26"	3' 11.22"	5' 3.48"	3' 10.52"	5' 4.9"
3' 10.58"	4' 8.5"	3' 10.1"	4' 9.27"	3' 9.58"	4' 10.16"	3' 9"	4' 11.2"	3' 8.38"	5' 0.42"
3' 8.14"	4' 4.74"	3' 7.72"	4' 5.39"	3' 7.25"	4' 6.15"	3' 6.74"	4' 7.03"	3' 6.19"	4' 8.06"
3' 5.66"	4' 1.03"	3' 5.29"	4' 1.59"	3' 4.89"	4' 2.23"	3' 4.44"	4' 2.96"	3' 3.96"	4' 3.82"
3' 3.15"	3' 9.39"	3' 2.83"	3' 9.85"	3' 2.48"	3' 10.38"	3' 2.1"	3' 11"	3' 1.68"	3' 11.71"
3' 0.6"	3' 5.81"	3' 0.33"	3' 6.19"	3' 0.03"	3' 6.63"	2' 11.71"	3' 7.13"	2' 11.35"	3' 7.7"
2' 10.01"	3' 2.29"	2' 9.79"	3' 2.6"	2' 9.54"	3' 2.95"	2' 9.27"	3' 3.35"	2' 8.97"	3' 3.81"
2' 7.39"	2' 10.83"	2' 7.21"	2' 11.07"	2' 7.01"	2' 11.34"	2' 6.78"	2' 11.66"	2' 6.54"	3' 0.02"
2' 4.73"	2' 7.42"	2' 4.59"	2' 7.6"	2' 4.43"	2' 7.81"	2' 4.25"	2' 8.06"	2' 4.05"	2' 8.33"
2' 2.04"	2' 4.06"	2' 1.92"	2' 4.2"	2' 1.8"	2' 4.36"	2' 1.66"	2' 4.54"	2' 1.51"	2' 4.74"
1' 11.3"	2' 0.76"	1' 11.22"	2' 0.86"	1' 11.13"	2' 0.97"	1' 11.02"	2' 1.1"	1' 10.91"	2' 1.24"
1' 8.52"	1' 9.51"	1' 8.47"	1' 9.58"	1' 8.4"	1' 9.65"	1' 8.33"	1' 9.73"	1' 8.25"	1' 9.83"
1' 5.7"	1' 6.31"	1' 5.67"	1' 6.35"	1' 5.63"	1' 6.4"	1' 5.58"	1' 6.45"	1' 5.54"	1' 6.5"



9	10	11	13	14
19' 1.37"	17' 1.16"	15' 3.62"	13' 8.45"	12' 3.32"

9		10		11		13		14	
Short Focus (ft-inch)	Long Focus (ft-inch)	Short Focus (ft-inch)	Long Focus (ft-inch)	Short Focus (ft-inch)	Long Focus (ft-inch)	Short Focus (ft-inch)	Long Focus (ft-inch)	Short Focus (ft-inch)	Long Focus (ft-inch)
18' 11.98"	Infinity	16' 11.79"	Infinity	15' 2.25"	Infinity	13' 7.06"	Infinity	12' 1.95"	Infinity
16' 6.46"	Infinity	15' 0.03"	Infinity	13' 7.15"	Infinity	12' 3.73"	Infinity	11' 1.67"	Infinity
14' 7.7"	Infinity	13' 5.23"	Infinity	12' 3.68"	Infinity	11' 3.04"	Infinity	10' 3.29"	Infinity
13' 1.62"	Infinity	12' 1.98"	Infinity	11' 2.88"	Infinity	10' 4.34"	Infinity	9' 6.41"	Infinity
11' 10.91"	Infinity	11' 1.36"	Infinity	10' 4.11"	Infinity	9' 7.22"	Infinity	8' 10.71"	Infinity
11' 0.98"	Infinity	10' 4.73"	Infinity	9' 8.66"	Infinity	9' 0.83"	Infinity	8' 5.26"	Infinity
10' 0.42"	Infinity	9' 5.69"	Infinity	8' 11.02"	Infinity	8' 4.46"	Infinity	7' 10.05"	Infinity
9' 3.15"	144' 6.39"	8' 9.45"	Infinity	8' 3.75"	Infinity	7' 10.08"	Infinity	7' 4.49"	Infinity
8' 8.04"	65' 6.33"	8' 3.07"	114' 0.82"	7' 10.06"	702' 4.25"	7' 5.05"	Infinity	7' 0.06"	Infinity
8' 4.14"	49' 2.42"	7' 11.56"	72' 1.24"	7' 6.92"	152' 2.45"	7' 2.25"	Infinity	6' 9.59"	Infinity
8'	38' 2.61"	7' 7.8"	50' 7.44"	7' 3.54"	79' 11.48"	6' 11.23"	232' 4.17"	6' 6.91"	Infinity
7' 7.57"	30' 3.86"	7' 3.78"	37' 6.78"	6' 11.9"	51' 5.58"	6' 7.96"	88' 6.43"	6' 3.99"	481' 2.24"
7' 2.84"	24' 4.47"	6' 11.45"	28' 9.51"	6' 7.96"	36' 2.61"	6' 4.41"	51' 1.69"	6' 0.81"	95' 10.9"
6' 9.77"	19' 8.75"	6' 6.79"	22' 5.9"	6' 3.71"	26' 8.65"	6' 0.55"	33' 11.33"	5' 9.33"	48' 11.1"
6' 7.1"	17' 9.23"	6' 4.32"	19' 11.56"	6' 1.44"	23' 2.41"	5' 10.48"	28' 4.98"	5' 7.46"	38' 1.42"
6' 4.32"	16' 0.04"	6' 1.75"	17' 8.96"	5' 11.08"	20' 2.86"	5' 8.32"	24' 0.73"	5' 5.49"	30' 7.31"
6' 1.44"	14' 4.85"	5' 11.07"	15' 9.46"	5' 8.61"	17' 8.54"	5' 6.06"	20' 6.53"	5' 3.43"	25' 1.05"
5' 10.45"	12' 11.39"	5' 8.29"	14' 0.54"	5' 6.03"	15' 6.38"	5' 3.68"	17' 7.73"	5' 1.26"	20' 10.28"
5' 7.34"	11' 7.42"	5' 5.38"	12' 5.8"	5' 3.33"	13' 7.56"	5' 1.19"	15' 2.53"	4' 10.97"	17' 6.13"
5' 4.11"	10' 4.78"	5' 2.35"	11' 0.92"	5' 0.5"	11' 11.5"	4' 10.56"	13' 1.7"	4' 8.55"	14' 9.59"
5' 0.74"	9' 3.3"	4' 11.18"	9' 9.63"	4' 9.53"	10' 5.71"	4' 7.8"	11' 4.31"	4' 5.99"	12' 6.69"
4' 9.23"	8' 2.84"	4' 7.87"	8' 7.72"	4' 6.42"	9' 1.84"	4' 4.89"	9' 9.7"	4' 3.29"	10' 8.07"
4' 5.57"	7' 3.3"	4' 4.4"	7' 7"	4' 3.14"	7' 11.58"	4' 1.82"	8' 5.35"	4' 0.42"	9' 0.79"
4' 1.75"	6' 4.58"	4' 0.76"	6' 7.34"	3' 11.7"	6' 10.71"	3' 10.57"	7' 2.89"	3' 9.37"	7' 8.15"
3' 11.78"	5' 11.5"	3' 10.87"	6' 1.87"	3' 9.91"	6' 4.73"	3' 8.87"	6' 8.26"	3' 7.77"	7' 0.66"
3' 9.76"	5' 6.59"	3' 8.94"	5' 8.61"	3' 8.06"	5' 11.03"	3' 7.13"	6' 1.99"	3' 6.13"	6' 5.66"
3' 7.7"	5' 1.85"	3' 6.96"	5' 3.55"	3' 6.17"	5' 5.59"	3' 5.33"	5' 8.06"	3' 4.42"	5' 11.09"
3' 5.59"	4' 9.26"	3' 4.93"	4' 10.69"	3' 4.23"	5' 0.39"	3' 3.47"	5' 2.43"	3' 2.66"	5' 4.91"
3' 3.43"	4' 4.83"	3' 2.85"	4' 6.01"	3' 2.23"	4' 7.41"	3' 1.56"	4' 9.08"	3' 0.84"	4' 11.1"
3' 1.22"	4' 0.53"	3' 0.72"	4' 1.5"	3' 0.18"	4' 2.64"	2' 11.59"	4' 4"	2' 10.96"	4' 5.62"
2' 10.96"	3' 8.37"	2' 10.53"	3' 9.16"	2' 10.06"	3' 10.07"	2' 9.56"	3' 11.16"	2' 9.01"	4' 0.44"
2' 8.64"	3' 4.35"	2' 8.28"	3' 4.97"	2' 7.89"	3' 5.69"	2' 7.46"	3' 6.54"	2' 7"	3' 7.55"
2' 6.27"	3' 0.44"	2' 5.97"	3' 0.92"	2' 5.64"	3' 1.48"	2' 5.29"	3' 2.14"	2' 4.91"	3' 2.91"
2' 3.83"	2' 8.65"	2' 3.6"	2' 9.02"	2' 3.34"	2' 9.44"	2' 3.05"	2' 9.93"	2' 2.74"	2' 10.5"
2' 1.34"	2' 4.97"	2' 1.16"	2' 5.24"	2' 0.95"	2' 5.55"	2' 0.73"	2' 5.91"	2' 0.49"	2' 6.32"
1' 10.79"	2' 1.4"	1' 10.65"	2' 1.59"	1' 10.5"	2' 1.81"	1' 10.33"	2' 2.05"	1' 10.15"	2' 2.34"
1' 8.17"	1' 9.94"	1' 8.07"	1' 10.06"	1' 7.97"	1' 10.2"	1' 7.85"	1' 10.36"	1' 7.72"	1' 10.55"
1' 5.48"	1' 6.57"	1' 5.42"	1' 6.64"	1' 5.35"	1' 6.73"	1' 5.28"	1' 6.82"	1' 5.2"	1' 6.93"



16	18	20	22
11' 0.09"	9' 10.54"	8' 10.42"	7' 11.67"

16		18		20		22	
Short Focus (ft-inch)	Long Focus (ft-inch)	Short Focus (ft-inch)	Long Focus (ft-inch)	Short Focus (ft-inch)	Long Focus (ft-inch)	Short Focus (ft-inch)	Long Focus (ft-inch)
10' 10.72"	Infinity	9' 9.15"	Infinity	8' 9.06"	Infinity	7' 10.28"	Infinity
10' 0.89"	Infinity	9' 1.29"	Infinity	8' 2.78"	Infinity	7' 5.27"	Infinity
9' 4.43"	Infinity	8' 6.41"	Infinity	7' 9.2"	Infinity	7' 0.77"	Infinity
8' 9.07"	Infinity	8' 0.35"	Infinity	7' 4.22"	Infinity	6' 8.69"	Infinity
8' 2.62"	Infinity	7' 6.96"	Infinity	6' 11.74"	Infinity	6' 4.98"	Infinity
7' 9.99"	Infinity	7' 3.06"	Infinity	6' 8.47"	Infinity	6' 2.25"	Infinity
7' 3.81"	Infinity	6' 9.8"	Infinity	6' 4.02"	Infinity	5' 10.5"	Infinity
6' 11"	Infinity	6' 5.65"	Infinity	6' 0.47"	Infinity	5' 7.49"	Infinity
6' 7.14"	Infinity	6' 2.3"	Infinity	5' 9.59"	Infinity	5' 5.02"	Infinity
6' 4.96"	Infinity	6' 0.41"	Infinity	5' 7.95"	Infinity	5' 3.6"	Infinity
6' 2.6"	Infinity	5' 10.34"	Infinity	5' 6.14"	Infinity	5' 2.05"	Infinity
6' 0.02"	Infinity	5' 8.06"	Infinity	5' 4.16"	Infinity	5' 0.32"	Infinity
5' 9.18"	Infinity	5' 5.56"	Infinity	5' 1.96"	Infinity	4' 10.4"	Infinity
5' 6.06"	97' 11.27"	5' 2.78"	Infinity	4' 11.5"	Infinity	4' 8.25"	Infinity
5' 4.38"	62' 2.5"	5' 1.28"	220' 3.29"	4' 10.17"	Infinity	4' 7.08"	Infinity
5' 2.61"	44' 3.24"	4' 11.69"	89' 8.98"	4' 8.76"	Infinity	4' 5.83"	Infinity
5' 0.74"	33' 5.8"	4' 10.01"	54' 0.02"	4' 7.26"	178' 1.02"	4' 4.49"	Infinity
4' 10.77"	26' 3.39"	4' 8.23"	37' 3.57"	4' 5.66"	71' 3"	4' 3.07"	Infinity
4' 8.68"	21' 1.61"	4' 6.34"	27' 7.45"	4' 3.96"	42' 5.1"	4' 1.55"	108' 10.57"
4' 6.47"	17' 3.24"	4' 4.32"	21' 3.69"	4' 2.14"	29' 0.22"	3' 11.92"	49' 4.31"
4' 4.12"	14' 3.16"	4' 2.18"	16' 10.36"	4' 0.19"	21' 3.24"	3' 10.16"	30' 3.35"
4' 1.62"	11' 10.28"	3' 11.88"	13' 6.78"	3' 10.09"	16' 2.66"	3' 8.26"	20' 10.51"
3' 10.95"	9' 10.65"	3' 9.43"	11' 0.25"	3' 7.84"	12' 8.06"	3' 6.21"	15' 3.32"
3' 8.11"	8' 2.95"	3' 6.79"	8' 11.98"	3' 5.41"	10' 0.47"	3' 3.98"	11' 6.74"
3' 6.61"	7' 6.28"	3' 5.39"	8' 1.62"	3' 4.12"	8' 11.55"	3' 2.8"	10' 1.64"
3' 5.07"	6' 10.27"	3' 3.95"	7' 4.22"	3' 2.78"	8' 0.11"	3' 1.56"	8' 11"
3' 3.46"	6' 2.86"	3' 2.45"	6' 7.66"	3' 1.38"	7' 1.91"	3' 0.26"	7' 10.33"
3' 1.8"	5' 7.98"	3' 0.88"	5' 11.82"	2' 11.92"	6' 4.75"	2' 10.9"	6' 11.25"
3' 0.08"	5' 1.57"	2' 11.26"	5' 4.63"	2' 10.39"	5' 8.49"	2' 9.48"	6' 1.48"
2' 10.29"	4' 7.59"	2' 9.57"	4' 10"	2' 8.8"	5' 1"	2' 7.99"	5' 4.81"
2' 8.43"	4' 1.99"	2' 7.8"	4' 3.87"	2' 7.13"	4' 6.17"	2' 6.42"	4' 9.06"
2' 6.5"	3' 8.74"	2' 5.96"	3' 10.18"	2' 5.39"	3' 11.93"	2' 4.77"	4' 2.08"
2' 4.49"	3' 3.81"	2' 4.04"	3' 4.89"	2' 3.56"	3' 6.19"	2' 3.04"	3' 7.78"
2' 2.4"	2' 11.17"	2' 2.03"	2' 11.97"	2' 1.64"	3' 0.91"	2' 1.21"	3' 2.05"
2' 0.22"	2' 6.8"	1' 11.93"	2' 7.36"	1' 11.62"	2' 8.03"	1' 11.28"	2' 8.82"
1' 9.95"	2' 2.67"	1' 9.73"	2' 3.05"	1' 9.49"	2' 3.5"	1' 9.23"	2' 4.02"
1' 7.58"	1' 10.76"	1' 7.43"	1' 11"	1' 7.26"	1' 11.29"	1' 7.07"	1' 11.62"
1' 5.11"	1' 7.06"	1' 5.01"	1' 7.2"	1' 4.9"	1' 7.36"	1' 4.77"	1' 7.55"



Focal Length 40 mm

Circle of Confusion 0.025 mm

T/No	1.8	2	2.2	2.5
Hyperfocal Distance (ft-inch)	130' 0.55"	115' 11.14"	103' 4.24"	92' 1.79"

T/No	1.8		2		2.2		2.5	
Focus Distance (ft-inch)	Short Focus (ft-inch)	Long Focus (ft-inch)	Short Focus (ft-inch)	Long Focus (ft-inch)	Short Focus (ft-inch)	Long Focus (ft-inch)	Short Focus (ft-inch)	Long Focus (ft-inch)
Infinity	129' 10.86"	Infinity	115' 9.48"	Infinity	103' 2.57"	Infinity	92' 0.12"	Infinity
120' 0"	62' 8.08"	1539' 4.77"	59' 2.68"	Infinity	55' 9.38"	Infinity	52' 4.42"	Infinity
60' 0"	41' 3.57"	110' 4.71"	39' 9.43"	123' 1.33"	38' 2.6"	141' 5.03"	36' 7.19"	169' 9.55"
40' 0"	30' 9.53"	57' 3"	29' 11.45"	60' 5.48"	29' 0.77"	64' 6.22"	28' 1.54"	69' 9.43"
30' 0"	24' 6.6"	38' 7.76"	24' 0.22"	40' 0.8"	23' 5.38"	41' 9.52"	22' 10.09"	43' 11.03"
25' 0"	21' 1.48"	30' 8.08"	20' 8.78"	31' 6.65"	20' 3.71"	32' 7.27"	19' 10.26"	33' 10.5"
20' 0"	17' 5.6"	23' 5.09"	17' 2.41"	23' 11.14"	16' 10.95"	24' 6.25"	16' 7.2"	25' 2.67"
17' 0"	15' 1.82"	19' 4.59"	14' 11.44"	19' 8.67"	14' 8.85"	20' 1.43"	14' 6.03"	20' 7.01"
15' 0"	13' 6.66"	16' 9.66"	13' 4.77"	17' 0.69"	13' 2.71"	17' 4.21"	13' 0.45"	17' 8.31"
14' 0"	12' 8.88"	15' 6.6"	12' 7.22"	15' 9.18"	12' 5.4"	16' 0.16"	12' 3.41"	16' 3.62"
13' 0"	11' 10.96"	14' 3.79"	11' 9.51"	14' 5.96"	11' 7.93"	14' 8.46"	11' 6.2"	14' 11.36"
12' 0"	11' 0.9"	13' 1.24"	10' 11.66"	13' 3.04"	10' 10.3"	13' 5.11"	10' 8.8"	13' 7.5"
11' 0"	10' 2.69"	11' 10.93"	10' 1.64"	12' 0.4"	10' 0.49"	12' 2.09"	9' 11.23"	12' 4.03"
10' 0"	9' 4.34"	10' 8.85"	9' 3.47"	10' 10.03"	9' 2.51"	10' 11.39"	9' 1.46"	11' 0.94"
9' 6"	8' 11.11"	10' 1.91"	8' 10.32"	10' 2.95"	8' 9.46"	10' 4.15"	8' 8.5"	10' 5.53"
9' 0"	8' 5.84"	9' 7.01"	8' 5.13"	9' 7.94"	8' 4.35"	9' 9"	8' 3.5"	9' 10.21"
8' 6"	8' 0.53"	9' 0.18"	7' 11.9"	9' 0.99"	7' 11.21"	9' 1.92"	7' 10.44"	9' 2.98"
8' 0"	7' 7.18"	8' 5.4"	7' 6.62"	8' 6.11"	7' 6.01"	8' 6.91"	7' 5.33"	8' 7.83"
7' 6"	7' 1.79"	7' 10.68"	7' 1.31"	7' 11.29"	7' 0.77"	7' 11.98"	7' 0.17"	8' 0.77"
7' 0"	6' 8.37"	7' 4.01"	6' 7.94"	7' 4.53"	6' 7.48"	7' 5.12"	6' 6.96"	7' 5.79"
6' 6"	6' 2.9"	6' 9.39"	6' 2.54"	6' 9.83"	6' 2.14"	6' 10.33"	6' 1.69"	6' 10.9"
6' 0"	5' 9.39"	6' 2.83"	5' 9.09"	6' 3.2"	5' 8.75"	6' 3.61"	5' 8.37"	6' 4.08"
5' 6"	5' 3.84"	5' 8.32"	5' 3.59"	5' 8.62"	5' 3.31"	5' 8.96"	5' 3"	5' 9.34"
5' 0"	4' 10.25"	5' 1.87"	4' 10.05"	5' 2.11"	4' 9.82"	5' 2.37"	4' 9.56"	5' 2.68"
4' 9"	4' 7.44"	4' 10.66"	4' 7.26"	4' 10.87"	4' 7.05"	4' 11.11"	4' 6.83"	4' 11.38"
4' 6"	4' 4.62"	4' 7.46"	4' 4.46"	4' 7.65"	4' 4.28"	4' 7.86"	4' 4.07"	4' 8.09"
4' 3"	4' 1.79"	4' 4.28"	4' 1.65"	4' 4.44"	4' 1.49"	4' 4.62"	4' 1.31"	4' 4.83"
4' 0"	3' 10.95"	4' 1.11"	3' 10.82"	4' 1.25"	3' 10.68"	4' 1.41"	3' 10.53"	4' 1.58"
3' 9"	3' 8.09"	3' 9.95"	3' 7.99"	3' 10.07"	3' 7.87"	3' 10.2"	3' 7.73"	3' 10.36"
3' 6"	3' 5.23"	3' 6.8"	3' 5.14"	3' 6.9"	3' 5.04"	3' 7.02"	3' 4.92"	3' 7.15"
3' 3"	3' 2.36"	3' 3.67"	3' 2.28"	3' 3.75"	3' 2.19"	3' 3.85"	3' 2.1"	3' 3.96"
3' 0"	2' 11.47"	3' 0.55"	2' 11.41"	3' 0.62"	2' 11.34"	3' 0.7"	2' 11.26"	3' 0.78"
2' 9"	2' 8.57"	2' 9.44"	2' 8.52"	2' 9.5"	2' 8.47"	2' 9.56"	2' 8.4"	2' 9.63"
2' 6"	2' 5.67"	2' 6.34"	2' 5.63"	2' 6.39"	2' 5.58"	2' 6.43"	2' 5.53"	2' 6.49"
2' 3"	2' 2.75"	2' 3.26"	2' 2.72"	2' 3.29"	2' 2.68"	2' 3.33"	2' 2.64"	2' 3.37"
2' 0"	1' 11.82"	2' 0.19"	1' 11.8"	2' 0.21"	1' 11.77"	2' 0.24"	1' 11.74"	2' 0.26"
1' 9"	1' 8.88"	1' 9.13"	1' 8.86"	1' 9.14"	1' 8.84"	1' 9.16"	1' 8.83"	1' 9.18"
1' 6"	1' 5.92"	1' 6.08"	1' 5.91"	1' 6.09"	1' 5.9"	1' 6.1"	1' 5.89"	1' 6.11"
1' 3"	1' 2.96"	1' 3.04"	1' 2.96"	1' 3.05"	1' 2.95"	1' 3.05"	1' 2.94"	1' 3.06"
1' 2"	1' 1.97"	1' 2.03"	1' 1.97"	1' 2.03"	1' 1.96"	1' 2.04"	1' 1.96"	1' 2.04"



2.8	3.2	3.5	4	4.5
82' 1.98"	73' 3.29"	65' 4.21"	58' 3.53"	52' 0.06"

2.8		3.2		3.5		4		4.5	
Short Focus (ft-inch)	Long Focus (ft-inch)	Short Focus (ft-inch)	Long Focus (ft-inch)	Short Focus (ft-inch)	Long Focus (ft-inch)	Short Focus (ft-inch)	Long Focus (ft-inch)	Short Focus (ft-inch)	Long Focus (ft-inch)
82' 0.35"	Infinity	73' 1.64"	Infinity	65' 2.57"	Infinity	58' 1.87"	Infinity	51' 10.42"	Infinity
49' 0.09"	Infinity	45' 8.62"	Infinity	42' 6.25"	Infinity	39' 5.17"	Infinity	36' 5.55"	Infinity
34' 11.28"	219' 2.86"	33' 3.02"	325' 11.07"	31' 6.52"	719' 7.8"	29' 9.91"	Infinity	28' 1.34"	Infinity
27' 1.77"	76' 10.04"	26' 1.52"	86' 8.19"	25' 0.84"	101' 3.26"	23' 11.8"	124' 10.96"	22' 10.48"	169' 4.72"
22' 2.36"	46' 6.99"	21' 6.19"	49' 11.88"	20' 9.61"	54' 5.64"	20' 0.66"	60' 6.9"	19' 3.36"	69' 3.75"
19' 4.44"	35' 5.09"	18' 10.25"	37' 4.14"	18' 3.68"	39' 9.23"	17' 8.77"	42' 10.8"	17' 1.52"	47' 0.82"
16' 3.17"	26' 0.74"	15' 10.83"	27' 0.88"	15' 6.19"	28' 3.71"	15' 1.26"	29' 10.08"	14' 8.04"	31' 9.29"
14' 2.97"	21' 1.6"	13' 11.67"	21' 9.44"	13' 8.12"	22' 6.85"	13' 4.31"	23' 6.27"	13' 0.25"	24' 8.33"
12' 10"	18' 1.11"	12' 7.34"	18' 6.77"	12' 4.47"	19' 1.5"	12' 1.37"	19' 9.57"	11' 10.06"	20' 7.35"
12' 1.24"	16' 7.66"	11' 10.89"	17' 0.42"	11' 8.34"	17' 6.03"	11' 5.59"	18' 0.73"	11' 2.63"	18' 8.8"
11' 4.3"	15' 2.73"	11' 2.24"	15' 6.67"	11'	15' 11.31"	10' 9.58"	16' 4.81"	10' 6.98"	16' 11.39"
10' 7.17"	13' 10.27"	10' 5.39"	14' 1.5"	10' 3.45"	14' 5.29"	10' 1.35"	14' 9.76"	9' 11.07"	15' 3.06"
9' 9.84"	12' 6.28"	9' 8.32"	12' 8.89"	9' 6.66"	12' 11.93"	9' 4.86"	13' 3.51"	9' 2.91"	13' 7.72"
9' 0.3"	11' 2.73"	8' 11.03"	11' 4.8"	8' 9.64"	11' 7.2"	8' 8.13"	11' 10.01"	8' 6.49"	12' 1.31"
8' 7.45"	10' 7.11"	8' 6.3"	10' 8.94"	8' 5.04"	10' 11.06"	8' 3.67"	11' 1.53"	8' 2.17"	11' 4.42"
8' 2.55"	9' 11.6"	8' 1.51"	10' 1.21"	8' 0.38"	10' 3.07"	7' 11.13"	10' 5.22"	7' 9.78"	10' 7.74"
7' 9.59"	9' 4.2"	7' 8.66"	9' 5.6"	7' 7.65"	9' 7.21"	7' 6.53"	9' 9.08"	7' 5.31"	9' 11.27"
7' 4.58"	8' 8.89"	7' 3.76"	8' 10.1"	7' 2.85"	8' 11.49"	7' 1.86"	9' 1.11"	7' 0.77"	9' 2.98"
6' 11.51"	8' 1.68"	6' 10.79"	8' 2.72"	6' 9.99"	8' 3.91"	6' 9.11"	8' 5.29"	6' 8.15"	8' 6.88"
6' 6.39"	7' 6.56"	6' 5.75"	7' 7.44"	6' 5.06"	7' 8.45"	6' 4.29"	7' 9.62"	6' 3.45"	7' 10.96"
6' 1.2"	6' 11.54"	6' 0.66"	7' 0.28"	6' 0.06"	7' 1.13"	5' 11.39"	7' 2.1"	5' 10.67"	7' 3.22"
5' 7.95"	6' 4.61"	5' 7.49"	6' 5.22"	5' 6.98"	6' 5.92"	5' 6.42"	6' 6.72"	5' 5.8"	6' 7.64"
5' 2.65"	5' 9.78"	5' 2.26"	5' 10.27"	5' 1.84"	5' 10.84"	5' 1.37"	5' 11.48"	5' 0.85"	6' 0.22"
4' 9.28"	5' 3.03"	4' 8.97"	5' 3.42"	4' 8.62"	5' 3.87"	4' 8.23"	5' 4.38"	4' 7.81"	5' 4.97"
4' 6.57"	4' 11.68"	4' 6.29"	5' 0.03"	4' 5.98"	5' 0.43"	4' 5.63"	5' 0.88"	4' 5.25"	5' 1.4"
4' 3.85"	4' 8.36"	4' 3.6"	4' 8.67"	4' 3.32"	4' 9.02"	4' 3.01"	4' 9.41"	4' 2.67"	4' 9.86"
4' 1.11"	4' 5.06"	4' 0.89"	4' 5.33"	4' 0.64"	4' 5.63"	4' 0.37"	4' 5.98"	4' 0.07"	4' 6.37"
3' 10.35"	4' 1.79"	3' 10.16"	4' 2.02"	3' 9.95"	4' 2.28"	3' 9.71"	4' 2.57"	3' 9.45"	4' 2.91"
3' 7.58"	3' 10.53"	3' 7.42"	3' 10.72"	3' 7.23"	3' 10.95"	3' 7.03"	3' 11.2"	3' 6.8"	3' 11.48"
3' 4.79"	3' 7.29"	3' 4.65"	3' 7.46"	3' 4.49"	3' 7.64"	3' 4.32"	3' 7.86"	3' 4.12"	3' 8.1"
3' 1.99"	3' 4.08"	3' 1.87"	3' 4.21"	3' 1.74"	3' 4.37"	3' 1.59"	3' 4.54"	3' 1.42"	3' 4.74"
2' 11.17"	3' 0.88"	2' 11.07"	3' 0.99"	2' 10.96"	3' 1.12"	2' 10.84"	3' 1.26"	2' 10.7"	3' 1.42"
2' 8.33"	2' 9.71"	2' 8.25"	2' 9.79"	2' 8.16"	2' 9.89"	2' 8.06"	2' 10.01"	2' 7.95"	2' 10.14"
2' 5.47"	2' 6.55"	2' 5.41"	2' 6.62"	2' 5.34"	2' 6.7"	2' 5.26"	2' 6.79"	2' 5.18"	2' 6.88"
2' 2.6"	2' 3.41"	2' 2.55"	2' 3.47"	2' 2.5"	2' 3.52"	2' 2.44"	2' 3.59"	2' 2.38"	2' 3.66"
1' 11.71"	2' 0.3"	1' 11.68"	2' 0.33"	1' 11.64"	2' 0.38"	1' 11.6"	2' 0.42"	1' 11.55"	2' 0.48"
1' 8.8"	1' 9.2"	1' 8.78"	1' 9.23"	1' 8.75"	1' 9.25"	1' 8.73"	1' 9.29"	1' 8.69"	1' 9.32"
1' 5.88"	1' 6.12"	1' 5.86"	1' 6.14"	1' 5.85"	1' 6.16"	1' 5.83"	1' 6.17"	1' 5.81"	1' 6.2"
1' 2.94"	1' 3.06"	1' 2.93"	1' 3.07"	1' 2.92"	1' 3.08"	1' 2.91"	1' 3.09"	1' 2.9"	1' 3.1"
1' 1.95"	1' 2.05"	1' 1.95"	1' 2.05"	1' 1.94"	1' 2.06"	1' 1.93"	1' 2.07"	1' 1.92"	1' 2.08"



5	5.6	6.3	7.1	8
46' 4.81"	41' 4.93"	36' 11.58"	33' 0.02"	29' 5.7"

5		5.6		6.3		7.1		8	
Short Focus (ft-inch)	Long Focus (ft-inch)	Short Focus (ft-inch)	Long Focus (ft-inch)	Short Focus (ft-inch)	Long Focus (ft-inch)	Short Focus (ft-inch)	Long Focus (ft-inch)	Short Focus (ft-inch)	Long Focus (ft-inch)
46' 3.19"	Infinity	41' 3.3"	Infinity	36' 9.95"	Infinity	32' 10.41"	Infinity	29' 4.06"	Infinity
33' 7.54"	Infinity	30' 11.22"	Infinity	28' 4.69"	Infinity	25' 11.99"	Infinity	23' 9.12"	Infinity
26' 4.95"	Infinity	24' 8.85"	Infinity	23' 1.18"	Infinity	21' 6.05"	Infinity	19' 11.56"	Infinity
21' 8.94"	282' 7.4"	20' 7.3"	1140' 7.63"	19' 5.62"	Infinity	18' 4"	Infinity	17' 2.54"	Infinity
18' 5.76"	82' 8.88"	17' 7.92"	105' 9.68"	16' 9.89"	154' 2.44"	15' 11.73"	318' 0.21"	15' 1.52"	Infinity
16' 5.97"	52' 10.13"	15' 10.15"	61' 3.75"	15' 2.1"	74' 9.69"	14' 5.86"	99' 5.51"	13' 9.48"	158' 2.28"
14' 2.53"	34' 3.27"	13' 8.76"	37' 7.19"	13' 2.75"	42' 2.54"	12' 8.52"	48' 11.74"	12' 2.11"	59' 9.27"
12' 7.94"	26' 1.93"	12' 3.39"	28' 0.4"	11' 10.61"	30' 5.89"	11' 5.62"	33' 9.96"	11' 0.43"	38' 7.1"
11' 6.52"	21' 7.37"	11' 2.77"	22' 10.37"	10' 10.8"	24' 5.47"	10' 6.62"	26' 6.44"	10' 2.26"	29' 4.19"
10' 11.47"	19' 6.62"	10' 8.1"	20' 6.74"	10' 4.53"	21' 9.99"	10' 0.76"	23' 5.58"	9' 8.81"	25' 7.49"
10' 4.18"	17' 7.34"	10' 1.19"	18' 5.07"	9' 10"	19' 5.14"	9' 6.64"	20' 8.41"	9' 3.09"	22' 4.21"
9' 8.63"	15' 9.42"	9' 6.01"	16' 5.13"	9' 3.21"	17' 2.6"	9' 0.23"	18' 2.4"	8' 9.09"	19' 5.43"
9' 0.81"	14' 0.74"	8' 10.54"	14' 6.77"	8' 8.12"	15' 2.1"	8' 5.53"	15' 11.12"	8' 2.78"	16' 10.41"
8' 4.71"	12' 5.2"	8' 2.78"	12' 9.84"	8' 0.72"	13' 3.42"	7' 10.5"	13' 10.21"	7' 8.15"	14' 6.58"
8' 0.54"	11' 7.82"	7' 10.79"	11' 11.86"	7' 8.89"	12' 4.7"	7' 6.86"	12' 10.55"	7' 4.7"	13' 5.71"
7' 8.3"	10' 10.7"	7' 6.71"	11' 2.2"	7' 4.99"	11' 6.36"	7' 3.13"	11' 11.37"	7' 1.15"	12' 5.47"
7' 3.98"	10' 1.82"	7' 2.54"	10' 4.82"	7' 0.99"	10' 8.39"	6' 11.31"	11' 0.65"	6' 9.51"	11' 5.81"
6' 11.58"	9' 5.16"	6' 10.3"	9' 7.73"	6' 8.9"	9' 10.76"	6' 7.39"	10' 2.36"	6' 5.77"	10' 6.7"
6' 7.1"	8' 8.74"	6' 5.96"	8' 10.9"	6' 4.72"	9' 1.45"	6' 3.37"	9' 4.48"	6' 1.93"	9' 8.09"
6' 2.53"	8' 0.52"	6' 1.53"	8' 2.34"	6' 0.43"	8' 4.46"	5' 11.25"	8' 6.97"	5' 9.97"	8' 9.95"
5' 9.87"	7' 4.51"	5' 9"	7' 6.01"	5' 8.05"	7' 7.76"	5' 7.02"	7' 9.82"	5' 5.9"	8' 0.25"
5' 5.12"	6' 8.7"	5' 4.38"	6' 9.92"	5' 3.56"	6' 11.35"	5' 2.68"	7' 1.01"	5' 1.71"	7' 2.97"
5' 0.28"	6' 1.08"	4' 11.65"	6' 2.06"	4' 10.97"	6' 3.2"	4' 10.22"	6' 4.52"	4' 9.4"	6' 6.07"
4' 7.34"	5' 5.64"	4' 6.82"	5' 6.41"	4' 6.26"	5' 7.31"	4' 5.64"	5' 8.34"	4' 4.96"	5' 9.54"
4' 4.83"	5' 1.99"	4' 4.37"	5' 2.67"	4' 3.86"	5' 3.45"	4' 3.3"	5' 4.35"	4' 2.69"	5' 5.4"
4' 2.3"	4' 10.38"	4' 1.88"	4' 10.97"	4' 1.43"	4' 11.65"	4' 0.93"	5' 0.44"	4' 0.38"	5' 1.35"
3' 11.74"	4' 6.82"	3' 11.37"	4' 7.33"	3' 10.97"	4' 7.92"	3' 10.52"	4' 8.59"	3' 10.04"	4' 9.38"
3' 9.16"	4' 3.29"	3' 8.83"	4' 3.73"	3' 8.48"	4' 4.24"	3' 8.09"	4' 4.81"	3' 7.66"	4' 5.48"
3' 6.54"	3' 11.81"	3' 6.27"	4' 0.18"	3' 5.96"	4' 0.61"	3' 5.62"	4' 1.1"	3' 5.24"	4' 1.66"
3' 3.91"	3' 8.37"	3' 3.67"	3' 8.68"	3' 3.4"	3' 9.04"	3' 3.11"	3' 9.45"	3' 2.79"	3' 9.92"
3' 1.24"	3' 4.97"	3' 1.04"	3' 5.23"	3' 0.82"	3' 5.52"	3' 0.57"	3' 5.86"	3' 0.3"	3' 6.24"
2' 10.55"	3' 1.61"	2' 10.38"	3' 1.82"	2' 10.2"	3' 2.05"	2' 9.99"	3' 2.32"	2' 9.76"	3' 2.63"
2' 7.83"	2' 10.28"	2' 7.69"	2' 10.45"	2' 7.54"	2' 10.64"	2' 7.37"	2' 10.85"	2' 7.19"	2' 11.1"
2' 5.08"	2' 7"	2' 4.97"	2' 7.13"	2' 4.85"	2' 7.27"	2' 4.72"	2' 7.44"	2' 4.57"	2' 7.62"
2' 2.3"	2' 3.75"	2' 2.22"	2' 3.84"	2' 2.13"	2' 3.95"	2' 2.03"	2' 4.08"	2' 1.91"	2' 4.22"
1' 11.49"	2' 0.54"	1' 11.43"	2' 0.61"	1' 11.37"	2' 0.68"	1' 11.29"	2' 0.77"	1' 11.21"	2' 0.87"
1' 8.66"	1' 9.36"	1' 8.61"	1' 9.41"	1' 8.57"	1' 9.46"	1' 8.52"	1' 9.52"	1' 8.46"	1' 9.58"
1' 5.79"	1' 6.22"	1' 5.76"	1' 6.25"	1' 5.73"	1' 6.28"	1' 5.7"	1' 6.31"	1' 5.67"	1' 6.35"
1' 2.89"	1' 3.12"	1' 2.87"	1' 3.13"	1' 2.86"	1' 3.15"	1' 2.84"	1' 3.16"	1' 2.82"	1' 3.18"
1' 1.91"	1' 2.09"	1' 1.9"	1' 2.1"	1' 1.89"	1' 2.11"	1' 1.88"	1' 2.12"	1' 1.86"	1' 2.14"



9	10	11	13	14
26' 3.94"	23' 6.36"	21' 0.4"	18' 9.71"	16' 9.97"

9		10		11		13		14	
Short Focus (ft-inch)	Long Focus (ft-inch)	Short Focus (ft-inch)	Long Focus (ft-inch)	Short Focus (ft-inch)	Long Focus (ft-inch)	Short Focus (ft-inch)	Long Focus (ft-inch)	Short Focus (ft-inch)	Long Focus (ft-inch)
26' 2.33"	Infinity	23' 4.72"	Infinity	20' 10.77"	Infinity	18' 8.1"	Infinity	16' 8.33"	Infinity
21' 8.08"	Infinity	19' 8.84"	Infinity	17' 11.35"	Infinity	16' 3.55"	Infinity	14' 9.36"	Infinity
18' 5.79"	Infinity	17' 0.81"	Infinity	15' 8.69"	Infinity	14' 5.45"	Infinity	13' 3.11"	Infinity
16' 1.32"	Infinity	15' 0.41"	Infinity	13' 11.89"	Infinity	12' 11.83"	Infinity	12' 0.26"	Infinity
14' 3.32"	Infinity	13' 5.2"	Infinity	12' 7.23"	Infinity	11' 9.45"	Infinity	10' 11.94"	Infinity
13' 1.03"	473' 0.03"	12' 4.55"	Infinity	11' 8.1"	Infinity	10' 11.73"	Infinity	10' 3.5"	Infinity
11' 7.56"	79' 6.32"	11' 0.89"	126' 9.28"	10' 6.16"	384' 6.69"	9' 11.41"	Infinity	9' 4.69"	Infinity
10' 7.08"	45' 10.42"	10' 1.58"	58' 3.03"	9' 7.98"	83' 9.3"	9' 2.31"	165' 9.32"	8' 8.6"	Infinity
9' 9.72"	33' 3.97"	9' 5.03"	39' 4.22"	9' 0.22"	49' 5.08"	8' 7.31"	69' 6.09"	8' 2.33"	128' 6.15"
9' 4.68"	28' 7.06"	9' 0.4"	32' 10.51"	8' 7.99"	39' 6.88"	8' 3.47"	51' 4.71"	7' 10.88"	77' 6.79"
8' 11.38"	24' 6.68"	8' 7.51"	27' 7.57"	8' 3.51"	32' 2.11"	7' 11.39"	39' 6.15"	7' 7.18"	53' 2.7"
8' 5.79"	21' 1.05"	8' 2.33"	23' 3.54"	7' 10.74"	26' 4.99"	7' 7.02"	31' 1.46"	7' 3.21"	38' 11.56"
7' 11.88"	18' 0.85"	7' 8.84"	19' 7.82"	7' 5.66"	21' 9.65"	7' 2.35"	24' 10.55"	6' 10.95"	29' 7.14"
7' 5.65"	15' 5.09"	7' 3.01"	16' 6.57"	7' 0.24"	18' 0.34"	6' 9.35"	20' 0.65"	6' 6.35"	22' 11.63"
7' 2.39"	14' 2.62"	6' 11.95"	15' 1.93"	6' 9.39"	16' 4.63"	6' 6.7"	18' 0.36"	6' 3.91"	20' 4.02"
6' 11.04"	13' 0.99"	6' 8.8"	13' 10.44"	6' 6.44"	14' 10.56"	6' 3.96"	16' 2.55"	6' 1.37"	18' 0.44"
6' 7.59"	12' 0.13"	6' 5.55"	12' 7.98"	6' 3.39"	13' 5.93"	6' 1.11"	14' 6.85"	5' 10.73"	16' 0.17"
6' 4.04"	10' 11.96"	6' 2.19"	11' 6.45"	6' 0.22"	12' 2.57"	5' 10.15"	13' 0.98"	5' 7.97"	14' 2.65"
6' 0.37"	10' 0.44"	5' 10.71"	10' 5.76"	5' 8.94"	11' 0.36"	5' 7.07"	11' 8.68"	5' 5.1"	12' 7.44"
5' 8.59"	9' 1.52"	5' 7.12"	9' 5.84"	5' 5.54"	9' 11.15"	5' 3.86"	10' 5.77"	5' 2.09"	11' 2.18"
5' 4.7"	8' 3.15"	5' 3.4"	8' 6.63"	5' 2.01"	8' 10.85"	5' 0.53"	9' 4.06"	4' 10.95"	9' 10.6"
5' 0.67"	7' 5.28"	4' 11.55"	7' 8.05"	4' 10.34"	7' 11.37"	4' 9.05"	8' 3.43"	4' 7.67"	8' 8.45"
4' 8.52"	6' 7.9"	4' 7.56"	6' 10.06"	4' 6.52"	7' 0.63"	4' 5.41"	7' 3.75"	4' 4.23"	7' 7.55"
4' 4.22"	5' 10.95"	4' 3.42"	6' 0.6"	4' 2.55"	6' 2.56"	4' 1.62"	6' 4.91"	4' 0.62"	6' 7.74"
4' 2.02"	5' 6.63"	4' 1.29"	5' 8.07"	4' 0.51"	5' 9.76"	3' 11.66"	5' 11.78"	3' 10.75"	6' 2.2"
3' 11.78"	5' 2.41"	3' 11.13"	5' 3.65"	3' 10.42"	5' 5.1"	3' 9.66"	5' 6.83"	3' 8.83"	5' 8.89"
3' 9.5"	4' 10.28"	3' 8.92"	4' 11.34"	3' 8.29"	5' 0.58"	3' 7.6"	5' 2.05"	3' 6.86"	5' 3.79"
3' 7.19"	4' 6.25"	3' 6.67"	4' 7.15"	3' 6.11"	4' 8.2"	3' 5.5"	4' 9.43"	3' 4.85"	4' 10.88"
3' 4.83"	4' 2.31"	3' 4.38"	4' 3.06"	3' 3.89"	4' 3.94"	3' 3.36"	4' 4.96"	3' 2.78"	4' 6.17"
3' 2.43"	3' 10.45"	3' 2.05"	3' 11.08"	3' 1.62"	3' 11.8"	3' 1.16"	4' 0.64"	3' 0.65"	4' 1.63"
3'	3' 6.68"	2' 11.66"	3' 7.19"	2' 11.3"	3' 7.78"	2' 10.9"	3' 8.46"	2' 10.47"	3' 9.26"
2' 9.51"	3' 2.99"	2' 9.23"	3' 3.4"	2' 8.93"	3' 3.87"	2' 8.6"	3' 4.41"	2' 8.23"	3' 5.04"
2' 6.98"	2' 11.38"	2' 6.76"	2' 11.7"	2' 6.51"	3' 0.06"	2' 6.23"	3' 0.49"	2' 5.93"	3' 0.98"
2' 4.41"	2' 7.84"	2' 4.23"	2' 8.08"	2' 4.03"	2' 8.36"	2' 3.81"	2' 8.69"	2' 3.57"	2' 9.06"
2' 1.79"	2' 4.37"	2' 1.65"	2' 4.55"	2' 1.49"	2' 4.76"	2' 1.32"	2' 5"	2' 1.14"	2' 5.27"
1' 11.12"	2' 0.98"	1' 11.01"	2' 1.11"	1' 10.9"	2' 1.25"	1' 10.78"	2' 1.42"	1' 10.64"	2' 1.61"
1' 8.4"	1' 9.66"	1' 8.33"	1' 9.74"	1' 8.25"	1' 9.84"	1' 8.16"	1' 9.95"	1' 8.07"	1' 10.07"
1' 5.63"	1' 6.4"	1' 5.58"	1' 6.45"	1' 5.53"	1' 6.51"	1' 5.48"	1' 6.57"	1' 5.42"	1' 6.65"
1' 2.8"	1' 3.21"	1' 2.78"	1' 3.23"	1' 2.75"	1' 3.26"	1' 2.72"	1' 3.3"	1' 2.69"	1' 3.33"
1' 1.85"	1' 2.16"	1' 1.83"	1' 2.18"	1' 1.81"	1' 2.2"	1' 1.79"	1' 2.22"	1' 1.76"	1' 2.25"



16	18	20	22
15' 0.79"	13' 5.93"	12' 1.12"	10' 10.12"

16		18		20		22	
Short Focus (ft-inch)	Long Focus (ft-inch)	Short Focus (ft-inch)	Long Focus (ft-inch)	Short Focus (ft-inch)	Long Focus (ft-inch)	Short Focus (ft-inch)	Long Focus (ft-inch)
14' 11.15"	Infinity	13' 4.29"	Infinity	11' 11.48"	Infinity	10' 8.51"	Infinity
13' 4.7"	Infinity	12' 1.49"	Infinity	10' 11.62"	Infinity	9' 11.02"	Infinity
12' 1.69"	Infinity	11' 1.18"	Infinity	10' 1.57"	Infinity	9' 2.83"	Infinity
11' 1.24"	Infinity	10' 2.79"	Infinity	9' 4.94"	Infinity	8' 7.69"	Infinity
10' 2.75"	Infinity	9' 5.9"	Infinity	8' 9.45"	Infinity	8' 1.42"	Infinity
9' 7.47"	Infinity	8' 11.67"	Infinity	8' 4.14"	Infinity	7' 8.92"	Infinity
8' 10.03"	Infinity	8' 3.49"	Infinity	7' 9.1"	Infinity	7' 2.89"	Infinity
8' 2.9"	Infinity	7' 9.24"	Infinity	7' 3.66"	Infinity	6' 10.18"	Infinity
7' 9.32"	Infinity	7' 4.31"	Infinity	6' 11.32"	Infinity	6' 6.41"	Infinity
7' 6.23"	182' 10.45"	7' 1.56"	Infinity	6' 8.9"	Infinity	6' 4.28"	Infinity
7' 2.9"	87' 7.14"	6' 10.59"	325' 4.99"	6' 6.26"	Infinity	6' 1.96"	Infinity
6' 11.32"	54' 5.83"	6' 7.37"	99' 2.63"	6' 3.4"	Infinity	5' 11.43"	Infinity
6' 7.45"	37' 7.99"	6' 3.88"	54' 5.77"	6' 0.28"	110' 2.63"	5' 8.65"	Infinity
6' 3.25"	27' 5.85"	6' 0.08"	35' 4.3"	5' 8.85"	52' 3.96"	5' 5.58"	114' 10.21"
6' 1.02"	23' 9.24"	5' 10.04"	29' 4.66"	5' 7.01"	40' 1.59"	5' 3.93"	68' 6.65"
5' 10.68"	20' 7.99"	5' 7.91"	24' 8.97"	5' 5.08"	31' 10.55"	5' 2.19"	47' 4.24"
5' 8.25"	18' 0.41"	5' 5.68"	21' 0.43"	5' 3.04"	25' 11.08"	5' 0.35"	35' 2.33"
5' 5.7"	15' 9.3"	5' 3.34"	18'	5' 0.9"	21' 5.07"	4' 10.4"	27' 3.71"
5' 3.03"	13' 9.77"	5' 0.87"	15' 5.65"	4' 10.64"	17' 10.82"	4' 8.35"	21' 9.38"
5' 0.23"	12' 1.16"	4' 10.28"	13' 3.97"	4' 8.26"	15' 0.86"	4' 6.16"	17' 8.3"
4' 9.29"	10' 6.96"	4' 7.55"	11' 5.97"	4' 5.73"	12' 8.98"	4' 3.84"	14' 6.52"
4' 6.21"	9' 2.76"	4' 4.67"	9' 10.9"	4' 3.06"	10' 9.68"	4' 1.38"	12' 0.53"
4' 2.97"	8' 0.26"	4' 1.63"	8' 6.21"	4' 0.22"	9' 1.91"	3' 10.74"	10' 0.16"
3' 11.55"	6' 11.2"	3' 10.41"	7' 3.49"	3' 9.2"	7' 8.92"	3' 7.93"	8' 3.95"
3' 9.77"	6' 5.14"	3' 8.73"	6' 8.77"	3' 7.62"	7' 1.3"	3' 6.45"	7' 7.09"
3' 7.94"	5' 11.38"	3' 7"	6' 2.41"	3' 5.99"	6' 6.18"	3' 4.92"	6' 10.93"
3' 6.07"	5' 5.87"	3' 5.21"	5' 8.4"	3' 4.3"	5' 11.51"	3' 3.33"	6' 3.39"
3' 4.13"	5' 0.62"	3' 3.37"	5' 2.71"	3' 2.55"	5' 5.25"	3' 1.68"	5' 8.4"
3' 2.15"	4' 7.6"	3' 1.47"	4' 9.31"	3' 0.75"	4' 11.37"	2' 11.97"	5' 1.9"
3' 0.11"	4' 2.79"	2' 11.52"	4' 4.18"	2' 10.88"	4' 5.83"	2' 10.2"	4' 7.85"
2' 10"	3' 10.19"	2' 9.49"	3' 11.3"	2' 8.94"	4' 0.61"	2' 8.35"	4' 2.19"
2' 7.84"	3' 5.78"	2' 7.41"	3' 6.65"	2' 6.94"	3' 7.67"	2' 6.43"	3' 8.89"
2' 5.61"	3' 1.55"	2' 5.25"	3' 2.22"	2' 4.86"	3' 3"	2' 4.44"	3' 3.92"
2' 3.3"	2' 9.49"	2' 3.02"	2' 9.98"	2' 2.7"	2' 10.57"	2' 2.36"	2' 11.25"
2' 0.93"	2' 5.58"	2' 0.71"	2' 5.94"	2' 0.46"	2' 6.36"	2' 0.19"	2' 6.85"
1' 10.49"	2' 1.83"	1' 10.32"	2' 2.08"	1' 10.13"	2' 2.36"	1' 9.93"	2' 2.7"
1' 7.96"	1' 10.21"	1' 7.84"	1' 10.37"	1' 7.71"	1' 10.56"	1' 7.57"	1' 10.78"
1' 5.35"	1' 6.73"	1' 5.27"	1' 6.83"	1' 5.19"	1' 6.94"	1' 5.1"	1' 7.06"
1' 2.65"	1' 3.38"	1' 2.61"	1' 3.42"	1' 2.57"	1' 3.48"	1' 2.52"	1' 3.54"
1' 1.73"	1' 2.28"	1' 1.7"	1' 2.32"	1' 1.67"	1' 2.36"	1' 1.63"	1' 2.41"



Focal Length 50 mm

Circle of Confusion 0.025 mm

T/No	1.8	2	2.2	2.5
Hyperfocal Distance (ft-inch)	182' 10.53"	162' 11.98"	145' 3.43"	129' 6.06"

T/No	1.8		2		2.2		2.5	
Focus Distance (ft-inch)	Short Focus (ft-inch)	Long Focus (ft-inch)	Short Focus (ft-inch)	Long Focus (ft-inch)	Short Focus (ft-inch)	Long Focus (ft-inch)	Short Focus (ft-inch)	Long Focus (ft-inch)
Infinity	182' 8.49"	Infinity	162' 9.94"	Infinity	145' 1.42"	Infinity	129' 4.08"	Infinity
120' 0"	72' 8.46"	346' 10.01"	69' 4.4"	451' 8.6"	65' 11.63"	684' 0.94"	62' 6.41"	1620' 5.3"
60' 0"	45' 4.57"	88' 8.89"	44' 0.83"	94' 3.47"	42' 8.24"	101' 4.92"	41' 2.82"	110' 9.73"
40' 0"	32' 11.81"	50' 10.56"	32' 3.51"	52' 7.67"	31' 6.61"	54' 9.18"	30' 9.09"	57' 4.42"
30' 0"	25' 10.88"	35' 7.97"	25' 5.79"	36' 6.14"	25' 0.27"	37' 6.14"	24' 6.31"	38' 8.44"
25' 0"	22' 1.34"	28' 9.35"	21' 9.65"	29' 3.89"	21' 5.62"	29' 11.53"	21' 1.26"	30' 8.52"
20' 0"	18' 1.53"	22' 3.81"	17' 11.07"	22' 7.67"	17' 8.38"	23' 0.15"	17' 5.44"	23' 5.36"
17' 0"	15' 7.69"	18' 7.52"	15' 5.88"	18' 10.18"	15' 3.88"	19' 1.24"	15' 1.7"	19' 4.78"
15' 0"	13' 11.29"	16' 2.88"	13' 9.86"	16' 4.88"	13' 8.29"	16' 7.17"	13' 6.56"	16' 9.81"
14' 0"	13' 0.94"	15' 0.81"	12' 11.69"	15' 2.52"	12' 10.3"	15' 4.48"	12' 8.78"	15' 6.73"
13' 0"	12' 2.47"	13' 10.91"	12' 1.39"	14' 0.36"	12' 0.19"	14' 2.01"	11' 10.87"	14' 3.91"
12' 0"	11' 3.9"	12' 9.17"	11' 2.98"	12' 10.38"	11' 1.95"	12' 11.76"	11' 0.82"	13' 1.34"
11' 0"	10' 5.22"	11' 7.59"	10' 4.44"	11' 8.58"	10' 3.58"	11' 9.72"	10' 2.63"	11' 11.01"
10' 0"	9' 6.43"	10' 6.17"	9' 5.79"	10' 6.97"	9' 5.07"	10' 7.88"	9' 4.28"	10' 8.92"
9' 6"	9' 0.99"	9' 11.52"	9' 0.41"	10' 0.23"	8' 11.77"	10' 1.04"	8' 11.05"	10' 1.97"
9' 0"	8' 7.53"	9' 4.9"	8' 7.01"	9' 5.53"	8' 6.43"	9' 6.25"	8' 5.79"	9' 7.07"
8' 6"	8' 2.03"	8' 10.32"	8' 1.57"	8' 10.88"	8' 1.05"	8' 11.51"	8' 0.48"	9' 0.23"
8' 0"	7' 8.51"	8' 3.79"	7' 8.1"	8' 4.27"	7' 7.64"	8' 4.82"	7' 7.14"	8' 5.45"
7' 6"	7' 2.95"	7' 9.28"	7' 2.6"	7' 9.7"	7' 2.2"	7' 10.18"	7' 1.76"	7' 10.72"
7' 0"	6' 9.37"	7' 2.82"	6' 9.06"	7' 3.18"	6' 8.72"	7' 3.58"	6' 8.33"	7' 4.05"
6' 6"	6' 3.76"	6' 8.39"	6' 3.49"	6' 8.69"	6' 3.2"	6' 9.04"	6' 2.87"	6' 9.43"
6' 0"	5' 10.12"	6' 2"	5' 9.89"	6' 2.25"	5' 9.64"	6' 2.54"	5' 9.37"	6' 2.86"
5' 6"	5' 4.44"	5' 7.64"	5' 4.26"	5' 7.85"	5' 4.05"	5' 8.08"	5' 3.82"	5' 8.35"
5' 0"	4' 10.74"	5' 1.32"	4' 10.59"	5' 1.49"	4' 10.42"	5' 1.68"	4' 10.23"	5' 1.89"
4' 9"	4' 7.88"	4' 10.18"	4' 7.74"	4' 10.32"	4' 7.59"	4' 10.49"	4' 7.43"	4' 10.68"
4' 6"	4' 5.01"	4' 7.04"	4' 4.89"	4' 7.17"	4' 4.75"	4' 7.31"	4' 4.61"	4' 7.48"
4' 3"	4' 2.13"	4' 3.91"	4' 2.02"	4' 4.02"	4' 1.91"	4' 4.15"	4' 1.78"	4' 4.3"
4' 0"	3' 11.24"	4' 0.79"	3' 11.15"	4' 0.89"	3' 11.05"	4' 1"	3' 10.93"	4' 1.12"
3' 9"	3' 8.35"	3' 9.68"	3' 8.27"	3' 9.76"	3' 8.18"	3' 9.86"	3' 8.08"	3' 9.96"
3' 6"	3' 5.44"	3' 6.57"	3' 5.38"	3' 6.64"	3' 5.3"	3' 6.72"	3' 5.22"	3' 6.82"
3' 3"	3' 2.53"	3' 3.48"	3' 2.48"	3' 3.54"	3' 2.42"	3' 3.61"	3' 2.35"	3' 3.68"
3' 0"	2' 11.62"	3' 0.39"	2' 11.57"	3' 0.44"	2' 11.52"	3' 0.5"	2' 11.46"	3' 0.56"
2' 9"	2' 8.69"	2' 9.32"	2' 8.65"	2' 9.35"	2' 8.61"	2' 9.4"	2' 8.57"	2' 9.45"
2' 6"	2' 5.76"	2' 6.25"	2' 5.73"	2' 6.28"	2' 5.7"	2' 6.31"	2' 5.66"	2' 6.35"
2' 3"	2' 2.82"	2' 3.19"	2' 2.79"	2' 3.21"	2' 2.77"	2' 3.24"	2' 2.74"	2' 3.26"
2' 0"	1' 11.87"	2' 0.13"	1' 11.85"	2' 0.15"	1' 11.83"	2' 0.17"	1' 11.81"	2' 0.19"
1' 9"	1' 8.91"	1' 9.09"	1' 8.9"	1' 9.1"	1' 8.89"	1' 9.12"	1' 8.87"	1' 9.13"
1' 7"	1' 6.93"	1' 7.07"	1' 6.93"	1' 7.08"	1' 6.92"	1' 7.08"	1' 6.91"	1' 7.1"



2.8	3.2	3.5	4	4.5
115' 5.35"	102' 11.08"	91' 9.18"	81' 9.89"	72' 11.63"

2.8		3.2		3.5		4		4.5	
Short Focus (ft-inch)	Long Focus (ft-inch)	Short Focus (ft-inch)	Long Focus (ft-inch)	Short Focus (ft-inch)	Long Focus (ft-inch)	Short Focus (ft-inch)	Long Focus (ft-inch)	Short Focus (ft-inch)	Long Focus (ft-inch)
115' 3.4"	Infinity	102' 9.11"	Infinity	91' 7.23"	Infinity	81' 7.95"	Infinity	72' 9.68"	Infinity
59' 1.01"	Infinity	55' 7.7"	Infinity	52' 2.75"	Infinity	48' 10.44"	Infinity	45' 7"	Infinity
39' 8.64"	123' 8.32"	38' 1.78"	142' 3.34"	36' 6.33"	171' 2.15"	34' 10.41"	221' 9.8"	33' 2.12"	332' 3.78"
29' 10.98"	60' 7.25"	29' 0.28"	64' 8.46"	28' 1.01"	70' 0.37"	27' 1.22"	77' 2.01"	26' 0.94"	87' 1.82"
23' 11.91"	40' 1.62"	23' 5.05"	41' 10.5"	22' 9.73"	44' 0.25"	22' 1.97"	46' 8.52"	21' 5.78"	50' 1.85"
20' 8.54"	31' 7.17"	20' 3.45"	32' 7.89"	19' 9.98"	33' 11.25"	19' 4.14"	35' 6.01"	18' 9.92"	37' 5.27"
17' 2.24"	23' 11.45"	16' 10.76"	24' 6.62"	16' 7"	25' 3.11"	16' 2.94"	26' 1.26"	15' 10.59"	27' 1.51"
14' 11.31"	19' 8.89"	14' 8.7"	20' 1.69"	14' 5.86"	20' 7.31"	14' 2.79"	21' 1.96"	13' 11.48"	21' 9.86"
13' 4.66"	17' 0.87"	13' 2.58"	17' 4.41"	13' 0.31"	17' 8.54"	12' 9.85"	18' 1.38"	12' 7.18"	18' 7.09"
12' 7.12"	15' 9.33"	12' 5.29"	16' 0.33"	12' 3.29"	16' 3.82"	12' 1.11"	16' 7.9"	11' 10.74"	17' 0.69"
11' 9.42"	14' 6.09"	11' 7.83"	14' 8.61"	11' 6.09"	14' 11.53"	11' 4.18"	15' 2.93"	11' 2.11"	15' 6.91"
10' 11.58"	13' 3.15"	10' 10.21"	13' 5.24"	10' 8.71"	13' 7.65"	10' 7.06"	13' 10.44"	10' 5.27"	14' 1.7"
10' 1.57"	12' 0.49"	10' 0.41"	12' 2.19"	9' 11.14"	12' 4.16"	9' 9.74"	12' 6.42"	9' 8.22"	12' 9.06"
9' 3.41"	10' 10.11"	9' 2.44"	10' 11.48"	9' 1.38"	11' 1.04"	9' 0.22"	11' 2.85"	8' 10.94"	11' 4.94"
8' 10.26"	10' 3.03"	8' 9.39"	10' 4.24"	8' 8.43"	10' 5.63"	8' 7.38"	10' 7.22"	8' 6.22"	10' 9.07"
8' 5.08"	9' 8.01"	8' 4.3"	9' 9.07"	8' 3.43"	9' 10.3"	8' 2.48"	9' 11.7"	8' 1.43"	10' 1.32"
7' 11.85"	9' 1.05"	7' 11.15"	9' 1.99"	7' 10.38"	9' 3.06"	7' 9.53"	9' 4.28"	7' 8.59"	9' 5.7"
7' 6.58"	8' 6.16"	7' 5.96"	8' 6.97"	7' 5.28"	8' 7.9"	7' 4.52"	8' 8.97"	7' 3.69"	8' 10.19"
7' 1.27"	7' 11.33"	7' 0.72"	8' 0.03"	7' 0.12"	8' 0.83"	6' 11.46"	8' 1.75"	6' 10.73"	8' 2.8"
6' 7.91"	7' 4.57"	6' 7.44"	7' 5.17"	6' 6.91"	7' 5.85"	6' 6.34"	7' 6.63"	6' 5.7"	7' 7.51"
6' 2.51"	6' 9.87"	6' 2.1"	6' 10.37"	6' 1.65"	6' 10.94"	6' 1.16"	6' 11.6"	6' 0.61"	7' 0.34"
5' 9.06"	6' 3.23"	5' 8.72"	6' 3.65"	5' 8.34"	6' 4.12"	5' 7.91"	6' 4.66"	5' 7.45"	6' 5.28"
5' 3.57"	5' 8.65"	5' 3.28"	5' 8.99"	5' 2.96"	5' 9.38"	5' 2.61"	5' 9.82"	5' 2.22"	5' 10.32"
4' 10.03"	5' 2.13"	4' 9.79"	5' 2.4"	4' 9.54"	5' 2.71"	4' 9.25"	5' 3.06"	4' 8.93"	5' 3.46"
4' 7.24"	4' 10.89"	4' 7.03"	4' 11.13"	4' 6.8"	4' 11.41"	4' 6.54"	4' 11.72"	4' 6.26"	5' 0.07"
4' 4.44"	4' 7.67"	4' 4.26"	4' 7.88"	4' 4.05"	4' 8.12"	4' 3.82"	4' 8.39"	4' 3.57"	4' 8.7"
4' 1.63"	4' 4.46"	4' 1.47"	4' 4.64"	4' 1.29"	4' 4.85"	4' 1.09"	4' 5.09"	4' 0.86"	4' 5.36"
3' 10.81"	4' 1.26"	3' 10.67"	4' 1.42"	3' 10.51"	4' 1.61"	3' 10.33"	4' 1.81"	3' 10.14"	4' 2.04"
3' 7.97"	3' 10.08"	3' 7.85"	3' 10.22"	3' 7.71"	3' 10.38"	3' 7.56"	3' 10.55"	3' 7.39"	3' 10.75"
3' 5.13"	3' 6.92"	3' 5.02"	3' 7.03"	3' 4.91"	3' 7.16"	3' 4.78"	3' 7.31"	3' 4.63"	3' 7.48"
3' 2.27"	3' 3.77"	3' 2.18"	3' 3.86"	3' 2.08"	3' 3.97"	3' 1.97"	3' 4.09"	3' 1.85"	3' 4.23"
2' 11.4"	3' 0.63"	2' 11.32"	3' 0.71"	2' 11.24"	3' 0.8"	2' 11.15"	3' 0.9"	2' 11.05"	3' 1.01"
2' 8.51"	2' 9.5"	2' 8.46"	2' 9.57"	2' 8.39"	2' 9.64"	2' 8.32"	2' 9.72"	2' 8.24"	2' 9.81"
2' 5.62"	2' 6.39"	2' 5.57"	2' 6.44"	2' 5.52"	2' 6.5"	2' 5.46"	2' 6.56"	2' 5.4"	2' 6.63"
2' 2.71"	2' 3.3"	2' 2.68"	2' 3.33"	2' 2.64"	2' 3.38"	2' 2.59"	2' 3.42"	2' 2.54"	2' 3.48"
1' 11.79"	2' 0.21"	1' 11.76"	2' 0.24"	1' 11.74"	2' 0.27"	1' 11.7"	2' 0.31"	1' 11.67"	2' 0.34"
1' 8.86"	1' 9.15"	1' 8.84"	1' 9.16"	1' 8.82"	1' 9.18"	1' 8.8"	1' 9.21"	1' 8.77"	1' 9.23"
1' 6.89"	1' 7.11"	1' 6.88"	1' 7.12"	1' 6.87"	1' 7.14"	1' 6.85"	1' 7.15"	1' 6.83"	1' 7.17"



5	5.6	6.3	7.1	8
65' 0.94"	58' 0.61"	51' 9.46"	46' 2.53"	41' 2.88"

5		5.6		6.3		7.1		8	
Short Focus (ft-inch)	Long Focus (ft-inch)	Short Focus (ft-inch)	Long Focus (ft-inch)	Short Focus (ft-inch)	Long Focus (ft-inch)	Short Focus (ft-inch)	Long Focus (ft-inch)	Short Focus (ft-inch)	Long Focus (ft-inch)
64' 11.01"	Infinity	57' 10.66"	Infinity	51' 7.52"	Infinity	46' 0.57"	Infinity	41' 0.93"	Infinity
42' 4.66"	Infinity	39' 3.62"	Infinity	36' 4.05"	Infinity	33' 6.09"	Infinity	30' 9.83"	Infinity
31' 5.6"	755' 3.81"	29' 8.99"	Infinity	28' 0.41"	Infinity	26' 4.01"	Infinity	24' 7.92"	Infinity
25' 0.24"	101' 11.83"	23' 11.18"	126' 1.49"	22' 9.83"	171' 10.5"	21' 8.29"	290' 4.41"	20' 6.62"	1294' 10.53"
20' 9.18"	54' 8.24"	20' 0.2"	60' 10.48"	19' 2.88"	69' 8.96"	18' 5.26"	83' 5.12"	17' 7.4"	107' 0.65"
18' 3.34"	39' 10.66"	17' 8.4"	43' 0.66"	17' 1.14"	47' 3.3"	16' 5.57"	53' 1.62"	15' 9.72"	61' 8.95"
15' 5.94"	28' 4.47"	15' 0.98"	29' 11.03"	14' 7.74"	31' 10.48"	14' 2.22"	34' 4.81"	13' 8.43"	37' 9.25"
13' 7.91"	22' 7.36"	13' 4.09"	23' 6.89"	13' 0.01"	24' 9.09"	12' 7.69"	26' 2.87"	12' 3.12"	28' 1.6"
12' 4.29"	19' 1.88"	12' 1.18"	19' 10.02"	11' 9.85"	20' 7.9"	11' 6.3"	21' 8.04"	11' 2.53"	22' 11.2"
11' 8.18"	17' 6.36"	11' 5.42"	18' 1.12"	11' 2.45"	18' 9.26"	10' 11.27"	19' 7.17"	10' 7.88"	20' 7.43"
10' 11.86"	15' 11.59"	10' 9.43"	16' 5.14"	10' 6.81"	16' 11.78"	10' 3.99"	17' 7.81"	10' 0.99"	18' 5.63"
10' 3.32"	14' 5.52"	10' 1.2"	14' 10.03"	9' 10.92"	15' 3.39"	9' 8.46"	15' 9.81"	9' 5.83"	16' 5.6"
9' 6.55"	13' 0.13"	9' 4.74"	13' 3.73"	9' 2.78"	13' 7.99"	9' 0.66"	14' 1.06"	8' 10.38"	14' 7.15"
8' 9.54"	11' 7.36"	8' 8.02"	11' 10.2"	8' 6.37"	12' 1.52"	8' 4.57"	12' 5.45"	8' 2.64"	12' 10.14"
8' 4.95"	10' 11.21"	8' 3.56"	11' 1.7"	8' 2.06"	11' 4.62"	8' 0.42"	11' 8.05"	7' 10.65"	12' 0.13"
8' 0.29"	10' 3.2"	7' 11.04"	10' 5.38"	7' 9.67"	10' 7.92"	7' 8.19"	10' 10.9"	7' 6.58"	11' 2.44"
7' 7.57"	9' 7.33"	7' 6.44"	9' 9.22"	7' 5.21"	9' 11.42"	7' 3.88"	10' 2"	7' 2.43"	10' 5.03"
7' 2.78"	8' 11.6"	7' 1.78"	9' 1.23"	7' 0.68"	9' 3.12"	6' 11.49"	9' 5.33"	6' 10.19"	9' 7.92"
6' 9.92"	8' 4"	6' 9.04"	8' 5.39"	6' 8.07"	8' 7"	6' 7.01"	8' 8.88"	6' 5.86"	8' 11.07"
6' 5"	7' 8.54"	6' 4.22"	7' 9.71"	6' 3.38"	7' 11.07"	6' 2.45"	8' 0.64"	6' 1.44"	8' 2.48"
6'	7' 1.2"	5' 11.33"	7' 2.18"	5' 10.6"	7' 3.31"	5' 9.8"	7' 4.62"	5' 8.92"	7' 6.14"
5' 6.93"	6' 5.98"	5' 6.37"	6' 6.79"	5' 5.74"	6' 7.72"	5' 5.06"	6' 8.79"	5' 4.3"	6' 10.03"
5' 1.79"	5' 10.89"	5' 1.32"	5' 11.54"	5' 0.8"	6' 0.29"	5' 0.22"	6' 1.16"	4' 11.59"	6' 2.15"
4' 8.58"	5' 3.91"	4' 8.19"	5' 4.43"	4' 7.76"	5' 5.03"	4' 7.29"	5' 5.71"	4' 6.77"	5' 6.49"
4' 5.94"	5' 0.47"	4' 5.6"	5' 0.93"	4' 5.21"	5' 1.45"	4' 4.78"	5' 2.05"	4' 4.31"	5' 2.74"
4' 3.29"	4' 9.05"	4' 2.98"	4' 9.46"	4' 2.63"	4' 9.91"	4' 2.25"	4' 10.44"	4' 1.84"	4' 11.04"
4' 0.61"	4' 5.67"	4' 0.34"	4' 6.02"	4' 0.04"	4' 6.41"	3' 11.7"	4' 6.87"	3' 11.33"	4' 7.39"
3' 9.92"	4' 2.31"	3' 9.68"	4' 2.61"	3' 9.41"	4' 2.95"	3' 9.12"	4' 3.34"	3' 8.79"	4' 3.78"
3' 7.21"	3' 10.97"	3' 7"	3' 11.23"	3' 6.77"	3' 11.52"	3' 6.51"	3' 11.85"	3' 6.23"	4' 0.23"
3' 4.47"	3' 7.67"	3' 4.29"	3' 7.88"	3' 4.1"	3' 8.13"	3' 3.88"	3' 8.41"	3' 3.63"	3' 8.72"
3' 1.72"	3' 4.39"	3' 1.57"	3' 4.57"	3' 1.4"	3' 4.77"	3' 1.21"	3' 5"	3' 1.01"	3' 5.26"
2' 10.94"	3' 1.14"	2' 10.82"	3' 1.28"	2' 10.68"	3' 1.45"	2' 10.53"	3' 1.64"	2' 10.35"	3' 1.85"
2' 8.15"	2' 9.91"	2' 8.04"	2' 10.03"	2' 7.93"	2' 10.16"	2' 7.81"	2' 10.31"	2' 7.67"	2' 10.48"
2' 5.33"	2' 6.71"	2' 5.25"	2' 6.8"	2' 5.16"	2' 6.9"	2' 5.06"	2' 7.02"	2' 4.95"	2' 7.15"
2' 2.49"	2' 3.54"	2' 2.43"	2' 3.6"	2' 2.36"	2' 3.68"	2' 2.29"	2' 3.77"	2' 2.2"	2' 3.86"
1' 11.63"	2' 0.39"	1' 11.58"	2' 0.44"	1' 11.54"	2' 0.49"	1' 11.48"	2' 0.55"	1' 11.42"	2' 0.62"
1' 8.75"	1' 9.26"	1' 8.72"	1' 9.29"	1' 8.68"	1' 9.33"	1' 8.64"	1' 9.37"	1' 8.6"	1' 9.42"
1' 6.81"	1' 7.19"	1' 6.79"	1' 7.22"	1' 6.77"	1' 7.24"	1' 6.74"	1' 7.27"	1' 6.71"	1' 7.31"



9	10	11	13	14
36' 9.73"	32' 10.41"	29' 4.2"	26' 2.65"	23' 5.18"

9		10		11		13		14	
Short Focus (ft-inch)	Long Focus (ft-inch)	Short Focus (ft-inch)	Long Focus (ft-inch)	Short Focus (ft-inch)	Long Focus (ft-inch)	Short Focus (ft-inch)	Long Focus (ft-inch)	Short Focus (ft-inch)	Long Focus (ft-inch)
36' 7.79"	Infinity	32' 8.46"	Infinity	29' 2.28"	Infinity	26' 0.71"	Infinity	23' 3.24"	Infinity
28' 3.36"	Infinity	25' 10.71"	Infinity	23' 7.9"	Infinity	21' 6.92"	Infinity	19' 7.74"	Infinity
23' 0.26"	Infinity	21' 5.14"	Infinity	19' 10.66"	Infinity	18' 4.91"	Infinity	16' 11.96"	Infinity
19' 4.94"	Infinity	18' 3.32"	Infinity	17' 1.85"	Infinity	16' 0.63"	Infinity	14' 11.73"	Infinity
16' 9.36"	157' 1.8"	15' 11.19"	332' 2.08"	15' 0.97"	Infinity	14' 2.76"	Infinity	13' 4.64"	Infinity
15' 1.65"	75' 6.27"	14' 5.4"	100' 10.33"	13' 9.01"	162' 1.59"	13' 0.55"	513' 11.92"	12' 4.05"	Infinity
13' 2.4"	42' 5.42"	12' 8.16"	49' 4.03"	12' 1.73"	60' 4.34"	11' 7.16"	80' 8.14"	11' 0.48"	130' 0.16"
11' 10.32"	30' 7.47"	11' 5.31"	34' 0.11"	11' 0.11"	38' 10.19"	10' 6.74"	46' 3.23"	10' 1.23"	58' 11.58"
10' 10.54"	24' 6.52"	10' 6.35"	26' 7.81"	10' 1.97"	29' 6.05"	9' 9.42"	33' 6.62"	9' 4.72"	39' 8.28"
10' 4.3"	21' 10.85"	10' 0.51"	23' 6.68"	9' 8.54"	25' 8.94"	9' 4.4"	28' 9.05"	9' 0.11"	33' 1.42"
9' 9.79"	19' 5.84"	9' 6.41"	20' 9.29"	9' 2.85"	22' 5.34"	8' 11.12"	24' 8.19"	8' 7.24"	27' 9.68"
9' 3.01"	17' 3.16"	9' 0.03"	18' 3.1"	8' 8.87"	19' 6.31"	8' 5.55"	21' 2.2"	8' 2.08"	23' 5.09"
8' 7.94"	15' 2.55"	8' 5.34"	15' 11.67"	8' 2.58"	16' 11.1"	7' 11.67"	18' 1.73"	7' 8.61"	19' 8.97"
8' 0.56"	13' 3.78"	7' 10.34"	13' 10.64"	7' 7.97"	14' 7.11"	7' 5.45"	15' 5.75"	7' 2.8"	16' 7.41"
7' 8.75"	12' 5.02"	7' 6.71"	12' 10.93"	7' 4.53"	13' 6.18"	7' 2.21"	14' 3.2"	6' 11.76"	15' 2.65"
7' 4.85"	11' 6.65"	7' 2.99"	11' 11.71"	7' 0.99"	12' 5.88"	6' 10.87"	13' 1.49"	6' 8.62"	13' 11.06"
7' 0.86"	10' 8.64"	6' 11.18"	11' 0.95"	6' 9.36"	11' 6.17"	6' 7.43"	12' 0.56"	6' 5.38"	12' 8.51"
6' 8.78"	9' 10.98"	6' 7.27"	10' 2.62"	6' 5.63"	10' 7.01"	6' 3.89"	11' 0.33"	6' 2.03"	11' 6.9"
6' 4.61"	9' 1.65"	6' 3.26"	9' 4.7"	6' 1.8"	9' 8.35"	6' 0.23"	10' 0.76"	5' 10.56"	10' 6.15"
6' 0.34"	8' 4.63"	5' 11.14"	8' 7.17"	5' 9.85"	8' 10.18"	5' 8.47"	9' 1.79"	5' 6.98"	9' 6.17"
5' 7.96"	7' 7.91"	5' 6.92"	7' 9.99"	5' 5.8"	8' 0.45"	5' 4.58"	8' 3.38"	5' 3.27"	8' 6.9"
5' 3.48"	6' 11.47"	5' 2.59"	7' 1.16"	5' 1.62"	7' 3.14"	5' 0.57"	7' 5.48"	4' 11.43"	7' 8.28"
4' 10.9"	6' 3.3"	4' 10.14"	6' 4.65"	4' 9.32"	6' 6.21"	4' 8.42"	6' 8.06"	4' 7.45"	6' 10.25"
4' 6.19"	5' 7.39"	4' 5.57"	5' 8.44"	4' 4.88"	5' 9.66"	4' 4.14"	5' 11.08"	4' 3.33"	6' 0.76"
4' 3.8"	5' 3.53"	4' 3.23"	5' 4.45"	4' 2.62"	5' 5.51"	4' 1.94"	5' 6.75"	4' 1.21"	5' 8.21"
4' 1.37"	4' 11.73"	4' 0.87"	5' 0.52"	4' 0.31"	5' 1.45"	3' 11.71"	5' 2.52"	3' 11.05"	5' 3.78"
3' 10.92"	4' 7.98"	3' 10.47"	4' 8.67"	3' 9.98"	4' 9.46"	3' 9.44"	4' 10.38"	3' 8.85"	4' 11.46"
3' 8.43"	4' 4.3"	3' 8.04"	4' 4.88"	3' 7.6"	4' 5.56"	3' 7.13"	4' 6.34"	3' 6.61"	4' 7.25"
3' 5.91"	4' 0.66"	3' 5.57"	4' 1.16"	3' 5.19"	4' 1.73"	3' 4.78"	4' 2.39"	3' 4.32"	4' 3.15"
3' 3.36"	3' 9.09"	3' 3.07"	3' 9.5"	3' 2.74"	3' 9.98"	3' 2.38"	3' 10.52"	3' 1.99"	3' 11.16"
3' 0.78"	3' 5.56"	3' 0.53"	3' 5.9"	3' 0.25"	3' 6.29"	2' 11.95"	3' 6.74"	2' 11.61"	3' 7.26"
2' 10.17"	3' 2.09"	2' 9.96"	3' 2.37"	2' 9.72"	3' 2.68"	2' 9.47"	3' 3.04"	2' 9.19"	3' 3.46"
2' 7.51"	2' 10.67"	2' 7.34"	2' 10.89"	2' 7.15"	2' 11.14"	2' 6.95"	2' 11.42"	2' 6.72"	2' 11.75"
2' 4.83"	2' 7.3"	2' 4.69"	2' 7.47"	2' 4.54"	2' 7.66"	2' 4.38"	2' 7.88"	2' 4.19"	2' 8.13"
2' 2.11"	2' 3.98"	2' 2"	2' 4.1"	2' 1.89"	2' 4.24"	2' 1.76"	2' 4.41"	2' 1.62"	2' 4.59"
1' 11.35"	2' 0.7"	1' 11.27"	2' 0.79"	1' 11.19"	2' 0.89"	1' 11.09"	2' 1.01"	1' 10.99"	2' 1.14"
1' 8.56"	1' 9.47"	1' 8.5"	1' 9.53"	1' 8.44"	1' 9.6"	1' 8.38"	1' 9.68"	1' 8.31"	1' 9.76"
1' 6.67"	1' 7.35"	1' 6.63"	1' 7.39"	1' 6.59"	1' 7.44"	1' 6.54"	1' 7.49"	1' 6.49"	1' 7.56"



16	18	20	22
20' 11.34"	18' 8.76"	16' 9.1"	15' 0.04"

16		18		20		22	
Short Focus (ft-inch)	Long Focus (ft-inch)	Short Focus (ft-inch)	Long Focus (ft-inch)	Short Focus (ft-inch)	Long Focus (ft-inch)	Short Focus (ft-inch)	Long Focus (ft-inch)
20' 9.42"	Infinity	18' 6.85"	Infinity	16' 7.18"	Infinity	14' 10.09"	Infinity
17' 10.31"	Infinity	16' 2.56"	Infinity	14' 8.43"	Infinity	13' 3.82"	Infinity
15' 7.86"	Infinity	14' 4.64"	Infinity	13' 2.33"	Infinity	12' 0.94"	Infinity
13' 11.22"	Infinity	12' 11.16"	Infinity	11' 11.6"	Infinity	11' 0.59"	Infinity
12' 6.66"	Infinity	11' 8.88"	Infinity	10' 11.38"	Infinity	10' 2.18"	Infinity
11' 7.6"	Infinity	10' 11.22"	Infinity	10' 3"	Infinity	9' 6.96"	Infinity
10' 5.74"	419' 1.38"	9' 10.98"	Infinity	9' 4.25"	Infinity	8' 9.59"	Infinity
9' 7.62"	85' 4.75"	9' 1.93"	172' 10.11"	8' 8.22"	Infinity	8' 2.5"	Infinity
8' 11.89"	50' 0.12"	8' 6.97"	70' 9.37"	8' 1.98"	133' 3.88"	7' 8.96"	Infinity
8' 7.68"	39' 11.5"	8' 3.15"	52' 1.26"	7' 10.54"	79' 4.14"	7' 5.88"	193' 11.38"
8' 3.22"	32' 5.25"	7' 11.09"	39' 11.35"	7' 6.87"	54' 1.01"	7' 2.58"	90' 1.76"
7' 10.47"	26' 7.18"	7' 6.75"	31' 4.79"	7' 2.92"	39' 5.27"	6' 11.02"	55' 6.02"
7' 5.42"	21' 11.19"	7' 2.1"	25' 0.76"	6' 10.68"	29' 10.56"	6' 7.17"	38' 2.04"
7' 0.02"	18' 1.44"	6' 9.11"	20' 2.15"	6' 6.1"	23' 1.79"	6' 2.99"	27' 9.22"
6' 9.18"	16' 5.56"	6' 6.48"	18' 1.6"	6' 3.67"	20' 5.75"	6' 0.77"	23' 11.83"
6' 6.24"	14' 11.35"	6' 3.75"	16' 3.58"	6' 1.15"	18' 1.84"	5' 10.45"	20' 10"
6' 3.2"	13' 6.59"	6' 0.91"	14' 7.71"	5' 10.52"	16' 1.31"	5' 8.03"	18' 1.99"
6' 0.05"	12' 3.14"	5' 9.96"	13' 1.69"	5' 7.77"	14' 3.58"	5' 5.49"	15' 10.54"
5' 8.78"	11' 0.83"	5' 6.9"	11' 9.27"	5' 4.91"	12' 8.19"	5' 2.83"	13' 10.76"
5' 5.39"	9' 11.55"	5' 3.71"	10' 6.26"	5' 1.92"	11' 2.8"	5' 0.05"	12' 1.95"
5' 1.87"	8' 11.18"	5' 0.38"	9' 4.47"	4' 10.8"	9' 11.09"	4' 9.13"	10' 7.59"
4' 10.21"	7' 11.65"	4' 8.91"	8' 3.76"	4' 7.52"	8' 8.85"	4' 6.05"	9' 3.27"
4' 6.41"	7' 0.86"	4' 5.29"	7' 4.02"	4' 4.1"	7' 7.87"	4' 2.82"	8' 0.66"
4' 2.46"	6' 2.75"	4' 1.51"	6' 5.13"	4' 0.5"	6' 8"	3' 11.42"	6' 11.51"
4' 0.42"	5' 9.93"	3' 11.56"	5' 11.98"	3' 10.64"	6' 2.43"	3' 9.65"	6' 5.42"
3' 10.33"	5' 5.25"	3' 9.56"	5' 7"	3' 8.73"	5' 9.1"	3' 7.83"	5' 11.62"
3' 8.21"	5' 0.72"	3' 7.52"	5' 2.2"	3' 6.77"	5' 3.97"	3' 5.96"	5' 6.09"
3' 6.04"	4' 8.32"	3' 5.42"	4' 9.57"	3' 4.76"	4' 11.04"	3' 4.04"	5' 0.81"
3' 3.82"	4' 4.04"	3' 3.28"	4' 5.08"	3' 2.69"	4' 6.31"	3' 2.06"	4' 7.76"
3' 1.56"	3' 11.89"	3' 1.09"	4' 0.75"	3' 0.58"	4' 1.75"	3' 0.02"	4' 2.94"
2' 11.24"	3' 7.86"	2' 10.84"	3' 8.55"	2' 10.4"	3' 9.36"	2' 9.93"	3' 10.32"
2' 8.88"	3' 3.94"	2' 8.54"	3' 4.49"	2' 8.17"	3' 5.14"	2' 7.77"	3' 5.89"
2' 6.46"	3' 0.12"	2' 6.18"	3' 0.56"	2' 5.88"	3' 1.06"	2' 5.54"	3' 1.64"
2' 3.99"	2' 8.41"	2' 3.77"	2' 8.74"	2' 3.52"	2' 9.12"	2' 3.25"	2' 9.56"
2' 1.46"	2' 4.8"	2' 1.29"	2' 5.05"	2' 1.1"	2' 5.32"	2' 0.89"	2' 5.64"
1' 10.87"	2' 1.29"	1' 10.74"	2' 1.46"	1' 10.6"	2' 1.65"	1' 10.45"	2' 1.88"
1' 8.23"	1' 9.86"	1' 8.14"	1' 9.98"	1' 8.04"	1' 10.1"	1' 7.93"	1' 10.25"
1' 6.43"	1' 7.63"	1' 6.36"	1' 7.71"	1' 6.28"	1' 7.8"	1' 6.2"	1' 7.91"



Focal Length 65 mm

Circle of Confusion 0.025 mm

T/No	1.8	2	2.2	2.5
Hyperfocal Distance (ft-inch)	340' 7.52"	303' 6.4"	270' 5.83"	241' 0.52"

T/No	1.8		2		2.2		2.5	
Focus Distance (ft-inch)	Short Focus (ft-inch)	Long Focus (ft-inch)	Short Focus (ft-inch)	Long Focus (ft-inch)	Short Focus (ft-inch)	Long Focus (ft-inch)	Short Focus (ft-inch)	Long Focus (ft-inch)
Infinity	340' 4.45"	Infinity	303' 3.41"	Infinity	270' 2.92"	Infinity	240' 9.67"	Infinity
200' 0"	126' 2.68"	482' 11.61"	120' 9.3"	584' 4.21"	115' 2.35"	764' 6.66"	109' 6.22"	1169' 6.34"
100' 0"	77' 5.71"	141' 1.53"	75' 4.79"	148' 7.48"	73' 2.36"	158' 0.58"	70' 10.49"	170' 1.99"
50' 0"	43' 8.54"	58' 5.09"	43' 0.6"	59' 7.88"	42' 3.97"	61' 1.25"	41' 6.61"	62' 9.79"
40' 0"	35' 10.7"	45' 2.22"	35' 5.35"	45' 10.98"	34' 11.51"	46' 9.15"	34' 5.15"	47' 9.04"
30' 0"	27' 7.76"	32' 9.57"	27' 4.61"	33' 2.13"	27' 1.15"	33' 7.37"	26' 9.34"	34' 1.42"
25' 0"	23' 4.26"	26' 10.78"	23' 2.03"	27' 1.82"	22' 11.56"	27' 5.3"	22' 8.84"	27' 9.29"
20' 0"	18' 11.33"	21' 2.2"	18' 9.87"	21' 4.06"	18' 8.26"	21' 6.18"	18' 6.47"	21' 8.6"
17' 0"	16' 2.85"	17' 10.07"	16' 1.79"	17' 11.37"	16' 0.61"	18' 0.86"	15' 11.31"	18' 2.55"
15' 0"	14' 4.9"	15' 7.73"	14' 4.07"	15' 8.72"	14' 3.15"	15' 9.85"	14' 2.12"	15' 11.13"
14' 0"	13' 5.83"	14' 6.68"	13' 5.11"	14' 7.53"	13' 4.3"	14' 8.5"	13' 3.41"	14' 9.6"
13' 0"	12' 6.7"	13' 5.7"	12' 6.07"	13' 6.43"	12' 5.38"	13' 7.26"	12' 4.61"	13' 8.2"
12' 0"	11' 7.5"	12' 4.81"	11' 6.97"	12' 5.42"	11' 6.38"	12' 6.12"	11' 5.72"	12' 6.9"
11' 0"	10' 8.24"	11' 4"	10' 7.79"	11' 4.51"	10' 7.3"	11' 5.08"	10' 6.74"	11' 5.73"
10' 0"	9' 8.91"	10' 3.26"	9' 8.55"	10' 3.67"	9' 8.14"	10' 4.14"	9' 7.68"	10' 4.67"
9' 6"	9' 3.23"	9' 8.92"	9' 2.9"	9' 9.29"	9' 2.53"	9' 9.71"	9' 2.12"	9' 10.18"
9' 0"	8' 9.52"	9' 2.6"	8' 9.23"	9' 2.93"	8' 8.9"	9' 3.3"	8' 8.53"	9' 3.72"
8' 6"	8' 3.8"	8' 8.3"	8' 3.54"	8' 8.59"	8' 3.25"	8' 8.92"	8' 2.92"	8' 9.29"
8' 0"	7' 10.07"	8' 2.02"	7' 9.84"	8' 2.27"	7' 9.58"	8' 2.56"	7' 9.29"	8' 2.88"
7' 6"	7' 4.31"	7' 7.75"	7' 4.11"	7' 7.97"	7' 3.89"	7' 8.22"	7' 3.64"	7' 8.5"
7' 0"	6' 10.55"	7' 1.51"	6' 10.37"	7' 1.7"	6' 10.18"	7' 1.91"	6' 9.96"	7' 2.15"
6' 9"	6' 7.65"	6' 10.39"	6' 7.49"	6' 10.57"	6' 7.31"	6' 10.77"	6' 7.11"	6' 10.99"
6' 6"	6' 4.76"	6' 7.28"	6' 4.61"	6' 7.44"	6' 4.44"	6' 7.63"	6' 4.26"	6' 7.83"
6' 3"	6' 1.86"	6' 4.18"	6' 1.72"	6' 4.33"	6' 1.57"	6' 4.49"	6' 1.4"	6' 4.68"
6' 0"	5' 10.96"	6' 1.08"	5' 10.83"	6' 1.21"	5' 10.69"	6' 1.36"	5' 10.53"	6' 1.53"
5' 9"	5' 8.05"	5' 9.98"	5' 7.93"	5' 10.1"	5' 7.81"	5' 10.24"	5' 7.66"	5' 10.39"
5' 6"	5' 5.14"	5' 6.89"	5' 5.03"	5' 7"	5' 4.92"	5' 7.12"	5' 4.79"	5' 7.26"
5' 3"	5' 2.22"	5' 3.8"	5' 2.13"	5' 3.9"	5' 2.02"	5' 4.01"	5' 1.9"	5' 4.14"
5' 0"	4' 11.3"	5' 0.72"	4' 11.22"	5' 0.81"	4' 11.12"	5' 0.91"	4' 11.02"	5' 1.02"
4' 11"	4' 10.33"	4' 11.69"	4' 10.25"	4' 11.78"	4' 10.15"	4' 11.87"	4' 10.05"	4' 11.98"
4' 10"	4' 9.35"	4' 10.66"	4' 9.27"	4' 10.75"	4' 9.19"	4' 10.84"	4' 9.09"	4' 10.94"
4' 9"	4' 8.38"	4' 9.64"	4' 8.3"	4' 9.72"	4' 8.22"	4' 9.81"	4' 8.12"	4' 9.91"
4' 8"	4' 7.4"	4' 8.61"	4' 7.33"	4' 8.69"	4' 7.25"	4' 8.78"	4' 7.16"	4' 8.87"
4' 7"	4' 6.42"	4' 7.59"	4' 6.35"	4' 7.66"	4' 6.28"	4' 7.74"	4' 6.19"	4' 7.84"
4' 6"	4' 5.45"	4' 6.57"	4' 5.38"	4' 6.64"	4' 5.31"	4' 6.71"	4' 5.22"	4' 6.8"
4' 5"	4' 4.47"	4' 5.54"	4' 4.41"	4' 5.61"	4' 4.33"	4' 5.68"	4' 4.25"	4' 5.77"
4' 4"	4' 3.49"	4' 4.52"	4' 3.43"	4' 4.58"	4' 3.36"	4' 4.66"	4' 3.29"	4' 4.74"
4' 3"	4' 2.51"	4' 3.5"	4' 2.46"	4' 3.56"	4' 2.39"	4' 3.63"	4' 2.32"	4' 3.7"
4' 2"	4' 1.54"	4' 2.47"	4' 1.48"	4' 2.53"	4' 1.42"	4' 2.6"	4' 1.35"	4' 2.67"
4' 1"	4' 0.56"	4' 1.45"	4' 0.5"	4' 1.51"	4' 0.44"	4' 1.57"	4' 0.38"	4' 1.64"
4' 0"	3' 11.58"	4' 0.43"	3' 11.53"	4' 0.48"	3' 11.47"	4' 0.55"	3' 11.4"	4' 0.61"
3' 11"	3' 10.6"	3' 11.41"	3' 10.55"	3' 11.46"	3' 10.49"	3' 11.52"	3' 10.43"	3' 11.58"
3' 10"	3' 9.62"	3' 10.39"	3' 9.57"	3' 10.44"	3' 9.52"	3' 10.49"	3' 9.46"	3' 10.56"
3' 9"	3' 8.64"	3' 9.37"	3' 8.59"	3' 9.42"	3' 8.54"	3' 9.47"	3' 8.49"	3' 9.53"
3' 8"	3' 7.65"	3' 8.35"	3' 7.61"	3' 8.4"	3' 7.56"	3' 8.44"	3' 7.51"	3' 8.5"
3' 7"	3' 6.67"	3' 7.33"	3' 6.63"	3' 7.38"	3' 6.59"	3' 7.42"	3' 6.54"	3' 7.47"
3' 6"	3' 5.69"	3' 6.32"	3' 5.65"	3' 6.35"	3' 5.61"	3' 6.4"	3' 5.56"	3' 6.45"
3' 5"	3' 4.71"	3' 5.3"	3' 4.67"	3' 5.34"	3' 4.63"	3' 5.38"	3' 4.59"	3' 5.42"
3' 4"	3' 3.72"	3' 4.28"	3' 3.69"	3' 4.32"	3' 3.65"	3' 4.36"	3' 3.61"	3' 4.4"
3' 3"	3' 2.74"	3' 3.26"	3' 2.71"	3' 3.3"	3' 2.67"	3' 3.33"	3' 2.63"	3' 3.38"
3' 2"	3' 1.75"	3' 2.25"	3' 1.73"	3' 2.28"	3' 1.69"	3' 2.31"	3' 1.65"	3' 2.35"
3' 1"	3' 0.77"	3' 1.23"	3' 0.74"	3' 1.26"	3' 0.71"	3' 1.29"	3' 0.68"	3' 1.33"
3' 0"	2' 11.78"	3' 0.22"	2' 11.76"	3' 0.25"	2' 11.73"	3' 0.28"	2' 11.7"	3' 0.31"
2' 11"	2' 10.8"	2' 11.2"	2' 10.77"	2' 11.23"	2' 10.75"	2' 11.26"	2' 10.72"	2' 11.29"
2' 10"	2' 9.81"	2' 10.19"	2' 9.79"	2' 10.21"	2' 9.76"	2' 10.24"	2' 9.74"	2' 10.27"
2' 9"	2' 8.83"	2' 9.18"	2' 8.8"	2' 9.2"	2' 8.78"	2' 9.22"	2' 8.75"	2' 9.25"
2' 8"	2' 7.84"	2' 8.16"	2' 7.82"	2' 8.18"	2' 7.8"	2' 8.21"	2' 7.77"	2' 8.23"
2' 7"	2' 6.85"	2' 7.15"	2' 6.83"	2' 7.17"	2' 6.81"	2' 7.19"	2' 6.79"	2' 7.21"
2' 6"	2' 5.86"	2' 6.14"	2' 5.85"	2' 6.16"	2' 5.83"	2' 6.18"	2' 5.81"	2' 6.2"
2' 5"	2' 4.87"	2' 5.13"	2' 4.86"	2' 5.14"	2' 4.84"	2' 5.16"	2' 4.82"	2' 5.18"
2' 4"	2' 3.88"	2' 4.12"	2' 3.87"	2' 4.13"	2' 3.86"	2' 4.15"	2' 3.84"	2' 4.16"



2' 3"	2' 2.9"	2' 3.11"	2' 2.88"	2' 3.12"	2' 2.87"	2' 3.13"	2' 2.85"	2' 3.15"
2' 2"	2' 1.91"	2' 2.1"	2' 1.89"	2' 2.11"	2' 1.88"	2' 2.12"	2' 1.87"	2' 2.14"



2.8	3.2	3.5	4	4.5
214' 9.76"	191' 5.36"	170' 7.52"	152' 0.96"	135' 6.69"

2.8		3.2		3.5		4		4.5	
Short Focus (ft-inch)	Long Focus (ft-inch)	Short Focus (ft-inch)	Long Focus (ft-inch)	Short Focus (ft-inch)	Long Focus (ft-inch)	Short Focus (ft-inch)	Long Focus (ft-inch)	Short Focus (ft-inch)	Long Focus (ft-inch)
214' 6.96"	Infinity	191' 2.58"	Infinity	170' 4.79"	Infinity	151' 10.25"	Infinity	135' 3.98"	Infinity
103' 9.35"	2886' 2.33"	98' 0.2"	Infinity	92' 3.23"	Infinity	86' 6.88"	Infinity	80' 11.61"	Infinity
68' 5.26"	186' 2.34"	65' 10.76"	208' 2.66"	63' 3.13"	240' 1.45"	60' 6.53"	290' 0.26"	57' 9.14"	378' 3.9"
40' 8.52"	64' 10.26"	39' 9.68"	67' 3.71"	38' 10.07"	70' 3.56"	37' 9.7"	73' 11.81"	36' 8.59"	78' 7.4"
33' 10.23"	48' 11"	33' 2.74"	50' 3.51"	32' 6.66"	51' 11.19"	31' 9.98"	53' 10.89"	31' 0.69"	56' 3.74"
26' 5.18"	34' 8.43"	26' 0.63"	35' 4.6"	25' 7.69"	36' 2.16"	25' 2.32"	37' 1.43"	24' 8.52"	38' 2.8"
22' 5.85"	28' 1.89"	22' 2.58"	28' 7.21"	21' 11"	29' 1.38"	21' 7.1"	29' 8.59"	21' 2.86"	30' 5.05"
18' 4.5"	21' 11.38"	18' 2.33"	22' 2.56"	17' 11.95"	22' 6.23"	17' 9.34"	22' 10.48"	17' 6.49"	23' 3.41"
15' 9.86"	18' 4.48"	15' 8.27"	18' 6.68"	15' 6.51"	18' 9.22"	15' 4.58"	19' 0.13"	15' 2.46"	19' 3.49"
14' 0.99"	16' 0.59"	13' 11.74"	16' 2.26"	13' 10.35"	16' 4.17"	13' 8.83"	16' 6.36"	13' 7.15"	16' 8.87"
13' 2.42"	14' 10.86"	13' 1.32"	15' 0.29"	13' 0.11"	15' 1.92"	12' 10.77"	15' 3.79"	12' 9.3"	15' 5.94"
12' 3.75"	13' 9.26"	12' 2.8"	13' 10.47"	12' 1.75"	13' 11.86"	12' 0.59"	14' 1.44"	11' 11.31"	14' 3.25"
11' 4.99"	12' 7.8"	11' 4.18"	12' 8.81"	11' 3.28"	12' 9.97"	11' 2.29"	12' 11.29"	11' 1.19"	13' 0.8"
10' 6.13"	11' 6.47"	10' 5.45"	11' 7.3"	10' 4.69"	11' 8.26"	10' 3.86"	11' 9.34"	10' 2.93"	11' 10.58"
9' 7.18"	10' 5.27"	9' 6.61"	10' 5.94"	9' 5.99"	10' 6.71"	9' 5.29"	10' 7.59"	9' 4.53"	10' 8.59"
9' 1.66"	9' 10.71"	9' 1.15"	9' 11.32"	9' 0.59"	10'	8' 11.96"	10' 0.79"	8' 11.27"	10' 1.68"
8' 8.12"	9' 4.19"	8' 7.67"	9' 4.73"	8' 7.16"	9' 5.34"	8' 6.6"	9' 6.03"	8' 5.98"	9' 6.82"
8' 2.56"	8' 9.7"	8' 2.15"	8' 10.18"	8' 1.7"	8' 10.71"	8' 1.2"	8' 11.32"	8' 0.65"	9' 0.01"
7' 8.97"	8' 3.25"	7' 8.61"	8' 3.66"	7' 8.21"	8' 4.13"	7' 7.77"	8' 4.66"	7' 7.28"	8' 5.26"
7' 3.36"	7' 8.82"	7' 3.04"	7' 9.18"	7' 2.69"	7' 9.58"	7' 2.31"	7' 10.04"	7' 1.88"	7' 10.57"
6' 9.72"	7' 2.42"	6' 9.44"	7' 2.73"	6' 9.14"	7' 3.08"	6' 8.81"	7' 3.47"	6' 8.43"	7' 3.92"
6' 6.89"	6' 11.24"	6' 6.64"	6' 11.52"	6' 6.36"	6' 11.84"	6' 6.04"	7' 0.2"	6' 5.7"	7' 0.62"
6' 4.05"	6' 8.06"	6' 3.82"	6' 8.32"	6' 3.56"	6' 8.61"	6' 3.27"	6' 8.95"	6' 2.95"	6' 9.32"
6' 1.21"	6' 4.89"	6' 0.99"	6' 5.13"	6' 0.76"	6' 5.4"	6' 0.49"	6' 5.7"	6' 0.2"	6' 6.05"
5' 10.36"	6' 1.73"	5' 10.16"	6' 1.94"	5' 9.95"	6' 2.19"	5' 9.7"	6' 2.47"	5' 9.43"	6' 2.78"
5' 7.5"	5' 10.57"	5' 7.33"	5' 10.77"	5' 7.13"	5' 10.99"	5' 6.9"	5' 11.24"	5' 6.66"	5' 11.53"
5' 4.64"	5' 7.42"	5' 4.48"	5' 7.6"	5' 4.3"	5' 7.8"	5' 4.1"	5' 8.03"	5' 3.87"	5' 8.29"
5' 1.77"	5' 4.28"	5' 1.63"	5' 4.44"	5' 1.46"	5' 4.62"	5' 1.28"	5' 4.83"	5' 1.08"	5' 5.06"
4' 10.9"	5' 1.15"	4' 10.77"	5' 1.29"	4' 10.62"	5' 1.45"	4' 10.45"	5' 1.64"	4' 10.27"	5' 1.84"
4' 9.94"	5' 0.1"	4' 9.81"	5' 0.24"	4' 9.67"	5' 0.4"	4' 9.51"	5' 0.58"	4' 9.33"	5' 0.78"
4' 8.98"	4' 11.06"	4' 8.86"	4' 11.2"	4' 8.72"	4' 11.35"	4' 8.57"	4' 11.52"	4' 8.4"	4' 11.71"
4' 8.02"	4' 10.02"	4' 7.9"	4' 10.15"	4' 7.77"	4' 10.29"	4' 7.62"	4' 10.46"	4' 7.46"	4' 10.64"
4' 7.05"	4' 8.98"	4' 6.94"	4' 9.1"	4' 6.81"	4' 9.24"	4' 6.67"	4' 9.4"	4' 6.52"	4' 9.58"
4' 6.09"	4' 7.94"	4' 5.98"	4' 8.06"	4' 5.86"	4' 8.19"	4' 5.73"	4' 8.34"	4' 5.57"	4' 8.51"
4' 5.13"	4' 6.9"	4' 5.02"	4' 7.02"	4' 4.91"	4' 7.14"	4' 4.78"	4' 7.29"	4' 4.63"	4' 7.45"
4' 4.16"	4' 5.87"	4' 4.06"	4' 5.97"	4' 3.95"	4' 6.1"	4' 3.83"	4' 6.23"	4' 3.69"	4' 6.39"
4' 3.2"	4' 4.83"	4' 3.1"	4' 4.93"	4' 3"	4' 5.05"	4' 2.88"	4' 5.18"	4' 2.74"	4' 5.33"
4' 2.23"	4' 3.79"	4' 2.14"	4' 3.89"	4' 2.04"	4' 4"	4' 1.92"	4' 4.13"	4' 1.8"	4' 4.27"
4' 1.27"	4' 2.76"	4' 1.18"	4' 2.85"	4' 1.08"	4' 2.96"	4' 0.97"	4' 3.08"	4' 0.85"	4' 3.21"
4' 0.3"	4' 1.72"	4' 0.22"	4' 1.81"	4' 0.12"	4' 1.91"	4' 0.02"	4' 2.03"	3' 11.9"	4' 2.16"
3' 11.33"	4' 0.69"	3' 11.25"	4' 0.77"	3' 11.16"	4' 0.87"	3' 11.06"	4' 0.98"	3' 10.95"	4' 1.1"
3' 10.36"	3' 11.66"	3' 10.29"	3' 11.74"	3' 10.2"	3' 11.83"	3' 10.11"	3' 11.93"	3' 10"	4' 0.05"
3' 9.39"	3' 10.62"	3' 9.32"	3' 10.7"	3' 9.24"	3' 10.79"	3' 9.15"	3' 10.89"	3' 9.05"	3' 11"
3' 8.42"	3' 9.59"	3' 8.35"	3' 9.67"	3' 8.28"	3' 9.75"	3' 8.19"	3' 9.84"	3' 8.09"	3' 9.95"
3' 7.45"	3' 8.56"	3' 7.39"	3' 8.63"	3' 7.31"	3' 8.71"	3' 7.23"	3' 8.8"	3' 7.14"	3' 8.9"
3' 6.48"	3' 7.53"	3' 6.42"	3' 7.6"	3' 6.35"	3' 7.67"	3' 6.27"	3' 7.76"	3' 6.18"	3' 7.85"
3' 5.51"	3' 6.5"	3' 5.45"	3' 6.57"	3' 5.38"	3' 6.64"	3' 5.31"	3' 6.72"	3' 5.23"	3' 6.81"
3' 4.54"	3' 5.48"	3' 4.48"	3' 5.53"	3' 4.42"	3' 5.6"	3' 4.35"	3' 5.68"	3' 4.27"	3' 5.76"
3' 3.56"	3' 4.45"	3' 3.51"	3' 4.5"	3' 3.45"	3' 4.57"	3' 3.38"	3' 4.64"	3' 3.31"	3' 4.72"
3' 2.59"	3' 3.42"	3' 2.54"	3' 3.47"	3' 2.48"	3' 3.53"	3' 2.42"	3' 3.6"	3' 2.35"	3' 3.68"
3' 1.61"	3' 2.4"	3' 1.57"	3' 2.45"	3' 1.51"	3' 2.5"	3' 1.45"	3' 2.56"	3' 1.39"	3' 2.63"
3' 0.64"	3' 1.37"	3' 0.59"	3' 1.42"	3' 0.54"	3' 1.47"	3' 0.49"	3' 1.53"	3' 0.43"	3' 1.59"
2' 11.66"	3' 0.35"	2' 11.62"	3' 0.39"	2' 11.57"	3' 0.44"	2' 11.52"	3' 0.49"	2' 11.46"	3' 0.56"
2' 10.68"	2' 11.32"	2' 10.64"	2' 11.37"	2' 10.6"	2' 11.41"	2' 10.55"	2' 11.46"	2' 10.5"	2' 11.52"
2' 9.7"	2' 10.3"	2' 9.67"	2' 10.34"	2' 9.63"	2' 10.38"	2' 9.58"	2' 10.43"	2' 9.53"	2' 10.48"
2' 8.72"	2' 9.28"	2' 8.69"	2' 9.32"	2' 8.65"	2' 9.35"	2' 8.61"	2' 9.4"	2' 8.57"	2' 9.45"
2' 7.74"	2' 8.26"	2' 7.71"	2' 8.29"	2' 7.68"	2' 8.33"	2' 7.64"	2' 8.37"	2' 7.6"	2' 8.42"
2' 6.76"	2' 7.24"	2' 6.74"	2' 7.27"	2' 6.7"	2' 7.3"	2' 6.67"	2' 7.34"	2' 6.63"	2' 7.38"
2' 5.78"	2' 6.22"	2' 5.76"	2' 6.25"	2' 5.73"	2' 6.28"	2' 5.69"	2' 6.31"	2' 5.66"	2' 6.35"
2' 4.8"	2' 5.2"	2' 4.78"	2' 5.23"	2' 4.75"	2' 5.26"	2' 4.72"	2' 5.29"	2' 4.69"	2' 5.32"
2' 3.82"	2' 4.19"	2' 3.8"	2' 4.21"	2' 3.77"	2' 4.23"	2' 3.74"	2' 4.26"	2' 3.71"	2' 4.3"



2' 2.83"	2' 3.17"	2' 2.81"	2' 3.19"	2' 2.79"	2' 3.21"	2' 2.77"	2' 3.24"	2' 2.74"	2' 3.27"
2' 1.85"	2' 2.15"	2' 1.83"	2' 2.17"	2' 1.81"	2' 2.19"	2' 1.79"	2' 2.22"	2' 1.76"	2' 2.24"



5	5.6	6.3	7.1	8
120' 10.04"	107' 8.64"	96' 0.44"	85' 7.56"	76' 4.26"

5		5.6		6.3		7.1		8	
Short Focus (ft-inch)	Long Focus (ft-inch)	Short Focus (ft-inch)	Long Focus (ft-inch)	Short Focus (ft-inch)	Long Focus (ft-inch)	Short Focus (ft-inch)	Long Focus (ft-inch)	Short Focus (ft-inch)	Long Focus (ft-inch)
120' 7.35"	Infinity	107' 5.98"	Infinity	95' 9.78"	Infinity	85' 4.88"	Infinity	76' 1.6"	Infinity
75' 5.81"	Infinity	70' 1.87"	Infinity	65' 0.11"	Infinity	60' 0.81"	Infinity	55' 4.21"	Infinity
54' 11.16"	574' 11.56"	52' 0.8"	1381' 8.2"	49' 2.3"	Infinity	46' 3.88"	Infinity	43' 5.76"	Infinity
35' 6.75"	84' 6.76"	34' 4.22"	92' 5"	33' 1.07"	103' 2.17"	31' 9.35"	118' 8.62"	30' 5.14"	142' 10.79"
30' 2.79"	59' 3.39"	29' 4.29"	63' 0.2"	28' 5.22"	67' 9.79"	27' 5.61"	74' 1.93"	26' 5.49"	82' 10.5"
24' 2.28"	39' 6.81"	23' 7.57"	41' 2.19"	23' 0.42"	43' 1.93"	22' 4.81"	45' 7.48"	21' 8.77"	48' 8.99"
20' 10.26"	31' 3.04"	20' 5.3"	32' 2.94"	19' 11.96"	33' 5.24"	19' 6.25"	34' 10.62"	19' 0.15"	36' 8.04"
17' 3.37"	23' 9.16"	16' 11.99"	24' 3.91"	16' 8.33"	24' 11.89"	16' 4.37"	25' 9.39"	16' 0.11"	26' 8.81"
15' 0.14"	19' 7.39"	14' 9.6"	19' 11.93"	14' 6.84"	20' 5.24"	14' 3.85"	20' 11.49"	14' 0.61"	21' 6.91"
13' 5.3"	16' 11.77"	13' 3.28"	17' 3.14"	13' 1.08"	17' 7.05"	12' 10.68"	17' 11.63"	12' 8.07"	18' 5.01"
12' 7.68"	15' 8.41"	12' 5.9"	15' 11.27"	12' 3.95"	16' 2.58"	12' 1.83"	16' 6.44"	11' 11.53"	16' 10.97"
11' 9.9"	14' 5.33"	11' 8.35"	14' 7.73"	11' 6.66"	14' 10.51"	11' 4.8"	15' 1.73"	11' 2.78"	15' 5.5"
10' 11.98"	13' 2.53"	10' 10.65"	13' 4.52"	10' 9.19"	13' 6.82"	10' 7.59"	13' 9.48"	10' 5.84"	14' 0.58"
10' 1.91"	12'	10' 0.78"	12' 1.63"	9' 11.54"	12' 3.5"	9' 10.18"	12' 5.66"	9' 8.69"	12' 8.17"
9' 3.68"	10' 9.73"	9' 2.74"	10' 11.04"	9' 1.71"	11' 0.53"	9' 0.57"	11' 2.26"	8' 11.33"	11' 4.25"
8' 10.5"	10' 2.69"	8' 9.66"	10' 3.85"	8' 8.72"	10' 5.18"	8' 7.69"	10' 6.71"	8' 6.56"	10' 8.47"
8' 5.29"	9' 7.72"	8' 4.53"	9' 8.74"	8' 3.68"	9' 9.91"	8' 2.76"	9' 11.26"	8' 1.74"	10' 0.81"
8' 0.03"	9' 0.8"	7' 11.35"	9' 1.7"	7' 10.6"	9' 2.73"	7' 9.77"	9' 3.91"	7' 8.86"	9' 5.26"
7' 6.74"	8' 5.95"	7' 6.13"	8' 6.73"	7' 5.47"	8' 7.63"	7' 4.73"	8' 8.65"	7' 3.92"	8' 9.82"
7' 1.4"	7' 11.16"	7' 0.87"	7' 11.83"	7' 0.28"	8' 0.6"	6' 11.64"	8' 1.48"	6' 10.92"	8' 2.49"
6' 8.02"	7' 4.43"	6' 7.56"	7' 5"	6' 7.05"	7' 5.66"	6' 6.49"	7' 6.41"	6' 5.86"	7' 7.26"
6' 5.31"	7' 1.08"	6' 4.89"	7' 1.61"	6' 4.41"	7' 2.22"	6' 3.89"	7' 2.9"	6' 3.31"	7' 3.69"
6' 2.6"	6' 9.75"	6' 2.2"	6' 10.24"	6' 1.76"	6' 10.79"	6' 1.28"	6' 11.42"	6' 0.74"	7' 0.14"
5' 11.87"	6' 6.44"	5' 11.5"	6' 6.88"	5' 11.1"	6' 7.39"	5' 10.65"	6' 7.96"	5' 10.16"	6' 8.62"
5' 9.13"	6' 3.14"	5' 8.8"	6' 3.54"	5' 8.42"	6' 4"	5' 8.01"	6' 4.52"	5' 7.56"	6' 5.12"
5' 6.38"	5' 11.85"	5' 6.08"	6' 0.22"	5' 5.74"	6' 0.63"	5' 5.36"	6' 1.11"	5' 4.94"	6' 1.65"
5' 3.62"	5' 8.58"	5' 3.34"	5' 8.91"	5' 3.03"	5' 9.29"	5' 2.69"	5' 9.71"	5' 2.31"	5' 10.2"
5' 0.85"	5' 5.32"	5' 0.6"	5' 5.62"	5' 0.32"	5' 5.96"	5'	5' 6.34"	4' 11.66"	5' 6.77"
4' 10.07"	5' 2.08"	4' 9.84"	5' 2.34"	4' 9.59"	5' 2.64"	4' 9.31"	5' 2.99"	4' 8.99"	5' 3.37"
4' 9.14"	5' 1"	4' 8.92"	5' 1.26"	4' 8.67"	5' 1.54"	4' 8.4"	5' 1.87"	4' 8.1"	5' 2.25"
4' 8.21"	4' 11.92"	4' 7.99"	5' 0.17"	4' 7.76"	5' 0.45"	4' 7.5"	5' 0.76"	4' 7.21"	5' 1.12"
4' 7.27"	4' 10.85"	4' 7.07"	4' 11.08"	4' 6.84"	4' 11.35"	4' 6.59"	4' 11.65"	4' 6.31"	5'
4' 6.34"	4' 9.78"	4' 6.14"	4' 10"	4' 5.93"	4' 10.26"	4' 5.68"	4' 10.55"	4' 5.41"	4' 10.88"
4' 5.4"	4' 8.7"	4' 5.22"	4' 8.92"	4' 5.01"	4' 9.17"	4' 4.77"	4' 9.44"	4' 4.51"	4' 9.76"
4' 4.47"	4' 7.63"	4' 4.29"	4' 7.84"	4' 4.09"	4' 8.08"	4' 3.86"	4' 8.34"	4' 3.61"	4' 8.64"
4' 3.53"	4' 6.56"	4' 3.36"	4' 6.76"	4' 3.16"	4' 6.99"	4' 2.95"	4' 7.24"	4' 2.71"	4' 7.53"
4' 2.59"	4' 5.5"	4' 2.43"	4' 5.69"	4' 2.24"	4' 5.9"	4' 2.03"	4' 6.15"	4' 1.8"	4' 6.42"
4' 1.65"	4' 4.43"	4' 1.49"	4' 4.61"	4' 1.31"	4' 4.82"	4' 1.12"	4' 5.05"	4' 0.9"	4' 5.31"
4' 0.71"	4' 3.37"	4' 0.56"	4' 3.54"	4' 0.39"	4' 3.74"	4' 0.2"	4' 3.96"	3' 11.99"	4' 4.21"
3' 11.77"	4' 2.3"	3' 11.62"	4' 2.47"	3' 11.46"	4' 2.66"	3' 11.28"	4' 2.87"	3' 11.08"	4' 3.11"
3' 10.82"	4' 1.24"	3' 10.69"	4' 1.4"	3' 10.53"	4' 1.58"	3' 10.36"	4' 1.78"	3' 10.16"	4' 2.01"
3' 9.88"	4' 0.18"	3' 9.75"	4' 0.33"	3' 9.6"	4' 0.5"	3' 9.43"	4' 0.69"	3' 9.25"	4' 0.91"
3' 8.93"	3' 11.13"	3' 8.81"	3' 11.27"	3' 8.66"	3' 11.43"	3' 8.51"	3' 11.61"	3' 8.33"	3' 11.82"
3' 7.99"	3' 10.07"	3' 7.86"	3' 10.2"	3' 7.73"	3' 10.36"	3' 7.58"	3' 10.53"	3' 7.41"	3' 10.72"
3' 7.04"	3' 9.01"	3' 6.92"	3' 9.14"	3' 6.79"	3' 9.29"	3' 6.65"	3' 9.45"	3' 6.49"	3' 9.63"
3' 6.09"	3' 7.96"	3' 5.98"	3' 8.08"	3' 5.86"	3' 8.22"	3' 5.72"	3' 8.37"	3' 5.57"	3' 8.55"
3' 5.13"	3' 6.91"	3' 5.03"	3' 7.02"	3' 4.92"	3' 7.15"	3' 4.79"	3' 7.3"	3' 4.65"	3' 7.46"
3' 4.18"	3' 5.86"	3' 4.08"	3' 5.96"	3' 3.98"	3' 6.09"	3' 3.85"	3' 6.22"	3' 3.72"	3' 6.38"
3' 3.23"	3' 4.81"	3' 3.14"	3' 4.91"	3' 3.03"	3' 5.02"	3' 2.92"	3' 5.15"	3' 2.79"	3' 5.3"
3' 2.27"	3' 3.76"	3' 2.19"	3' 3.86"	3' 2.09"	3' 3.96"	3' 1.98"	3' 4.08"	3' 1.86"	3' 4.22"
3' 1.32"	3' 2.71"	3' 1.23"	3' 2.8"	3' 1.14"	3' 2.9"	3' 1.04"	3' 3.02"	3' 0.93"	3' 3.15"
3' 0.36"	3' 1.67"	3' 0.28"	3' 1.75"	3' 0.2"	3' 1.85"	3' 0.1"	3' 1.95"	2' 11.99"	3' 2.07"
2' 11.4"	3' 0.63"	2' 11.33"	3' 0.7"	2' 11.25"	3' 0.79"	2' 11.16"	3' 0.89"	2' 11.06"	3' 1"
2' 10.44"	2' 11.58"	2' 10.37"	2' 11.66"	2' 10.3"	2' 11.74"	2' 10.21"	2' 11.83"	2' 10.12"	2' 11.94"
2' 9.48"	2' 10.54"	2' 9.41"	2' 10.61"	2' 9.34"	2' 10.69"	2' 9.26"	2' 10.77"	2' 9.18"	2' 10.87"
2' 8.51"	2' 9.5"	2' 8.45"	2' 9.57"	2' 8.39"	2' 9.64"	2' 8.32"	2' 9.72"	2' 8.23"	2' 9.81"
2' 7.55"	2' 8.47"	2' 7.49"	2' 8.53"	2' 7.43"	2' 8.59"	2' 7.37"	2' 8.67"	2' 7.29"	2' 8.75"
2' 6.58"	2' 7.43"	2' 6.53"	2' 7.48"	2' 6.48"	2' 7.55"	2' 6.41"	2' 7.61"	2' 6.34"	2' 7.69"
2' 5.62"	2' 6.4"	2' 5.57"	2' 6.45"	2' 5.52"	2' 6.5"	2' 5.46"	2' 6.56"	2' 5.4"	2' 6.64"
2' 4.65"	2' 5.36"	2' 4.6"	2' 5.41"	2' 4.56"	2' 5.46"	2' 4.5"	2' 5.52"	2' 4.44"	2' 5.58"
2' 3.68"	2' 4.33"	2' 3.64"	2' 4.37"	2' 3.59"	2' 4.42"	2' 3.55"	2' 4.47"	2' 3.49"	2' 4.53"



2' 2.71"	2' 3.3"	2' 2.67"	2' 3.34"	2' 2.63"	2' 3.38"	2' 2.59"	2' 3.43"	2' 2.54"	2' 3.48"
2' 1.73"	2' 2.27"	2' 1.7"	2' 2.31"	2' 1.67"	2' 2.35"	2' 1.63"	2' 2.39"	2' 1.58"	2' 2.44"



9	10	11	13	14
68' 1.13"	60' 8.78"	54' 2.12"	48' 4"	43' 1.56"

9		10		11		13		14	
Short Focus (ft-inch)	Long Focus (ft-inch)	Short Focus (ft-inch)	Long Focus (ft-inch)	Short Focus (ft-inch)	Long Focus (ft-inch)	Short Focus (ft-inch)	Long Focus (ft-inch)	Short Focus (ft-inch)	Long Focus (ft-inch)
67' 10.46"	Infinity	60' 6.14"	Infinity	53' 11.46"	Infinity	48' 1.36"	Infinity	42' 10.9"	Infinity
50' 10.46"	Infinity	46' 7.7"	Infinity	42' 7.99"	Infinity	38' 11.35"	Infinity	35' 5.76"	Infinity
40' 8.18"	Infinity	37' 11.32"	Infinity	35' 3.39"	Infinity	32' 8.54"	Infinity	30' 2.92"	Infinity
29' 0.53"	185' 3.83"	27' 7.63"	278' 1.45"	26' 2.53"	636' 4.7"	24' 9.35"	Infinity	23' 4.2"	Infinity
25' 4.92"	95' 5.81"	24' 3.97"	115' 2.18"	23' 2.7"	149' 11.52"	22' 1.19"	227' 0.56"	20' 11.53"	538' 2.38"
21' 0.3"	52' 9.78"	20' 3.44"	58' 3.35"	19' 6.22"	65' 11.4"	18' 8.69"	77' 4.87"	17' 10.89"	96' 2.38"
18' 5.69"	38' 10.88"	17' 10.87"	41' 9.26"	17' 3.7"	45' 6.49"	16' 8.22"	50' 8.21"	16' 0.46"	58' 0.69"
15' 7.56"	27' 10.69"	15' 2.7"	29' 3.8"	14' 9.55"	31' 1.25"	14' 4.11"	33' 4.72"	13' 10.4"	36' 4.89"
13' 9.12"	22' 3.79"	13' 5.38"	23' 2.53"	13' 1.38"	24' 3.67"	12' 9.13"	25' 8.02"	12' 4.64"	27' 4.74"
12' 5.25"	18' 11.39"	12' 2.21"	19' 7.02"	11' 10.95"	20' 4.23"	11' 7.47"	21' 3.48"	11' 3.76"	22' 5.45"
11' 9.02"	17' 4.31"	11' 6.32"	17' 10.66"	11' 3.41"	18' 6.28"	11' 0.3"	19' 3.51"	10' 8.97"	20' 2.86"
11' 0.59"	15' 9.93"	10' 10.21"	16' 3.16"	10' 7.64"	16' 9.39"	10' 4.89"	17' 4.9"	10' 1.94"	18' 2.04"
10' 3.94"	14' 4.19"	10' 1.87"	14' 8.45"	9' 11.64"	15' 1.5"	9' 9.23"	15' 7.53"	9' 6.64"	16' 2.81"
9' 7.07"	12' 11.09"	9' 5.3"	13' 2.5"	9' 3.38"	13' 6.53"	9' 1.31"	13' 11.3"	8' 11.07"	14' 5.02"
8' 9.96"	11' 6.56"	8' 8.48"	11' 9.26"	8' 6.86"	12' 0.41"	8' 5.1"	12' 4.13"	8' 3.21"	12' 8.55"
8' 5.32"	10' 10.52"	8' 3.97"	11' 0.89"	8' 2.5"	11' 3.66"	8' 0.9"	11' 6.92"	7' 11.16"	11' 10.78"
8' 0.62"	10' 2.6"	7' 11.4"	10' 4.68"	7' 10.06"	10' 7.1"	7' 8.61"	10' 9.94"	7' 7.04"	11' 1.28"
7' 7.86"	9' 6.82"	7' 6.76"	9' 8.63"	7' 5.56"	9' 10.73"	7' 4.25"	10' 1.18"	7' 2.83"	10' 4.07"
7' 3.03"	8' 11.17"	7' 2.05"	9' 0.73"	7' 0.98"	9' 2.54"	6' 11.81"	9' 4.65"	6' 10.54"	9' 7.11"
6' 10.14"	8' 3.65"	6' 9.27"	8' 4.98"	6' 8.32"	8' 6.53"	6' 7.29"	8' 8.32"	6' 6.16"	8' 10.41"
6' 5.18"	7' 8.25"	6' 4.42"	7' 9.38"	6' 3.59"	7' 10.68"	6' 2.68"	8' 0.19"	6' 1.69"	8' 1.95"
6' 2.67"	7' 4.59"	6' 1.97"	7' 5.63"	6' 1.19"	7' 6.82"	6' 0.35"	7' 8.2"	5' 11.42"	7' 9.8"
6' 0.15"	7' 0.97"	5' 11.5"	7' 1.91"	5' 10.78"	7' 3"	5' 9.99"	7' 4.26"	5' 9.13"	7' 5.71"
5' 9.61"	6' 9.37"	5' 9.01"	6' 10.23"	5' 8.34"	6' 11.22"	5' 7.61"	7' 0.36"	5' 6.81"	7' 1.68"
5' 7.05"	6' 5.8"	5' 6.5"	6' 6.58"	5' 5.88"	6' 7.48"	5' 5.21"	6' 8.51"	5' 4.47"	6' 9.7"
5' 4.48"	6' 2.26"	5' 3.97"	6' 2.97"	5' 3.41"	6' 3.78"	5' 2.79"	6' 4.71"	5' 2.11"	6' 5.78"
5' 1.89"	5' 10.75"	5' 1.42"	5' 11.39"	5' 0.91"	6' 0.11"	5' 0.34"	6' 0.95"	4' 11.72"	6' 1.91"
4' 11.28"	5' 7.27"	4' 10.85"	5' 7.84"	4' 10.39"	5' 8.49"	4' 9.87"	5' 9.23"	4' 9.3"	5' 10.09"
4' 8.65"	5' 3.82"	4' 8.27"	5' 4.32"	4' 7.84"	5' 4.9"	4' 7.38"	5' 5.56"	4' 6.86"	5' 6.31"
4' 7.77"	5' 2.67"	4' 7.4"	5' 3.15"	4' 6.99"	5' 3.71"	4' 6.54"	5' 4.34"	4' 6.04"	5' 5.07"
4' 6.89"	5' 1.53"	4' 6.53"	5' 1.99"	4' 6.14"	5' 2.52"	4' 5.7"	5' 3.13"	4' 5.22"	5' 3.83"
4' 6"	5' 0.39"	4' 5.66"	5' 0.83"	4' 5.28"	5' 1.34"	4' 4.86"	5' 1.92"	4' 4.4"	5' 2.59"
4' 5.12"	4' 11.25"	4' 4.78"	4' 11.68"	4' 4.42"	5' 0.17"	4' 4.01"	5' 0.72"	4' 3.57"	5' 1.36"
4' 4.23"	4' 10.12"	4' 3.91"	4' 10.53"	4' 3.56"	4' 10.99"	4' 3.17"	4' 11.53"	4' 2.74"	5' 0.14"
4' 3.34"	4' 8.99"	4' 3.03"	4' 9.38"	4' 2.69"	4' 9.83"	4' 2.32"	4' 10.33"	4' 1.9"	4' 10.92"
4' 2.44"	4' 7.86"	4' 2.15"	4' 8.23"	4' 1.82"	4' 8.66"	4' 1.46"	4' 9.15"	4' 1.07"	4' 9.7"
4' 1.55"	4' 6.74"	4' 1.27"	4' 7.09"	4' 0.95"	4' 7.5"	4' 0.61"	4' 7.96"	4' 0.22"	4' 8.5"
4' 0.65"	4' 5.61"	4' 0.38"	4' 5.95"	4' 0.08"	4' 6.34"	3' 11.75"	4' 6.79"	3' 11.38"	4' 7.29"
3' 11.75"	4' 4.5"	3' 11.49"	4' 4.82"	3' 11.21"	4' 5.19"	3' 10.89"	4' 5.61"	3' 10.54"	4' 6.09"
3' 10.85"	4' 3.38"	3' 10.6"	4' 3.69"	3' 10.33"	4' 4.04"	3' 10.02"	4' 4.44"	3' 9.69"	4' 4.9"
3' 9.95"	4' 2.27"	3' 9.71"	4' 2.56"	3' 9.45"	4' 2.89"	3' 9.16"	4' 3.28"	3' 8.83"	4' 3.71"
3' 9.04"	4' 1.16"	3' 8.82"	4' 1.44"	3' 8.57"	4' 1.75"	3' 8.29"	4' 2.12"	3' 7.98"	4' 2.53"
3' 8.14"	4' 0.05"	3' 7.92"	4' 0.31"	3' 7.68"	4' 0.62"	3' 7.41"	4' 0.96"	3' 7.12"	4' 1.35"
3' 7.23"	3' 10.94"	3' 7.02"	3' 11.2"	3' 6.79"	3' 11.48"	3' 6.54"	3' 11.81"	3' 6.26"	4' 0.18"
3' 6.32"	3' 9.84"	3' 6.12"	3' 10.08"	3' 5.9"	3' 10.35"	3' 5.66"	3' 10.66"	3' 5.39"	3' 11.01"
3' 5.4"	3' 8.74"	3' 5.22"	3' 8.97"	3' 5.01"	3' 9.22"	3' 4.78"	3' 9.51"	3' 4.52"	3' 9.85"
3' 4.49"	3' 7.65"	3' 4.31"	3' 7.86"	3' 4.11"	3' 8.1"	3' 3.89"	3' 8.37"	3' 3.65"	3' 8.69"
3' 3.57"	3' 6.56"	3' 3.4"	3' 6.76"	3' 3.21"	3' 6.98"	3' 3.01"	3' 7.24"	3' 2.78"	3' 7.53"
3' 2.65"	3' 5.47"	3' 2.49"	3' 5.65"	3' 2.31"	3' 5.87"	3' 2.12"	3' 6.11"	3' 1.9"	3' 6.38"
3' 1.73"	3' 4.38"	3' 1.58"	3' 4.55"	3' 1.41"	3' 4.75"	3' 1.22"	3' 4.98"	3' 1.02"	3' 5.24"
3' 0.8"	3' 3.29"	3' 0.66"	3' 3.46"	3' 0.5"	3' 3.65"	3' 0.33"	3' 3.86"	3' 0.14"	3' 4.1"
2' 11.87"	3' 2.21"	2' 11.74"	3' 2.37"	2' 11.59"	3' 2.54"	2' 11.43"	3' 2.74"	2' 11.25"	3' 2.97"
2' 10.94"	3' 1.13"	2' 10.82"	3' 1.28"	2' 10.68"	3' 1.44"	2' 10.53"	3' 1.63"	2' 10.36"	3' 1.84"
2' 10.01"	3' 0.06"	2' 9.9"	3' 0.19"	2' 9.77"	3' 0.34"	2' 9.62"	3' 0.52"	2' 9.46"	3' 0.71"
2' 9.08"	2' 10.98"	2' 8.97"	2' 11.11"	2' 8.85"	2' 11.25"	2' 8.72"	2' 11.41"	2' 8.57"	2' 11.59"
2' 8.14"	2' 9.91"	2' 8.04"	2' 10.03"	2' 7.93"	2' 10.16"	2' 7.8"	2' 10.31"	2' 7.66"	2' 10.48"
2' 7.21"	2' 8.84"	2' 7.11"	2' 8.95"	2' 7.01"	2' 9.07"	2' 6.89"	2' 9.21"	2' 6.76"	2' 9.36"
2' 6.27"	2' 7.78"	2' 6.18"	2' 7.88"	2' 6.08"	2' 7.99"	2' 5.97"	2' 8.11"	2' 5.85"	2' 8.26"
2' 5.32"	2' 6.72"	2' 5.24"	2' 6.81"	2' 5.15"	2' 6.91"	2' 5.05"	2' 7.02"	2' 4.94"	2' 7.16"
2' 4.38"	2' 5.66"	2' 4.3"	2' 5.74"	2' 4.22"	2' 5.83"	2' 4.13"	2' 5.94"	2' 4.03"	2' 6.06"
2' 3.43"	2' 4.6"	2' 3.36"	2' 4.67"	2' 3.29"	2' 4.76"	2' 3.2"	2' 4.86"	2' 3.11"	2' 4.96"



2' 2.48"	2' 3.54"	2' 2.42"	2' 3.61"	2' 2.35"	2' 3.69"	2' 2.27"	2' 3.78"	2' 2.19"	2' 3.88"
2' 1.53"	2' 2.49"	2' 1.47"	2' 2.55"	2' 1.41"	2' 2.62"	2' 1.34"	2' 2.7"	2' 1.26"	2' 2.79"



16	18	20	22
38' 5.89"	34' 4.32"	30' 8.19"	27' 4.82"

16		18		20		22	
Short Focus (ft-inch)	Long Focus (ft-inch)	Short Focus (ft-inch)	Long Focus (ft-inch)	Short Focus (ft-inch)	Long Focus (ft-inch)	Short Focus (ft-inch)	Long Focus (ft-inch)
38' 3.26"	Infinity	34' 1.69"	Infinity	30' 5.53"	Infinity	27' 2.19"	Infinity
32' 3.17"	Infinity	29' 3.5"	Infinity	26' 6.64"	Infinity	24' 0.47"	Infinity
27' 10.64"	Infinity	25' 7.78"	Infinity	23' 6.41"	Infinity	21' 6.56"	Infinity
21' 11.2"	Infinity	20' 6.46"	Infinity	19' 2.08"	Infinity	17' 10.15"	Infinity
19' 9.82"	Infinity	18' 8.13"	Infinity	17' 6.57"	Infinity	16' 5.21"	Infinity
17' 0.88"	132' 4.13"	16' 2.73"	229' 3.44"	15' 4.49"	1306' 5.79"	14' 6.24"	Infinity
15' 4.44"	69' 5.02"	14' 8.23"	89' 0.24"	13' 11.86"	130' 5.92"	13' 3.39"	274' 5.76"
13' 4.43"	40' 6.26"	12' 10.24"	46' 5.1"	12' 3.86"	55' 6.36"	11' 9.31"	71' 3.2"
11' 11.9"	29' 7.65"	11' 6.95"	32' 7.73"	11' 1.79"	36' 10.23"	10' 8.46"	43' 1.32"
10' 11.83"	23' 11.11"	10' 7.69"	25' 9.96"	10' 3.36"	28' 4.46"	9' 10.85"	31' 10.88"
10' 5.44"	21' 5.03"	10' 1.71"	22' 11.1"	9' 9.78"	24' 10.73"	9' 5.68"	27' 6.71"
9' 10.79"	19' 1.32"	9' 7.46"	20' 3.5"	9' 3.94"	21' 9.71"	9' 0.25"	23' 9.78"
9' 3.88"	16' 11.7"	9' 0.93"	17' 10.73"	8' 9.82"	19' 0.66"	8' 6.54"	20' 6.68"
8' 8.67"	14' 11.94"	8' 6.12"	15' 8.42"	8' 3.39"	16' 6.97"	8' 0.52"	17' 8.36"
8' 1.17"	13' 1.85"	7' 10.98"	13' 8.27"	7' 8.64"	14' 4.15"	7' 6.16"	15' 1.97"
7' 9.29"	12' 3.38"	7' 7.29"	12' 8.92"	7' 5.14"	13' 3.69"	7' 2.85"	14' 0.05"
7' 5.34"	11' 5.26"	7' 3.5"	11' 10.03"	7' 1.54"	12' 3.8"	6' 11.45"	12' 10.89"
7' 1.29"	10' 7.48"	6' 11.63"	10' 11.55"	6' 9.85"	11' 4.45"	6' 7.94"	11' 10.43"
6' 9.16"	9' 10.02"	6' 7.67"	10' 1.47"	6' 6.06"	10' 5.6"	6' 4.34"	10' 10.6"
6' 4.93"	9' 0.86"	6' 3.6"	9' 3.76"	6' 2.17"	9' 7.22"	6' 0.62"	9' 11.37"
6' 0.61"	8' 4"	5' 11.44"	8' 6.42"	5' 10.17"	8' 9.28"	5' 8.8"	9' 0.7"
5' 10.41"	7' 11.67"	5' 9.31"	8' 1.87"	5' 8.13"	8' 4.46"	5' 6.84"	8' 7.55"
5' 8.19"	7' 7.41"	5' 7.17"	7' 9.4"	5' 6.06"	7' 11.74"	5' 4.86"	8' 2.53"
5' 5.94"	7' 3.22"	5' 4.99"	7' 5.01"	5' 3.96"	7' 7.13"	5' 2.84"	7' 9.62"
5' 3.67"	6' 11.09"	5' 2.79"	7' 0.7"	5' 1.83"	7' 2.6"	5' 0.79"	7' 4.84"
5' 1.36"	6' 7.02"	5' 0.55"	6' 8.47"	4' 11.67"	6' 10.16"	4' 10.71"	7' 0.16"
4' 11.04"	6' 3.02"	4' 10.29"	6' 4.31"	4' 9.48"	6' 5.82"	4' 8.6"	6' 7.59"
4' 8.68"	5' 11.07"	4' 8"	6' 0.22"	4' 7.26"	6' 1.55"	4' 6.45"	6' 3.12"
4' 6.3"	5' 7.19"	4' 5.68"	5' 8.2"	4' 5.01"	5' 9.38"	4' 4.27"	5' 10.75"
4' 5.5"	5' 5.91"	4' 4.9"	5' 6.88"	4' 4.25"	5' 8"	4' 3.53"	5' 9.31"
4' 4.69"	5' 4.63"	4' 4.12"	5' 5.56"	4' 3.48"	5' 6.63"	4' 2.8"	5' 7.89"
4' 3.89"	5' 3.36"	4' 3.33"	5' 4.25"	4' 2.72"	5' 5.28"	4' 2.05"	5' 6.48"
4' 3.08"	5' 2.1"	4' 2.54"	5' 2.95"	4' 1.95"	5' 3.93"	4' 1.31"	5' 5.07"
4' 2.26"	5' 0.84"	4' 1.74"	5' 1.65"	4' 1.18"	5' 2.59"	4' 0.55"	5' 3.68"
4' 1.45"	4' 11.59"	4' 0.95"	5' 0.36"	4' 0.4"	5' 1.26"	3' 11.8"	5' 2.3"
4' 0.63"	4' 10.34"	4' 0.15"	4' 11.08"	3' 11.62"	4' 11.93"	3' 11.04"	5' 0.92"
3' 11.8"	4' 9.11"	3' 11.34"	4' 9.81"	3' 10.83"	4' 10.62"	3' 10.28"	4' 11.56"
3' 10.98"	4' 7.87"	3' 10.53"	4' 8.54"	3' 10.04"	4' 9.31"	3' 9.51"	4' 10.21"
3' 10.15"	4' 6.65"	3' 9.72"	4' 7.28"	3' 9.25"	4' 8.02"	3' 8.74"	4' 8.86"
3' 9.31"	4' 5.43"	3' 8.9"	4' 6.03"	3' 8.45"	4' 6.73"	3' 7.96"	4' 7.53"
3' 8.48"	4' 4.21"	3' 8.09"	4' 4.78"	3' 7.65"	4' 5.44"	3' 7.18"	4' 6.21"
3' 7.64"	4' 3"	3' 7.26"	4' 3.54"	3' 6.85"	4' 4.17"	3' 6.4"	4' 4.89"
3' 6.79"	4' 1.8"	3' 6.44"	4' 2.31"	3' 6.04"	4' 2.9"	3' 5.61"	4' 3.59"
3' 5.95"	4' 0.6"	3' 5.61"	4' 1.09"	3' 5.23"	4' 1.65"	3' 4.81"	4' 2.29"
3' 5.1"	3' 11.41"	3' 4.77"	3' 11.87"	3' 4.41"	4' 0.4"	3' 4.02"	4' 1"
3' 4.24"	3' 10.22"	3' 3.93"	3' 10.66"	3' 3.59"	3' 11.15"	3' 3.22"	3' 11.72"
3' 3.39"	3' 9.04"	3' 3.09"	3' 9.45"	3' 2.77"	3' 9.92"	3' 2.41"	3' 10.45"
3' 2.53"	3' 7.87"	3' 2.25"	3' 8.25"	3' 1.94"	3' 8.69"	3' 1.6"	3' 9.19"
3' 1.66"	3' 6.7"	3' 1.4"	3' 7.06"	3' 1.1"	3' 7.47"	3' 0.78"	3' 7.94"
3' 0.79"	3' 5.53"	3' 0.54"	3' 5.87"	3' 0.27"	3' 6.26"	2' 11.96"	3' 6.7"
2' 11.92"	3' 4.38"	2' 11.69"	3' 4.69"	2' 11.42"	3' 5.05"	2' 11.14"	3' 5.46"
2' 11.05"	3' 3.22"	2' 10.82"	3' 3.52"	2' 10.58"	3' 3.85"	2' 10.31"	3' 4.24"
2' 10.17"	3' 2.08"	2' 9.96"	3' 2.35"	2' 9.73"	3' 2.66"	2' 9.47"	3' 3.02"
2' 9.29"	3' 0.93"	2' 9.09"	3' 1.19"	2' 8.87"	3' 1.48"	2' 8.63"	3' 1.81"
2' 8.4"	2' 11.8"	2' 8.22"	3' 0.03"	2' 8.01"	3' 0.3"	2' 7.79"	3' 0.61"
2' 7.51"	2' 10.67"	2' 7.34"	2' 10.88"	2' 7.15"	2' 11.13"	2' 6.94"	2' 11.42"
2' 6.62"	2' 9.54"	2' 6.46"	2' 9.74"	2' 6.28"	2' 9.97"	2' 6.08"	2' 10.23"
2' 5.72"	2' 8.42"	2' 5.57"	2' 8.6"	2' 5.41"	2' 8.81"	2' 5.23"	2' 9.05"
2' 4.82"	2' 7.3"	2' 4.68"	2' 7.47"	2' 4.53"	2' 7.67"	2' 4.36"	2' 7.88"
2' 3.91"	2' 6.19"	2' 3.79"	2' 6.35"	2' 3.65"	2' 6.52"	2' 3.49"	2' 6.72"
2' 3.01"	2' 5.09"	2' 2.89"	2' 5.23"	2' 2.76"	2' 5.39"	2' 2.62"	2' 5.57"



2' 2.09"	2' 3.99"	2' 1.99"	2' 4.11"	2' 1.87"	2' 4.26"	2' 1.74"	2' 4.42"
2' 1.18"	2' 2.89"	2' 1.08"	2' 3.01"	2' 0.97"	2' 3.14"	2' 0.85"	2' 3.28"



Focal Length 75 mm

Circle of Confusion 0.025 mm

T/No	1.8	2	2.2	2.5
Hyperfocal Distance (ft-inch)	427' 10.69"	381' 3.43"	339' 9.17"	302' 9.27"

T/No	1.8		2		2.2		2.5	
Focus Distance (ft-inch)	Short Focus (ft-inch)	Long Focus (ft-inch)	Short Focus (ft-inch)	Long Focus (ft-inch)	Short Focus (ft-inch)	Long Focus (ft-inch)	Short Focus (ft-inch)	Long Focus (ft-inch)
Infinity	427' 7.07"	Infinity	380' 11.94"	Infinity	339' 5.79"	Infinity	302' 5.98"	Infinity
200' 0"	136' 6.29"	374' 5.94"	131' 5.07"	419' 4.27"	126' 1.6"	484' 6.27"	120' 8.2"	586' 11.18"
100' 0"	81' 2.73"	130' 1.7"	79' 4.85"	135' 1.63"	77' 5.44"	141' 2.64"	75' 4.51"	148' 8.88"
50' 0"	44' 10.5"	56' 5.54"	44' 3.84"	57' 4.45"	43' 8.55"	58' 5.12"	43' 0.61"	59' 7.92"
40' 0"	36' 8.04"	44' 0.06"	36' 3.6"	44' 6.62"	35' 10.73"	45' 2.19"	35' 5.39"	45' 10.94"
30' 0"	28' 1.26"	32' 2.09"	27' 10.67"	32' 5.55"	27' 7.81"	32' 9.52"	27' 4.67"	33' 2.06"
25' 0"	23' 8.16"	26' 5.75"	23' 6.33"	26' 8.07"	23' 4.32"	26' 10.72"	23' 2.08"	27' 1.75"
20' 0"	19' 1.87"	20' 11.09"	19' 0.69"	21' 0.52"	18' 11.38"	21' 2.14"	18' 9.93"	21' 3.99"
17' 0"	16' 4.71"	17' 7.87"	16' 3.85"	17' 8.87"	16' 2.9"	17' 10.02"	16' 1.85"	17' 11.31"
15' 0"	14' 6.35"	15' 6.04"	14' 5.69"	15' 6.81"	14' 4.94"	15' 7.68"	14' 4.12"	15' 8.66"
14' 0"	13' 7.1"	14' 5.22"	13' 6.52"	14' 5.88"	13' 5.87"	14' 6.63"	13' 5.15"	14' 7.48"
13' 0"	12' 7.79"	13' 4.46"	12' 7.29"	13' 5.02"	12' 6.74"	13' 5.66"	12' 6.12"	13' 6.38"
12' 0"	11' 8.43"	12' 3.76"	11' 8.01"	12' 4.23"	11' 7.54"	12' 4.77"	11' 7.01"	12' 5.38"
11' 0"	10' 9.03"	11' 3.12"	10' 8.67"	11' 3.51"	10' 8.28"	11' 3.96"	10' 7.83"	11' 4.46"
10' 0"	9' 9.56"	10' 2.54"	9' 9.27"	10' 2.86"	9' 8.95"	10' 3.22"	9' 8.58"	10' 3.63"
9' 6"	9' 3.81"	9' 8.28"	9' 3.55"	9' 8.56"	9' 3.26"	9' 8.89"	9' 2.93"	9' 9.25"
9' 0"	8' 10.05"	9' 2.03"	8' 9.82"	9' 2.28"	8' 9.55"	9' 2.57"	8' 9.26"	9' 2.89"
8' 6"	8' 4.27"	8' 7.79"	8' 4.07"	8' 8.02"	8' 3.83"	8' 8.27"	8' 3.57"	8' 8.55"
8' 0"	7' 10.48"	8' 1.57"	7' 10.3"	8' 1.77"	7' 10.1"	8' 1.99"	7' 9.87"	8' 2.24"
7' 6"	7' 4.68"	7' 7.36"	7' 4.52"	7' 7.53"	7' 4.34"	7' 7.73"	7' 4.14"	7' 7.94"
7' 0"	6' 10.86"	7' 1.17"	6' 10.72"	7' 1.32"	6' 10.57"	7' 1.48"	6' 10.4"	7' 1.67"
6' 9"	6' 7.95"	6' 10.08"	6' 7.82"	6' 10.22"	6' 7.68"	6' 10.37"	6' 7.52"	6' 10.54"
6' 6"	6' 5.03"	6' 7"	6' 4.91"	6' 7.12"	6' 4.78"	6' 7.26"	6' 4.64"	6' 7.42"
6' 3"	6' 2.11"	6' 3.91"	6' 2"	6' 4.03"	6' 1.88"	6' 4.15"	6' 1.75"	6' 4.3"
6' 0"	5' 11.19"	6' 0.83"	5' 11.09"	6' 0.94"	5' 10.98"	6' 1.05"	5' 10.86"	6' 1.18"
5' 9"	5' 8.26"	5' 9.76"	5' 8.17"	5' 9.85"	5' 8.07"	5' 9.96"	5' 7.96"	5' 10.08"
5' 6"	5' 5.33"	5' 6.69"	5' 5.25"	5' 6.77"	5' 5.16"	5' 6.87"	5' 5.06"	5' 6.97"
5' 3"	5' 2.4"	5' 3.62"	5' 2.32"	5' 3.69"	5' 2.24"	5' 3.78"	5' 2.15"	5' 3.88"
5' 0"	4' 11.46"	5' 0.55"	4' 11.39"	5' 0.62"	4' 11.32"	5' 0.7"	4' 11.24"	5' 0.78"
4' 11"	4' 10.48"	4' 11.53"	4' 10.42"	4' 11.6"	4' 10.34"	4' 11.67"	4' 10.27"	4' 11.76"
4' 10"	4' 9.5"	4' 10.51"	4' 9.44"	4' 10.57"	4' 9.37"	4' 10.65"	4' 9.29"	4' 10.73"
4' 9"	4' 8.52"	4' 9.49"	4' 8.46"	4' 9.55"	4' 8.39"	4' 9.62"	4' 8.32"	4' 9.7"
4' 8"	4' 7.54"	4' 8.47"	4' 7.48"	4' 8.53"	4' 7.42"	4' 8.6"	4' 7.35"	4' 8.67"
4' 7"	4' 6.56"	4' 7.45"	4' 6.5"	4' 7.51"	4' 6.44"	4' 7.57"	4' 6.37"	4' 7.64"
4' 6"	4' 5.57"	4' 6.43"	4' 5.52"	4' 6.49"	4' 5.46"	4' 6.55"	4' 5.4"	4' 6.62"
4' 5"	4' 4.59"	4' 5.42"	4' 4.54"	4' 5.47"	4' 4.49"	4' 5.52"	4' 4.42"	4' 5.59"
4' 4"	4' 3.61"	4' 4.4"	4' 3.56"	4' 4.45"	4' 3.51"	4' 4.5"	4' 3.45"	4' 4.56"
4' 3"	4' 2.63"	4' 3.38"	4' 2.58"	4' 3.43"	4' 2.53"	4' 3.48"	4' 2.47"	4' 3.54"
4' 2"	4' 1.64"	4' 2.36"	4' 1.6"	4' 2.41"	4' 1.55"	4' 2.46"	4' 1.5"	4' 2.51"
4' 1"	4' 0.66"	4' 1.35"	4' 0.62"	4' 1.39"	4' 0.57"	4' 1.44"	4' 0.52"	4' 1.49"
4' 0"	3' 11.68"	4' 0.33"	3' 11.64"	4' 0.37"	3' 11.59"	4' 0.42"	3' 11.54"	4' 0.47"
3' 11"	3' 10.69"	3' 11.31"	3' 10.65"	3' 11.35"	3' 10.61"	3' 11.4"	3' 10.56"	3' 11.44"
3' 10"	3' 9.71"	3' 10.3"	3' 9.67"	3' 10.33"	3' 9.63"	3' 10.38"	3' 9.59"	3' 10.42"
3' 9"	3' 8.72"	3' 9.28"	3' 8.69"	3' 9.32"	3' 8.65"	3' 9.36"	3' 8.61"	3' 9.4"
3' 8"	3' 7.74"	3' 8.27"	3' 7.7"	3' 8.3"	3' 7.67"	3' 8.34"	3' 7.63"	3' 8.38"
3' 7"	3' 6.75"	3' 7.25"	3' 6.72"	3' 7.28"	3' 6.69"	3' 7.32"	3' 6.65"	3' 7.36"
3' 6"	3' 5.76"	3' 6.24"	3' 5.73"	3' 6.27"	3' 5.7"	3' 6.3"	3' 5.67"	3' 6.34"
3' 5"	3' 4.78"	3' 5.23"	3' 4.75"	3' 5.25"	3' 4.72"	3' 5.29"	3' 4.69"	3' 5.32"
3' 4"	3' 3.79"	3' 4.21"	3' 3.76"	3' 4.24"	3' 3.74"	3' 4.27"	3' 3.7"	3' 4.3"
3' 3"	3' 2.8"	3' 3.2"	3' 2.78"	3' 3.22"	3' 2.75"	3' 3.25"	3' 2.72"	3' 3.28"
3' 2"	3' 1.81"	3' 2.19"	3' 1.79"	3' 2.21"	3' 1.77"	3' 2.24"	3' 1.74"	3' 2.27"
3' 1"	3' 0.83"	3' 1.18"	3' 0.81"	3' 1.2"	3' 0.78"	3' 1.22"	3' 0.75"	3' 1.25"
3' 0"	2' 11.84"	3' 0.16"	2' 11.82"	3' 0.18"	2' 11.8"	3' 0.21"	2' 11.77"	3' 0.23"
2' 11"	2' 10.85"	2' 11.15"	2' 10.83"	2' 11.17"	2' 10.81"	2' 11.19"	2' 10.79"	2' 11.22"
2' 10"	2' 9.86"	2' 10.14"	2' 9.84"	2' 10.16"	2' 9.82"	2' 10.18"	2' 9.8"	2' 10.2"
2' 9"	2' 8.87"	2' 9.13"	2' 8.85"	2' 9.15"	2' 8.84"	2' 9.17"	2' 8.82"	2' 9.19"
2' 8"	2' 7.88"	2' 8.12"	2' 7.86"	2' 8.14"	2' 7.85"	2' 8.15"	2' 7.83"	2' 8.17"
2' 7"	2' 6.89"	2' 7.11"	2' 6.88"	2' 7.13"	2' 6.86"	2' 7.14"	2' 6.84"	2' 7.16"
2' 6"	2' 5.9"	2' 6.1"	2' 5.89"	2' 6.12"	2' 5.87"	2' 6.13"	2' 5.86"	2' 6.15"



2.8	3.2	3.5	4	4.5
269' 9.8"	240' 5.47"	214' 3.61"	190' 11.97"	170' 2.83"

2.8		3.2		3.5		4		4.5	
Short Focus (ft-inch)	Long Focus (ft-inch)	Short Focus (ft-inch)	Long Focus (ft-inch)	Short Focus (ft-inch)	Long Focus (ft-inch)	Short Focus (ft-inch)	Long Focus (ft-inch)	Short Focus (ft-inch)	Long Focus (ft-inch)
269' 6.58"	Infinity	240' 2.32"	Infinity	214' 0.48"	Infinity	190' 8.88"	Infinity	169' 11.78"	Infinity
115' 1.23"	769' 6.89"	109' 5.1"	1182' 11.03"	103' 8.24"	2980' 9.55"	97' 11.11"	Infinity	92' 2.16"	Infinity
73' 2.07"	158' 2.39"	70' 10.19"	170' 4.37"	68' 4.95"	186' 5.6"	65' 10.45"	208' 7.31"	63' 2.82"	240' 8.55"
42' 3.97"	61' 1.3"	41' 6.63"	62' 9.84"	40' 8.54"	64' 10.34"	39' 9.7"	67' 3.81"	38' 10.1"	70' 3.69"
34' 11.55"	46' 9.11"	34' 5.19"	47' 8.99"	33' 10.28"	48' 10.95"	33' 2.8"	50' 3.46"	32' 6.73"	51' 11.14"
27' 1.21"	33' 7.29"	26' 9.41"	34' 1.33"	26' 5.25"	34' 8.33"	26' 0.72"	35' 4.49"	25' 7.78"	36' 2.03"
22' 11.62"	27' 5.22"	22' 8.91"	27' 9.2"	22' 5.93"	28' 1.78"	22' 2.67"	28' 7.09"	21' 11.1"	29' 1.25"
18' 8.32"	21' 6.1"	18' 6.54"	21' 8.52"	18' 4.58"	21' 11.28"	18' 2.42"	22' 2.45"	18' 0.05"	22' 6.1"
16' 0.67"	18' 0.79"	15' 11.37"	18' 2.47"	15' 9.94"	18' 4.39"	15' 8.35"	18' 6.58"	15' 6.6"	18' 9.1"
14' 3.2"	15' 9.78"	14' 2.19"	15' 11.06"	14' 1.06"	16' 0.51"	13' 11.81"	16' 2.17"	13' 10.44"	16' 4.06"
13' 4.35"	14' 8.44"	13' 3.47"	14' 9.53"	13' 2.48"	14' 10.78"	13' 1.39"	15' 0.2"	13' 0.19"	15' 1.82"
12' 5.43"	13' 7.2"	12' 4.66"	13' 8.13"	12' 3.81"	13' 9.19"	12' 2.87"	13' 10.39"	12' 1.83"	13' 11.76"
11' 6.43"	12' 6.06"	11' 5.77"	12' 6.84"	11' 5.05"	12' 7.73"	11' 4.25"	12' 8.73"	11' 3.35"	12' 9.88"
10' 7.34"	11' 5.03"	10' 6.8"	11' 5.67"	10' 6.19"	11' 6.4"	10' 5.51"	11' 7.23"	10' 4.76"	11' 8.17"
9' 8.18"	10' 4.09"	9' 7.73"	10' 4.61"	9' 7.23"	10' 5.2"	9' 6.67"	10' 5.87"	9' 6.05"	10' 6.64"
9' 2.57"	9' 9.66"	9' 2.16"	9' 10.13"	9' 1.71"	9' 10.66"	9' 1.21"	9' 11.25"	9' 0.65"	9' 11.93"
8' 8.94"	9' 3.26"	8' 8.58"	9' 3.67"	8' 8.17"	9' 4.14"	8' 7.72"	9' 4.67"	8' 7.22"	9' 5.27"
8' 3.29"	8' 8.88"	8' 2.96"	8' 9.24"	8' 2.61"	8' 9.65"	8' 2.21"	8' 10.12"	8' 1.76"	8' 10.65"
7' 9.61"	8' 2.52"	7' 9.33"	8' 2.84"	7' 9.01"	8' 3.2"	7' 8.66"	8' 3.6"	7' 8.27"	8' 4.06"
7' 3.92"	7' 8.19"	7' 3.67"	7' 8.46"	7' 3.4"	7' 8.77"	7' 3.09"	7' 9.13"	7' 2.75"	7' 9.52"
6' 10.21"	7' 1.88"	6' 9.99"	7' 2.11"	6' 9.76"	7' 2.38"	6' 9.49"	7' 2.68"	6' 9.19"	7' 3.02"
6' 7.34"	6' 10.73"	6' 7.15"	6' 10.95"	6' 6.92"	6' 11.2"	6' 6.68"	6' 11.47"	6' 6.4"	6' 11.79"
6' 4.47"	6' 7.59"	6' 4.29"	6' 7.79"	6' 4.09"	6' 8.02"	6' 3.86"	6' 8.27"	6' 3.61"	6' 8.56"
6' 1.6"	6' 4.46"	6' 1.43"	6' 4.64"	6' 1.24"	6' 4.85"	6' 1.04"	6' 5.08"	6' 0.8"	6' 5.35"
5' 10.72"	6' 1.33"	5' 10.57"	6' 1.5"	5' 10.39"	6' 1.69"	5' 10.2"	6' 1.9"	5' 9.99"	6' 2.14"
5' 7.83"	5' 10.21"	5' 7.69"	5' 10.36"	5' 7.54"	5' 10.53"	5' 7.36"	5' 10.73"	5' 7.17"	5' 10.94"
5' 4.94"	5' 7.1"	5' 4.82"	5' 7.23"	5' 4.67"	5' 7.39"	5' 4.52"	5' 7.56"	5' 4.34"	5' 7.76"
5' 2.05"	5' 3.99"	5' 1.93"	5' 4.11"	5' 1.8"	5' 4.25"	5' 1.66"	5' 4.4"	5' 1.5"	5' 4.58"
4' 11.15"	5' 0.88"	4' 11.04"	5' 0.99"	4' 10.93"	5' 1.12"	4' 10.8"	5' 1.26"	4' 10.66"	5' 1.41"
4' 10.18"	4' 11.85"	4' 10.08"	4' 11.95"	4' 9.97"	5' 0.07"	4' 9.84"	5' 0.21"	4' 9.71"	5' 0.36"
4' 9.21"	4' 10.82"	4' 9.11"	4' 10.92"	4' 9.01"	4' 11.03"	4' 8.89"	4' 11.16"	4' 8.75"	4' 11.31"
4' 8.24"	4' 9.78"	4' 8.15"	4' 9.88"	4' 8.04"	4' 9.99"	4' 7.93"	4' 10.12"	4' 7.8"	4' 10.26"
4' 7.27"	4' 8.75"	4' 7.18"	4' 8.85"	4' 7.08"	4' 8.95"	4' 6.97"	4' 9.07"	4' 6.85"	4' 9.21"
4' 6.3"	4' 7.72"	4' 6.21"	4' 7.81"	4' 6.12"	4' 7.91"	4' 6.01"	4' 8.03"	4' 5.9"	4' 8.16"
4' 5.33"	4' 6.69"	4' 5.25"	4' 6.78"	4' 5.16"	4' 6.88"	4' 5.05"	4' 6.98"	4' 4.94"	4' 7.11"
4' 4.36"	4' 5.66"	4' 4.28"	4' 5.75"	4' 4.19"	4' 5.84"	4' 4.09"	4' 5.94"	4' 3.98"	4' 6.06"
4' 3.38"	4' 4.63"	4' 3.31"	4' 4.71"	4' 3.23"	4' 4.8"	4' 3.13"	4' 4.9"	4' 3.03"	4' 5.01"
4' 2.41"	4' 3.61"	4' 2.34"	4' 3.68"	4' 2.26"	4' 3.77"	4' 2.17"	4' 3.86"	4' 2.07"	4' 3.97"
4' 1.44"	4' 2.58"	4' 1.37"	4' 2.65"	4' 1.29"	4' 2.73"	4' 1.21"	4' 2.82"	4' 1.11"	4' 2.93"
4' 0.46"	4' 1.55"	4' 0.4"	4' 1.62"	4' 0.32"	4' 1.7"	4' 0.24"	4' 1.78"	4' 0.15"	4' 1.88"
3' 11.49"	4' 0.53"	3' 11.43"	4' 0.59"	3' 11.36"	4' 0.66"	3' 11.28"	4' 0.75"	3' 11.19"	4' 0.84"
3' 10.51"	3' 11.5"	3' 10.45"	3' 11.56"	3' 10.39"	3' 11.63"	3' 10.31"	3' 11.71"	3' 10.23"	3' 11.8"
3' 9.54"	3' 10.48"	3' 9.48"	3' 10.53"	3' 9.42"	3' 10.6"	3' 9.35"	3' 10.68"	3' 9.27"	3' 10.76"
3' 8.56"	3' 9.45"	3' 8.51"	3' 9.51"	3' 8.45"	3' 9.57"	3' 8.38"	3' 9.64"	3' 8.3"	3' 9.72"
3' 7.58"	3' 8.43"	3' 7.53"	3' 8.48"	3' 7.47"	3' 8.54"	3' 7.41"	3' 8.61"	3' 7.34"	3' 8.68"
3' 6.6"	3' 7.4"	3' 6.56"	3' 7.45"	3' 6.5"	3' 7.51"	3' 6.44"	3' 7.57"	3' 6.38"	3' 7.65"
3' 5.63"	3' 6.38"	3' 5.58"	3' 6.43"	3' 5.53"	3' 6.48"	3' 5.47"	3' 6.54"	3' 5.41"	3' 6.61"
3' 4.65"	3' 5.36"	3' 4.6"	3' 5.4"	3' 4.56"	3' 5.46"	3' 4.5"	3' 5.51"	3' 4.44"	3' 5.58"
3' 3.67"	3' 4.34"	3' 3.63"	3' 4.38"	3' 3.58"	3' 4.43"	3' 3.53"	3' 4.48"	3' 3.47"	3' 4.54"
3' 2.69"	3' 3.32"	3' 2.65"	3' 3.36"	3' 2.61"	3' 3.4"	3' 2.56"	3' 3.45"	3' 2.51"	3' 3.51"
3' 1.71"	3' 2.3"	3' 1.67"	3' 2.34"	3' 1.63"	3' 2.38"	3' 1.59"	3' 2.42"	3' 1.54"	3' 2.48"
3' 0.72"	3' 1.28"	3' 0.69"	3' 1.31"	3' 0.65"	3' 1.35"	3' 0.61"	3' 1.4"	3' 0.57"	3' 1.45"
2' 11.74"	3' 0.26"	2' 11.71"	3' 0.29"	2' 11.68"	3' 0.33"	2' 11.64"	3' 0.37"	2' 11.59"	3' 0.42"
2' 10.76"	2' 11.24"	2' 10.73"	2' 11.27"	2' 10.7"	2' 11.31"	2' 10.66"	2' 11.35"	2' 10.62"	2' 11.39"
2' 9.78"	2' 10.23"	2' 9.75"	2' 10.25"	2' 9.72"	2' 10.29"	2' 9.69"	2' 10.32"	2' 9.65"	2' 10.36"
2' 8.79"	2' 9.21"	2' 8.77"	2' 9.24"	2' 8.74"	2' 9.26"	2' 8.71"	2' 9.3"	2' 8.67"	2' 9.33"
2' 7.81"	2' 8.19"	2' 7.79"	2' 8.22"	2' 7.76"	2' 8.24"	2' 7.73"	2' 8.27"	2' 7.7"	2' 8.31"
2' 6.82"	2' 7.18"	2' 6.8"	2' 7.2"	2' 6.78"	2' 7.23"	2' 6.75"	2' 7.25"	2' 6.72"	2' 7.28"
2' 5.84"	2' 6.16"	2' 5.82"	2' 6.18"	2' 5.8"	2' 6.21"	2' 5.77"	2' 6.23"	2' 5.74"	2' 6.26"



5	5.6	6.3	7.1	8
151' 8.91"	135' 3.15"	120' 7.01"	107' 6.04"	95' 10.24"

5		5.6		6.3		7.1		8	
Short Focus (ft-inch)	Long Focus (ft-inch)	Short Focus (ft-inch)	Long Focus (ft-inch)	Short Focus (ft-inch)	Long Focus (ft-inch)	Short Focus (ft-inch)	Long Focus (ft-inch)	Short Focus (ft-inch)	Long Focus (ft-inch)
151' 5.85"	Infinity	135' 0.13"	Infinity	120' 3.99"	Infinity	107' 3.06"	Infinity	95' 7.25"	Infinity
86' 5.85"	Infinity	80' 10.62"	Infinity	75' 4.87"	Infinity	70' 0.99"	Infinity	64' 11.3"	Infinity
60' 6.22"	291' 0.15"	57' 8.84"	380' 3.23"	54' 10.87"	580' 1.91"	52' 0.52"	1416' 11.25"	49' 2.04"	Infinity
37' 9.73"	74'	36' 8.62"	78' 7.65"	35' 6.79"	84' 7.13"	34' 4.28"	92' 5.54"	33' 1.13"	103' 3.02"
31' 10.05"	53' 10.83"	31' 0.77"	56' 3.68"	30' 2.88"	59' 3.33"	29' 4.39"	63' 0.15"	28' 5.33"	67' 9.76"
25' 2.43"	37' 1.28"	24' 8.63"	38' 2.63"	24' 2.4"	39' 6.61"	23' 7.71"	41' 1.95"	23' 0.57"	43' 1.66"
21' 7.2"	29' 8.43"	21' 2.97"	30' 4.87"	20' 10.39"	31' 2.83"	20' 5.44"	32' 2.69"	20' 0.11"	33' 4.95"
17' 9.45"	22' 10.33"	17' 6.6"	23' 3.24"	17' 3.5"	23' 8.96"	17' 0.13"	24' 3.69"	16' 8.48"	24' 11.62"
15' 4.68"	18' 11.99"	15' 2.57"	19' 3.34"	15' 0.26"	19' 7.21"	14' 9.73"	19' 11.72"	14' 6.99"	20' 5"
13' 8.92"	16' 6.23"	13' 7.25"	16' 8.73"	13' 5.42"	16' 11.61"	13' 3.41"	17' 2.95"	13' 1.22"	17' 6.83"
12' 10.86"	15' 3.67"	12' 9.4"	15' 5.8"	12' 7.79"	15' 8.26"	12' 6.02"	15' 11.09"	12' 4.09"	16' 2.38"
12' 0.68"	14' 1.33"	11' 11.41"	14' 3.12"	11' 10.01"	14' 5.19"	11' 8.47"	14' 7.57"	11' 6.79"	14' 10.32"
11' 2.37"	12' 11.19"	11' 1.28"	13' 0.68"	11' 0.08"	13' 2.4"	10' 10.76"	13' 4.37"	10' 9.31"	13' 6.64"
10' 3.93"	11' 9.25"	10' 3.02"	11' 10.47"	10' 2"	11' 11.87"	10' 0.89"	12' 1.48"	9' 11.66"	12' 3.34"
9' 5.37"	10' 7.5"	9' 4.61"	10' 8.49"	9' 3.77"	10' 9.62"	9' 2.84"	10' 10.91"	9' 1.82"	11' 0.39"
9' 0.03"	10' 0.7"	8' 11.35"	10' 1.58"	8' 10.59"	10' 2.58"	8' 9.75"	10' 3.73"	8' 8.83"	10' 5.04"
8' 6.67"	9' 5.95"	8' 6.05"	9' 6.73"	8' 5.37"	9' 7.61"	8' 4.62"	9' 8.62"	8' 3.79"	9' 9.78"
8' 1.27"	8' 11.25"	8' 0.72"	8' 11.93"	8' 0.11"	9' 0.7"	7' 11.44"	9' 1.59"	7' 10.7"	9' 2.6"
7' 7.83"	8' 4.59"	7' 7.35"	8' 5.18"	7' 6.81"	8' 5.86"	7' 6.22"	8' 6.63"	7' 5.56"	8' 7.51"
7' 2.37"	7' 9.98"	7' 1.94"	7' 10.49"	7' 1.47"	7' 11.07"	7' 0.95"	7' 11.73"	7' 0.37"	8' 0.49"
6' 8.86"	7' 3.41"	6' 8.5"	7' 3.85"	6' 8.09"	7' 4.34"	6' 7.64"	7' 4.91"	6' 7.13"	7' 5.55"
6' 6.1"	7' 0.14"	6' 5.76"	7' 0.55"	6' 5.38"	7' 1"	6' 4.96"	7' 1.52"	6' 4.5"	7' 2.12"
6' 3.32"	6' 8.89"	6' 3.01"	6' 9.26"	6' 2.66"	6' 9.68"	6' 2.27"	6' 10.15"	6' 1.84"	6' 10.7"
6' 0.54"	6' 5.64"	6' 0.25"	6' 5.98"	5' 11.93"	6' 6.37"	5' 11.57"	6' 6.8"	5' 11.18"	6' 7.29"
5' 9.75"	6' 2.41"	5' 9.49"	6' 2.72"	5' 9.19"	6' 3.07"	5' 8.86"	6' 3.46"	5' 8.5"	6' 3.91"
5' 6.95"	5' 11.19"	5' 6.71"	5' 11.47"	5' 6.44"	5' 11.79"	5' 6.14"	6' 0.14"	5' 5.81"	6' 0.55"
5' 4.14"	5' 7.98"	5' 3.92"	5' 8.23"	5' 3.68"	5' 8.52"	5' 3.4"	5' 8.84"	5' 3.1"	5' 9.21"
5' 1.32"	5' 4.78"	5' 1.12"	5' 5.01"	5' 0.9"	5' 5.26"	5' 0.66"	5' 5.55"	5' 0.38"	5' 5.88"
4' 10.5"	5' 1.59"	4' 10.32"	5' 1.79"	4' 10.12"	5' 2.02"	4' 9.9"	5' 2.28"	4' 9.65"	5' 2.57"
4' 9.55"	5' 0.53"	4' 9.38"	5' 0.73"	4' 9.19"	5' 0.94"	4' 8.97"	5' 1.19"	4' 8.74"	5' 1.47"
4' 8.61"	4' 11.47"	4' 8.44"	4' 11.66"	4' 8.26"	4' 11.87"	4' 8.05"	5' 0.11"	4' 7.82"	5' 0.38"
4' 7.66"	4' 10.41"	4' 7.5"	4' 10.59"	4' 7.32"	4' 10.79"	4' 7.12"	4' 11.02"	4' 6.9"	4' 11.28"
4' 6.71"	4' 9.36"	4' 6.56"	4' 9.53"	4' 6.39"	4' 9.72"	4' 6.2"	4' 9.94"	4' 5.99"	4' 10.19"
4' 5.76"	4' 8.3"	4' 5.62"	4' 8.47"	4' 5.45"	4' 8.65"	4' 5.27"	4' 8.86"	4' 5.07"	4' 9.1"
4' 4.81"	4' 7.25"	4' 4.67"	4' 7.4"	4' 4.51"	4' 7.58"	4' 4.34"	4' 7.78"	4' 4.14"	4' 8.01"
4' 3.86"	4' 6.19"	4' 3.73"	4' 6.34"	4' 3.58"	4' 6.51"	4' 3.41"	4' 6.71"	4' 3.22"	4' 6.92"
4' 2.91"	4' 5.14"	4' 2.78"	4' 5.29"	4' 2.64"	4' 5.45"	4' 2.48"	4' 5.63"	4' 2.3"	4' 5.84"
4' 1.96"	4' 4.09"	4' 1.83"	4' 4.23"	4' 1.7"	4' 4.38"	4' 1.54"	4' 4.56"	4' 1.37"	4' 4.76"
4' 1.01"	4' 3.04"	4' 0.89"	4' 3.17"	4' 0.75"	4' 3.32"	4' 0.61"	4' 3.49"	4' 0.44"	4' 3.68"
4' 0.05"	4' 1.99"	3' 11.94"	4' 2.12"	3' 11.81"	4' 2.26"	3' 11.67"	4' 2.42"	3' 11.51"	4' 2.6"
3' 11.09"	4' 0.95"	3' 10.99"	4' 1.06"	3' 10.87"	4' 1.2"	3' 10.73"	4' 1.35"	3' 10.58"	4' 1.52"
3' 10.14"	3' 11.9"	3' 10.03"	4' 0.01"	3' 9.92"	4' 0.14"	3' 9.79"	4' 0.28"	3' 9.65"	4' 0.45"
3' 9.18"	3' 10.85"	3' 9.08"	3' 10.96"	3' 8.97"	3' 11.08"	3' 8.85"	3' 11.22"	3' 8.71"	3' 11.37"
3' 8.22"	3' 9.81"	3' 8.13"	3' 9.91"	3' 8.02"	3' 10.03"	3' 7.91"	3' 10.16"	3' 7.78"	3' 10.3"
3' 7.26"	3' 8.77"	3' 7.17"	3' 8.86"	3' 7.07"	3' 8.97"	3' 6.96"	3' 9.1"	3' 6.84"	3' 9.23"
3' 6.3"	3' 7.73"	3' 6.22"	3' 7.82"	3' 6.12"	3' 7.92"	3' 6.02"	3' 8.04"	3' 5.9"	3' 8.17"
3' 5.34"	3' 6.69"	3' 5.26"	3' 6.77"	3' 5.17"	3' 6.87"	3' 5.07"	3' 6.98"	3' 4.96"	3' 7.1"
3' 4.38"	3' 5.65"	3' 4.3"	3' 5.73"	3' 4.22"	3' 5.82"	3' 4.12"	3' 5.92"	3' 4.02"	3' 6.04"
3' 3.41"	3' 4.61"	3' 3.34"	3' 4.69"	3' 3.26"	3' 4.77"	3' 3.17"	3' 4.87"	3' 3.08"	3' 4.98"
3' 2.45"	3' 3.57"	3' 2.38"	3' 3.64"	3' 2.31"	3' 3.72"	3' 2.22"	3' 3.82"	3' 2.13"	3' 3.92"
3' 1.48"	3' 2.54"	3' 1.42"	3' 2.6"	3' 1.35"	3' 2.68"	3' 1.27"	3' 2.76"	3' 1.18"	3' 2.86"
3' 0.51"	3' 1.5"	3' 0.45"	3' 1.56"	3' 0.39"	3' 1.64"	3' 0.32"	3' 1.72"	3' 0.23"	3' 1.8"
2' 11.55"	3' 0.47"	2' 11.49"	3' 0.53"	2' 11.43"	3' 0.59"	2' 11.36"	3' 0.67"	2' 11.28"	3' 0.75"
2' 10.58"	2' 11.44"	2' 10.52"	2' 11.49"	2' 10.47"	2' 11.55"	2' 10.4"	2' 11.62"	2' 10.33"	2' 11.7"
2' 9.61"	2' 10.41"	2' 9.56"	2' 10.46"	2' 9.5"	2' 10.51"	2' 9.45"	2' 10.58"	2' 9.38"	2' 10.65"
2' 8.63"	2' 9.38"	2' 8.59"	2' 9.42"	2' 8.54"	2' 9.48"	2' 8.49"	2' 9.53"	2' 8.42"	2' 9.6"
2' 7.66"	2' 8.35"	2' 7.62"	2' 8.39"	2' 7.58"	2' 8.44"	2' 7.52"	2' 8.49"	2' 7.47"	2' 8.56"
2' 6.69"	2' 7.32"	2' 6.65"	2' 7.36"	2' 6.61"	2' 7.4"	2' 6.56"	2' 7.45"	2' 6.51"	2' 7.51"
2' 5.71"	2' 6.29"	2' 5.68"	2' 6.33"	2' 5.64"	2' 6.37"	2' 5.6"	2' 6.42"	2' 5.55"	2' 6.47"



9	10	11	13	14
85' 5.67"	76' 2.69"	67' 11.83"	60' 7.76"	54' 1.29"

9		10		11		13		14	
Short Focus (ft-inch)	Long Focus (ft-inch)	Short Focus (ft-inch)	Long Focus (ft-inch)	Short Focus (ft-inch)	Long Focus (ft-inch)	Short Focus (ft-inch)	Long Focus (ft-inch)	Short Focus (ft-inch)	Long Focus (ft-inch)
85' 2.69"	Infinity	75' 11.72"	Infinity	67' 8.86"	Infinity	60' 4.78"	Infinity	53' 10.32"	Infinity
60' 0.07"	Infinity	55' 3.54"	Infinity	50' 9.87"	Infinity	46' 7.18"	Infinity	42' 7.54"	Infinity
46' 3.64"	Infinity	43' 5.55"	Infinity	40' 7.99"	Infinity	37' 11.17"	Infinity	35' 3.27"	Infinity
31' 9.43"	118' 10.01"	30' 5.23"	143' 1.29"	29' 0.64"	185' 9.09"	27' 7.75"	279' 4.27"	26' 2.66"	644' 6.61"
27' 5.73"	74' 1.95"	26' 5.63"	82' 10.6"	25' 5.07"	95' 6.1"	24' 4.13"	115' 2.91"	23' 2.88"	150' 1.45"
22' 4.97"	45' 7.16"	21' 8.94"	48' 8.6"	21' 0.49"	52' 9.31"	20' 3.65"	58' 2.77"	19' 6.44"	65' 10.67"
19' 6.41"	34' 10.27"	19' 0.34"	36' 7.63"	18' 5.89"	38' 10.39"	17' 11.08"	41' 8.65"	17' 3.94"	45' 5.73"
16' 4.54"	25' 9.08"	16' 0.3"	26' 8.44"	15' 7.76"	27' 10.25"	15' 2.92"	29' 3.27"	14' 9.78"	31' 0.6"
14' 4.01"	20' 11.21"	14' 0.79"	21' 6.59"	13' 9.31"	22' 3.41"	13' 5.59"	23' 2.07"	13' 1.61"	24' 3.12"
12' 10.83"	17' 11.38"	12' 8.24"	18' 4.72"	12' 5.44"	18' 11.05"	12' 2.41"	19' 6.62"	11' 11.17"	20' 3.75"
12' 1.98"	16' 6.21"	11' 11.69"	16' 10.7"	11' 9.2"	17' 3.99"	11' 6.52"	17' 10.29"	11' 3.62"	18' 5.83"
11' 4.95"	15' 1.51"	11' 2.94"	15' 5.25"	11' 0.76"	15' 9.63"	10' 10.4"	16' 2.81"	10' 7.85"	16' 8.98"
10' 7.73"	13' 9.28"	10' 5.99"	14' 0.34"	10' 4.1"	14' 3.92"	10' 2.05"	14' 8.13"	9' 11.84"	15' 1.12"
9' 10.31"	12' 5.47"	9' 8.84"	12' 7.95"	9' 7.22"	12' 10.83"	9' 5.47"	13' 2.21"	9' 3.57"	13' 6.19"
9' 0.69"	11' 2.09"	8' 11.46"	11' 4.06"	8' 10.11"	11' 6.34"	8' 8.64"	11' 9"	8' 7.04"	12' 0.11"
8' 7.81"	10' 6.55"	8' 6.69"	10' 8.29"	8' 5.47"	10' 10.3"	8' 4.13"	11' 0.64"	8' 2.67"	11' 3.37"
8' 2.87"	9' 11.11"	8' 1.87"	10' 0.63"	8' 0.76"	10' 2.4"	7' 11.55"	10' 4.45"	7' 10.23"	10' 6.83"
7' 9.88"	9' 3.76"	7' 8.98"	9' 5.1"	7' 7.99"	9' 6.63"	7' 6.91"	9' 8.41"	7' 5.72"	9' 10.48"
7' 4.84"	8' 8.51"	7' 4.04"	8' 9.67"	7' 3.16"	8' 10.99"	7' 2.19"	9' 0.53"	7' 1.13"	9' 2.3"
6' 11.74"	8' 1.35"	6' 11.03"	8' 2.34"	6' 10.26"	8' 3.48"	6' 9.41"	8' 4.79"	6' 8.47"	8' 6.3"
6' 6.58"	7' 6.29"	6' 5.97"	7' 7.13"	6' 5.29"	7' 8.09"	6' 4.55"	7' 9.2"	6' 3.73"	7' 10.48"
6' 3.98"	7' 2.79"	6' 3.41"	7' 3.56"	6' 2.78"	7' 4.44"	6' 2.09"	7' 5.46"	6' 1.33"	7' 6.62"
6' 1.37"	6' 11.31"	6' 0.84"	7' 0.02"	6' 0.26"	7' 0.82"	5' 11.62"	7' 1.75"	5' 10.91"	7' 2.81"
5' 10.74"	6' 7.86"	5' 10.25"	6' 8.5"	5' 9.72"	6' 9.23"	5' 9.12"	6' 10.07"	5' 8.47"	6' 11.04"
5' 8.1"	6' 4.42"	5' 7.65"	6' 5.01"	5' 7.16"	6' 5.67"	5' 6.61"	6' 6.43"	5' 6.01"	6' 7.31"
5' 5.44"	6' 1.01"	5' 5.03"	6' 1.54"	5' 4.58"	6' 2.14"	5' 4.08"	6' 2.83"	5' 3.53"	6' 3.61"
5' 2.77"	5' 9.62"	5' 2.39"	5' 10.09"	5' 1.98"	5' 10.63"	5' 1.53"	5' 11.25"	5' 1.02"	5' 11.96"
5' 0.08"	5' 6.25"	4' 11.74"	5' 6.68"	4' 11.37"	5' 7.16"	4' 10.95"	5' 7.71"	4' 10.5"	5' 8.34"
4' 9.38"	5' 2.9"	4' 9.07"	5' 3.28"	4' 8.74"	5' 3.71"	4' 8.36"	5' 4.2"	4' 7.95"	5' 4.76"
4' 8.47"	5' 1.79"	4' 8.18"	5' 2.15"	4' 7.85"	5' 2.57"	4' 7.49"	5' 3.04"	4' 7.1"	5' 3.57"
4' 7.57"	5' 0.68"	4' 7.28"	5' 1.03"	4' 6.97"	5' 1.43"	4' 6.62"	5' 1.88"	4' 6.24"	5' 2.39"
4' 6.66"	4' 11.58"	4' 6.39"	4' 11.91"	4' 6.08"	5' 0.29"	4' 5.75"	5' 0.72"	4' 5.38"	5' 1.21"
4' 5.75"	4' 10.47"	4' 5.49"	4' 10.79"	4' 5.2"	4' 11.15"	4' 4.88"	4' 11.57"	4' 4.52"	5' 0.04"
4' 4.84"	4' 9.37"	4' 4.59"	4' 9.67"	4' 4.31"	4' 10.02"	4' 4"	4' 10.42"	4' 3.66"	4' 10.87"
4' 3.93"	4' 8.27"	4' 3.68"	4' 8.56"	4' 3.42"	4' 8.89"	4' 3.12"	4' 9.27"	4' 2.79"	4' 9.7"
4' 3.01"	4' 7.17"	4' 2.78"	4' 7.45"	4' 2.52"	4' 7.77"	4' 2.24"	4' 8.13"	4' 1.92"	4' 8.54"
4' 2.1"	4' 6.07"	4' 1.87"	4' 6.34"	4' 1.63"	4' 6.64"	4' 1.35"	4' 6.99"	4' 1.05"	4' 7.38"
4' 1.18"	4' 4.98"	4' 0.96"	4' 5.24"	4' 0.73"	4' 5.52"	4' 0.46"	4' 5.85"	4' 0.17"	4' 6.23"
4' 0.26"	4' 3.89"	4' 0.05"	4' 4.13"	3' 11.83"	4' 4.41"	3' 11.58"	4' 4.72"	3' 11.3"	4' 5.08"
3' 11.34"	4' 2.8"	3' 11.14"	4' 3.03"	3' 10.93"	4' 3.29"	3' 10.68"	4' 3.59"	3' 10.42"	4' 3.93"
3' 10.41"	4' 1.71"	3' 10.23"	4' 1.93"	3' 10.02"	4' 2.18"	3' 9.79"	4' 2.47"	3' 9.54"	4' 2.79"
3' 9.49"	4' 0.63"	3' 9.31"	4' 0.84"	3' 9.11"	4' 1.08"	3' 8.89"	4' 1.34"	3' 8.65"	4' 1.65"
3' 8.56"	3' 11.55"	3' 8.39"	3' 11.75"	3' 8.21"	3' 11.97"	3' 8"	4' 0.22"	3' 7.76"	4' 0.51"
3' 7.63"	3' 10.47"	3' 7.47"	3' 10.66"	3' 7.29"	3' 10.87"	3' 7.1"	3' 11.11"	3' 6.87"	3' 11.38"
3' 6.7"	3' 9.39"	3' 6.55"	3' 9.57"	3' 6.38"	3' 9.77"	3' 6.19"	3' 10"	3' 5.98"	3' 10.25"
3' 5.77"	3' 8.31"	3' 5.63"	3' 8.48"	3' 5.47"	3' 8.67"	3' 5.29"	3' 8.89"	3' 5.09"	3' 9.13"
3' 4.84"	3' 7.24"	3' 4.7"	3' 7.4"	3' 4.55"	3' 7.58"	3' 4.38"	3' 7.78"	3' 4.19"	3' 8.01"
3' 3.9"	3' 6.17"	3' 3.77"	3' 6.32"	3' 3.63"	3' 6.49"	3' 3.47"	3' 6.68"	3' 3.29"	3' 6.89"
3' 2.97"	3' 5.1"	3' 2.84"	3' 5.24"	3' 2.71"	3' 5.4"	3' 2.56"	3' 5.58"	3' 2.39"	3' 5.78"
3' 2.03"	3' 4.03"	3' 1.91"	3' 4.16"	3' 1.78"	3' 4.31"	3' 1.64"	3' 4.48"	3' 1.48"	3' 4.67"
3' 1.09"	3' 2.97"	3' 0.98"	3' 3.09"	3' 0.86"	3' 3.23"	3' 0.72"	3' 3.39"	3' 0.57"	3' 3.57"
3' 0.14"	3' 1.91"	3' 0.04"	3' 2.02"	2' 11.93"	3' 2.15"	2' 11.8"	3' 2.3"	2' 11.66"	3' 2.46"
2' 11.2"	3' 0.85"	2' 11.1"	3' 0.95"	2' 11"	3' 1.07"	2' 10.88"	3' 1.21"	2' 10.75"	3' 1.36"
2' 10.25"	2' 11.79"	2' 10.16"	2' 11.89"	2' 10.06"	3'	2' 9.95"	3' 0.13"	2' 9.83"	3' 0.27"
2' 9.3"	2' 10.73"	2' 9.22"	2' 10.82"	2' 9.13"	2' 10.93"	2' 9.03"	2' 11.05"	2' 8.91"	2' 11.18"
2' 8.35"	2' 9.68"	2' 8.28"	2' 9.76"	2' 8.19"	2' 9.86"	2' 8.1"	2' 9.97"	2' 7.99"	2' 10.09"
2' 7.4"	2' 8.63"	2' 7.33"	2' 8.7"	2' 7.25"	2' 8.79"	2' 7.16"	2' 8.89"	2' 7.06"	2' 9.01"
2' 6.45"	2' 7.58"	2' 6.38"	2' 7.65"	2' 6.31"	2' 7.73"	2' 6.23"	2' 7.82"	2' 6.14"	2' 7.93"
2' 5.49"	2' 6.53"	2' 5.43"	2' 6.59"	2' 5.37"	2' 6.67"	2' 5.29"	2' 6.75"	2' 5.21"	2' 6.85"



16	18	20	22
48' 3.37"	43' 1.09"	38' 5.61"	34' 4.17"

16		18		20		22	
Short Focus (ft-inch)	Long Focus (ft-inch)	Short Focus (ft-inch)	Long Focus (ft-inch)	Short Focus (ft-inch)	Long Focus (ft-inch)	Short Focus (ft-inch)	Long Focus (ft-inch)
48' 0.41"	Infinity	42' 10.13"	Infinity	38' 2.64"	Infinity	34' 1.21"	Infinity
38' 10.98"	Infinity	35' 5.46"	Infinity	32' 2.95"	Infinity	29' 3.35"	Infinity
32' 8.46"	Infinity	30' 2.88"	Infinity	27' 10.63"	Infinity	25' 7.81"	Infinity
24' 9.5"	Infinity	23' 4.38"	Infinity	21' 11.4"	Infinity	20' 6.68"	Infinity
22' 1.39"	227' 7.09"	20' 11.75"	542' 7.03"	19' 10.06"	Infinity	18' 8.39"	Infinity
18' 8.93"	77' 3.91"	17' 11.15"	96' 1.07"	17' 1.16"	132' 2.18"	16' 3.02"	229' 0.02"
16' 8.47"	50' 7.22"	16' 0.72"	57' 11.36"	15' 4.73"	69' 3.1"	14' 8.53"	88' 9.16"
14' 4.36"	33' 3.92"	13' 10.67"	36' 3.86"	13' 4.72"	40' 4.91"	12' 10.55"	46' 3.22"
12' 9.38"	25' 7.35"	12' 4.9"	27' 3.91"	12' 0.19"	29' 6.6"	11' 7.25"	32' 6.36"
11' 7.7"	21' 2.91"	11' 4.01"	22' 4.75"	11' 0.1"	23' 10.23"	10' 7.99"	25' 8.85"
11' 0.53"	19' 2.98"	10' 9.22"	20' 2.22"	10' 5.71"	21' 4.24"	10' 1.99"	22' 10.11"
10' 5.11"	17' 4.41"	10' 2.18"	18' 1.45"	9' 11.05"	19' 0.61"	9' 7.74"	20' 2.62"
9' 9.44"	15' 7.09"	9' 6.88"	16' 2.28"	9' 4.13"	16' 11.06"	9' 1.21"	17' 9.95"
9' 1.51"	13' 10.9"	8' 11.3"	14' 4.55"	8' 8.92"	14' 11.38"	8' 6.38"	15' 7.73"
8' 5.3"	12' 3.78"	8' 3.42"	12' 8.13"	8' 1.4"	13' 1.35"	7' 11.23"	13' 7.67"
8' 1.09"	11' 6.58"	7' 11.37"	11' 10.38"	7' 9.52"	12' 2.91"	7' 7.53"	12' 8.37"
7' 8.8"	10' 9.62"	7' 7.24"	11' 0.92"	7' 5.55"	11' 4.82"	7' 3.74"	11' 9.51"
7' 4.43"	10' 0.89"	7' 3.02"	10' 3.72"	7' 1.5"	10' 7.07"	6' 11.86"	10' 11.07"
6' 11.98"	9' 4.37"	6' 10.72"	9' 6.79"	6' 9.36"	9' 9.64"	6' 7.89"	10' 1.03"
6' 7.45"	8' 8.06"	6' 6.34"	8' 10.11"	6' 5.13"	9' 0.52"	6' 3.82"	9' 3.36"
6' 2.84"	7' 11.95"	6' 1.86"	8' 1.67"	6' 0.8"	8' 3.68"	5' 11.64"	8' 6.05"
6' 0.5"	7' 7.97"	5' 11.59"	7' 9.54"	5' 10.59"	7' 11.37"	5' 9.51"	8' 1.51"
5' 10.14"	7' 4.04"	5' 9.29"	7' 5.47"	5' 8.37"	7' 7.12"	5' 7.36"	7' 9.07"
5' 7.76"	7' 0.16"	5' 6.97"	7' 1.44"	5' 6.11"	7' 2.94"	5' 5.18"	7' 4.7"
5' 5.35"	6' 8.31"	5' 4.63"	6' 9.48"	5' 3.83"	6' 10.83"	5' 2.97"	7' 0.4"
5' 2.92"	6' 4.52"	5' 2.26"	6' 5.57"	5' 1.53"	6' 6.78"	5' 0.73"	6' 8.18"
5' 0.47"	6' 0.77"	4' 11.86"	6' 1.7"	4' 11.19"	6' 2.78"	4' 10.46"	6' 4.04"
4' 9.99"	5' 9.06"	4' 9.44"	5' 9.89"	4' 8.83"	5' 10.85"	4' 8.17"	5' 11.97"
4' 7.5"	5' 5.4"	4' 6.99"	5' 6.13"	4' 6.44"	5' 6.98"	4' 5.84"	5' 7.96"
4' 6.66"	5' 4.19"	4' 6.17"	5' 4.89"	4' 5.64"	5' 5.7"	4' 5.06"	5' 6.64"
4' 5.82"	5' 2.98"	4' 5.35"	5' 3.65"	4' 4.84"	5' 4.43"	4' 4.27"	5' 5.33"
4' 4.97"	5' 1.78"	4' 4.52"	5' 2.42"	4' 4.03"	5' 3.17"	4' 3.48"	5' 4.02"
4' 4.13"	5' 0.58"	4' 3.69"	5' 1.2"	4' 3.21"	5' 1.91"	4' 2.69"	5' 2.73"
4' 3.28"	4' 11.38"	4' 2.86"	4' 11.97"	4' 2.4"	5' 0.65"	4' 1.89"	5' 1.44"
4' 2.42"	4' 10.19"	4' 2.02"	4' 10.76"	4' 1.58"	4' 11.41"	4' 1.09"	5' 0.15"
4' 1.57"	4' 9.01"	4' 1.18"	4' 9.55"	4' 0.76"	4' 10.17"	4' 0.29"	4' 10.88"
4' 0.71"	4' 7.83"	4' 0.34"	4' 8.34"	3' 11.93"	4' 8.93"	3' 11.48"	4' 9.61"
3' 11.85"	4' 6.65"	3' 11.5"	4' 7.14"	3' 11.1"	4' 7.7"	3' 10.67"	4' 8.35"
3' 10.99"	4' 5.48"	3' 10.65"	4' 5.95"	3' 10.27"	4' 6.48"	3' 9.86"	4' 7.09"
3' 10.12"	4' 4.32"	3' 9.8"	4' 4.76"	3' 9.44"	4' 5.26"	3' 9.04"	4' 5.84"
3' 9.25"	4' 3.15"	3' 8.94"	4' 3.57"	3' 8.6"	4' 4.05"	3' 8.22"	4' 4.6"
3' 8.38"	4' 2"	3' 8.08"	4' 2.39"	3' 7.75"	4' 2.85"	3' 7.39"	4' 3.37"
3' 7.51"	4' 0.84"	3' 7.22"	4' 1.22"	3' 6.91"	4' 1.65"	3' 6.56"	4' 2.14"
3' 6.63"	3' 11.69"	3' 6.36"	4' 0.05"	3' 6.06"	4' 0.46"	3' 5.73"	4' 0.92"
3' 5.75"	3' 10.55"	3' 5.49"	3' 10.88"	3' 5.21"	3' 11.27"	3' 4.89"	3' 11.71"
3' 4.87"	3' 9.41"	3' 4.62"	3' 9.72"	3' 4.35"	3' 10.09"	3' 4.05"	3' 10.5"
3' 3.98"	3' 8.27"	3' 3.75"	3' 8.57"	3' 3.49"	3' 8.91"	3' 3.21"	3' 9.3"
3' 3.09"	3' 7.14"	3' 2.87"	3' 7.42"	3' 2.63"	3' 7.74"	3' 2.36"	3' 8.1"
3' 2.2"	3' 6.01"	3' 1.99"	3' 6.27"	3' 1.76"	3' 6.57"	3' 1.51"	3' 6.91"
3' 1.3"	3' 4.89"	3' 1.11"	3' 5.13"	3' 0.89"	3' 5.41"	3' 0.65"	3' 5.73"
3' 0.41"	3' 3.77"	3' 0.22"	3' 4"	3' 0.02"	3' 4.26"	2' 11.79"	3' 4.56"
2' 11.51"	3' 2.65"	2' 11.33"	3' 2.87"	2' 11.14"	3' 3.11"	2' 10.93"	3' 3.39"
2' 10.6"	3' 1.54"	2' 10.44"	3' 1.74"	2' 10.26"	3' 1.97"	2' 10.06"	3' 2.23"
2' 9.69"	3' 0.43"	2' 9.54"	3' 0.62"	2' 9.37"	3' 0.83"	2' 9.19"	3' 1.07"
2' 8.78"	2' 11.33"	2' 8.64"	2' 11.5"	2' 8.48"	2' 11.7"	2' 8.31"	2' 11.92"
2' 7.87"	2' 10.23"	2' 7.74"	2' 10.39"	2' 7.59"	2' 10.57"	2' 7.43"	2' 10.77"
2' 6.95"	2' 9.13"	2' 6.83"	2' 9.28"	2' 6.7"	2' 9.45"	2' 6.55"	2' 9.63"
2' 6.04"	2' 8.04"	2' 5.92"	2' 8.18"	2' 5.8"	2' 8.33"	2' 5.66"	2' 8.5"
2' 5.11"	2' 6.96"	2' 5.01"	2' 7.08"	2' 4.89"	2' 7.22"	2' 4.76"	2' 7.37"



Focal Length 100 mm

Circle of Confusion 0.025 mm

T/No	1.8	2	2.2	2.5
Hyperfocal Distance (ft-inch)	763' 2.94"	680' 0.47"	605' 10.98"	539' 10.5"

T/No	1.8		2		2.2		2.5	
Focus Distance (ft-inch)	Short Focus (ft-inch)	Long Focus (ft-inch)	Short Focus (ft-inch)	Long Focus (ft-inch)	Short Focus (ft-inch)	Long Focus (ft-inch)	Short Focus (ft-inch)	Long Focus (ft-inch)
Infinity	762' 8.86"	Infinity	679' 6.85"	Infinity	605' 5.69"	Infinity	539' 5.5"	Infinity
400' 0"	262' 7.43"	839' 5.75"	252' 0.28"	970' 0.64"	241' 1.27"	1175' 3.17"	229' 11.12"	1541' 3.42"
200' 0"	158' 7.3"	270' 8.35"	154' 8.27"	282' 11.39"	150' 6.19"	298' 1.17"	146' 1.1"	317' 1.89"
100' 0"	88' 6.05"	114' 11.29"	87' 3.31"	117' 1.01"	85' 11.25"	119' 7.05"	84' 5.8"	122' 6.34"
80' 0"	72' 5.82"	89' 3.14"	71' 7.93"	90' 6.55"	70' 9.1"	92' 0.38"	69' 9.26"	93' 9.12"
60' 0"	55' 8.24"	65' 0.51"	55' 2.41"	65' 8.63"	54' 7.98"	66' 5.94"	54' 0.92"	67' 4.67"
50' 0"	46' 11.72"	53' 5.3"	46' 7.58"	53' 10.76"	46' 3"	54' 4.99"	45' 9.95"	55' 0.14"
40' 0"	38' 0.6"	42' 1.95"	37' 9.89"	42' 5.32"	37' 6.89"	42' 9.16"	37' 3.57"	43' 1.54"
35' 0"	33' 6.03"	36' 7.67"	33' 3.94"	36' 10.2"	33' 1.61"	37' 1.09"	32' 11.03"	37' 4.37"
30' 0"	28' 10.77"	31' 2.29"	28' 9.22"	31' 4.12"	28' 7.49"	31' 6.19"	28' 5.58"	31' 8.55"
25' 0"	24' 2.81"	25' 9.79"	24' 1.73"	25' 11.04"	24' 0.52"	26' 0.45"	23' 11.17"	26' 2.04"
22' 0"	21' 4.89"	22' 7.52"	21' 4.05"	22' 8.47"	21' 3.11"	22' 9.54"	21' 2.06"	22' 10.76"
20' 0"	19' 6.14"	20' 6.17"	19' 5.44"	20' 6.95"	19' 4.66"	20' 7.83"	19' 3.79"	20' 8.82"
19' 0"	18' 6.71"	19' 5.55"	18' 6.08"	19' 6.24"	18' 5.38"	19' 7.03"	18' 4.6"	19' 7.92"
18' 0"	17' 7.26"	18' 4.96"	17' 6.7"	18' 5.58"	17' 6.07"	18' 6.28"	17' 5.36"	18' 7.08"
17' 0"	16' 7.78"	17' 4.4"	16' 7.28"	17' 4.96"	16' 6.72"	17' 5.58"	16' 6.09"	17' 6.28"
16' 0"	15' 8.27"	16' 3.88"	15' 7.83"	16' 4.37"	15' 7.33"	16' 4.92"	15' 6.77"	16' 5.54"
15' 0"	14' 8.73"	15' 3.39"	14' 8.34"	15' 3.82"	14' 7.9"	15' 4.3"	14' 7.41"	15' 4.84"
14' 0"	13' 9.16"	14' 2.94"	13' 8.82"	14' 3.31"	13' 8.44"	14' 3.72"	13' 8.02"	14' 4.19"
13' 0"	12' 9.56"	13' 2.52"	12' 9.27"	13' 2.83"	12' 8.94"	13' 3.19"	12' 8.58"	13' 3.59"
12' 0"	11' 9.93"	12' 2.13"	11' 9.68"	12' 2.39"	11' 9.41"	12' 2.69"	11' 9.09"	12' 3.03"
11' 0"	10' 10.27"	11' 1.77"	10' 10.07"	11' 1.99"	10' 9.83"	11' 2.24"	10' 9.57"	11' 2.52"
10' 6"	10' 4.43"	10' 7.61"	10' 4.24"	10' 7.81"	10' 4.03"	10' 8.03"	10' 3.79"	10' 8.29"
10' 0"	9' 10.58"	10' 1.45"	9' 10.41"	10' 1.63"	9' 10.22"	10' 1.83"	9' 10.01"	10' 2.06"
9' 6"	9' 4.73"	9' 7.3"	9' 4.57"	9' 7.46"	9' 4.4"	9' 7.65"	9' 4.21"	9' 7.85"
9' 0"	8' 10.86"	9' 1.16"	8' 10.73"	9' 1.31"	8' 10.57"	9' 1.47"	8' 10.4"	9' 1.65"
8' 6"	8' 4.99"	8' 7.03"	8' 4.87"	8' 7.16"	8' 4.73"	8' 7.3"	8' 4.58"	8' 7.46"
8' 0"	7' 11.11"	8' 0.9"	7' 11.01"	8' 1.02"	7' 10.88"	8' 1.14"	7' 10.75"	8' 1.28"
7' 9"	7' 8.17"	7' 9.85"	7' 8.07"	7' 9.95"	7' 7.96"	7' 10.07"	7' 7.83"	7' 10.2"
7' 6"	7' 5.23"	7' 6.79"	7' 5.13"	7' 6.89"	7' 5.03"	7' 7"	7' 4.91"	7' 7.12"
7' 3"	7' 2.28"	7' 3.73"	7' 2.19"	7' 3.82"	7' 2.09"	7' 3.93"	7' 1.98"	7' 4.04"
7' 0"	6' 11.33"	7' 0.68"	6' 11.25"	7' 0.76"	6' 11.16"	7' 0.86"	6' 11.06"	7' 0.96"
6' 9"	6' 8.38"	6' 9.63"	6' 8.31"	6' 9.71"	6' 8.22"	6' 9.79"	6' 8.13"	6' 9.89"
6' 6"	6' 5.43"	6' 6.58"	6' 5.36"	6' 6.65"	6' 5.28"	6' 6.73"	6' 5.2"	6' 6.82"
6' 3"	6' 2.48"	6' 3.53"	6' 2.41"	6' 3.6"	6' 2.34"	6' 3.67"	6' 2.26"	6' 3.76"
6' 0"	5' 11.52"	6' 0.49"	5' 11.46"	6' 0.55"	5' 11.4"	6' 0.62"	5' 11.32"	6' 0.69"
5' 9"	5' 8.56"	5' 9.44"	5' 8.51"	5' 9.5"	5' 8.45"	5' 9.56"	5' 8.38"	5' 9.63"
5' 6"	5' 5.6"	5' 6.4"	5' 5.55"	5' 6.45"	5' 5.5"	5' 6.51"	5' 5.44"	5' 6.57"
5' 3"	5' 2.64"	5' 3.36"	5' 2.6"	5' 3.41"	5' 2.55"	5' 3.46"	5' 2.49"	5' 3.52"
5' 0"	4' 11.68"	5' 0.33"	4' 11.64"	5' 0.37"	4' 11.59"	5' 0.41"	4' 11.54"	5' 0.46"
4' 11"	4' 10.69"	4' 11.31"	4' 10.65"	4' 11.35"	4' 10.61"	4' 11.4"	4' 10.56"	4' 11.45"
4' 10"	4' 9.7"	4' 10.3"	4' 9.66"	4' 10.34"	4' 9.62"	4' 10.38"	4' 9.58"	4' 10.43"
4' 9"	4' 8.71"	4' 9.29"	4' 8.68"	4' 9.33"	4' 8.64"	4' 9.37"	4' 8.59"	4' 9.41"
4' 8"	4' 7.72"	4' 8.28"	4' 7.69"	4' 8.32"	4' 7.65"	4' 8.35"	4' 7.61"	4' 8.4"
4' 7"	4' 6.73"	4' 7.27"	4' 6.7"	4' 7.3"	4' 6.66"	4' 7.34"	4' 6.62"	4' 7.38"
4' 6"	4' 5.74"	4' 6.26"	4' 5.71"	4' 6.29"	4' 5.68"	4' 6.33"	4' 5.64"	4' 6.37"
4' 5"	4' 4.75"	4' 5.25"	4' 4.72"	4' 5.28"	4' 4.69"	4' 5.31"	4' 4.65"	4' 5.35"
4' 4"	4' 3.76"	4' 4.24"	4' 3.74"	4' 4.27"	4' 3.7"	4' 4.3"	4' 3.67"	4' 4.34"
4' 3"	4' 2.77"	4' 3.23"	4' 2.75"	4' 3.26"	4' 2.72"	4' 3.29"	4' 2.68"	4' 3.32"
4' 2"	4' 1.78"	4' 2.22"	4' 1.76"	4' 2.24"	4' 1.73"	4' 2.27"	4' 1.7"	4' 2.31"
4' 1"	4' 0.79"	4' 1.21"	4' 0.77"	4' 1.23"	4' 0.74"	4' 1.26"	4' 0.71"	4' 1.29"
4' 0"	3' 11.8"	4' 0.2"	3' 11.78"	4' 0.22"	3' 11.75"	4' 0.25"	3' 11.72"	4' 0.28"
3' 11"	3' 10.81"	3' 11.19"	3' 10.79"	3' 11.21"	3' 10.76"	3' 11.24"	3' 10.74"	3' 11.27"



2.8	3.2	3.5	4	4.5
481' 0.52"	428' 7.5"	381' 11.15"	340' 3.94"	303' 3.17"

2.8		3.2		3.5		4		4.5	
Short Focus (ft-inch)	Long Focus (ft-inch)	Short Focus (ft-inch)	Long Focus (ft-inch)	Short Focus (ft-inch)	Long Focus (ft-inch)	Short Focus (ft-inch)	Long Focus (ft-inch)	Short Focus (ft-inch)	Long Focus (ft-inch)
480' 7.71"	Infinity	428' 2.91"	Infinity	381' 6.69"	Infinity	339' 11.58"	Infinity	302' 10.91"	Infinity
218' 6.64"	2369' 9.86"	207' 0.71"	5976' 6.01"	195' 6.22"	Infinity	184' 0.1"	Infinity	172' 7.27"	Infinity
141' 5.11"	341' 8.21"	136' 6.39"	374' 2"	131' 5.14"	418' 10.44"	126' 1.64"	483' 9.07"	120' 8.21"	585' 7.18"
82' 10.9"	126' 0.08"	81' 2.52"	130' 1.86"	79' 4.62"	135' 1.79"	77' 5.18"	141' 2.8"	75' 4.21"	148' 9.03"
68' 8.36"	95' 9.34"	67' 6.35"	98' 1.81"	66' 3.18"	100' 11.49"	64' 10.82"	104' 3.68"	63' 5.24"	108' 4.1"
53' 5.18"	68' 5.06"	52' 8.7"	69' 7.43"	51' 11.45"	71' 0.17"	51' 1.38"	72' 7.79"	50' 2.47"	74' 6.91"
45' 4.4"	55' 8.34"	44' 10.29"	56' 5.8"	44' 3.6"	57' 4.75"	43' 8.29"	58' 5.47"	43' 0.32"	59' 8.32"
36' 11.9"	43' 6.55"	36' 7.85"	44' 0.29"	36' 3.39"	44' 6.89"	35' 10.49"	45' 2.49"	35' 5.13"	45' 11.29"
32' 8.18"	37' 8.11"	32' 5.03"	38' 0.38"	32' 1.55"	38' 5.28"	31' 9.72"	38' 10.91"	31' 5.51"	39' 5.39"
28' 3.45"	31' 11.23"	28' 1.1"	32' 2.28"	27' 10.49"	32' 5.77"	27' 7.62"	32' 9.76"	27' 4.45"	33' 2.34"
23' 9.68"	26' 3.85"	23' 8.02"	26' 5.91"	23' 6.18"	26' 8.26"	23' 4.14"	26' 10.93"	23' 1.89"	27' 1.98"
21' 0.9"	23' 0.14"	20' 11.6"	23' 1.7"	20' 10.17"	23' 3.48"	20' 8.57"	23' 5.5"	20' 6.81"	23' 7.81"
19' 2.83"	20' 9.94"	19' 1.75"	20' 11.22"	19' 0.56"	21' 0.67"	18' 11.23"	21' 2.31"	18' 9.76"	21' 4.19"
18' 3.72"	19' 8.93"	18' 2.75"	19' 10.08"	18' 1.67"	19' 11.37"	18' 0.47"	20' 0.85"	17' 11.14"	20' 2.52"
17' 4.58"	18' 7.98"	17' 3.7"	18' 9"	17' 2.73"	18' 10.15"	17' 1.65"	18' 11.46"	17' 0.46"	19' 0.95"
16' 5.39"	17' 7.08"	16' 4.61"	17' 7.98"	16' 3.74"	17' 9"	16' 2.77"	17' 10.16"	16' 1.7"	17' 11.48"
15' 6.15"	16' 6.24"	15' 5.46"	16' 7.03"	15' 4.69"	16' 7.93"	15' 3.83"	16' 8.94"	15' 2.88"	16' 10.1"
14' 6.87"	15' 5.45"	14' 6.26"	15' 6.14"	14' 5.58"	15' 6.92"	14' 4.83"	15' 7.8"	14' 3.99"	15' 8.81"
13' 7.54"	14' 4.71"	13' 7.01"	14' 5.31"	13' 6.42"	14' 5.98"	13' 5.76"	14' 6.75"	13' 5.03"	14' 7.61"
12' 8.17"	13' 4.04"	12' 7.71"	13' 4.54"	12' 7.2"	13' 5.12"	12' 6.64"	13' 5.77"	12' 6"	13' 6.51"
11' 8.75"	12' 3.41"	11' 8.36"	12' 3.84"	11' 7.93"	12' 4.32"	11' 7.44"	12' 4.87"	11' 6.91"	12' 5.49"
10' 9.28"	11' 2.84"	10' 8.96"	11' 3.2"	10' 8.59"	11' 3.6"	10' 8.19"	11' 4.05"	10' 7.74"	11' 4.57"
10' 3.53"	10' 8.57"	10' 3.23"	10' 8.9"	10' 2.9"	10' 9.26"	10' 2.54"	10' 9.67"	10' 2.12"	10' 10.14"
9' 9.77"	10' 2.32"	9' 9.5"	10' 2.61"	9' 9.2"	10' 2.94"	9' 8.87"	10' 3.31"	9' 8.5"	10' 3.73"
9' 3.99"	9' 8.08"	9' 3.75"	9' 8.34"	9' 3.48"	9' 8.64"	9' 3.18"	9' 8.97"	9' 2.85"	9' 9.34"
8' 10.21"	9' 1.86"	8' 9.99"	9' 2.09"	8' 9.75"	9' 2.35"	8' 9.48"	9' 2.64"	8' 9.18"	9' 2.98"
8' 4.41"	8' 7.64"	8' 4.22"	8' 7.85"	8' 4"	8' 8.08"	8' 3.77"	8' 8.34"	8' 3.5"	8' 8.64"
7' 10.6"	8' 1.44"	7' 10.43"	8' 1.62"	7' 10.24"	8' 1.83"	7' 10.03"	8' 2.06"	7' 9.8"	8' 2.31"
7' 7.69"	7' 10.35"	7' 7.53"	7' 10.52"	7' 7.36"	7' 10.71"	7' 7.16"	7' 10.92"	7' 6.94"	7' 11.16"
7' 4.78"	7' 7.26"	7' 4.63"	7' 7.41"	7' 4.47"	7' 7.59"	7' 4.28"	7' 7.79"	7' 4.08"	7' 8.01"
7' 1.86"	7' 4.17"	7' 1.73"	7' 4.32"	7' 1.57"	7' 4.48"	7' 1.4"	7' 4.66"	7' 1.21"	7' 4.87"
6' 10.94"	7' 1.08"	6' 10.82"	7' 1.22"	6' 10.67"	7' 1.37"	6' 10.51"	7' 1.54"	6' 10.34"	7' 1.74"
6' 8.02"	6' 10"	6' 7.9"	6' 10.13"	6' 7.77"	6' 10.27"	6' 7.62"	6' 10.43"	6' 7.46"	6' 10.6"
6' 5.1"	6' 6.92"	6' 4.99"	6' 7.04"	6' 4.87"	6' 7.17"	6' 4.73"	6' 7.31"	6' 4.58"	6' 7.48"
6' 2.17"	6' 3.85"	6' 2.07"	6' 3.95"	6' 1.96"	6' 4.07"	6' 1.83"	6' 4.21"	6' 1.69"	6' 4.36"
5' 11.24"	6' 0.78"	5' 11.15"	6' 0.87"	5' 11.05"	6' 0.98"	5' 10.93"	6' 1.1"	5' 10.8"	6' 1.24"
5' 8.31"	5' 9.71"	5' 8.22"	5' 9.8"	5' 8.13"	5' 9.89"	5' 8.02"	5' 10.01"	5' 7.91"	5' 10.13"
5' 5.37"	5' 6.64"	5' 5.29"	5' 6.72"	5' 5.21"	5' 6.81"	5' 5.11"	5' 6.91"	5' 5.01"	5' 7.03"
5' 2.43"	5' 3.58"	5' 2.36"	5' 3.65"	5' 2.29"	5' 3.73"	5' 2.2"	5' 3.82"	5' 2.1"	5' 3.93"
4' 11.49"	5' 0.52"	4' 11.43"	5' 0.58"	4' 11.36"	5' 0.66"	4' 11.28"	5' 0.74"	4' 11.19"	5' 0.83"
4' 10.51"	4' 11.5"	4' 10.45"	4' 11.56"	4' 10.38"	4' 11.63"	4' 10.31"	4' 11.71"	4' 10.22"	4' 11.8"
4' 9.53"	4' 10.48"	4' 9.47"	4' 10.54"	4' 9.4"	4' 10.61"	4' 9.33"	4' 10.69"	4' 9.25"	4' 10.77"
4' 8.54"	4' 9.46"	4' 8.49"	4' 9.52"	4' 8.43"	4' 9.59"	4' 8.36"	4' 9.66"	4' 8.28"	4' 9.74"
4' 7.56"	4' 8.45"	4' 7.51"	4' 8.5"	4' 7.45"	4' 8.56"	4' 7.38"	4' 8.63"	4' 7.31"	4' 8.71"
4' 6.58"	4' 7.43"	4' 6.53"	4' 7.48"	4' 6.47"	4' 7.54"	4' 6.41"	4' 7.61"	4' 6.33"	4' 7.68"
4' 5.59"	4' 6.41"	4' 5.55"	4' 6.46"	4' 5.49"	4' 6.52"	4' 5.43"	4' 6.58"	4' 5.36"	4' 6.66"
4' 4.61"	4' 5.39"	4' 4.56"	4' 5.44"	4' 4.51"	4' 5.5"	4' 4.45"	4' 5.56"	4' 4.39"	4' 5.63"
4' 3.63"	4' 4.38"	4' 3.58"	4' 4.43"	4' 3.53"	4' 4.48"	4' 3.47"	4' 4.54"	4' 3.41"	4' 4.6"
4' 2.64"	4' 3.36"	4' 2.6"	4' 3.41"	4' 2.55"	4' 3.46"	4' 2.5"	4' 3.51"	4' 2.44"	4' 3.58"
4' 1.66"	4' 2.35"	4' 1.62"	4' 2.39"	4' 1.57"	4' 2.44"	4' 1.52"	4' 2.49"	4' 1.46"	4' 2.55"
4' 0.67"	4' 1.33"	4' 0.63"	4' 1.37"	4' 0.59"	4' 1.42"	4' 0.54"	4' 1.47"	4' 0.48"	4' 1.53"
3' 11.69"	4' 0.32"	3' 11.65"	4' 0.35"	3' 11.61"	4' 0.4"	3' 11.56"	4' 0.45"	3' 11.51"	4' 0.5"
3' 10.7"	3' 11.3"	3' 10.67"	3' 11.34"	3' 10.63"	3' 11.38"	3' 10.58"	3' 11.43"	3' 10.53"	3' 11.48"



5	5.6	6.3	7.1	8
270' 2.95"	240' 9.96"	214' 7.47"	191' 3.28"	170' 5.67"

5		5.6		6.3		7.1		8	
Short Focus (ft-inch)	Long Focus (ft-inch)	Short Focus (ft-inch)	Long Focus (ft-inch)	Short Focus (ft-inch)	Long Focus (ft-inch)	Short Focus (ft-inch)	Long Focus (ft-inch)	Short Focus (ft-inch)	Long Focus (ft-inch)
269' 10.75"	Infinity	240' 5.8"	Infinity	214' 3.35"	Infinity	190' 11.21"	Infinity	170' 1.62"	Infinity
161' 4.59"	Infinity	150' 4.89"	Infinity	139' 8.92"	Infinity	129' 5.34"	Infinity	119' 6.7"	Infinity
115' 1.2"	766' 10.19"	109' 5.02"	1175' 3.05"	103' 8.11"	2923' 2.85"	97' 10.92"	Infinity	92' 1.91"	Infinity
73' 1.75"	158' 2.49"	70' 9.83"	170' 4.4"	68' 4.55"	186' 5.46"	65' 10"	208' 6.85"	63' 2.33"	240' 7.4"
61' 10.43"	113' 3.13"	60' 2.41"	119' 4.13"	58' 5.19"	127' 0.05"	56' 6.81"	136' 10.4"	54' 7.34"	149' 11.29"
49' 2.67"	76' 10.38"	48' 1.97"	79' 7.31"	47' 0.36"	82' 11.19"	45' 9.83"	87' 0.13"	44' 6.38"	92' 1.17"
42' 3.66"	61' 1.75"	41' 6.28"	62' 10.37"	40' 8.15"	64' 10.95"	39' 9.27"	67' 4.52"	38' 9.63"	70' 4.53"
34' 11.27"	46' 9.51"	34' 4.88"	47' 9.45"	33' 9.93"	48' 11.48"	33' 2.42"	50' 4.06"	32' 6.31"	51' 11.84"
31' 0.89"	40' 0.88"	30' 7.84"	40' 9.58"	30' 2.34"	41' 7.73"	29' 8.36"	42' 7.65"	29' 1.88"	43' 9.72"
27' 0.96"	33' 7.61"	26' 9.14"	34' 1.69"	26' 4.96"	34' 8.74"	26' 0.39"	35' 4.96"	25' 7.42"	36' 2.58"
22' 11.41"	27' 5.48"	22' 8.67"	27' 9.5"	22' 5.67"	28' 2.13"	22' 2.38"	28' 7.49"	21' 10.77"	29' 1.7"
20' 4.86"	23' 10.44"	20' 2.7"	24' 1.46"	20' 0.33"	24' 4.92"	19' 9.73"	24' 8.91"	19' 6.87"	25' 1.52"
18' 8.14"	21' 6.32"	18' 6.34"	21' 8.76"	18' 4.36"	21' 11.56"	18' 2.17"	22' 2.77"	17' 11.77"	22' 6.47"
17' 9.67"	20' 4.43"	17' 8.04"	20' 6.61"	17' 6.24"	20' 9.1"	17' 4.25"	20' 11.96"	17' 2.07"	21' 3.25"
16' 11.13"	19' 2.65"	16' 9.66"	19' 4.58"	16' 8.03"	19' 6.79"	16' 6.24"	19' 9.32"	16' 4.27"	20' 0.23"
16' 0.51"	18' 0.97"	15' 11.2"	18' 2.68"	15' 9.74"	18' 4.62"	15' 8.13"	18' 6.85"	15' 6.36"	18' 9.41"
15' 1.82"	16' 11.41"	15' 0.65"	17' 0.9"	14' 11.36"	17' 2.6"	14' 9.92"	17' 4.55"	14' 8.34"	17' 6.78"
14' 3.06"	15' 9.95"	14' 2.03"	15' 11.24"	14' 0.88"	16' 0.72"	13' 11.62"	16' 2.4"	13' 10.22"	16' 4.33"
13' 4.22"	14' 8.59"	13' 3.32"	14' 9.71"	13' 2.32"	14' 10.98"	13' 1.21"	15' 0.42"	12' 11.98"	15' 2.07"
12' 5.3"	13' 7.34"	12' 4.52"	13' 8.29"	12' 3.66"	13' 9.37"	12' 2.7"	13' 10.6"	12' 1.63"	14'
11' 6.31"	12' 6.19"	11' 5.64"	12' 6.99"	11' 4.9"	12' 7.9"	11' 4.08"	12' 8.92"	11' 3.17"	12' 10.09"
10' 7.23"	11' 5.15"	10' 6.67"	11' 5.81"	10' 6.05"	11' 6.55"	10' 5.36"	11' 7.4"	10' 4.6"	11' 8.37"
10' 1.67"	10' 10.66"	10' 1.16"	10' 11.26"	10' 0.59"	10' 11.93"	9' 11.96"	11' 0.7"	9' 11.26"	11' 1.57"
9' 8.08"	10' 4.2"	9' 7.62"	10' 4.74"	9' 7.1"	10' 5.34"	9' 6.53"	10' 6.03"	9' 5.9"	10' 6.81"
9' 2.47"	9' 9.77"	9' 2.06"	9' 10.24"	9' 1.59"	9' 10.79"	9' 1.08"	9' 11.4"	9' 0.51"	10' 0.1"
8' 8.85"	9' 3.35"	8' 8.47"	9' 3.78"	8' 8.06"	9' 4.26"	8' 7.6"	9' 4.81"	8' 7.08"	9' 5.43"
8' 3.2"	8' 8.97"	8' 2.87"	8' 9.34"	8' 2.5"	8' 9.77"	8' 2.09"	8' 10.25"	8' 1.63"	8' 10.8"
7' 9.53"	8' 2.61"	7' 9.24"	8' 2.93"	7' 8.91"	8' 3.31"	7' 8.55"	8' 3.73"	7' 8.15"	8' 4.21"
7' 6.69"	7' 11.43"	7' 6.42"	7' 11.74"	7' 6.11"	8' 0.09"	7' 5.77"	8' 0.48"	7' 5.39"	8' 0.93"
7' 3.85"	7' 8.27"	7' 3.59"	7' 8.55"	7' 3.3"	7' 8.88"	7' 2.98"	7' 9.24"	7' 2.63"	7' 9.65"
7' 0.99"	7' 5.11"	7' 0.76"	7' 5.37"	7' 0.49"	7' 5.67"	7' 0.19"	7' 6.01"	6' 11.86"	7' 6.39"
6' 10.14"	7' 1.95"	6' 9.92"	7' 2.2"	6' 9.67"	7' 2.48"	6' 9.39"	7' 2.79"	6' 9.08"	7' 3.14"
6' 7.28"	6' 10.8"	6' 7.07"	6' 11.03"	6' 6.84"	6' 11.29"	6' 6.58"	6' 11.58"	6' 6.3"	6' 11.9"
6' 4.41"	6' 7.66"	6' 4.22"	6' 7.87"	6' 4.01"	6' 8.11"	6' 3.77"	6' 8.37"	6' 3.5"	6' 8.67"
6' 1.54"	6' 4.53"	6' 1.36"	6' 4.72"	6' 1.17"	6' 4.93"	6' 0.95"	6' 5.18"	6' 0.7"	6' 5.45"
5' 10.66"	6' 1.4"	5' 10.5"	6' 1.57"	5' 10.32"	6' 1.77"	5' 10.12"	6' 1.99"	5' 9.89"	6' 2.24"
5' 7.78"	5' 10.27"	5' 7.63"	5' 10.43"	5' 7.46"	5' 10.61"	5' 7.28"	5' 10.81"	5' 7.08"	5' 11.04"
5' 4.89"	5' 7.15"	5' 4.75"	5' 7.3"	5' 4.6"	5' 7.46"	5' 4.44"	5' 7.64"	5' 4.25"	5' 7.85"
5' 1.99"	5' 4.04"	5' 1.87"	5' 4.17"	5' 1.74"	5' 4.32"	5' 1.59"	5' 4.48"	5' 1.42"	5' 4.67"
4' 11.1"	5' 0.93"	4' 10.99"	5' 1.05"	4' 10.87"	5' 1.18"	4' 10.73"	5' 1.33"	4' 10.58"	5' 1.5"
4' 10.13"	4' 11.9"	4' 10.02"	5' 0.01"	4' 9.91"	5' 0.14"	4' 9.78"	5' 0.28"	4' 9.63"	5' 0.44"
4' 9.16"	4' 10.87"	4' 9.06"	4' 10.97"	4' 8.95"	4' 11.1"	4' 8.82"	4' 11.23"	4' 8.68"	4' 11.39"
4' 8.19"	4' 9.83"	4' 8.09"	4' 9.94"	4' 7.99"	4' 10.05"	4' 7.86"	4' 10.19"	4' 7.73"	4' 10.34"
4' 7.22"	4' 8.8"	4' 7.13"	4' 8.9"	4' 7.02"	4' 9.01"	4' 6.91"	4' 9.14"	4' 6.78"	4' 9.28"
4' 6.25"	4' 7.77"	4' 6.16"	4' 7.87"	4' 6.06"	4' 7.97"	4' 5.95"	4' 8.09"	4' 5.82"	4' 8.23"
4' 5.28"	4' 6.74"	4' 5.2"	4' 6.83"	4' 5.1"	4' 6.93"	4' 4.99"	4' 7.05"	4' 4.87"	4' 7.18"
4' 4.31"	4' 5.71"	4' 4.23"	4' 5.8"	4' 4.14"	4' 5.9"	4' 4.03"	4' 6.01"	4' 3.92"	4' 6.13"
4' 3.34"	4' 4.68"	4' 3.26"	4' 4.76"	4' 3.17"	4' 4.86"	4' 3.07"	4' 4.96"	4' 2.96"	4' 5.09"
4' 2.37"	4' 3.65"	4' 2.29"	4' 3.73"	4' 2.21"	4' 3.82"	4' 2.11"	4' 3.92"	4' 2"	4' 4.04"
4' 1.4"	4' 2.62"	4' 1.32"	4' 2.7"	4' 1.24"	4' 2.78"	4' 1.15"	4' 2.88"	4' 1.05"	4' 2.99"
4' 0.42"	4' 1.59"	4' 0.35"	4' 1.67"	4' 0.27"	4' 1.75"	4' 0.19"	4' 1.84"	4' 0.09"	4' 1.95"
3' 11.45"	4' 0.57"	3' 11.38"	4' 0.64"	3' 11.31"	4' 0.72"	3' 11.22"	4' 0.8"	3' 11.13"	4' 0.91"
3' 10.47"	3' 11.54"	3' 10.41"	3' 11.61"	3' 10.34"	3' 11.68"	3' 10.26"	3' 11.77"	3' 10.17"	3' 11.86"



9	10	11	13	14
151' 11.31"	135' 5.2"	120' 8.66"	107' 7.42"	95' 11.34"

9		10		11		13		14	
Short Focus (ft-inch)	Long Focus (ft-inch)	Short Focus (ft-inch)	Long Focus (ft-inch)	Short Focus (ft-inch)	Long Focus (ft-inch)	Short Focus (ft-inch)	Long Focus (ft-inch)	Short Focus (ft-inch)	Long Focus (ft-inch)
151' 7.27"	Infinity	135' 1.17"	Infinity	120' 4.68"	Infinity	107' 3.45"	Infinity	95' 7.37"	Infinity
110' 1.46"	Infinity	101' 1.96"	Infinity	92' 8.42"	Infinity	84' 9"	Infinity	77' 3.73"	Infinity
86' 5.53"	Infinity	80' 10.22"	Infinity	75' 4.4"	Infinity	70' 0.43"	Infinity	64' 10.65"	Infinity
60' 5.68"	290' 9.42"	57' 8.24"	379' 8.2"	54' 10.22"	578' 2.28"	51' 11.82"	1400' 6.76"	49' 1.27"	Infinity
52' 6.87"	167' 11.48"	50' 5.5"	194' 1.85"	48' 3.36"	235' 4.61"	46' 0.6"	309' 1.25"	43' 9.38"	476' 10.07"
43' 2.06"	98' 6.8"	41' 8.89"	107' 0.09"	40' 2.94"	118' 4.73"	38' 8.27"	134' 5.55"	37' 0.97"	158' 7.75"
37' 9.22"	74' 0.98"	36' 8.07"	78' 8.82"	35' 6.19"	84' 8.54"	34' 3.63"	92' 7.27"	33' 0.43"	103' 5.17"
31' 9.59"	53' 11.66"	31' 0.26"	56' 4.66"	30' 2.33"	59' 4.49"	29' 3.79"	63' 1.55"	28' 4.68"	67' 11.46"
28' 6.88"	45' 2.47"	27' 11.35"	46' 10.6"	27' 3.3"	48' 11.07"	26' 6.7"	51' 5.22"	25' 9.59"	54' 7"
25' 2.03"	37' 1.91"	24' 8.2"	38' 3.37"	24' 1.92"	39' 7.47"	23' 7.19"	41' 2.97"	23'	43' 2.86"
21' 6.85"	29' 8.96"	21' 2.58"	30' 5.48"	20' 9.96"	31' 3.54"	20' 4.97"	32' 3.52"	19' 11.6"	33' 5.92"
19' 3.74"	25' 6.87"	19' 0.33"	26' 1.11"	18' 8.63"	26' 8.43"	18' 4.61"	27' 5.07"	18' 0.27"	28' 3.34"
17' 9.14"	22' 10.75"	17' 6.27"	23' 3.72"	17' 3.13"	23' 9.52"	16' 11.72"	24' 4.33"	16' 8.03"	25' 0.37"
16' 11.68"	21' 7.05"	16' 9.06"	21' 11.45"	16' 6.19"	22' 4.58"	16' 3.08"	22' 10.58"	15' 11.7"	23' 5.64"
16' 2.1"	20' 3.58"	15' 11.73"	20' 7.46"	15' 9.13"	20' 11.97"	15' 6.3"	21' 5.23"	15' 3.22"	21' 11.4"
15' 4.41"	19' 0.35"	15' 2.27"	19' 3.74"	14' 11.93"	19' 7.68"	14' 9.37"	20' 0.26"	14' 6.59"	20' 5.62"
14' 6.6"	17' 9.34"	14' 4.69"	18' 0.28"	14' 2.59"	18' 3.7"	14' 0.3"	18' 7.66"	13' 9.8"	19' 0.28"
13' 8.68"	16' 6.54"	13' 6.98"	16' 9.08"	13' 5.12"	17' 0.02"	13' 3.08"	17' 3.42"	13' 0.86"	17' 7.37"
12' 10.63"	15' 3.96"	12' 9.14"	15' 6.13"	12' 7.5"	15' 8.63"	12' 5.71"	15' 11.52"	12' 3.74"	16' 2.87"
12' 0.46"	14' 1.59"	11' 11.17"	14' 3.43"	11' 9.74"	14' 5.53"	11' 8.18"	14' 7.96"	11' 6.46"	14' 10.77"
11' 2.17"	12' 11.43"	11' 1.06"	13' 0.96"	10' 11.83"	13' 2.71"	10' 10.49"	13' 4.73"	10' 9.01"	13' 7.06"
10' 3.75"	11' 9.47"	10' 2.81"	11' 10.73"	10' 1.77"	12' 0.16"	10' 0.63"	12' 1.81"	9' 11.37"	12' 3.71"
9' 10.49"	11' 2.56"	9' 9.63"	11' 3.69"	9' 8.68"	11' 4.99"	9' 7.64"	11' 6.47"	9' 6.49"	11' 8.17"
9' 5.2"	10' 7.7"	9' 4.42"	10' 8.72"	9' 3.56"	10' 9.88"	9' 2.6"	10' 11.2"	9' 1.56"	11' 0.72"
8' 11.87"	10' 0.89"	8' 11.17"	10' 1.8"	8' 10.39"	10' 2.83"	8' 9.53"	10' 4.01"	8' 8.58"	10' 5.36"
8' 6.51"	9' 6.13"	8' 5.88"	9' 6.93"	8' 5.18"	9' 7.84"	8' 4.4"	9' 8.89"	8' 3.55"	9' 10.08"
8' 1.12"	8' 11.42"	8' 0.56"	9' 0.12"	7' 11.93"	9' 0.92"	7' 11.24"	9' 1.84"	7' 10.47"	9' 2.88"
7' 7.7"	8' 4.75"	7' 7.2"	8' 5.36"	7' 6.64"	8' 6.06"	7' 6.03"	8' 6.86"	7' 5.35"	8' 7.77"
7' 4.97"	8' 1.43"	7' 4.5"	8' 2"	7' 3.98"	8' 2.65"	7' 3.4"	8' 3.4"	7' 2.77"	8' 4.24"
7' 2.23"	7' 10.12"	7' 1.8"	7' 10.66"	7' 1.31"	7' 11.26"	7' 0.77"	7' 11.95"	7' 0.17"	8' 0.73"
6' 11.49"	7' 6.83"	6' 11.08"	7' 7.32"	6' 10.63"	7' 7.88"	6' 10.12"	7' 8.52"	6' 9.57"	7' 9.25"
6' 8.74"	7' 3.55"	6' 8.36"	7' 4"	6' 7.94"	7' 4.52"	6' 7.47"	7' 5.11"	6' 6.95"	7' 5.78"
6' 5.98"	7' 0.28"	6' 5.63"	7' 0.7"	6' 5.23"	7' 1.17"	6' 4.8"	7' 1.71"	6' 4.31"	7' 2.33"
6' 3.21"	6' 9.02"	6' 2.88"	6' 9.4"	6' 2.52"	6' 9.84"	6' 2.12"	6' 10.34"	6' 1.67"	6' 10.9"
6' 0.43"	6' 5.77"	6' 0.13"	6' 6.12"	5' 11.8"	6' 6.52"	5' 11.42"	6' 6.98"	5' 11.01"	6' 7.49"
5' 9.65"	6' 2.53"	5' 9.37"	6' 2.85"	5' 9.06"	6' 3.22"	5' 8.72"	6' 3.63"	5' 8.34"	6' 4.1"
5' 6.85"	5' 11.3"	5' 6.6"	5' 11.59"	5' 6.31"	5' 11.93"	5' 6"	6' 0.3"	5' 5.65"	6' 0.73"
5' 4.05"	5' 8.09"	5' 3.81"	5' 8.35"	5' 3.56"	5' 8.65"	5' 3.27"	5' 8.99"	5' 2.95"	5' 9.38"
5' 1.23"	5' 4.88"	5' 1.02"	5' 5.12"	5' 0.79"	5' 5.39"	5' 0.53"	5' 5.69"	5' 0.24"	5' 6.04"
4' 10.41"	5' 1.69"	4' 10.22"	5' 1.9"	4' 10.01"	5' 2.14"	4' 9.78"	5' 2.41"	4' 9.51"	5' 2.72"
4' 9.47"	5' 0.62"	4' 9.28"	5' 0.83"	4' 9.08"	5' 1.06"	4' 8.85"	5' 1.33"	4' 8.6"	5' 1.62"
4' 8.52"	4' 11.56"	4' 8.35"	4' 11.76"	4' 8.15"	4' 11.98"	4' 7.93"	5' 0.24"	4' 7.69"	5' 0.52"
4' 7.58"	4' 10.5"	4' 7.41"	4' 10.69"	4' 7.22"	4' 10.91"	4' 7.01"	4' 11.15"	4' 6.78"	4' 11.43"
4' 6.63"	4' 9.44"	4' 6.47"	4' 9.63"	4' 6.29"	4' 9.83"	4' 6.08"	4' 10.07"	4' 5.86"	4' 10.33"
4' 5.68"	4' 8.39"	4' 5.53"	4' 8.56"	4' 5.35"	4' 8.76"	4' 5.16"	4' 8.98"	4' 4.94"	4' 9.24"
4' 4.74"	4' 7.33"	4' 4.59"	4' 7.5"	4' 4.42"	4' 7.69"	4' 4.23"	4' 7.9"	4' 4.02"	4' 8.15"
4' 3.79"	4' 6.28"	4' 3.64"	4' 6.44"	4' 3.48"	4' 6.62"	4' 3.3"	4' 6.82"	4' 3.1"	4' 7.06"
4' 2.84"	4' 5.22"	4' 2.7"	4' 5.38"	4' 2.54"	4' 5.55"	4' 2.37"	4' 5.75"	4' 2.18"	4' 5.97"
4' 1.89"	4' 4.17"	4' 1.75"	4' 4.32"	4' 1.6"	4' 4.48"	4' 1.44"	4' 4.67"	4' 1.25"	4' 4.88"
4' 0.93"	4' 3.12"	4' 0.81"	4' 3.26"	4' 0.66"	4' 3.42"	4' 0.51"	4' 3.6"	4' 0.33"	4' 3.8"
3' 11.98"	4' 2.07"	3' 11.86"	4' 2.2"	3' 11.72"	4' 2.35"	3' 11.57"	4' 2.52"	3' 11.4"	4' 2.72"
3' 11.03"	4' 1.02"	3' 10.91"	4' 1.15"	3' 10.78"	4' 1.29"	3' 10.63"	4' 1.45"	3' 10.47"	4' 1.64"
3' 10.07"	3' 11.97"	3' 9.96"	4' 0.09"	3' 9.84"	4' 0.23"	3' 9.7"	4' 0.39"	3' 9.54"	4' 0.56"



16	18	20	22
85' 6.54"	76' 3.35"	68' 0.3"	60' 8.03"

16		18		20		22	
Short Focus (ft-inch)	Long Focus (ft-inch)	Short Focus (ft-inch)	Long Focus (ft-inch)	Short Focus (ft-inch)	Long Focus (ft-inch)	Short Focus (ft-inch)	Long Focus (ft-inch)
85' 2.57"	Infinity	75' 11.38"	Infinity	67' 8.33"	Infinity	60' 4.08"	Infinity
70' 4.57"	Infinity	63' 11.42"	Infinity	58' 0.11"	Infinity	52' 6.42"	Infinity
59' 11.34"	Infinity	55' 2.72"	Infinity	50' 8.97"	Infinity	46' 6.2"	Infinity
46' 2.81"	Infinity	43' 4.66"	Infinity	40' 7.03"	Infinity	37' 10.15"	Infinity
41' 5.87"	1221' 2.09"	39' 2.25"	Infinity	36' 10.71"	Infinity	34' 7.43"	Infinity
35' 5.15"	198' 9.7"	33' 8.92"	277' 9.78"	32' 0.4"	501' 10.64"	30' 3.74"	5351' 3.09"
31' 8.67"	119' 0.78"	30' 4.41"	143' 5"	28' 11.76"	186' 2.4"	27' 6.81"	280' 0.88"
27' 5.03"	74' 4.07"	26' 4.87"	83' 1.31"	25' 4.26"	95' 9.69"	24' 3.26"	115' 7.96"
24' 11.96"	58' 7.35"	24' 1.85"	63' 10.95"	23' 3.3"	71' 1.68"	22' 4.34"	81' 5.92"
22' 4.35"	45' 8.61"	21' 8.27"	48' 10.37"	20' 11.76"	52' 11.51"	20' 2.86"	58' 5.58"
19' 5.85"	34' 11.42"	18' 11.73"	36' 9"	18' 5.23"	39' 0.06"	17' 10.37"	41' 10.71"
17' 7.6"	29' 3.67"	17' 2.59"	30' 6.64"	16' 9.26"	32' 1.05"	16' 3.59"	34' 0.07"
16' 4.05"	25' 9.95"	15' 11.76"	26' 9.47"	15' 7.17"	27' 11.47"	15' 2.28"	29' 4.73"
15' 8.05"	24' 2.03"	15' 4.11"	25' 0.06"	14' 11.89"	26' 0.2"	14' 7.37"	27' 3.06"
14' 11.89"	22' 6.7"	14' 8.29"	23' 3.39"	14' 4.43"	24' 1.86"	14' 0.29"	25' 2.58"
14' 3.57"	20' 11.93"	14' 0.31"	21' 7.42"	13' 8.79"	22' 4.39"	13' 5.02"	23' 3.23"
13' 7.09"	19' 5.7"	13' 4.14"	20' 0.11"	13' 0.97"	20' 7.75"	12' 9.55"	21' 4.93"
12' 10.43"	17' 11.99"	12' 7.8"	18' 5.44"	12' 4.96"	18' 11.89"	12' 1.89"	19' 7.6"
12' 1.6"	16' 6.78"	11' 11.27"	16' 11.36"	11' 8.74"	17' 4.76"	11' 6.01"	17' 11.18"
11' 4.59"	15' 2.04"	11' 2.55"	15' 5.85"	11' 0.33"	15' 10.33"	10' 9.92"	16' 3.62"
10' 7.39"	13' 9.75"	10' 5.62"	14' 0.89"	10' 3.7"	14' 4.55"	10' 1.61"	14' 8.87"
9' 10"	12' 5.9"	9' 8.49"	12' 8.44"	9' 6.84"	12' 11.4"	9' 5.05"	13' 2.87"
9' 5.23"	11' 10.14"	9' 3.84"	12' 0.41"	9' 2.33"	12' 3.05"	9' 0.68"	12' 6.14"
9' 0.41"	11' 2.47"	8' 11.14"	11' 4.5"	8' 9.76"	11' 6.85"	8' 8.25"	11' 9.58"
8' 7.53"	10' 6.91"	8' 6.39"	10' 8.7"	8' 5.13"	10' 10.78"	8' 3.76"	11' 1.19"
8' 2.61"	9' 11.45"	8' 1.57"	10' 1.03"	8' 0.44"	10' 2.85"	7' 11.19"	10' 4.96"
7' 9.63"	9' 4.08"	7' 8.7"	9' 5.46"	7' 7.68"	9' 7.05"	7' 6.57"	9' 8.89"
7' 4.6"	8' 8.81"	7' 3.77"	8' 10.01"	7' 2.86"	8' 11.38"	7' 1.87"	9' 0.97"
7' 2.06"	8' 5.21"	7' 1.29"	8' 6.32"	7' 0.43"	8' 7.6"	6' 11.49"	8' 9.07"
6' 11.51"	8' 1.63"	6' 10.78"	8' 2.66"	6' 9.98"	8' 3.84"	6' 9.1"	8' 5.2"
6' 8.95"	7' 10.08"	6' 8.27"	7' 11.03"	6' 7.52"	8' 0.12"	6' 6.69"	8' 1.37"
6' 6.37"	7' 6.55"	6' 5.73"	7' 7.42"	6' 5.03"	7' 8.42"	6' 4.26"	7' 9.58"
6' 3.78"	7' 3.04"	6' 3.19"	7' 3.84"	6' 2.53"	7' 4.76"	6' 1.81"	7' 5.82"
6' 1.17"	6' 11.55"	6' 0.62"	7' 0.28"	6' 0.02"	7' 1.13"	5' 11.35"	7' 2.1"
5' 10.55"	6' 8.08"	5' 10.04"	6' 8.75"	5' 9.48"	6' 9.52"	5' 8.86"	6' 10.41"
5' 7.91"	6' 4.64"	5' 7.45"	6' 5.25"	5' 6.93"	6' 5.95"	5' 6.36"	6' 6.75"
5' 5.26"	6' 1.22"	5' 4.84"	6' 1.77"	5' 4.36"	6' 2.4"	5' 3.84"	6' 3.13"
5' 2.6"	5' 9.82"	5' 2.21"	5' 10.31"	5' 1.78"	5' 10.88"	5' 1.3"	5' 11.54"
4' 11.92"	5' 6.44"	4' 11.56"	5' 6.88"	4' 11.17"	5' 7.39"	4' 10.74"	5' 7.98"
4' 9.23"	5' 3.08"	4' 8.9"	5' 3.48"	4' 8.55"	5' 3.93"	4' 8.15"	5' 4.45"
4' 8.32"	5' 1.96"	4' 8.01"	5' 2.35"	4' 7.67"	5' 2.78"	4' 7.29"	5' 3.28"
4' 7.42"	5' 0.85"	4' 7.12"	5' 1.22"	4' 6.79"	5' 1.64"	4' 6.42"	5' 2.12"
4' 6.52"	4' 11.74"	4' 6.23"	5' 0.09"	4' 5.91"	5' 0.5"	4' 5.55"	5' 0.96"
4' 5.61"	4' 10.63"	4' 5.33"	4' 10.97"	4' 5.02"	4' 11.36"	4' 4.68"	4' 11.8"
4' 4.7"	4' 9.52"	4' 4.43"	4' 9.85"	4' 4.14"	4' 10.22"	4' 3.81"	4' 10.64"
4' 3.79"	4' 8.42"	4' 3.53"	4' 8.73"	4' 3.25"	4' 9.09"	4' 2.93"	4' 9.49"
4' 2.88"	4' 7.32"	4' 2.63"	4' 7.62"	4' 2.36"	4' 7.96"	4' 2.05"	4' 8.35"
4' 1.96"	4' 6.22"	4' 1.73"	4' 6.51"	4' 1.46"	4' 6.83"	4' 1.17"	4' 7.2"
4' 1.05"	4' 5.12"	4' 0.82"	4' 5.4"	4' 0.57"	4' 5.71"	4' 0.29"	4' 6.06"
4' 0.13"	4' 4.03"	3' 11.91"	4' 4.29"	3' 11.67"	4' 4.59"	3' 11.4"	4' 4.92"
3' 11.21"	4' 2.94"	3' 11.01"	4' 3.19"	3' 10.77"	4' 3.47"	3' 10.51"	4' 3.79"
3' 10.29"	4' 1.85"	3' 10.09"	4' 2.08"	3' 9.87"	4' 2.35"	3' 9.62"	4' 2.66"
3' 9.37"	4' 0.76"	3' 9.18"	4' 0.99"	3' 8.97"	4' 1.24"	3' 8.73"	4' 1.53"



Focal Length 135 mm

Circle of Confusion 0.025 mm

T/No	1.8	2	2.2	2.5
Hyperfocal Distance (ft-inch)	1365' 11.69"	1217' 0.25"	1084' 3.81"	966' 1.07"

T/No	1.8		2		2.2		2.5	
Focus Distance (ft-inch)	Short Focus (ft-inch)	Long Focus (ft-inch)	Short Focus (ft-inch)	Long Focus (ft-inch)	Short Focus (ft-inch)	Long Focus (ft-inch)	Short Focus (ft-inch)	Long Focus (ft-inch)
Infinity	1364' 11.62"	Infinity	1216' 1.56"	Infinity	1083' 6.23"	Infinity	965' 4.4"	Infinity
400' 0"	309' 6.46"	565' 3.03"	301' 2.38"	595' 4.56"	292' 4.28"	633' 3.23"	283' 0.38"	681' 11.83"
200' 0"	174' 6.63"	234' 1.77"	171' 10.5"	239' 1.78"	168' 11.59"	245' 0.28"	165' 9.79"	251' 11.66"
100' 0"	93' 2.82"	107' 9.91"	92' 5.63"	108' 10.44"	91' 7.5"	110' 0.78"	90' 8.34"	111' 5.27"
70' 0"	66' 7.55"	73' 8.77"	66' 2.87"	74' 2.59"	65' 9.67"	74' 9.2"	65' 3.92"	75' 4.75"
60' 0"	57' 6.14"	62' 8.57"	57' 2.66"	63' 0.76"	56' 10.78"	63' 5.53"	56' 6.49"	63' 10.94"
50' 0"	48' 3.18"	51' 10.38"	48' 0.73"	52' 1.23"	47' 10.01"	52' 4.47"	47' 6.98"	52' 8.14"
40' 0"	38' 10.65"	41' 2.15"	38' 9.06"	41' 3.94"	38' 7.3"	41' 5.96"	38' 5.33"	41' 8.25"
35' 0"	34' 1.77"	35' 10.75"	34' 0.56"	36' 0.11"	33' 11.2"	36' 1.64"	33' 9.68"	36' 3.37"
30' 0"	29' 4.49"	30' 7.84"	29' 3.6"	30' 8.82"	29' 2.59"	30' 9.93"	29' 1.48"	30' 11.18"
25' 0"	24' 6.8"	25' 5.39"	24' 6.18"	25' 6.06"	24' 5.48"	25' 6.82"	24' 4.7"	25' 7.68"
22' 0"	21' 7.99"	22' 4.14"	21' 7.5"	22' 4.66"	21' 6.96"	22' 5.24"	21' 6.36"	22' 5.9"
20' 0"	19' 8.69"	20' 3.4"	19' 8.29"	20' 3.83"	19' 7.85"	20' 4.3"	19' 7.35"	20' 4.84"
19' 0"	18' 9.02"	19' 3.06"	18' 8.66"	19' 3.44"	18' 8.26"	19' 3.87"	18' 7.81"	19' 4.35"
18' 0"	17' 9.33"	18' 2.74"	17' 9.01"	18' 3.08"	17' 8.65"	18' 3.46"	17' 8.25"	18' 3.89"
17' 0"	16' 9.63"	17' 2.43"	16' 9.34"	17' 2.73"	16' 9.02"	17' 3.07"	16' 8.66"	17' 3.46"
16' 0"	15' 9.9"	16' 2.15"	15' 9.65"	16' 2.41"	15' 9.36"	16' 2.71"	15' 9.05"	16' 3.05"
15' 0"	14' 10.16"	15' 1.88"	14' 9.94"	15' 2.11"	14' 9.69"	15' 2.37"	14' 9.41"	15' 2.67"
14' 0"	13' 10.41"	14' 1.63"	13' 10.21"	14' 1.83"	13' 10"	14' 2.05"	13' 9.75"	14' 2.31"
13' 0"	12' 10.63"	13' 1.39"	12' 10.47"	13' 1.57"	12' 10.28"	13' 1.76"	12' 10.07"	13' 1.98"
12' 0"	11' 10.84"	12' 1.18"	11' 10.7"	12' 1.32"	11' 10.54"	12' 1.49"	11' 10.37"	12' 1.67"
11' 0"	10' 11.03"	11' 0.98"	10' 10.91"	11' 1.1"	10' 10.78"	11' 1.24"	10' 10.64"	11' 1.39"
10' 6"	10' 5.12"	10' 6.89"	10' 5.01"	10' 7"	10' 4.89"	10' 7.13"	10' 4.76"	10' 7.26"
10' 0"	9' 11.21"	10' 0.8"	9' 11.11"	10' 0.9"	9' 11"	10' 1.02"	9' 10.88"	10' 1.14"
9' 6"	9' 5.29"	9' 6.72"	9' 5.2"	9' 6.81"	9' 5.1"	9' 6.91"	9' 4.99"	9' 7.02"
9' 0"	8' 11.36"	9' 0.64"	8' 11.29"	9' 0.72"	8' 11.2"	9' 0.81"	8' 11.1"	9' 0.91"
8' 6"	8' 5.44"	8' 6.57"	8' 5.37"	8' 6.64"	8' 5.29"	8' 6.72"	8' 5.2"	8' 6.81"
8' 0"	7' 11.5"	8' 0.5"	7' 11.44"	8' 0.56"	7' 11.38"	8' 0.63"	7' 11.3"	8' 0.71"
7' 9"	7' 8.54"	7' 9.47"	7' 8.48"	7' 9.53"	7' 8.42"	7' 9.59"	7' 8.35"	7' 9.66"
7' 6"	7' 5.57"	7' 6.44"	7' 5.51"	7' 6.49"	7' 5.46"	7' 6.55"	7' 5.39"	7' 6.62"
7' 3"	7' 2.6"	7' 3.41"	7' 2.55"	7' 3.46"	7' 2.49"	7' 3.51"	7' 2.43"	7' 3.58"
7' 0"	6' 11.63"	7' 0.38"	6' 11.58"	7' 0.42"	6' 11.53"	7' 0.48"	6' 11.47"	7' 0.53"
6' 9"	6' 8.65"	6' 9.35"	6' 8.61"	6' 9.39"	6' 8.57"	6' 9.44"	6' 8.51"	6' 9.49"
6' 6"	6' 5.68"	6' 6.32"	6' 5.64"	6' 6.36"	6' 5.6"	6' 6.41"	6' 5.55"	6' 6.46"
6' 3"	6' 2.71"	6' 3.3"	6' 2.67"	6' 3.33"	6' 2.63"	6' 3.37"	6' 2.59"	6' 3.42"
6' 0"	5' 11.73"	6' 0.27"	5' 11.7"	6' 0.3"	5' 11.66"	6' 0.34"	5' 11.62"	6' 0.38"
5' 9"	5' 8.76"	5' 9.25"	5' 8.73"	5' 9.28"	5' 8.69"	5' 9.31"	5' 8.65"	5' 9.35"
5' 6"	5' 5.78"	5' 6.22"	5' 5.75"	5' 6.25"	5' 5.72"	5' 6.28"	5' 5.69"	5' 6.32"
5' 3"	5' 2.8"	5' 3.2"	5' 2.78"	5' 3.23"	5' 2.75"	5' 3.25"	5' 2.72"	5' 3.29"
5' 0"	4' 11.82"	5' 0.18"	4' 11.8"	5' 0.2"	4' 11.77"	5' 0.23"	4' 11.75"	5' 0.26"
4' 11"	4' 10.83"	4' 11.17"	4' 10.81"	4' 11.2"	4' 10.78"	4' 11.22"	4' 10.76"	4' 11.25"
4' 10"	4' 9.83"	4' 10.17"	4' 9.81"	4' 10.19"	4' 9.79"	4' 10.21"	4' 9.76"	4' 10.24"
4' 9"	4' 8.84"	4' 9.16"	4' 8.82"	4' 9.18"	4' 8.8"	4' 9.2"	4' 8.77"	4' 9.23"
4' 8"	4' 7.85"	4' 8.16"	4' 7.83"	4' 8.17"	4' 7.81"	4' 8.2"	4' 7.78"	4' 8.22"
4' 7"	4' 6.85"	4' 7.15"	4' 6.83"	4' 7.17"	4' 6.81"	4' 7.19"	4' 6.79"	4' 7.21"
4' 6"	4' 5.86"	4' 6.14"	4' 5.84"	4' 6.16"	4' 5.82"	4' 6.18"	4' 5.8"	4' 6.2"
4' 5"	4' 4.86"	4' 5.14"	4' 4.85"	4' 5.15"	4' 4.83"	4' 5.17"	4' 4.81"	4' 5.19"
4' 4"	4' 3.87"	4' 4.13"	4' 3.85"	4' 4.15"	4' 3.84"	4' 4.17"	4' 3.82"	4' 4.19"
4' 3"	4' 2.87"	4' 3.13"	4' 2.86"	4' 3.14"	4' 2.84"	4' 3.16"	4' 2.82"	4' 3.18"
4' 2"	4' 1.88"	4' 2.12"	4' 1.87"	4' 2.14"	4' 1.85"	4' 2.15"	4' 1.83"	4' 2.17"
4' 1"	4' 0.89"	4' 1.12"	4' 0.87"	4' 1.13"	4' 0.86"	4' 1.15"	4' 0.84"	4' 1.16"
4' 0"	3' 11.89"	4' 0.11"	3' 11.88"	4' 0.12"	3' 11.86"	4' 0.14"	3' 11.85"	4' 0.16"
3' 11"	3' 10.9"	3' 11.1"	3' 10.88"	3' 11.12"	3' 10.87"	3' 11.13"	3' 10.85"	3' 11.15"



2.8	3.2	3.5	4	4.5
860' 9.17"	766' 11.11"	683' 3.96"	608' 10.22"	542' 6"

2.8		3.2		3.5		4		4.5	
Short Focus (ft-inch)	Long Focus (ft-inch)	Short Focus (ft-inch)	Long Focus (ft-inch)	Short Focus (ft-inch)	Long Focus (ft-inch)	Short Focus (ft-inch)	Long Focus (ft-inch)	Short Focus (ft-inch)	Long Focus (ft-inch)
860' 1.18"	Infinity	766' 3.71"	Infinity	682' 8.97"	Infinity	608' 3.59"	Infinity	541' 11.65"	Infinity
273' 2.99"	746' 5.35"	263' 0.54"	835' 0.53"	252' 5.56"	963' 4.89"	241' 6.68"	1164' 3.85"	230' 4.63"	1520' 2.54"
162' 5.01"	260' 3.07"	158' 9.18"	270' 2.75"	154' 10.28"	282' 4.52"	150' 8.31"	297' 4.59"	146' 3.34"	316' 2.98"
89' 8.08"	113' 0.28"	88' 6.64"	114' 10.27"	87' 3.96"	116' 11.81"	85' 11.95"	119' 5.64"	84' 6.56"	122' 4.68"
64' 9.57"	76' 1.38"	64' 2.56"	76' 11.26"	63' 6.84"	77' 10.6"	62' 10.35"	78' 11.68"	62' 1.06"	80' 2.8"
56' 1.74"	64' 5.12"	55' 8.48"	65' 0.17"	55' 2.67"	65' 8.24"	54' 8.28"	66' 5.5"	54' 1.24"	67' 4.16"
47' 3.62"	53' 0.32"	46' 11.89"	53' 5.07"	46' 7.77"	53' 10.49"	46' 3.21"	54' 4.69"	45' 10.19"	54' 11.79"
38' 3.14"	41' 10.85"	38' 0.72"	42' 1.8"	37' 10.02"	42' 5.16"	37' 7.03"	42' 8.97"	37' 3.72"	43' 1.33"
33' 8"	36' 5.33"	33' 6.12"	36' 7.56"	33' 4.04"	36' 10.08"	33' 1.72"	37' 0.94"	32' 11.16"	37' 4.2"
29' 0.23"	31' 0.6"	28' 10.84"	31' 2.21"	28' 9.3"	31' 4.02"	28' 7.58"	31' 6.08"	28' 5.67"	31' 8.43"
24' 3.83"	25' 8.64"	24' 2.86"	25' 9.74"	24' 1.78"	25' 10.97"	24' 0.58"	26' 0.37"	23' 11.24"	26' 1.96"
21' 5.69"	22' 6.64"	21' 4.93"	22' 7.47"	21' 4.09"	22' 8.42"	21' 3.16"	22' 9.48"	21' 2.12"	22' 10.69"
19' 6.79"	20' 5.45"	19' 6.17"	20' 6.13"	19' 5.48"	20' 6.9"	19' 4.7"	20' 7.78"	19' 3.84"	20' 8.76"
18' 7.31"	19' 4.9"	18' 6.75"	19' 5.51"	18' 6.12"	19' 6.21"	18' 5.42"	19' 6.99"	18' 4.64"	19' 7.88"
17' 7.79"	18' 4.38"	17' 7.29"	18' 4.93"	17' 6.73"	18' 5.55"	17' 6.1"	18' 6.25"	17' 5.4"	18' 7.04"
16' 8.26"	17' 3.89"	16' 7.81"	17' 4.38"	16' 7.31"	17' 4.92"	16' 6.75"	17' 5.54"	16' 6.12"	17' 6.24"
15' 8.69"	16' 3.43"	15' 8.29"	16' 3.86"	15' 7.85"	16' 4.34"	15' 7.35"	16' 4.89"	15' 6.8"	16' 5.5"
14' 9.1"	15' 3"	14' 8.75"	15' 3.37"	14' 8.36"	15' 3.79"	14' 7.93"	15' 4.27"	14' 7.44"	15' 4.81"
13' 9.48"	14' 2.6"	13' 9.18"	14' 2.92"	13' 8.84"	14' 3.28"	13' 8.46"	14' 3.7"	13' 8.04"	14' 4.16"
12' 9.84"	13' 2.22"	12' 9.58"	13' 2.5"	12' 9.29"	13' 2.81"	12' 8.96"	13' 3.16"	12' 8.6"	13' 3.56"
11' 10.17"	12' 1.88"	11' 9.95"	12' 2.11"	11' 9.7"	12' 2.38"	11' 9.42"	12' 2.68"	11' 9.11"	12' 3.01"
10' 10.47"	11' 1.57"	10' 10.29"	11' 1.76"	10' 10.08"	11' 1.98"	10' 9.85"	11' 2.23"	10' 9.59"	11' 2.51"
10' 4.61"	10' 7.42"	10' 4.44"	10' 7.6"	10' 4.26"	10' 7.8"	10' 4.04"	10' 8.02"	10' 3.81"	10' 8.27"
9' 10.75"	10' 1.28"	9' 10.59"	10' 1.44"	9' 10.42"	10' 1.62"	9' 10.23"	10' 1.82"	9' 10.02"	10' 2.05"
9' 4.87"	9' 7.15"	9' 4.74"	9' 7.29"	9' 4.58"	9' 7.45"	9' 4.41"	9' 7.63"	9' 4.22"	9' 7.84"
8' 10.99"	9' 1.03"	8' 10.87"	9' 1.15"	8' 10.74"	9' 1.3"	8' 10.58"	9' 1.46"	8' 10.41"	9' 1.64"
8' 5.11"	8' 6.91"	8' 5"	8' 7.02"	8' 4.88"	8' 7.15"	8' 4.74"	8' 7.29"	8' 4.59"	8' 7.45"
7' 11.21"	8' 0.8"	7' 11.12"	8' 0.9"	7' 11.01"	8' 1.01"	7' 10.89"	8' 1.13"	7' 10.76"	8' 1.27"
7' 8.27"	7' 9.75"	7' 8.18"	7' 9.84"	7' 8.08"	7' 9.94"	7' 7.97"	7' 10.06"	7' 7.84"	7' 10.19"
7' 5.32"	7' 6.7"	7' 5.23"	7' 6.78"	7' 5.14"	7' 6.88"	7' 5.03"	7' 6.99"	7' 4.92"	7' 7.11"
7' 2.36"	7' 3.65"	7' 2.29"	7' 3.73"	7' 2.2"	7' 3.82"	7' 2.1"	7' 3.92"	7' 1.99"	7' 4.03"
6' 11.41"	7' 0.6"	6' 11.34"	7' 0.67"	6' 11.26"	7' 0.76"	6' 11.17"	7' 0.85"	6' 11.07"	7' 0.96"
6' 8.45"	6' 9.55"	6' 8.39"	6' 9.62"	6' 8.31"	6' 9.7"	6' 8.23"	6' 9.79"	6' 8.14"	6' 9.88"
6' 5.5"	6' 6.51"	6' 5.43"	6' 6.57"	6' 5.37"	6' 6.65"	6' 5.29"	6' 6.73"	6' 5.2"	6' 6.81"
6' 2.54"	6' 3.47"	6' 2.48"	6' 3.53"	6' 2.42"	6' 3.59"	6' 2.35"	6' 3.67"	6' 2.27"	6' 3.75"
5' 11.58"	6' 0.43"	5' 11.52"	6' 0.48"	5' 11.47"	6' 0.54"	5' 11.4"	6' 0.61"	5' 11.33"	6' 0.68"
5' 8.61"	5' 9.39"	5' 8.57"	5' 9.44"	5' 8.51"	5' 9.49"	5' 8.45"	5' 9.56"	5' 8.39"	5' 9.62"
5' 5.65"	5' 6.36"	5' 5.61"	5' 6.4"	5' 5.56"	5' 6.45"	5' 5.5"	5' 6.5"	5' 5.44"	5' 6.57"
5' 2.68"	5' 3.32"	5' 2.64"	5' 3.36"	5' 2.6"	5' 3.4"	5' 2.55"	5' 3.45"	5' 2.5"	5' 3.51"
4' 11.71"	5' 0.29"	4' 11.68"	5' 0.32"	4' 11.64"	5' 0.36"	4' 11.6"	5' 0.41"	4' 11.55"	5' 0.46"
4' 10.73"	4' 11.28"	4' 10.69"	4' 11.31"	4' 10.65"	4' 11.35"	4' 10.61"	4' 11.39"	4' 10.57"	4' 11.44"
4' 9.74"	4' 10.27"	4' 9.7"	4' 10.3"	4' 9.67"	4' 10.34"	4' 9.63"	4' 10.38"	4' 9.58"	4' 10.43"
4' 8.75"	4' 9.26"	4' 8.71"	4' 9.29"	4' 8.68"	4' 9.32"	4' 8.64"	4' 9.36"	4' 8.6"	4' 9.41"
4' 7.76"	4' 8.25"	4' 7.73"	4' 8.28"	4' 7.69"	4' 8.31"	4' 7.65"	4' 8.35"	4' 7.61"	4' 8.39"
4' 6.76"	4' 7.24"	4' 6.74"	4' 7.27"	4' 6.7"	4' 7.3"	4' 6.67"	4' 7.34"	4' 6.63"	4' 7.38"
4' 5.77"	4' 6.23"	4' 5.75"	4' 6.26"	4' 5.72"	4' 6.29"	4' 5.68"	4' 6.32"	4' 5.64"	4' 6.36"
4' 4.78"	4' 5.22"	4' 4.76"	4' 5.25"	4' 4.73"	4' 5.28"	4' 4.69"	4' 5.31"	4' 4.66"	4' 5.35"
4' 3.79"	4' 4.21"	4' 3.77"	4' 4.23"	4' 3.74"	4' 4.26"	4' 3.71"	4' 4.3"	4' 3.67"	4' 4.33"
4' 2.8"	4' 3.2"	4' 2.78"	4' 3.22"	4' 2.75"	4' 3.25"	4' 2.72"	4' 3.28"	4' 2.69"	4' 3.32"
4' 1.81"	4' 2.19"	4' 1.79"	4' 2.22"	4' 1.76"	4' 2.24"	4' 1.73"	4' 2.27"	4' 1.7"	4' 2.3"
4' 0.82"	4' 1.18"	4' 0.8"	4' 1.21"	4' 0.77"	4' 1.23"	4' 0.74"	4' 1.26"	4' 0.71"	4' 1.29"
3' 11.83"	4' 0.17"	3' 11.81"	4' 0.2"	3' 11.78"	4' 0.22"	3' 11.76"	4' 0.25"	3' 11.73"	4' 0.28"
3' 10.83"	3' 11.17"	3' 10.81"	3' 11.19"	3' 10.79"	3' 11.21"	3' 10.77"	3' 11.24"	3' 10.74"	3' 11.26"



5	5.6	6.3	7.1	8
483' 4.63"	430' 8.66"	383' 9.67"	342' 0.06"	304' 9.2"

5		5.6		6.3		7.1		8	
Short Focus (ft-inch)	Long Focus (ft-inch)	Short Focus (ft-inch)	Long Focus (ft-inch)	Short Focus (ft-inch)	Long Focus (ft-inch)	Short Focus (ft-inch)	Long Focus (ft-inch)	Short Focus (ft-inch)	Long Focus (ft-inch)
482' 10.51"	Infinity	430' 2.73"	Infinity	383' 3.85"	Infinity	341' 6.37"	Infinity	304' 3.59"	Infinity
219' 0.22"	2314' 3.97"	207' 6.31"	5595' 9.11"	195' 11.82"	Infinity	184' 5.65"	Infinity	173' 0.72"	Infinity
141' 7.47"	340' 5.96"	136' 8.85"	372' 6.79"	131' 7.69"	416' 7.38"	126' 4.27"	480' 4.5"	120' 10.9"	580' 0.38"
82' 11.73"	125' 10.11"	81' 3.41"	129' 11.49"	79' 5.56"	134' 10.92"	77' 6.19"	140' 11.27"	75' 5.28"	148' 4.61"
61' 2.89"	81' 8.36"	60' 3.8"	83' 4.85"	59' 3.75"	85' 4.9"	58' 2.7"	87' 9.32"	57' 0.61"	90' 7.15"
53' 5.53"	68' 4.46"	52' 9.08"	69' 6.74"	51' 11.86"	70' 11.36"	51' 1.83"	72' 6.83"	50' 2.95"	74' 5.78"
45' 4.65"	55' 7.94"	44' 10.57"	56' 5.34"	44' 3.91"	57' 4.21"	43' 8.62"	58' 4.84"	43' 0.68"	59' 7.58"
37' 0.07"	43' 6.3"	36' 8.04"	44' 0.01"	36' 3.6"	44' 6.56"	35' 10.72"	45' 2.11"	35' 5.38"	45' 10.84"
32' 8.32"	37' 7.92"	32' 5.18"	38' 0.17"	32' 1.71"	38' 5.03"	31' 9.9"	38' 10.62"	31' 5.7"	39' 5.06"
28' 3.55"	31' 11.09"	28' 1.21"	32' 2.12"	27' 10.62"	32' 5.59"	27' 7.76"	32' 9.55"	27' 4.6"	33' 2.1"
23' 9.75"	26' 3.76"	23' 8.1"	26' 5.81"	23' 6.27"	26' 8.13"	23' 4.24"	26' 10.79"	23' 2"	27' 1.82"
21' 0.96"	23' 0.06"	20' 11.67"	23' 1.62"	20' 10.24"	23' 3.38"	20' 8.65"	23' 5.39"	20' 6.9"	23' 7.68"
19' 2.88"	20' 9.88"	19' 1.81"	20' 11.15"	19' 0.62"	21' 0.59"	18' 11.3"	21' 2.22"	18' 9.84"	21' 4.08"
18' 3.77"	19' 8.88"	18' 2.8"	19' 10.01"	18' 1.73"	19' 11.3"	18' 0.54"	20' 0.76"	17' 11.21"	20' 2.43"
17' 4.62"	18' 7.93"	17' 3.75"	18' 8.94"	17' 2.79"	18' 10.09"	17' 1.71"	18' 11.39"	17' 0.52"	19' 0.87"
16' 5.43"	17' 7.03"	16' 4.65"	17' 7.93"	16' 3.79"	17' 8.94"	16' 2.83"	17' 10.1"	16' 1.76"	17' 11.4"
15' 6.18"	16' 6.2"	15' 5.5"	16' 6.98"	15' 4.73"	16' 7.87"	15' 3.88"	16' 8.88"	15' 2.93"	16' 10.03"
14' 6.9"	15' 5.41"	14' 6.29"	15' 6.1"	14' 5.62"	15' 6.87"	14' 4.87"	15' 7.75"	14' 4.04"	15' 8.75"
13' 7.57"	14' 4.68"	13' 7.04"	14' 5.28"	13' 6.45"	14' 5.94"	13' 5.8"	14' 6.7"	13' 5.07"	14' 7.56"
12' 8.19"	13' 4.01"	12' 7.74"	13' 4.51"	12' 7.23"	13' 5.08"	12' 6.67"	13' 5.73"	12' 6.04"	13' 6.46"
11' 8.77"	12' 3.39"	11' 8.38"	12' 3.81"	11' 7.95"	12' 4.29"	11' 7.47"	12' 4.84"	11' 6.94"	12' 5.45"
10' 9.3"	11' 2.82"	10' 8.98"	11' 3.17"	10' 8.62"	11' 3.57"	10' 8.21"	11' 4.02"	10' 7.76"	11' 4.53"
10' 3.55"	10' 8.56"	10' 3.25"	10' 8.88"	10' 2.93"	10' 9.24"	10' 2.56"	10' 9.64"	10' 2.15"	10' 10.11"
9' 9.78"	10' 2.3"	9' 9.52"	10' 2.59"	9' 9.22"	10' 2.92"	9' 8.89"	10' 3.29"	9' 8.52"	10' 3.7"
9' 4.01"	9' 8.07"	9' 3.77"	9' 8.33"	9' 3.5"	9' 8.62"	9' 3.2"	9' 8.95"	9' 2.87"	9' 9.32"
8' 10.22"	9' 1.84"	8' 10.01"	9' 2.07"	8' 9.77"	9' 2.33"	8' 9.5"	9' 2.62"	8' 9.2"	9' 2.95"
8' 4.42"	8' 7.63"	8' 4.23"	8' 7.83"	8' 4.02"	8' 8.06"	8' 3.78"	8' 8.32"	8' 3.52"	8' 8.61"
7' 10.61"	8' 1.43"	7' 10.44"	8' 1.61"	7' 10.26"	8' 1.81"	7' 10.05"	8' 2.04"	7' 9.81"	8' 2.29"
7' 7.7"	7' 10.34"	7' 7.54"	7' 10.51"	7' 7.37"	7' 10.69"	7' 7.17"	7' 10.9"	7' 6.95"	7' 11.14"
7' 4.79"	7' 7.25"	7' 4.64"	7' 7.4"	7' 4.48"	7' 7.58"	7' 4.29"	7' 7.77"	7' 4.09"	7' 8"
7' 1.87"	7' 4.16"	7' 1.74"	7' 4.3"	7' 1.58"	7' 4.47"	7' 1.41"	7' 4.65"	7' 1.22"	7' 4.86"
6' 10.95"	7' 1.08"	6' 10.83"	7' 1.21"	6' 10.68"	7' 1.36"	6' 10.53"	7' 1.53"	6' 10.35"	7' 1.72"
6' 8.03"	6' 9.99"	6' 7.91"	6' 10.12"	6' 7.78"	6' 10.26"	6' 7.64"	6' 10.41"	6' 7.47"	6' 10.59"
6' 5.11"	6' 6.92"	6' 5"	6' 7.03"	6' 4.88"	6' 7.16"	6' 4.74"	6' 7.3"	6' 4.59"	6' 7.46"
6' 2.18"	6' 3.84"	6' 2.08"	6' 3.95"	6' 1.97"	6' 4.06"	6' 1.84"	6' 4.2"	6' 1.7"	6' 4.34"
5' 11.25"	6' 0.77"	5' 11.16"	6' 0.86"	5' 11.05"	6' 0.97"	5' 10.94"	6' 1.09"	5' 10.81"	6' 1.23"
5' 8.31"	5' 9.7"	5' 8.23"	5' 9.79"	5' 8.14"	5' 9.89"	5' 8.03"	5' 10"	5' 7.92"	5' 10.12"
5' 5.38"	5' 6.64"	5' 5.3"	5' 6.71"	5' 5.22"	5' 6.8"	5' 5.12"	5' 6.9"	5' 5.02"	5' 7.02"
5' 2.44"	5' 3.57"	5' 2.37"	5' 3.64"	5' 2.29"	5' 3.72"	5' 2.21"	5' 3.81"	5' 2.11"	5' 3.92"
4' 11.49"	5' 0.52"	4' 11.43"	5' 0.58"	4' 11.36"	5' 0.65"	4' 11.29"	5' 0.73"	4' 11.2"	5' 0.82"
4' 10.51"	4' 11.5"	4' 10.45"	4' 11.56"	4' 10.39"	4' 11.63"	4' 10.31"	4' 11.7"	4' 10.23"	4' 11.79"
4' 9.53"	4' 10.48"	4' 9.47"	4' 10.54"	4' 9.41"	4' 10.6"	4' 9.34"	4' 10.68"	4' 9.26"	4' 10.76"
4' 8.55"	4' 9.46"	4' 8.49"	4' 9.52"	4' 8.43"	4' 9.58"	4' 8.36"	4' 9.65"	4' 8.29"	4' 9.73"
4' 7.57"	4' 8.44"	4' 7.51"	4' 8.5"	4' 7.45"	4' 8.56"	4' 7.39"	4' 8.63"	4' 7.31"	4' 8.7"
4' 6.58"	4' 7.42"	4' 6.53"	4' 7.48"	4' 6.48"	4' 7.54"	4' 6.41"	4' 7.6"	4' 6.34"	4' 7.68"
4' 5.6"	4' 6.41"	4' 5.55"	4' 6.46"	4' 5.5"	4' 6.51"	4' 5.44"	4' 6.58"	4' 5.37"	4' 6.65"
4' 4.62"	4' 5.39"	4' 4.57"	4' 5.44"	4' 4.52"	4' 5.49"	4' 4.46"	4' 5.55"	4' 4.39"	4' 5.62"
4' 3.63"	4' 4.37"	4' 3.59"	4' 4.42"	4' 3.54"	4' 4.47"	4' 3.48"	4' 4.53"	4' 3.42"	4' 4.6"
4' 2.65"	4' 3.36"	4' 2.6"	4' 3.4"	4' 2.56"	4' 3.45"	4' 2.5"	4' 3.51"	4' 2.44"	4' 3.57"
4' 1.66"	4' 2.34"	4' 1.62"	4' 2.38"	4' 1.58"	4' 2.43"	4' 1.52"	4' 2.49"	4' 1.47"	4' 2.55"
4' 0.68"	4' 1.33"	4' 0.64"	4' 1.37"	4' 0.59"	4' 1.41"	4' 0.55"	4' 1.46"	4' 0.49"	4' 1.52"
3' 11.69"	4' 0.31"	3' 11.65"	4' 0.35"	3' 11.61"	4' 0.39"	3' 11.57"	4' 0.44"	3' 11.51"	4' 0.5"
3' 10.71"	3' 11.3"	3' 10.67"	3' 11.33"	3' 10.63"	3' 11.38"	3' 10.59"	3' 11.42"	3' 10.54"	3' 11.47"



9	10	11	13	14
271' 7.09"	242' 0.41"	215' 8.43"	192' 2.93"	171' 4.14"

9		10		11		13		14	
Short Focus (ft-inch)	Long Focus (ft-inch)	Short Focus (ft-inch)	Long Focus (ft-inch)	Short Focus (ft-inch)	Long Focus (ft-inch)	Short Focus (ft-inch)	Long Focus (ft-inch)	Short Focus (ft-inch)	Long Focus (ft-inch)
271' 1.55"	Infinity	241' 6.93"	Infinity	215' 2.99"	Infinity	191' 9.52"	Infinity	170' 10.75"	Infinity
161' 9.92"	Infinity	150' 10.07"	Infinity	140' 1.91"	Infinity	129' 10.12"	Infinity	119' 11.25"	Infinity
115' 3.94"	756' 1.71"	109' 7.79"	1147' 2.27"	103' 10.88"	2735' 5.98"	98' 1.68"	Infinity	92' 4.63"	Infinity
73' 2.87"	157' 8.87"	70' 11.01"	169' 9.05"	68' 5.77"	185' 7.55"	65' 11.27"	207' 4.87"	63' 3.63"	238' 10.43"
55' 9.45"	93' 11.83"	54' 5.23"	98' 1.28"	52' 11.93"	103' 2.23"	51' 5.58"	109' 6.66"	49' 10.21"	117' 8.54"
49' 3.19"	76' 9.02"	48' 2.53"	79' 5.66"	47' 0.95"	82' 9.18"	45' 10.46"	86' 9.64"	44' 7.05"	91' 10.01"
42' 4.05"	61' 0.89"	41' 6.7"	62' 9.34"	40' 8.6"	64' 9.7"	39' 9.75"	67' 3.01"	38' 10.14"	70' 2.67"
34' 11.54"	46' 8.99"	34' 5.17"	47' 8.84"	33' 10.25"	48' 10.76"	33' 2.76"	50' 3.21"	32' 6.67"	51' 10.81"
31' 1.11"	40' 0.5"	30' 8.08"	40' 9.13"	30' 2.6"	41' 7.21"	29' 8.63"	42' 7.02"	29' 2.17"	43' 8.98"
27' 1.13"	33' 7.33"	26' 9.32"	34' 1.37"	26' 5.16"	34' 8.37"	26' 0.61"	35' 4.52"	25' 7.65"	36' 2.06"
22' 11.53"	27' 5.3"	22' 8.81"	27' 9.29"	22' 5.82"	28' 1.88"	22' 2.54"	28' 7.19"	21' 10.95"	29' 1.36"
20' 4.95"	23' 10.3"	20' 2.81"	24' 1.29"	20' 0.45"	24' 4.73"	19' 9.86"	24' 8.69"	19' 7.01"	25' 1.27"
18' 8.22"	21' 6.2"	18' 6.43"	21' 8.63"	18' 4.46"	21' 11.4"	18' 2.28"	22' 2.59"	17' 11.89"	22' 6.26"
17' 9.75"	20' 4.32"	17' 8.12"	20' 6.48"	17' 6.33"	20' 8.96"	17' 4.36"	20' 11.8"	17' 2.18"	21' 3.06"
16' 11.2"	19' 2.55"	16' 9.74"	19' 4.47"	16' 8.12"	19' 6.66"	16' 6.33"	19' 9.18"	16' 4.37"	20' 0.06"
16' 0.58"	18' 0.89"	15' 11.27"	18' 2.58"	15' 9.82"	18' 4.51"	15' 8.22"	18' 6.72"	15' 6.45"	18' 9.26"
15' 1.88"	16' 11.33"	15' 0.72"	17' 0.81"	14' 11.43"	17' 2.5"	14' 10"	17' 4.43"	14' 8.43"	17' 6.64"
14' 3.11"	15' 9.88"	14' 2.08"	15' 11.17"	14' 0.95"	16' 0.63"	13' 11.69"	16' 2.3"	13' 10.29"	16' 4.22"
13' 4.27"	14' 8.53"	13' 3.37"	14' 9.64"	13' 2.37"	14' 10.9"	13' 1.27"	15' 0.33"	13' 0.05"	15' 1.97"
12' 5.34"	13' 7.29"	12' 4.57"	13' 8.23"	12' 3.71"	13' 9.3"	12' 2.75"	13' 10.52"	12' 1.7"	13' 11.91"
11' 6.34"	12' 6.15"	11' 5.68"	12' 6.94"	11' 4.95"	12' 7.84"	11' 4.13"	12' 8.86"	11' 3.23"	12' 10.02"
10' 7.26"	11' 5.11"	10' 6.71"	11' 5.76"	10' 6.09"	11' 6.51"	10' 5.4"	11' 7.35"	10' 4.64"	11' 8.31"
10' 1.7"	10' 10.63"	10' 1.19"	10' 11.22"	10' 0.63"	10' 11.89"	10'	11' 0.65"	9' 11.31"	11' 1.51"
9' 8.11"	10' 4.17"	9' 7.65"	10' 4.7"	9' 7.14"	10' 5.3"	9' 6.57"	10' 5.99"	9' 5.94"	10' 6.76"
9' 2.5"	9' 9.74"	9' 2.09"	9' 10.21"	9' 1.62"	9' 10.75"	9' 1.11"	9' 11.36"	9' 0.54"	10' 0.05"
8' 8.87"	9' 3.33"	8' 8.5"	9' 3.75"	8' 8.09"	9' 4.23"	8' 7.63"	9' 4.77"	8' 7.12"	9' 5.38"
8' 3.22"	8' 8.94"	8' 2.89"	8' 9.32"	8' 2.52"	8' 9.74"	8' 2.12"	8' 10.22"	8' 1.66"	8' 10.76"
7' 9.55"	8' 2.58"	7' 9.26"	8' 2.91"	7' 8.94"	8' 3.28"	7' 8.58"	8' 3.7"	7' 8.17"	8' 4.17"
7' 6.71"	7' 11.41"	7' 6.44"	7' 11.72"	7' 6.13"	8' 0.06"	7' 5.8"	8' 0.45"	7' 5.42"	8' 0.89"
7' 3.86"	7' 8.25"	7' 3.61"	7' 8.53"	7' 3.32"	7' 8.85"	7' 3.01"	7' 9.21"	7' 2.66"	7' 9.62"
7' 1.01"	7' 5.09"	7' 0.77"	7' 5.35"	7' 0.51"	7' 5.65"	7' 0.21"	7' 5.98"	6' 11.88"	7' 6.36"
6' 10.15"	7' 1.94"	6' 9.93"	7' 2.18"	6' 9.69"	7' 2.45"	6' 9.41"	7' 2.76"	6' 9.11"	7' 3.12"
6' 7.29"	6' 10.79"	6' 7.09"	6' 11.01"	6' 6.86"	6' 11.27"	6' 6.6"	6' 11.55"	6' 6.32"	6' 11.88"
6' 4.42"	6' 7.65"	6' 4.23"	6' 7.85"	6' 4.02"	6' 8.09"	6' 3.79"	6' 8.35"	6' 3.53"	6' 8.65"
6' 1.55"	6' 4.51"	6' 1.37"	6' 4.7"	6' 1.18"	6' 4.92"	6' 0.96"	6' 5.16"	6' 0.72"	6' 5.43"
5' 10.67"	6' 1.38"	5' 10.51"	6' 1.56"	5' 10.33"	6' 1.75"	5' 10.13"	6' 1.97"	5' 9.91"	6' 2.22"
5' 7.79"	5' 10.26"	5' 7.64"	5' 10.42"	5' 7.48"	5' 10.59"	5' 7.3"	5' 10.8"	5' 7.09"	5' 11.02"
5' 4.9"	5' 7.14"	5' 4.77"	5' 7.28"	5' 4.62"	5' 7.45"	5' 4.45"	5' 7.63"	5' 4.27"	5' 7.83"
5' 2"	5' 4.03"	5' 1.88"	5' 4.16"	5' 1.75"	5' 4.3"	5' 1.6"	5' 4.47"	5' 1.43"	5' 4.65"
4' 11.1"	5' 0.92"	4' 11"	5' 1.04"	4' 10.88"	5' 1.17"	4' 10.74"	5' 1.32"	4' 10.59"	5' 1.48"
4' 10.14"	4' 11.89"	4' 10.03"	5'	4' 9.92"	5' 0.13"	4' 9.79"	5' 0.27"	4' 9.64"	5' 0.43"
4' 9.17"	4' 10.86"	4' 9.07"	4' 10.96"	4' 8.96"	4' 11.08"	4' 8.83"	4' 11.22"	4' 8.69"	4' 11.37"
4' 8.2"	4' 9.82"	4' 8.1"	4' 9.93"	4' 8"	4' 10.04"	4' 7.88"	4' 10.17"	4' 7.74"	4' 10.32"
4' 7.23"	4' 8.79"	4' 7.14"	4' 8.89"	4' 7.03"	4' 9"	4' 6.92"	4' 9.13"	4' 6.79"	4' 9.27"
4' 6.26"	4' 7.76"	4' 6.17"	4' 7.86"	4' 6.07"	4' 7.96"	4' 5.96"	4' 8.08"	4' 5.84"	4' 8.22"
4' 5.29"	4' 6.73"	4' 5.2"	4' 6.82"	4' 5.11"	4' 6.92"	4' 5"	4' 7.04"	4' 4.88"	4' 7.17"
4' 4.32"	4' 5.7"	4' 4.24"	4' 5.79"	4' 4.15"	4' 5.88"	4' 4.04"	4' 6"	4' 3.93"	4' 6.12"
4' 3.35"	4' 4.67"	4' 3.27"	4' 4.75"	4' 3.18"	4' 4.85"	4' 3.08"	4' 4.95"	4' 2.97"	4' 5.07"
4' 2.38"	4' 3.64"	4' 2.3"	4' 3.72"	4' 2.22"	4' 3.81"	4' 2.12"	4' 3.91"	4' 2.02"	4' 4.03"
4' 1.4"	4' 2.61"	4' 1.33"	4' 2.69"	4' 1.25"	4' 2.78"	4' 1.16"	4' 2.87"	4' 1.06"	4' 2.98"
4' 0.43"	4' 1.59"	4' 0.36"	4' 1.66"	4' 0.28"	4' 1.74"	4' 0.2"	4' 1.83"	4' 0.1"	4' 1.94"
3' 11.45"	4' 0.56"	3' 11.39"	4' 0.63"	3' 11.32"	4' 0.71"	3' 11.23"	4' 0.79"	3' 11.14"	4' 0.89"
3' 10.48"	3' 11.53"	3' 10.42"	3' 11.6"	3' 10.35"	3' 11.67"	3' 10.27"	3' 11.76"	3' 10.18"	3' 11.85"



16	18	20	22
152' 8.72"	136' 1.66"	121' 4.3"	108' 2.31"

16		18		20		22	
Short Focus (ft-inch)	Long Focus (ft-inch)	Short Focus (ft-inch)	Long Focus (ft-inch)	Short Focus (ft-inch)	Long Focus (ft-inch)	Short Focus (ft-inch)	Long Focus (ft-inch)
152' 3.34"	Infinity	135' 8.3"	Infinity	120' 10.98"	Infinity	107' 9"	Infinity
110' 5.76"	Infinity	101' 5.99"	Infinity	93' 0.19"	Infinity	85' 0.49"	Infinity
86' 8.2"	Infinity	81' 0.82"	Infinity	75' 6.91"	Infinity	70' 2.84"	Infinity
60' 7.01"	287' 10.91"	57' 9.59"	374' 1.98"	54' 11.57"	563' 10.33"	52' 1.17"	1309' 3.3"
48' 1.87"	128' 5.41"	46' 4.64"	143' 1.33"	44' 6.6"	164' 1.77"	42' 7.86"	196' 7.23"
43' 2.75"	98' 2.72"	41' 9.62"	106' 6.66"	40' 3.69"	117' 9.22"	38' 9.04"	133' 6.6"
37' 9.76"	73' 10.65"	36' 8.63"	78' 5.85"	35' 6.78"	84' 4.65"	34' 4.24"	92' 2.01"
31' 9.98"	53' 10.4"	31' 0.67"	56' 3.11"	30' 2.76"	59' 2.55"	29' 4.25"	62' 11.06"
28' 7.2"	45' 1.58"	27' 11.69"	46' 9.52"	27' 3.65"	48' 9.74"	26' 7.08"	51' 3.55"
25' 2.28"	37' 1.3"	24' 8.47"	38' 2.63"	24' 2.21"	39' 6.59"	23' 7.49"	41' 1.88"
21' 7.04"	29' 8.56"	21' 2.78"	30' 5"	20' 10.18"	31' 2.97"	20' 5.2"	32' 2.84"
19' 3.9"	25' 6.57"	19' 0.5"	26' 0.76"	18' 8.8"	26' 8.01"	18' 4.8"	27' 4.57"
17' 9.27"	22' 10.5"	17' 6.41"	23' 3.43"	17' 3.29"	23' 9.18"	16' 11.89"	24' 3.93"
16' 11.8"	21' 6.83"	16' 9.19"	21' 11.2"	16' 6.34"	22' 4.28"	16' 3.23"	22' 10.22"
16' 2.21"	20' 3.39"	15' 11.85"	20' 7.23"	15' 9.26"	20' 11.7"	15' 6.44"	21' 4.91"
15' 4.51"	19' 0.17"	15' 2.38"	19' 3.54"	15' 0.05"	19' 7.44"	14' 9.5"	19' 11.98"
14' 6.7"	17' 9.18"	14' 4.79"	18' 0.11"	14' 2.7"	18' 3.49"	14' 0.42"	18' 7.41"
13' 8.76"	16' 6.41"	13' 7.07"	16' 8.93"	13' 5.22"	16' 11.84"	13' 3.19"	17' 3.2"
12' 10.71"	15' 3.85"	12' 9.22"	15' 6"	12' 7.59"	15' 8.48"	12' 5.81"	15' 11.34"
12' 0.53"	14' 1.49"	11' 11.24"	14' 3.31"	11' 9.82"	14' 5.4"	11' 8.26"	14' 7.81"
11' 2.23"	12' 11.35"	11' 1.12"	13' 0.86"	10' 11.9"	13' 2.6"	10' 10.56"	13' 4.6"
10' 3.8"	11' 9.4"	10' 2.86"	11' 10.64"	10' 1.83"	12' 0.07"	10' 0.7"	12' 1.7"
9' 10.54"	11' 2.5"	9' 9.68"	11' 3.62"	9' 8.74"	11' 4.9"	9' 7.7"	11' 6.37"
9' 5.24"	10' 7.64"	9' 4.47"	10' 8.65"	9' 3.61"	10' 9.8"	9' 2.66"	10' 11.11"
8' 11.91"	10' 0.84"	8' 11.21"	10' 1.73"	8' 10.44"	10' 2.76"	8' 9.58"	10' 3.92"
8' 6.55"	9' 6.08"	8' 5.92"	9' 6.87"	8' 5.22"	9' 7.78"	8' 4.45"	9' 8.81"
8' 1.16"	8' 11.37"	8' 0.59"	9' 0.07"	7' 11.97"	9' 0.86"	7' 11.28"	9' 1.77"
7' 7.73"	8' 4.71"	7' 7.23"	8' 5.32"	7' 6.68"	8' 6.01"	7' 6.07"	8' 6.8"
7' 5"	8' 1.39"	7' 4.53"	8' 1.96"	7' 4.02"	8' 2.6"	7' 3.44"	8' 3.34"
7' 2.26"	7' 10.09"	7' 1.83"	7' 10.61"	7' 1.34"	7' 11.21"	7' 0.81"	7' 11.9"
6' 11.52"	7' 6.8"	6' 11.11"	7' 7.28"	6' 10.66"	7' 7.84"	6' 10.16"	7' 8.47"
6' 8.77"	7' 3.51"	6' 8.39"	7' 3.97"	6' 7.97"	7' 4.48"	6' 7.5"	7' 5.06"
6' 6"	7' 0.25"	6' 5.65"	7' 0.66"	6' 5.26"	7' 1.13"	6' 4.83"	7' 1.67"
6' 3.23"	6' 8.99"	6' 2.91"	6' 9.37"	6' 2.55"	6' 9.8"	6' 2.15"	6' 10.29"
6' 0.45"	6' 5.74"	6' 0.15"	6' 6.09"	5' 11.82"	6' 6.49"	5' 11.45"	6' 6.94"
5' 9.67"	6' 2.5"	5' 9.39"	6' 2.82"	5' 9.08"	6' 3.18"	5' 8.74"	6' 3.59"
5' 6.87"	5' 11.28"	5' 6.62"	5' 11.57"	5' 6.34"	5' 11.9"	5' 6.03"	6' 0.27"
5' 4.06"	5' 8.06"	5' 3.83"	5' 8.33"	5' 3.58"	5' 8.62"	5' 3.29"	5' 8.96"
5' 1.25"	5' 4.86"	5' 1.04"	5' 5.1"	5' 0.81"	5' 5.36"	5' 0.55"	5' 5.67"
4' 10.42"	5' 1.67"	4' 10.24"	5' 1.88"	4' 10.03"	5' 2.12"	4' 9.8"	5' 2.39"
4' 9.48"	5' 0.61"	4' 9.3"	5' 0.81"	4' 9.1"	5' 1.04"	4' 8.88"	5' 1.3"
4' 8.54"	4' 11.55"	4' 8.36"	4' 11.74"	4' 8.17"	4' 11.96"	4' 7.95"	5' 0.21"
4' 7.59"	4' 10.49"	4' 7.42"	4' 10.67"	4' 7.24"	4' 10.89"	4' 7.03"	4' 11.13"
4' 6.64"	4' 9.43"	4' 6.48"	4' 9.61"	4' 6.3"	4' 9.81"	4' 6.1"	4' 10.04"
4' 5.7"	4' 8.37"	4' 5.54"	4' 8.54"	4' 5.37"	4' 8.74"	4' 5.18"	4' 8.96"
4' 4.75"	4' 7.32"	4' 4.6"	4' 7.48"	4' 4.43"	4' 7.67"	4' 4.25"	4' 7.88"
4' 3.8"	4' 6.26"	4' 3.66"	4' 6.42"	4' 3.5"	4' 6.6"	4' 3.32"	4' 6.8"
4' 2.85"	4' 5.21"	4' 2.71"	4' 5.36"	4' 2.56"	4' 5.53"	4' 2.39"	4' 5.73"
4' 1.9"	4' 4.16"	4' 1.77"	4' 4.3"	4' 1.62"	4' 4.46"	4' 1.46"	4' 4.65"
4' 0.95"	4' 3.1"	4' 0.82"	4' 3.24"	4' 0.68"	4' 3.4"	4' 0.52"	4' 3.58"
3' 11.99"	4' 2.05"	3' 11.87"	4' 2.19"	3' 11.74"	4' 2.34"	3' 11.59"	4' 2.51"
3' 11.04"	4' 1.01"	3' 10.92"	4' 1.13"	3' 10.79"	4' 1.27"	3' 10.65"	4' 1.44"
3' 10.08"	3' 11.96"	3' 9.97"	4' 0.08"	3' 9.85"	4' 0.21"	3' 9.71"	4' 0.37"



Focal Length 180 mm

Circle of Confusion 0.025 mm

T/No	2	2.2	2.5	2.8
Hyperfocal Distance (ft-inch)	2076' 8.63"	1850' 3.15"	1648' 6.13"	1468' 9.28"

T/No	2		2.2		2.5		2.8	
Focus Distance (ft-inch)	Short Focus (ft-inch)	Long Focus (ft-inch)	Short Focus (ft-inch)	Long Focus (ft-inch)	Short Focus (ft-inch)	Long Focus (ft-inch)	Short Focus (ft-inch)	Long Focus (ft-inch)
Infinity	2074' 9.94"	Infinity	1848' 7.69"	Infinity	1647' 1.26"	Infinity	1467' 6.43"	Infinity
400' 0"	335' 7.09"	495' 0.71"	329' 1.23"	509' 10.84"	322' 1.36"	527' 7.95"	314' 7.36"	549' 1.59"
200' 0"	182' 6.59"	221' 1.81"	180' 7.43"	224' 0.64"	178' 6.02"	227' 4.84"	176' 2.2"	231' 3.43"
100' 0"	95' 5.66"	104' 11.78"	94' 11.34"	105' 7.52"	94' 4.34"	106' 4.31"	93' 8.57"	107' 2.33"
80' 0"	77' 1.03"	83' 1.73"	76' 8.93"	83' 6.56"	76' 4.36"	84' 0.03"	75' 11.29"	84' 6.25"
60' 0"	58' 4.28"	61' 8.88"	58' 1.93"	61' 11.52"	57' 11.33"	62' 2.51"	57' 8.42"	62' 5.89"
50' 0"	48' 10.31"	51' 2.35"	48' 8.68"	51' 4.16"	48' 6.85"	51' 6.2"	48' 4.82"	51' 8.5"
40' 0"	39' 3.26"	40' 9.07"	39' 2.22"	40' 10.2"	39' 1.05"	40' 11.48"	38' 11.74"	41' 0.93"
35' 0"	34' 5.33"	35' 6.89"	34' 4.53"	35' 7.75"	34' 3.64"	35' 8.72"	34' 2.63"	35' 9.81"
30' 0"	29' 7.13"	30' 5.01"	29' 6.54"	30' 5.63"	29' 5.88"	30' 6.34"	29' 5.15"	30' 7.13"
25' 0"	24' 8.64"	25' 3.43"	24' 8.24"	25' 3.86"	24' 7.78"	25' 4.34"	24' 7.28"	25' 4.88"
22' 0"	21' 9.42"	22' 2.63"	21' 9.11"	22' 2.96"	21' 8.76"	22' 3.33"	21' 8.37"	22' 3.74"
20' 0"	19' 9.88"	20' 2.16"	19' 9.62"	20' 2.43"	19' 9.34"	20' 2.73"	19' 9.01"	20' 3.06"
19' 0"	18' 10.09"	19' 1.94"	18' 9.86"	19' 2.18"	18' 9.6"	19' 2.45"	18' 9.32"	19' 2.75"
18' 0"	17' 10.3"	18' 1.73"	17' 10.09"	18' 1.94"	17' 9.86"	18' 2.19"	17' 9.6"	18' 2.46"
17' 0"	16' 10.49"	17' 1.54"	16' 10.3"	17' 1.72"	16' 10.1"	17' 1.94"	16' 9.87"	17' 2.18"
16' 0"	15' 10.67"	16' 1.35"	15' 10.51"	16' 1.52"	15' 10.33"	16' 1.71"	15' 10.12"	16' 1.92"
15' 0"	14' 10.84"	15' 1.18"	14' 10.7"	15' 1.32"	14' 10.54"	15' 1.49"	14' 10.36"	15' 1.67"
14' 6"	14' 4.92"	14' 7.1"	14' 4.79"	14' 7.23"	14' 4.64"	14' 7.38"	14' 4.47"	14' 7.56"
14' 0"	13' 10.99"	14' 1.02"	13' 10.87"	14' 1.14"	13' 10.73"	14' 1.29"	13' 10.58"	14' 1.44"
13' 6"	13' 5.07"	13' 6.94"	13' 4.96"	13' 7.06"	13' 4.83"	13' 7.19"	13' 4.69"	13' 7.34"
13' 0"	12' 11.14"	13' 0.87"	12' 11.04"	13' 0.98"	12' 10.92"	13' 1.1"	12' 10.79"	13' 1.23"
12' 6"	12' 5.21"	12' 6.8"	12' 5.11"	12' 6.9"	12' 5"	12' 7.01"	12' 4.88"	12' 7.13"
12' 0"	11' 11.27"	12' 0.73"	11' 11.19"	12' 0.82"	11' 11.09"	12' 0.92"	11' 10.98"	12' 1.04"
11' 9"	11' 8.31"	11' 9.7"	11' 8.22"	11' 9.79"	11' 8.13"	11' 9.88"	11' 8.02"	11' 9.99"
11' 6"	11' 5.34"	11' 6.67"	11' 5.26"	11' 6.75"	11' 5.17"	11' 6.84"	11' 5.07"	11' 6.95"
11' 3"	11' 2.37"	11' 3.64"	11' 2.29"	11' 3.72"	11' 2.2"	11' 3.81"	11' 2.11"	11' 3.9"
11' 0"	10' 11.4"	11' 0.61"	10' 11.32"	11' 0.68"	10' 11.24"	11' 0.77"	10' 11.15"	11' 0.86"
10' 9"	10' 8.43"	10' 9.58"	10' 8.36"	10' 9.65"	10' 8.28"	10' 9.73"	10' 8.19"	10' 9.82"
10' 6"	10' 5.46"	10' 6.55"	10' 5.39"	10' 6.62"	10' 5.31"	10' 6.69"	10' 5.23"	10' 6.78"
10' 3"	10' 2.48"	10' 3.52"	10' 2.42"	10' 3.59"	10' 2.35"	10' 3.66"	10' 2.27"	10' 3.74"
10' 0"	9' 11.51"	10' 0.49"	9' 11.45"	10' 0.56"	9' 11.38"	10' 0.62"	9' 11.31"	10' 0.7"
9' 9"	9' 8.54"	9' 9.47"	9' 8.48"	9' 9.53"	9' 8.42"	9' 9.59"	9' 8.34"	9' 9.66"
9' 6"	9' 5.56"	9' 6.44"	9' 5.51"	9' 6.5"	9' 5.45"	9' 6.56"	9' 5.38"	9' 6.63"
9' 3"	9' 2.59"	9' 3.42"	9' 2.54"	9' 3.47"	9' 2.48"	9' 3.53"	9' 2.42"	9' 3.59"
9' 0"	8' 11.61"	9' 0.39"	8' 11.56"	9' 0.44"	8' 11.51"	9' 0.5"	8' 11.45"	9' 0.56"
8' 9"	8' 8.63"	8' 9.37"	8' 8.59"	8' 9.41"	8' 8.54"	8' 9.47"	8' 8.48"	8' 9.52"
8' 6"	8' 5.66"	8' 6.35"	8' 5.61"	8' 6.39"	8' 5.57"	8' 6.44"	8' 5.51"	8' 6.49"
8' 3"	8' 2.68"	8' 3.32"	8' 2.64"	8' 3.36"	8' 2.59"	8' 3.41"	8' 2.54"	8' 3.46"
8' 0"	7' 11.7"	8' 0.3"	7' 11.66"	8' 0.34"	7' 11.62"	8' 0.38"	7' 11.57"	8' 0.43"
7' 9"	7' 8.72"	7' 9.28"	7' 8.69"	7' 9.32"	7' 8.65"	7' 9.36"	7' 8.6"	7' 9.4"
7' 6"	7' 5.74"	7' 6.26"	7' 5.71"	7' 6.29"	7' 5.67"	7' 6.33"	7' 5.63"	7' 6.37"
7' 3"	7' 2.76"	7' 3.24"	7' 2.73"	7' 3.27"	7' 2.7"	7' 3.31"	7' 2.66"	7' 3.34"
7' 0"	6' 11.78"	7' 0.22"	6' 11.75"	7' 0.25"	6' 11.72"	7' 0.28"	6' 11.68"	7' 0.32"
6' 9"	6' 8.79"	6' 9.21"	6' 8.77"	6' 9.23"	6' 8.74"	6' 9.26"	6' 8.71"	6' 9.29"
6' 6"	6' 5.81"	6' 6.19"	6' 5.79"	6' 6.21"	6' 5.76"	6' 6.24"	6' 5.73"	6' 6.27"
6' 3"	6' 2.83"	6' 3.17"	6' 2.81"	6' 3.2"	6' 2.78"	6' 3.22"	6' 2.76"	6' 3.25"
6' 0"	5' 11.84"	6' 0.16"	5' 11.82"	6' 0.18"	5' 11.8"	6' 0.2"	5' 11.78"	6' 0.22"
5' 9"	5' 8.86"	5' 9.14"	5' 8.84"	5' 9.16"	5' 8.82"	5' 9.18"	5' 8.8"	5' 9.2"
5' 6"	5' 5.87"	5' 6.13"	5' 5.86"	5' 6.15"	5' 5.84"	5' 6.16"	5' 5.82"	5' 6.18"
5' 3"	5' 2.88"	5' 3.12"	5' 2.87"	5' 3.13"	5' 2.85"	5' 3.15"	5' 2.84"	5' 3.16"
5' 0"	4' 11.9"	5' 0.1"	4' 11.88"	5' 0.12"	4' 11.87"	5' 0.13"	4' 11.85"	5' 0.15"
4' 11"	4' 10.9"	4' 11.1"	4' 10.89"	4' 11.11"	4' 10.88"	4' 11.13"	4' 10.86"	4' 11.14"



3.2	3.5	4	4.5	5
1308' 7.7"	1165' 11.77"	1038' 10.65"	925' 7.91"	824' 9.4"

3.2		3.5		4		4.5		5	
Short Focus (ft-inch)	Long Focus (ft-inch)	Short Focus (ft-inch)	Long Focus (ft-inch)	Short Focus (ft-inch)	Long Focus (ft-inch)	Short Focus (ft-inch)	Long Focus (ft-inch)	Short Focus (ft-inch)	Long Focus (ft-inch)
1307' 6.5"	Infinity	1164' 11.88"	Infinity	1037' 11.76"	Infinity	924' 9.83"	Infinity	823' 11.96"	Infinity
306' 7.21"	575' 4.96"	298' 0.97"	608' 1"	289' 0.79"	649' 5.73"	279' 6.9"	703' 2.59"	269' 7.67"	775' 2.67"
173' 7.82"	235' 9.65"	170' 10.75"	241' 1.11"	167' 10.86"	247' 3.81"	164' 8.05"	254' 8.41"	161' 2.23"	263' 6.4"
92' 11.99"	108' 1.77"	92' 2.5"	109' 2.85"	91' 4.05"	110' 5.86"	90' 4.55"	111' 11.12"	89' 3.93"	113' 7.04"
75' 5.67"	85' 1.32"	74' 11.43"	85' 9.37"	74' 4.54"	86' 6.57"	73' 8.93"	87' 5.09"	73' 0.54"	88' 5.15"
57' 5.19"	62' 9.72"	57' 1.6"	63' 2.07"	56' 9.61"	63' 7.01"	56' 5.19"	64' 0.64"	56' 0.3"	64' 7.05"
48' 2.56"	51' 11.11"	48' 0.04"	52' 2.06"	47' 9.24"	52' 5.41"	47' 6.12"	52' 9.22"	47' 2.67"	53' 1.54"
38' 10.28"	41' 2.56"	38' 8.66"	41' 4.4"	38' 6.85"	41' 6.49"	38' 4.83"	41' 8.86"	38' 2.59"	41' 11.54"
34' 1.52"	35' 11.04"	34' 0.27"	36' 0.43"	33' 10.88"	36' 2.01"	33' 9.33"	36' 3.79"	33' 7.6"	36' 5.81"
29' 4.33"	30' 8.02"	29' 3.41"	30' 9.03"	29' 2.39"	30' 10.16"	29' 1.25"	30' 11.45"	28' 11.97"	31' 0.9"
24' 6.71"	25' 5.49"	24' 6.07"	25' 6.18"	24' 5.36"	25' 6.95"	24' 4.57"	25' 7.82"	24' 3.69"	25' 8.81"
21' 7.93"	22' 4.2"	21' 7.44"	22' 4.73"	21' 6.89"	22' 5.32"	21' 6.28"	22' 5.99"	21' 5.6"	22' 6.74"
19' 8.65"	20' 3.44"	19' 8.25"	20' 3.87"	19' 7.8"	20' 4.36"	19' 7.3"	20' 4.9"	19' 6.73"	20' 5.52"
18' 8.99"	19' 3.09"	18' 8.63"	19' 3.48"	18' 8.22"	19' 3.91"	18' 7.77"	19' 4.4"	18' 7.26"	19' 4.95"
17' 9.31"	18' 2.76"	17' 8.98"	18' 3.1"	17' 8.62"	18' 3.49"	17' 8.22"	18' 3.93"	17' 7.76"	18' 4.42"
16' 9.61"	17' 2.45"	16' 9.32"	17' 2.75"	16' 9"	17' 3.09"	16' 8.64"	17' 3.48"	16' 8.23"	17' 3.91"
15' 9.89"	16' 2.15"	15' 9.64"	16' 2.42"	15' 9.36"	16' 2.72"	15' 9.04"	16' 3.06"	15' 8.68"	16' 3.44"
14' 10.16"	15' 1.88"	14' 9.94"	15' 2.11"	14' 9.69"	15' 2.37"	14' 9.41"	15' 2.67"	14' 9.1"	15' 3"
14' 4.29"	14' 7.75"	14' 4.08"	14' 7.96"	14' 3.85"	14' 8.21"	14' 3.59"	14' 8.48"	14' 3.3"	14' 8.79"
13' 10.41"	14' 1.62"	13' 10.22"	14' 1.82"	13' 10"	14' 2.05"	13' 9.76"	14' 2.3"	13' 9.49"	14' 2.59"
13' 4.53"	13' 7.5"	13' 4.35"	13' 7.69"	13' 4.15"	13' 7.9"	13' 3.92"	13' 8.13"	13' 3.67"	13' 8.4"
12' 10.64"	13' 1.39"	12' 10.47"	13' 1.56"	12' 10.29"	13' 1.75"	12' 10.08"	13' 1.97"	12' 9.85"	13' 2.21"
12' 4.75"	12' 7.27"	12' 4.6"	12' 7.43"	12' 4.43"	12' 7.61"	12' 4.24"	12' 7.81"	12' 4.02"	12' 8.03"
11' 10.85"	12' 1.17"	11' 10.71"	12' 1.31"	11' 10.56"	12' 1.47"	11' 10.38"	12' 1.66"	11' 10.19"	12' 1.86"
11' 7.9"	11' 10.12"	11' 7.77"	11' 10.25"	11' 7.62"	11' 10.41"	11' 7.45"	11' 10.58"	11' 7.27"	11' 10.78"
11' 4.95"	11' 7.07"	11' 4.82"	11' 7.2"	11' 4.68"	11' 7.34"	11' 4.52"	11' 7.51"	11' 4.34"	11' 7.7"
11' 2"	11' 4.02"	11' 1.88"	11' 4.14"	11' 1.74"	11' 4.28"	11' 1.59"	11' 4.44"	11' 1.42"	11' 4.62"
10' 11.05"	11' 0.97"	10' 10.93"	11' 1.09"	10' 10.8"	11' 1.22"	10' 10.66"	11' 1.37"	10' 10.49"	11' 1.54"
10' 8.09"	10' 9.92"	10' 7.98"	10' 10.03"	10' 7.86"	10' 10.16"	10' 7.72"	10' 10.31"	10' 7.57"	10' 10.47"
10' 5.14"	10' 6.88"	10' 5.03"	10' 6.98"	10' 4.92"	10' 7.1"	10' 4.78"	10' 7.24"	10' 4.64"	10' 7.4"
10' 2.18"	10' 3.83"	10' 2.08"	10' 3.93"	10' 1.97"	10' 4.05"	10' 1.85"	10' 4.18"	10' 1.71"	10' 4.32"
9' 11.22"	10' 0.79"	9' 11.13"	10' 0.88"	9' 11.02"	10' 0.99"	9' 10.9"	10' 1.12"	9' 10.77"	10' 1.25"
9' 8.26"	9' 9.74"	9' 8.18"	9' 9.84"	9' 8.08"	9' 9.94"	9' 7.96"	9' 10.06"	9' 7.84"	9' 10.19"
9' 5.31"	9' 6.7"	9' 5.22"	9' 6.79"	9' 5.13"	9' 6.89"	9' 5.02"	9' 7"	9' 4.9"	9' 7.12"
9' 2.34"	9' 3.66"	9' 2.26"	9' 3.75"	9' 2.18"	9' 3.84"	9' 2.07"	9' 3.94"	9' 1.96"	9' 4.06"
8' 11.38"	9' 0.63"	8' 11.31"	9' 0.7"	8' 11.22"	9' 0.79"	8' 11.13"	9' 0.89"	8' 11.02"	9' 1"
8' 8.42"	8' 9.59"	8' 8.35"	8' 9.66"	8' 8.27"	8' 9.74"	8' 8.18"	8' 9.83"	8' 8.08"	8' 9.94"
8' 5.45"	8' 6.55"	8' 5.39"	8' 6.62"	8' 5.31"	8' 6.7"	8' 5.23"	8' 6.78"	8' 5.14"	8' 6.88"
8' 2.49"	8' 3.52"	8' 2.43"	8' 3.58"	8' 2.36"	8' 3.65"	8' 2.28"	8' 3.73"	8' 2.19"	8' 3.82"
7' 11.52"	8' 0.48"	7' 11.46"	8' 0.54"	7' 11.4"	8' 0.61"	7' 11.33"	8' 0.68"	7' 11.25"	8' 0.77"
7' 8.56"	7' 9.45"	7' 8.5"	7' 9.5"	7' 8.44"	7' 9.57"	7' 8.37"	7' 9.64"	7' 8.3"	7' 9.72"
7' 5.59"	7' 6.42"	7' 5.54"	7' 6.47"	7' 5.48"	7' 6.53"	7' 5.42"	7' 6.59"	7' 5.35"	7' 6.66"
7' 2.62"	7' 3.39"	7' 2.57"	7' 3.43"	7' 2.52"	7' 3.49"	7' 2.46"	7' 3.55"	7' 2.39"	7' 3.62"
6' 11.65"	7' 0.36"	6' 11.6"	7' 0.4"	6' 11.55"	7' 0.45"	6' 11.5"	7' 0.51"	6' 11.44"	7' 0.57"
6' 8.67"	6' 9.33"	6' 8.63"	6' 9.37"	6' 8.59"	6' 9.42"	6' 8.54"	6' 9.47"	6' 8.48"	6' 9.52"
6' 5.7"	6' 6.3"	6' 5.66"	6' 6.34"	6' 5.62"	6' 6.38"	6' 5.58"	6' 6.43"	6' 5.53"	6' 6.48"
6' 2.73"	6' 3.28"	6' 2.69"	6' 3.31"	6' 2.65"	6' 3.35"	6' 2.61"	6' 3.39"	6' 2.57"	6' 3.44"
5' 11.75"	6' 0.25"	5' 11.72"	6' 0.28"	5' 11.69"	6' 0.32"	5' 11.65"	6' 0.36"	5' 11.6"	6' 0.4"
5' 8.77"	5' 9.23"	5' 8.75"	5' 9.26"	5' 8.71"	5' 9.29"	5' 8.68"	5' 9.32"	5' 8.64"	5' 9.36"
5' 5.8"	5' 6.21"	5' 5.77"	5' 6.23"	5' 5.74"	5' 6.26"	5' 5.71"	5' 6.29"	5' 5.68"	5' 6.33"
5' 2.82"	5' 3.18"	5' 2.79"	5' 3.21"	5' 2.77"	5' 3.23"	5' 2.74"	5' 3.26"	5' 2.71"	5' 3.29"
4' 11.84"	5' 0.16"	4' 11.82"	5' 0.18"	4' 11.79"	5' 0.21"	4' 11.77"	5' 0.23"	4' 11.74"	5' 0.26"
4' 10.84"	4' 11.16"	4' 10.82"	4' 11.18"	4' 10.8"	4' 11.2"	4' 10.78"	4' 11.22"	4' 10.75"	4' 11.25"



5.6	6.3	7.1	8	9
734' 10.98"	654' 10.19"	583' 6.24"	519' 11.65"	463' 4.28"

5.6		6.3		7.1		8		9	
Short Focus (ft-inch)	Long Focus (ft-inch)	Short Focus (ft-inch)	Long Focus (ft-inch)	Short Focus (ft-inch)	Long Focus (ft-inch)	Short Focus (ft-inch)	Long Focus (ft-inch)	Short Focus (ft-inch)	Long Focus (ft-inch)
734' 2.04"	Infinity	654' 1.67"	Infinity	582' 10.03"	Infinity	519' 3.72"	Infinity	462' 8.55"	Infinity
259' 3.57"	875' 10.9"	248' 7.16"	1025' 5.08"	237' 7.11"	1268' 6.13"	226' 4.18"	1728' 6.63"	214' 11.2"	2915' 8.63"
157' 5.35"	274' 2.48"	153' 5.41"	287' 3.23"	149' 2.42"	303' 6"	144' 8.46"	324' 0.67"	139' 11.65"	350' 8.69"
88' 2.11"	115' 6.12"	86' 11.01"	117' 8.98"	85' 6.58"	120' 4.39"	84' 0.74"	123' 5.37"	82' 5.45"	127' 1.21"
72' 3.31"	89' 7.03"	71' 5.19"	90' 11.05"	70' 6.1"	92' 5.62"	69' 5.99"	94' 3.23"	68' 4.81"	96' 4.52"
55' 6.89"	65' 2.38"	55' 0.93"	65' 10.78"	54' 6.36"	66' 8.42"	53' 11.14"	67' 7.54"	53' 3.22"	68' 8.38"
46' 10.84"	53' 6.47"	46' 6.61"	54' 0.09"	46' 1.93"	54' 6.52"	45' 8.78"	55' 1.89"	45' 3.1"	55' 10.37"
38' 0.1"	42' 2.58"	37' 9.34"	42' 6.04"	37' 6.28"	42' 9.98"	37' 2.89"	43' 2.48"	36' 11.15"	43' 7.63"
33' 5.68"	36' 8.09"	33' 3.55"	36' 10.69"	33' 1.19"	37' 1.64"	32' 10.56"	37' 5"	32' 7.66"	37' 8.83"
28' 10.56"	31' 2.55"	28' 8.98"	31' 4.41"	28' 7.23"	31' 6.53"	28' 5.28"	31' 8.93"	28' 3.12"	31' 11.66"
24' 2.7"	25' 9.93"	24' 1.6"	25' 11.19"	24' 0.38"	26' 0.62"	23' 11.02"	26' 2.24"	23' 9.51"	26' 4.08"
21' 4.83"	22' 7.59"	21' 3.98"	22' 8.55"	21' 3.03"	22' 9.63"	21' 1.98"	22' 10.86"	21' 0.81"	23' 0.26"
19' 6.1"	20' 6.21"	19' 5.4"	20' 6.99"	19' 4.62"	20' 7.88"	19' 3.75"	20' 8.88"	19' 2.78"	20' 10.01"
18' 6.69"	19' 5.57"	18' 6.06"	19' 6.27"	18' 5.36"	19' 7.07"	18' 4.57"	19' 7.96"	18' 3.69"	19' 8.98"
17' 7.25"	18' 4.97"	17' 6.69"	18' 5.6"	17' 6.06"	18' 6.3"	17' 5.35"	18' 7.1"	17' 4.56"	18' 8"
16' 7.78"	17' 4.4"	16' 7.28"	17' 4.96"	16' 6.72"	17' 5.58"	16' 6.09"	17' 6.29"	16' 5.39"	17' 7.08"
15' 8.28"	16' 3.87"	15' 7.84"	16' 4.36"	15' 7.34"	16' 4.91"	15' 6.78"	16' 5.52"	15' 6.17"	16' 6.22"
14' 8.75"	15' 3.38"	14' 8.36"	15' 3.8"	14' 7.92"	15' 4.28"	14' 7.44"	15' 4.81"	14' 6.9"	15' 5.42"
14' 2.97"	14' 9.14"	14' 2.61"	14' 9.53"	14' 2.2"	14' 9.98"	14' 1.75"	14' 10.48"	14' 1.24"	14' 11.04"
13' 9.19"	14' 2.91"	13' 8.85"	14' 3.28"	13' 8.47"	14' 3.69"	13' 8.05"	14' 4.15"	13' 7.58"	14' 4.68"
13' 3.39"	13' 8.7"	13' 3.08"	13' 9.03"	13' 2.73"	13' 9.41"	13' 2.34"	13' 9.84"	13' 1.9"	13' 10.32"
12' 9.59"	13' 2.49"	12' 9.3"	13' 2.8"	12' 8.98"	13' 3.15"	12' 8.62"	13' 3.54"	12' 8.21"	13' 3.99"
12' 3.78"	12' 8.29"	12' 3.52"	12' 8.57"	12' 3.22"	12' 8.89"	12' 2.89"	12' 9.25"	12' 2.51"	12' 9.66"
11' 9.97"	12' 2.09"	11' 9.72"	12' 2.35"	11' 9.45"	12' 2.65"	11' 9.14"	12' 2.98"	11' 8.8"	12' 3.35"
11' 7.06"	11' 11"	11' 6.82"	11' 11.25"	11' 6.56"	11' 11.53"	11' 6.27"	11' 11.85"	11' 5.94"	12' 0.2"
11' 4.14"	11' 7.91"	11' 3.92"	11' 8.15"	11' 3.67"	11' 8.42"	11' 3.39"	11' 8.72"	11' 3.08"	11' 9.06"
11' 1.23"	11' 4.82"	11' 1.01"	11' 5.05"	11' 0.78"	11' 5.3"	11' 0.51"	11' 5.59"	11' 0.21"	11' 5.92"
10' 10.31"	11' 1.73"	10' 10.11"	11' 1.95"	10' 9.88"	11' 2.19"	10' 9.63"	11' 2.47"	10' 9.34"	11' 2.78"
10' 7.39"	10' 10.65"	10' 7.2"	10' 10.86"	10' 6.98"	10' 11.09"	10' 6.74"	10' 11.35"	10' 6.47"	10' 11.64"
10' 4.47"	10' 7.57"	10' 4.29"	10' 7.76"	10' 4.08"	10' 7.98"	10' 3.85"	10' 8.23"	10' 3.59"	10' 8.51"
10' 1.55"	10' 4.49"	10' 1.37"	10' 4.67"	10' 1.18"	10' 4.88"	10' 0.96"	10' 5.12"	10' 0.71"	10' 5.38"
9' 10.62"	10' 1.41"	9' 10.46"	10' 1.59"	9' 10.27"	10' 1.78"	9' 10.06"	10' 2"	9' 9.83"	10' 2.26"
9' 7.7"	9' 10.33"	9' 7.54"	9' 10.5"	9' 7.36"	9' 10.69"	9' 7.17"	9' 10.9"	9' 6.95"	9' 11.13"
9' 4.77"	9' 7.26"	9' 4.62"	9' 7.42"	9' 4.45"	9' 7.59"	9' 4.27"	9' 7.79"	9' 4.06"	9' 8.01"
9' 1.84"	9' 4.19"	9' 1.7"	9' 4.34"	9' 1.54"	9' 4.5"	9' 1.36"	9' 4.69"	9' 1.17"	9' 4.9"
8' 10.9"	9' 1.12"	8' 10.77"	9' 1.26"	8' 10.62"	9' 1.41"	8' 10.46"	9' 1.59"	8' 10.27"	9' 1.79"
8' 7.97"	8' 10.05"	8' 7.84"	8' 10.18"	8' 7.71"	8' 10.33"	8' 7.55"	8' 10.49"	8' 7.37"	8' 10.68"
8' 5.03"	8' 6.99"	8' 4.92"	8' 7.11"	8' 4.78"	8' 7.25"	8' 4.64"	8' 7.4"	8' 4.47"	8' 7.58"
8' 2.09"	8' 3.92"	8' 1.98"	8' 4.04"	8' 1.86"	8' 4.17"	8' 1.72"	8' 4.31"	8' 1.57"	8' 4.47"
7' 11.15"	8' 0.86"	7' 11.05"	8' 0.97"	7' 10.94"	8' 1.09"	7' 10.81"	8' 1.22"	7' 10.66"	8' 1.38"
7' 8.21"	7' 9.8"	7' 8.12"	7' 9.9"	7' 8.01"	7' 10.02"	7' 7.89"	7' 10.14"	7' 7.75"	7' 10.28"
7' 5.27"	7' 6.75"	7' 5.18"	7' 6.84"	7' 5.08"	7' 6.94"	7' 4.97"	7' 7.06"	7' 4.84"	7' 7.19"
7' 2.32"	7' 3.69"	7' 2.24"	7' 3.78"	7' 2.14"	7' 3.87"	7' 2.04"	7' 3.98"	7' 1.93"	7' 4.1"
6' 11.37"	7' 0.64"	6' 11.29"	7' 0.72"	6' 11.21"	7' 0.81"	6' 11.11"	7' 0.91"	6' 11.01"	7' 1.02"
6' 8.42"	6' 9.59"	6' 8.35"	6' 9.66"	6' 8.27"	6' 9.74"	6' 8.18"	6' 9.84"	6' 8.08"	6' 9.94"
6' 5.47"	6' 6.54"	6' 5.4"	6' 6.61"	6' 5.33"	6' 6.68"	6' 5.25"	6' 6.77"	6' 5.16"	6' 6.86"
6' 2.51"	6' 3.49"	6' 2.45"	6' 3.55"	6' 2.39"	6' 3.62"	6' 2.31"	6' 3.7"	6' 2.23"	6' 3.79"
5' 11.56"	6' 0.45"	5' 11.5"	6' 0.51"	5' 11.44"	6' 0.57"	5' 11.37"	6' 0.64"	5' 11.3"	6' 0.72"
5' 8.6"	5' 9.41"	5' 8.55"	5' 9.46"	5' 8.49"	5' 9.51"	5' 8.43"	5' 9.58"	5' 8.36"	5' 9.65"
5' 5.64"	5' 6.37"	5' 5.59"	5' 6.41"	5' 5.54"	5' 6.46"	5' 5.49"	5' 6.52"	5' 5.43"	5' 6.59"
5' 2.67"	5' 3.33"	5' 2.63"	5' 3.37"	5' 2.59"	5' 3.42"	5' 2.54"	5' 3.47"	5' 2.48"	5' 3.52"
4' 11.71"	5' 0.29"	4' 11.67"	5' 0.33"	4' 11.63"	5' 0.37"	4' 11.59"	5' 0.42"	4' 11.54"	5' 0.47"
4' 10.72"	4' 11.28"	4' 10.69"	4' 11.32"	4' 10.65"	4' 11.36"	4' 10.61"	4' 11.4"	4' 10.56"	4' 11.45"



10	11	13	14	16
412' 11.04"	367' 11.83"	327' 11.43"	292' 3.44"	260' 6.14"

10		11		13		14		16	
Short Focus (ft-inch)	Long Focus (ft-inch)	Short Focus (ft-inch)	Long Focus (ft-inch)	Short Focus (ft-inch)	Long Focus (ft-inch)	Short Focus (ft-inch)	Long Focus (ft-inch)	Short Focus (ft-inch)	Long Focus (ft-inch)
412' 3.46"	Infinity	367' 4.37"	Infinity	327' 4.08"	Infinity	291' 8.18"	Infinity	259' 10.96"	Infinity
203' 5.05"	12737' 3.8"	191' 10.65"	Infinity	180' 4.91"	Infinity	169' 0.74"	Infinity	157' 11"	Infinity
135' 0.16"	386' 5.15"	129' 10.24"	436' 3.57"	124' 6.15"	510' 2.74"	119' 0.24"	630' 1.42"	113' 4.89"	855' 11.53"
80' 8.66"	131' 5.63"	78' 10.35"	136' 8.96"	76' 10.5"	143' 2.39"	74' 9.14"	151' 2.55"	72' 6.29"	161' 4.19"
67' 2.51"	98' 10.29"	65' 11.04"	101' 9.6"	64' 6.37"	105' 3.83"	63' 0.49"	109' 6.88"	61' 5.38"	114' 9.35"
52' 6.57"	69' 11.3"	51' 9.14"	71' 4.71"	50' 10.88"	73' 1.13"	49' 11.76"	75' 1.26"	48' 11.77"	77' 5.98"
44' 8.88"	56' 8.15"	44' 2.06"	57' 7.47"	43' 6.61"	58' 8.65"	42' 10.49"	60' 0.05"	42' 1.68"	61' 6.17"
36' 7.03"	44' 1.53"	36' 2.49"	44' 8.32"	35' 9.51"	45' 4.15"	35' 4.06"	46' 1.22"	34' 10.1"	46' 11.76"
32' 4.45"	38' 1.21"	32' 0.92"	38' 6.23"	31' 9.03"	39'	31' 4.75"	39' 6.66"	31' 0.07"	40' 2.36"
28' 0.74"	32' 2.78"	27' 10.1"	32' 6.34"	27' 7.18"	32' 10.42"	27' 3.97"	33' 3.1"	27' 0.44"	33' 8.49"
23' 7.83"	26' 6.17"	23' 5.97"	26' 8.55"	23' 3.91"	26' 11.26"	23' 1.64"	27' 2.36"	22' 11.14"	27' 5.92"
20' 11.5"	23' 1.84"	20' 10.05"	23' 3.64"	20' 8.45"	23' 5.68"	20' 6.67"	23' 8.02"	20' 4.71"	23' 10.68"
19' 1.7"	20' 11.3"	19' 0.5"	21' 0.76"	18' 11.17"	21' 2.41"	18' 9.69"	21' 4.3"	18' 8.06"	21' 6.45"
18' 2.72"	19' 10.13"	18' 1.64"	19' 11.43"	18' 0.43"	20' 0.91"	17' 11.1"	20' 2.6"	17' 9.62"	20' 4.52"
17' 3.69"	18' 9.02"	17' 2.72"	18' 10.18"	17' 1.64"	18' 11.5"	17' 0.44"	19' 0.99"	16' 11.11"	19' 2.69"
16' 4.61"	17' 7.99"	16' 3.74"	17' 9.01"	16' 2.78"	17' 10.17"	16' 1.71"	17' 11.49"	16' 0.52"	18' 0.98"
15' 5.48"	16' 7.01"	15' 4.71"	16' 7.91"	15' 3.86"	16' 8.92"	15' 2.91"	16' 10.08"	15' 1.85"	16' 11.39"
14' 6.29"	15' 6.11"	14' 5.62"	15' 6.89"	14' 4.87"	15' 7.77"	14' 4.04"	15' 8.77"	14' 3.11"	15' 9.9"
14' 0.68"	14' 11.68"	14' 0.05"	15' 0.4"	13' 11.35"	15' 1.22"	13' 10.57"	15' 2.15"	13' 9.71"	15' 3.2"
13' 7.05"	14' 5.27"	13' 6.47"	14' 5.93"	13' 5.82"	14' 6.69"	13' 5.09"	14' 7.55"	13' 4.29"	14' 8.52"
13' 1.42"	13' 10.87"	13' 0.87"	13' 11.49"	13' 0.27"	14' 0.19"	12' 11.6"	14' 0.98"	12' 10.85"	14' 1.87"
12' 7.76"	13' 4.49"	12' 7.26"	13' 5.06"	12' 6.7"	13' 5.7"	12' 6.08"	13' 6.43"	12' 5.39"	13' 7.25"
12' 2.1"	12' 10.12"	12' 1.64"	12' 10.65"	12' 1.12"	12' 11.24"	12' 0.54"	12' 11.9"	11' 11.9"	13' 0.66"
11' 8.42"	12' 3.78"	11' 7.99"	12' 4.25"	11' 7.52"	12' 4.79"	11' 6.99"	12' 5.4"	11' 6.4"	12' 6.09"
11' 5.58"	12' 0.61"	11' 5.17"	12' 1.06"	11' 4.71"	12' 1.58"	11' 4.21"	12' 2.16"	11' 3.64"	12' 2.82"
11' 2.73"	11' 9.44"	11' 2.34"	11' 9.88"	11' 1.9"	11' 10.37"	11' 1.42"	11' 10.92"	11' 0.88"	11' 11.55"
10' 11.88"	11' 6.28"	10' 11.5"	11' 6.69"	10' 11.09"	11' 7.16"	10' 10.63"	11' 7.69"	10' 10.11"	11' 8.29"
10' 9.02"	11' 3.12"	10' 8.67"	11' 3.52"	10' 8.27"	11' 3.96"	10' 7.83"	11' 4.47"	10' 7.34"	11' 5.03"
10' 6.16"	10' 11.97"	10' 5.83"	11' 0.35"	10' 5.45"	11' 0.77"	10' 5.03"	11' 1.25"	10' 4.56"	11' 1.79"
10' 3.3"	10' 8.82"	10' 2.98"	10' 9.18"	10' 2.62"	10' 9.58"	10' 2.22"	10' 10.03"	10' 1.77"	10' 10.54"
10' 0.44"	10' 5.68"	10' 0.13"	10' 6.01"	9' 11.79"	10' 6.39"	9' 11.41"	10' 6.82"	9' 10.99"	10' 7.31"
9' 9.57"	10' 2.54"	9' 9.28"	10' 2.86"	9' 8.96"	10' 3.22"	9' 8.59"	10' 3.62"	9' 8.19"	10' 4.08"
9' 6.7"	9' 11.4"	9' 6.42"	9' 11.7"	9' 6.12"	10' 0.04"	9' 5.77"	10' 0.42"	9' 5.39"	10' 0.86"
9' 3.82"	9' 8.27"	9' 3.56"	9' 8.55"	9' 3.27"	9' 8.87"	9' 2.95"	9' 9.23"	9' 2.59"	9' 9.64"
9' 0.95"	9' 5.14"	9' 0.7"	9' 5.41"	9' 0.43"	9' 5.71"	9' 0.12"	9' 6.05"	8' 11.78"	9' 6.43"
8' 10.06"	9' 2.01"	8' 9.83"	9' 2.26"	8' 9.57"	9' 2.55"	8' 9.28"	9' 2.87"	8' 8.96"	9' 3.23"
8' 7.18"	8' 10.89"	8' 6.96"	8' 11.13"	8' 6.72"	8' 11.39"	8' 6.44"	8' 11.69"	8' 6.14"	9' 0.03"
8' 4.29"	8' 7.77"	8' 4.09"	8' 7.99"	8' 3.86"	8' 8.24"	8' 3.6"	8' 8.53"	8' 3.31"	8' 8.84"
8' 1.4"	8' 4.66"	8' 1.21"	8' 4.87"	8' 0.99"	8' 5.1"	8' 0.75"	8' 5.36"	8' 0.48"	8' 5.66"
7' 10.5"	8' 1.55"	7' 10.32"	8' 1.74"	7' 10.12"	8' 1.96"	7' 9.9"	8' 2.21"	7' 9.65"	8' 2.48"
7' 7.6"	7' 10.44"	7' 7.44"	7' 10.62"	7' 7.25"	7' 10.83"	7' 7.04"	7' 11.05"	7' 6.8"	7' 11.31"
7' 4.7"	7' 7.34"	7' 4.55"	7' 7.51"	7' 4.37"	7' 7.7"	7' 4.18"	7' 7.91"	7' 3.96"	7' 8.15"
7' 1.8"	7' 4.24"	7' 1.65"	7' 4.4"	7' 1.49"	7' 4.57"	7' 1.31"	7' 4.77"	7' 1.1"	7' 4.99"
6' 10.89"	7' 1.15"	6' 10.75"	7' 1.29"	6' 10.6"	7' 1.45"	6' 10.43"	7' 1.63"	6' 10.25"	7' 1.84"
6' 7.97"	6' 10.06"	6' 7.85"	6' 10.19"	6' 7.71"	6' 10.33"	6' 7.56"	6' 10.5"	6' 7.38"	6' 10.69"
6' 5.06"	6' 6.97"	6' 4.94"	6' 7.09"	6' 4.82"	6' 7.22"	6' 4.67"	6' 7.38"	6' 4.51"	6' 7.55"
6' 2.14"	6' 3.89"	6' 2.03"	6' 4"	6' 1.92"	6' 4.12"	6' 1.79"	6' 4.26"	6' 1.64"	6' 4.42"
5' 11.21"	6' 0.81"	5' 11.12"	6' 0.91"	5' 11.01"	6' 1.02"	5' 10.89"	6' 1.15"	5' 10.76"	6' 1.29"
5' 8.29"	5' 9.73"	5' 8.2"	5' 9.82"	5' 8.1"	5' 9.92"	5' 8"	5' 10.04"	5' 7.88"	5' 10.17"
5' 5.36"	5' 6.66"	5' 5.28"	5' 6.74"	5' 5.19"	5' 6.83"	5' 5.09"	5' 6.93"	5' 4.98"	5' 7.05"
5' 2.42"	5' 3.59"	5' 2.35"	5' 3.66"	5' 2.27"	5' 3.74"	5' 2.19"	5' 3.84"	5' 2.09"	5' 3.94"
4' 11.48"	5' 0.53"	4' 11.42"	5' 0.59"	4' 11.35"	5' 0.66"	4' 11.27"	5' 0.75"	4' 11.19"	5' 0.84"
4' 10.5"	4' 11.5"	4' 10.45"	4' 11.57"	4' 10.38"	4' 11.64"	4' 10.3"	4' 11.72"	4' 10.22"	4' 11.81"



18	20	22
232' 2.46"	206' 11.86"	184' 6.25"

18		20		22	
Short Focus (ft-inch)	Long Focus (ft-inch)	Short Focus (ft-inch)	Long Focus (ft-inch)	Short Focus (ft-inch)	Long Focus (ft-inch)
231' 7.32"	Infinity	206' 4.74"	Infinity	183' 11.16"	Infinity
147' 0.5"	Infinity	136' 5.94"	Infinity	126' 3.96"	Infinity
107' 8.5"	1432' 6.15"	101' 11.51"	5881' 0.27"	96' 2.39"	Infinity
70' 2.02"	174' 5.82"	67' 8.4"	192' 0.52"	65' 1.57"	216' 6.12"
59' 9.05"	121' 2.96"	57' 11.55"	129' 5.26"	56' 0.9"	140' 0.79"
47' 10.86"	80' 4.5"	46' 9.04"	83' 10.45"	45' 6.31"	88' 2.13"
41' 4.15"	63' 3.64"	40' 5.88"	65' 5.29"	39' 6.84"	68' 0.23"
34' 3.61"	48' 0.1"	33' 8.57"	49' 2.61"	33' 0.95"	50' 7.81"
30' 6.95"	40' 11.31"	30' 1.37"	41' 9.77"	29' 7.32"	42' 10.05"
26' 8.57"	34' 2.72"	26' 4.34"	34' 9.94"	25' 11.72"	35' 6.37"
22' 8.38"	27' 10.01"	22' 5.35"	28' 2.72"	22' 2.02"	28' 8.17"
20' 2.54"	24' 1.74"	20' 0.15"	24' 5.24"	19' 9.53"	24' 9.29"
18' 6.25"	21' 8.92"	18' 4.26"	21' 11.74"	18' 2.07"	22' 2.98"
17' 7.99"	20' 6.71"	17' 6.18"	20' 9.22"	17' 4.19"	21' 0.1"
16' 9.64"	19' 4.64"	16' 8.01"	19' 6.86"	16' 6.22"	19' 9.4"
15' 11.2"	18' 2.69"	15' 9.75"	18' 4.64"	15' 8.14"	18' 6.87"
15' 0.69"	17' 0.88"	14' 11.4"	17' 2.58"	14' 9.97"	17' 4.52"
14' 2.08"	15' 11.19"	14' 0.95"	16' 0.66"	13' 11.69"	16' 2.34"
13' 8.75"	15' 4.39"	13' 7.69"	15' 5.75"	13' 6.51"	15' 7.31"
13' 3.39"	14' 9.63"	13' 2.4"	14' 10.89"	13' 1.3"	15' 0.32"
12' 10.02"	14' 2.89"	12' 9.09"	14' 4.05"	12' 8.07"	14' 5.37"
12' 4.62"	13' 8.19"	12' 3.76"	13' 9.25"	12' 2.81"	13' 10.47"
11' 11.19"	13' 1.52"	11' 10.4"	13' 2.49"	11' 9.53"	13' 3.6"
11' 5.75"	12' 6.87"	11' 5.02"	12' 7.76"	11' 4.21"	12' 8.77"
11' 3.02"	12' 3.56"	11' 2.32"	12' 4.41"	11' 1.55"	12' 5.37"
11' 0.28"	12' 0.26"	10' 11.61"	12' 1.07"	10' 10.87"	12' 1.99"
10' 9.54"	11' 8.97"	10' 8.9"	11' 9.73"	10' 8.19"	11' 10.61"
10' 6.79"	11' 5.68"	10' 6.18"	11' 6.41"	10' 5.51"	11' 7.24"
10' 4.04"	11' 2.4"	10' 3.46"	11' 3.09"	10' 2.81"	11' 3.88"
10' 1.28"	10' 11.12"	10' 0.72"	10' 11.78"	10' 0.11"	11' 0.53"
9' 10.51"	10' 7.86"	9' 9.99"	10' 8.48"	9' 9.4"	10' 9.19"
9' 7.74"	10' 4.6"	9' 7.24"	10' 5.19"	9' 6.69"	10' 5.86"
9' 4.97"	10' 1.35"	9' 4.49"	10' 1.91"	9' 3.96"	10' 2.54"
9' 2.18"	9' 10.11"	9' 1.73"	9' 10.63"	9' 1.23"	9' 11.23"
8' 11.39"	9' 6.87"	8' 10.97"	9' 7.36"	8' 10.5"	9' 7.92"
8' 8.6"	9' 3.64"	8' 8.2"	9' 4.1"	8' 7.75"	9' 4.63"
8' 5.8"	9' 0.42"	8' 5.42"	9' 0.85"	8' 5"	9' 1.35"
8' 3"	8' 9.2"	8' 2.64"	8' 9.61"	8' 2.24"	8' 10.07"
8' 0.18"	8' 6"	7' 11.85"	8' 6.38"	7' 11.48"	8' 6.81"
7' 9.37"	8' 2.8"	7' 9.05"	8' 3.15"	7' 8.71"	8' 3.55"
7' 6.54"	7' 11.6"	7' 6.25"	7' 11.93"	7' 5.93"	8' 0.31"
7' 3.71"	7' 8.42"	7' 3.44"	7' 8.72"	7' 3.14"	7' 9.07"
7' 0.88"	7' 5.24"	7' 0.63"	7' 5.52"	7' 0.34"	7' 5.84"
6' 10.04"	7' 2.07"	6' 9.8"	7' 2.33"	6' 9.54"	7' 2.62"
6' 7.19"	6' 10.9"	6' 6.97"	6' 11.14"	6' 6.73"	6' 11.41"
6' 4.34"	6' 7.74"	6' 4.14"	6' 7.96"	6' 3.92"	6' 8.21"
6' 1.48"	6' 4.59"	6' 1.3"	6' 4.79"	6' 1.09"	6' 5.02"
5' 10.61"	6' 1.45"	5' 10.45"	6' 1.63"	5' 10.26"	6' 1.84"
5' 7.74"	5' 10.31"	5' 7.59"	5' 10.48"	5' 7.42"	5' 10.66"
5' 4.86"	5' 7.18"	5' 4.73"	5' 7.33"	5' 4.57"	5' 7.5"
5' 1.98"	5' 4.06"	5' 1.86"	5' 4.19"	5' 1.72"	5' 4.34"
4' 11.09"	5' 0.94"	4' 10.98"	5' 1.06"	4' 10.86"	5' 1.19"
4' 10.12"	4' 11.91"	4' 10.02"	5' 0.02"	4' 9.9"	5' 0.15"



Focal Length 350 mm

Circle of Confusion 0.025 mm

T/No	3.6	4	4.5	5
Hyperfocal Distance (ft-inch)	4549' 1.13"	4053' 0.85"	3611' 1.98"	3217' 5.65"

T/No	3.6		4		4.5		5	
Focus Distance (ft-inch)	Short Focus (ft-inch)	Long Focus (ft-inch)	Short Focus (ft-inch)	Long Focus (ft-inch)	Short Focus (ft-inch)	Long Focus (ft-inch)	Short Focus (ft-inch)	Long Focus (ft-inch)
Infinity	4541' 7.87"	Infinity	4046' 11.16"	Infinity	3606' 0.65"	Infinity	3213' 2.13"	Infinity
500' 0"	450' 10.14"	561' 2.76"	445' 5.8"	569' 9.34"	439' 7.39"	579' 8.28"	433' 2.55"	591' 2.82"
300' 0"	281' 8.11"	320' 10.66"	279' 7.02"	323' 7.79"	277' 3.31"	326' 9.67"	274' 8.74"	330' 5.08"
200' 0"	191' 8.91"	209' 0.09"	190' 9.33"	210' 2"	189' 8.48"	211' 5.81"	188' 6.23"	212' 11.79"
150' 0"	145' 4.06"	154' 11.69"	144' 9.45"	155' 7.27"	144' 2.09"	156' 3.86"	143' 5.9"	157' 1.6"
125' 0"	121' 9.16"	128' 4.98"	121' 4.55"	128' 10.16"	120' 11.4"	129' 4.01"	120' 5.67"	129' 10.63"
100' 0"	97' 11.22"	102' 1.86"	97' 8.26"	102' 5.11"	97' 4.95"	102' 8.77"	97' 1.26"	103' 0.91"
90' 0"	88' 3.98"	91' 8.8"	88' 1.58"	91' 11.41"	87' 10.9"	92' 2.34"	87' 7.91"	92' 5.66"
80' 0"	78' 8.24"	81' 4.3"	78' 6.35"	81' 6.34"	78' 4.23"	81' 8.63"	78' 1.87"	81' 11.22"
70' 0"	69'	71' 0.36"	68' 10.56"	71' 1.9"	68' 8.94"	71' 3.63"	68' 7.13"	71' 5.59"
60' 0"	59' 3.26"	60' 8.97"	59' 2.2"	60' 10.08"	59' 1.02"	60' 11.34"	58' 11.7"	61' 0.75"
55' 0"	54' 4.69"	55' 7.48"	54' 3.81"	55' 8.41"	54' 2.82"	55' 9.45"	54' 1.71"	55' 10.63"
50' 0"	49' 6"	50' 6.12"	49' 5.28"	50' 6.88"	49' 4.46"	50' 7.74"	49' 3.55"	50' 8.7"
45' 0"	44' 7.18"	45' 4.91"	44' 6.6"	45' 5.52"	44' 5.95"	45' 6.2"	44' 5.21"	45' 6.97"
40' 0"	39' 8.24"	40' 3.83"	39' 7.78"	40' 4.3"	39' 7.27"	40' 4.83"	39' 6.69"	40' 5.43"
38' 0"	37' 8.62"	38' 3.43"	37' 8.21"	38' 3.86"	37' 7.75"	38' 4.33"	37' 7.24"	38' 4.87"
36' 0"	35' 8.99"	36' 3.06"	35' 8.62"	36' 3.44"	35' 8.21"	36' 3.86"	35' 7.75"	36' 4.34"
34' 0"	33' 9.33"	34' 2.71"	33' 9"	34' 3.04"	33' 8.64"	34' 3.42"	33' 8.23"	34' 3.84"
32' 0"	31' 9.65"	32' 2.38"	31' 9.37"	32' 2.67"	31' 9.05"	32' 3"	31' 8.69"	32' 3.37"
30' 0"	29' 9.96"	30' 2.07"	29' 9.71"	30' 2.32"	29' 9.43"	30' 2.61"	29' 9.12"	30' 2.93"
29' 0"	28' 10.1"	29' 1.92"	28' 9.87"	29' 2.16"	28' 9.61"	29' 2.43"	28' 9.32"	29' 2.73"
28' 0"	27' 10.24"	28' 1.78"	27' 10.02"	28' 2"	27' 9.78"	28' 2.25"	27' 9.51"	28' 2.53"
27' 0"	26' 10.37"	27' 1.65"	26' 10.17"	27' 1.85"	26' 9.95"	27' 2.08"	26' 9.7"	27' 2.34"
26' 0"	25' 10.5"	26' 1.52"	25' 10.32"	26' 1.7"	25' 10.11"	26' 1.91"	25' 9.88"	26' 2.15"
25' 0"	24' 10.62"	25' 1.39"	24' 10.45"	25' 1.56"	24' 10.26"	25' 1.76"	24' 10.05"	25' 1.97"
24' 0"	23' 10.74"	24' 1.27"	23' 10.58"	24' 1.43"	23' 10.41"	24' 1.61"	23' 10.22"	24' 1.8"
23' 0"	22' 10.85"	23' 1.16"	22' 10.71"	23' 1.3"	22' 10.55"	23' 1.46"	22' 10.38"	23' 1.64"
22' 0"	21' 10.96"	22' 1.05"	21' 10.83"	22' 1.18"	21' 10.69"	22' 1.33"	21' 10.53"	22' 1.49"
21' 0"	20' 11.06"	21' 0.95"	20' 10.94"	21' 1.06"	20' 10.82"	21' 1.2"	20' 10.67"	21' 1.34"
20' 0"	19' 11.16"	20' 0.85"	19' 11.05"	20' 0.95"	19' 10.94"	20' 1.07"	19' 10.81"	20' 1.2"
19' 6"	19' 5.2"	19' 6.8"	19' 5.11"	19' 6.9"	19' 5"	19' 7.01"	19' 4.87"	19' 7.14"
19' 0"	18' 11.25"	19' 0.76"	18' 11.16"	19' 0.85"	18' 11.05"	19' 0.96"	18' 10.94"	19' 1.07"
18' 6"	18' 5.29"	18' 6.71"	18' 5.2"	18' 6.8"	18' 5.11"	18' 6.9"	18' 5"	18' 7.01"
18' 0"	17' 11.33"	18' 0.67"	17' 11.25"	18' 0.75"	17' 11.16"	18' 0.85"	17' 11.06"	18' 0.95"
17' 6"	17' 5.38"	17' 6.63"	17' 5.3"	17' 6.71"	17' 5.21"	17' 6.79"	17' 5.12"	17' 6.89"
17' 0"	16' 11.41"	17' 0.59"	16' 11.34"	17' 0.66"	16' 11.26"	17' 0.74"	16' 11.17"	17' 0.83"
16' 6"	16' 5.45"	16' 6.55"	16' 5.39"	16' 6.62"	16' 5.31"	16' 6.69"	16' 5.23"	16' 6.78"
16' 0"	15' 11.49"	16' 0.51"	15' 11.43"	16' 0.58"	15' 11.36"	16' 0.65"	15' 11.28"	16' 0.73"
15' 6"	15' 5.53"	15' 6.48"	15' 5.47"	15' 6.53"	15' 5.4"	15' 6.6"	15' 5.33"	15' 6.67"
15' 0"	14' 11.56"	15' 0.44"	14' 11.51"	15' 0.5"	14' 11.45"	15' 0.56"	14' 11.38"	15' 0.62"
14' 9"	14' 8.58"	14' 9.42"	14' 8.53"	14' 9.48"	14' 8.47"	14' 9.53"	14' 8.4"	14' 9.6"
14' 6"	14' 5.59"	14' 6.41"	14' 5.55"	14' 6.46"	14' 5.49"	14' 6.51"	14' 5.43"	14' 6.58"
14' 3"	14' 2.61"	14' 3.39"	14' 2.56"	14' 3.44"	14' 2.51"	14' 3.49"	14' 2.45"	14' 3.55"
14' 0"	13' 11.63"	14' 0.38"	13' 11.58"	14' 0.42"	13' 11.53"	14' 0.47"	13' 11.47"	14' 0.53"
13' 9"	13' 8.64"	13' 9.36"	13' 8.6"	13' 9.4"	13' 8.55"	13' 9.45"	13' 8.49"	13' 9.51"
13' 6"	13' 5.66"	13' 6.34"	13' 5.62"	13' 6.39"	13' 5.57"	13' 6.43"	13' 5.52"	13' 6.49"
13' 3"	13' 2.67"	13' 3.33"	13' 2.63"	13' 3.37"	13' 2.59"	13' 3.42"	13' 2.54"	13' 3.47"
13' 0"	12' 11.69"	13' 0.31"	12' 11.65"	13' 0.35"	12' 11.61"	13' 0.4"	12' 11.56"	13' 0.45"
12' 9"	12' 8.7"	12' 9.3"	12' 8.66"	12' 9.34"	12' 8.62"	12' 9.38"	12' 8.58"	12' 9.43"
12' 6"	12' 5.71"	12' 6.29"	12' 5.68"	12' 6.32"	12' 5.64"	12' 6.36"	12' 5.6"	12' 6.41"
12' 3"	12' 2.73"	12' 3.27"	12' 2.7"	12' 3.31"	12' 2.66"	12' 3.34"	12' 2.62"	12' 3.39"
12' 0"	11' 11.74"	12' 0.26"	11' 11.71"	12' 0.29"	11' 11.67"	12' 0.33"	11' 11.63"	12' 0.37"
11' 9"	11' 8.75"	11' 9.25"	11' 8.72"	11' 9.28"	11' 8.69"	11' 9.31"	11' 8.65"	11' 9.35"
11' 6"	11' 5.77"	11' 6.23"	11' 5.74"	11' 6.26"	11' 5.71"	11' 6.29"	11' 5.67"	11' 6.33"
11' 3"	11' 2.78"	11' 3.22"	11' 2.75"	11' 3.25"	11' 2.72"	11' 3.28"	11' 2.69"	11' 3.31"
11' 0"	10' 11.79"	11' 0.21"	10' 11.77"	11' 0.24"	10' 11.74"	11' 0.26"	10' 11.7"	11' 0.3"
10' 9"	10' 8.8"	10' 9.2"	10' 8.78"	10' 9.22"	10' 8.75"	10' 9.25"	10' 8.72"	10' 9.28"
10' 6"	10' 5.81"	10' 6.19"	10' 5.79"	10' 6.21"	10' 5.77"	10' 6.24"	10' 5.74"	10' 6.26"
10' 3"	10' 2.82"	10' 3.18"	10' 2.8"	10' 3.2"	10' 2.78"	10' 3.22"	10' 2.75"	10' 3.25"
10' 0"	9' 11.84"	10' 0.17"	9' 11.82"	10' 0.19"	9' 11.79"	10' 0.21"	9' 11.77"	10' 0.23"
9' 10"	9' 9.84"	9' 10.16"	9' 9.82"	9' 10.18"	9' 9.8"	9' 10.2"	9' 9.78"	9' 10.22"



5.6	6.3	7.1	8	9
2866' 8.75"	2554' 3.06"	2275' 10.47"	2027' 10.33"	1806' 10.87"

5.6		6.3		7.1		8		9	
Short Focus (ft-inch)	Long Focus (ft-inch)	Short Focus (ft-inch)	Long Focus (ft-inch)	Short Focus (ft-inch)	Long Focus (ft-inch)	Short Focus (ft-inch)	Long Focus (ft-inch)	Short Focus (ft-inch)	Long Focus (ft-inch)
2863' 1.02"	Infinity	2551' 1.51"	Infinity	2273' 1.81"	Infinity	2025' 5.57"	Infinity	1804' 9.22"	Infinity
426' 2.92"	604' 9.06"	418' 8.21"	620' 8.28"	410' 6.17"	639' 7.31"	401' 8.59"	662' 3.25"	392' 3.37"	689' 8.47"
271' 11.1"	334' 6.96"	268' 10.14"	339' 4.48"	265' 5.66"	344' 11.05"	261' 9.41"	351' 4.43"	257' 9.2"	358' 10.81"
187' 2.45"	214' 8.28"	185' 9"	216' 7.67"	184' 1.73"	218' 10.45"	182' 4.5"	221' 5.18"	180' 5.15"	224' 4.54"
142' 8.81"	158' 0.65"	141' 10.71"	159' 1.21"	140' 11.52"	160' 3.51"	139' 11.14"	161' 7.83"	138' 9.46"	163' 2.47"
119' 11.29"	130' 6.13"	119' 4.19"	131' 2.64"	118' 8.31"	132' 0.3"	117' 11.57"	132' 11.29"	117' 1.89"	133' 11.81"
96' 9.15"	103' 5.59"	96' 4.56"	103' 10.88"	95' 11.46"	104' 4.88"	95' 5.79"	104' 11.69"	94' 11.49"	105' 7.41"
87' 4.57"	92' 9.41"	87' 0.85"	93' 1.64"	86' 8.7"	93' 6.44"	86' 4.09"	93' 11.87"	85' 10.96"	94' 6.03"
77' 11.23"	82' 2.15"	77' 8.29"	82' 5.45"	77' 5"	82' 9.18"	77' 1.35"	83' 1.41"	76' 9.28"	83' 6.19"
68' 5.12"	71' 7.79"	68' 2.86"	71' 10.28"	68' 0.35"	72' 1.1"	67' 9.54"	72' 4.28"	67' 6.42"	72' 7.87"
58' 10.22"	61' 2.34"	58' 8.57"	61' 4.14"	58' 6.73"	61' 6.17"	58' 4.67"	61' 8.46"	58' 2.37"	61' 11.05"
54' 0.48"	55' 11.95"	53' 11.09"	56' 1.45"	53' 9.55"	56' 3.13"	53' 7.82"	56' 5.03"	53' 5.9"	56' 7.18"
49' 2.54"	50' 9.78"	49' 1.4"	50' 11"	49' 0.13"	51' 0.38"	48' 10.7"	51' 1.93"	48' 9.12"	51' 3.68"
44' 4.39"	45' 7.83"	44' 3.48"	45' 8.81"	44' 2.45"	45' 9.91"	44' 1.31"	45' 11.15"	44' 0.03"	46' 0.55"
39' 6.05"	40' 6.1"	39' 5.34"	40' 6.86"	39' 4.53"	40' 7.72"	39' 3.63"	40' 8.68"	39' 2.63"	40' 9.77"
37' 6.66"	38' 5.47"	37' 6.02"	38' 6.15"	37' 5.29"	38' 6.92"	37' 4.49"	38' 7.78"	37' 3.58"	38' 8.75"
35' 7.24"	36' 4.88"	35' 6.66"	36' 5.48"	35' 6.01"	36' 6.16"	35' 5.29"	36' 6.93"	35' 4.49"	36' 7.8"
33' 7.78"	34' 4.32"	33' 7.27"	34' 4.85"	33' 6.7"	34' 5.45"	33' 6.06"	34' 6.13"	33' 5.34"	34' 6.9"
31' 8.29"	32' 3.79"	31' 7.84"	32' 4.26"	31' 7.34"	32' 4.79"	31' 6.77"	32' 5.38"	31' 6.14"	32' 6.05"
29' 8.77"	30' 3.3"	29' 8.37"	30' 3.71"	29' 7.93"	30' 4.16"	29' 7.44"	30' 4.68"	29' 6.89"	30' 5.26"
28' 8.99"	29' 3.06"	28' 8.63"	29' 3.44"	28' 8.22"	29' 3.87"	28' 7.76"	29' 4.35"	28' 7.25"	29' 4.89"
27' 9.21"	28' 2.84"	27' 8.87"	28' 3.19"	27' 8.49"	28' 3.59"	27' 8.07"	28' 4.03"	27' 7.59"	28' 4.53"
26' 9.42"	27' 2.62"	26' 9.11"	27' 2.95"	26' 8.76"	27' 3.31"	26' 8.36"	27' 3.72"	26' 7.93"	27' 4.19"
25' 9.62"	26' 2.42"	25' 9.33"	26' 2.71"	25' 9.01"	26' 3.05"	25' 8.65"	26' 3.43"	25' 8.24"	26' 3.85"
24' 9.82"	25' 2.22"	24' 9.55"	25' 2.49"	24' 9.25"	25' 2.8"	24' 8.92"	25' 3.15"	24' 8.55"	25' 3.54"
23' 10"	24' 2.03"	23' 9.76"	24' 2.28"	23' 9.49"	24' 2.56"	23' 9.18"	24' 2.88"	23' 8.84"	24' 3.23"
22' 10.18"	23' 1.85"	22' 9.96"	23' 2.07"	22' 9.71"	23' 2.33"	22' 9.43"	23' 2.62"	22' 9.12"	23' 2.94"
21' 10.35"	22' 1.67"	21' 10.15"	22' 1.88"	21' 9.92"	22' 2.11"	21' 9.67"	22' 2.37"	21' 9.39"	22' 2.67"
20' 10.51"	21' 1.51"	20' 10.33"	21' 1.69"	20' 10.13"	21' 1.9"	20' 9.9"	21' 2.14"	20' 9.64"	21' 2.4"
19' 10.66"	20' 1.35"	19' 10.5"	20' 1.52"	19' 10.32"	20' 1.71"	19' 10.11"	20' 1.92"	19' 9.89"	20' 2.16"
19' 4.74"	19' 7.28"	19' 4.58"	19' 7.44"	19' 4.41"	19' 7.61"	19' 4.22"	19' 7.81"	19' 4"	19' 8.04"
18' 10.81"	19' 1.21"	18' 10.66"	19' 1.35"	18' 10.5"	19' 1.52"	18' 10.32"	19' 1.71"	18' 10.11"	19' 1.92"
18' 4.88"	18' 7.14"	18' 4.74"	18' 7.27"	18' 4.59"	18' 7.43"	18' 4.42"	18' 7.61"	18' 4.22"	18' 7.81"
17' 10.94"	18' 1.07"	17' 10.82"	18' 1.2"	17' 10.67"	18' 1.35"	17' 10.51"	18' 1.51"	17' 10.33"	18' 1.7"
17' 5.01"	17' 7"	17' 4.89"	17' 7.12"	17' 4.75"	17' 7.26"	17' 4.6"	17' 7.42"	17' 4.43"	17' 7.59"
16' 11.07"	17' 0.94"	16' 10.96"	17' 1.05"	16' 10.83"	17' 1.18"	16' 10.69"	17' 1.33"	16' 10.53"	17' 1.49"
16' 5.13"	16' 6.87"	16' 5.03"	16' 6.98"	16' 4.91"	16' 7.1"	16' 4.78"	16' 7.24"	16' 4.63"	16' 7.39"
15' 11.19"	16' 0.81"	15' 11.09"	16' 0.91"	15' 10.98"	16' 1.03"	15' 10.86"	16' 1.15"	15' 10.72"	16' 1.3"
15' 5.25"	15' 6.76"	15' 5.16"	15' 6.85"	15' 5.06"	15' 6.95"	15' 4.94"	15' 7.07"	15' 4.81"	15' 7.2"
14' 11.3"	15' 0.7"	14' 11.22"	15' 0.79"	14' 11.12"	15' 0.88"	14' 11.02"	15' 0.99"	14' 10.9"	15' 1.12"
14' 8.33"	14' 9.67"	14' 8.25"	14' 9.76"	14' 8.16"	14' 9.85"	14' 8.06"	14' 9.96"	14' 7.94"	14' 10.07"
14' 5.36"	14' 6.65"	14' 5.28"	14' 6.73"	14' 5.19"	14' 6.82"	14' 5.09"	14' 6.92"	14' 4.98"	14' 7.03"
14' 2.38"	14' 3.62"	14' 2.31"	14' 3.7"	14' 2.22"	14' 3.78"	14' 2.13"	14' 3.88"	14' 2.02"	14' 3.99"
13' 11.41"	14' 0.6"	13' 11.34"	14' 0.67"	13' 11.25"	14' 0.75"	13' 11.16"	14' 0.85"	13' 11.06"	14' 0.95"
13' 8.43"	13' 9.57"	13' 8.36"	13' 9.64"	13' 8.29"	13' 9.72"	13' 8.2"	13' 9.81"	13' 8.1"	13' 9.91"
13' 5.46"	13' 6.55"	13' 5.39"	13' 6.61"	13' 5.32"	13' 6.69"	13' 5.23"	13' 6.78"	13' 5.14"	13' 6.87"
13' 2.48"	13' 3.52"	13' 2.42"	13' 3.59"	13' 2.35"	13' 3.66"	13' 2.27"	13' 3.74"	13' 2.18"	13' 3.83"
12' 11.5"	13' 0.5"	12' 11.44"	13' 0.56"	12' 11.37"	13' 0.63"	12' 11.3"	13' 0.71"	12' 11.21"	13' 0.8"
12' 8.53"	12' 9.48"	12' 8.47"	12' 9.54"	12' 8.4"	12' 9.6"	12' 8.33"	12' 9.68"	12' 8.25"	12' 9.76"
12' 5.55"	12' 6.46"	12' 5.49"	12' 6.51"	12' 5.43"	12' 6.57"	12' 5.36"	12' 6.64"	12' 5.28"	12' 6.72"
12' 2.57"	12' 3.43"	12' 2.52"	12' 3.49"	12' 2.46"	12' 3.55"	12' 2.39"	12' 3.61"	12' 2.32"	12' 3.69"
11' 11.59"	12' 0.41"	11' 11.54"	12' 0.46"	11' 11.48"	12' 0.52"	11' 11.42"	12' 0.58"	11' 11.35"	12' 0.66"
11' 8.61"	11' 9.39"	11' 8.56"	11' 9.44"	11' 8.51"	11' 9.49"	11' 8.45"	11' 9.56"	11' 8.38"	11' 9.62"
11' 5.63"	11' 6.37"	11' 5.59"	11' 6.42"	11' 5.53"	11' 6.47"	11' 5.48"	11' 6.53"	11' 5.41"	11' 6.59"
11' 2.65"	11' 3.35"	11' 2.61"	11' 3.4"	11' 2.56"	11' 3.44"	11' 2.51"	11' 3.5"	11' 2.45"	11' 3.56"
10' 11.67"	11' 0.33"	10' 11.63"	11' 0.37"	10' 11.58"	11' 0.42"	10' 11.53"	11' 0.47"	10' 11.47"	11' 0.53"
10' 8.69"	10' 9.31"	10' 8.65"	10' 9.35"	10' 8.61"	10' 9.4"	10' 8.56"	10' 9.45"	10' 8.5"	10' 9.5"
10' 5.7"	10' 6.3"	10' 5.67"	10' 6.33"	10' 5.63"	10' 6.37"	10' 5.58"	10' 6.42"	10' 5.53"	10' 6.47"
10' 2.72"	10' 3.28"	10' 2.69"	10' 3.31"	10' 2.65"	10' 3.35"	10' 2.61"	10' 3.4"	10' 2.56"	10' 3.44"
9' 11.74"	10' 0.26"	9' 11.71"	10' 0.29"	9' 11.67"	10' 0.33"	9' 11.63"	10' 0.37"	9' 11.59"	10' 0.42"
9' 9.75"	9' 10.25"	9' 9.72"	9' 10.28"	9' 9.69"	9' 10.32"	9' 9.65"	9' 10.36"	9' 9.6"	9' 10.4"



10	11	13	14	16
1610' 0.75"	1434' 8.3"	1278' 5.42"	1139' 3.14"	1015' 3.07"

10		11		13		14		16	
Short Focus (ft-inch)	Long Focus (ft-inch)	Short Focus (ft-inch)	Long Focus (ft-inch)	Short Focus (ft-inch)	Long Focus (ft-inch)	Short Focus (ft-inch)	Long Focus (ft-inch)	Short Focus (ft-inch)	Long Focus (ft-inch)
1608' 1.52"	Infinity	1432' 11.02"	Infinity	1276' 9.71"	Infinity	1137' 8.64"	Infinity	1013' 9.54"	Infinity
382' 2.47"	723' 4.15"	371' 5.99"	765' 3.01"	360' 2.12"	818' 5.85"	348' 3.19"	887' 10.02"	335' 9.65"	981' 2.09"
253' 4.82"	367' 9.01"	248' 8.12"	378' 2.67"	243' 6.95"	390' 8.55"	238' 1.23"	405' 9.09"	232' 2.92"	424' 1.12"
178' 3.53"	227' 9.38"	175' 11.5"	231' 8.73"	173' 4.9"	236' 3.89"	170' 7.6"	241' 8.48"	167' 7.49"	248' 0.61"
137' 6.37"	164' 11.84"	136' 1.75"	167' 0.39"	134' 7.5"	169' 4.68"	132' 11.5"	172' 1.42"	131' 1.64"	175' 3.46"
116' 3.18"	135' 2.1"	115' 3.35"	136' 6.44"	114' 2.32"	138' 1.2"	112' 11.98"	139' 10.77"	111' 8.24"	141' 11.67"
94' 4.5"	106' 4.2"	93' 8.76"	107' 2.21"	93' 0.2"	108' 1.64"	92' 2.75"	109' 2.72"	91' 4.33"	110' 5.72"
85' 5.26"	95' 1.03"	84' 10.95"	95' 8.98"	84' 3.95"	96' 6.05"	83' 8.21"	97' 4.41"	82' 11.67"	98' 4.26"
76' 4.75"	83' 11.62"	75' 11.73"	84' 5.78"	75' 6.15"	85' 0.8"	74' 11.98"	85' 8.78"	74' 5.15"	86' 5.91"
67' 2.94"	72' 11.95"	66' 11.08"	73' 4.57"	66' 6.78"	73' 9.81"	66' 2.02"	74' 3.77"	65' 8.74"	74' 10.57"
57' 11.82"	62' 1.97"	57' 8.97"	62' 5.29"	57' 5.8"	62' 9.04"	57' 2.28"	63' 1.3"	56' 10.37"	63' 6.14"
53' 3.75"	56' 9.61"	53' 1.36"	57' 0.36"	52' 10.7"	57' 3.47"	52' 7.73"	57' 7"	52' 4.44"	57' 11"
48' 7.35"	51' 5.66"	48' 5.37"	51' 7.9"	48' 3.17"	51' 10.43"	48' 0.73"	52' 1.3"	47' 10"	52' 4.55"
43' 10.6"	46' 2.12"	43' 9.01"	46' 3.91"	43' 7.23"	46' 5.92"	43' 5.25"	46' 8.2"	43' 3.05"	46' 10.78"
39' 1.51"	40' 10.99"	39' 0.26"	41' 0.37"	38' 10.86"	41' 1.93"	38' 9.3"	41' 3.7"	38' 7.57"	41' 5.69"
37' 2.58"	38' 9.85"	37' 1.45"	38' 11.08"	37' 0.19"	39' 0.48"	36' 10.79"	39' 2.06"	36' 9.23"	39' 3.84"
35' 3.59"	36' 8.77"	35' 2.58"	36' 9.87"	35' 1.45"	36' 11.11"	35' 0.2"	37' 0.51"	34' 10.8"	37' 2.1"
33' 4.54"	34' 7.76"	33' 3.65"	34' 8.73"	33' 2.65"	34' 9.82"	33' 1.53"	34' 11.06"	33' 0.29"	35' 0.46"
31' 5.44"	32' 6.81"	31' 4.65"	32' 7.66"	31' 3.77"	32' 8.62"	31' 2.79"	32' 9.7"	31' 1.69"	32' 10.92"
29' 6.28"	30' 5.92"	29' 5.59"	30' 6.66"	29' 4.82"	30' 7.49"	29' 3.96"	30' 8.43"	29' 3.01"	30' 9.49"
28' 6.68"	29' 5.5"	28' 6.04"	29' 6.19"	28' 5.32"	29' 6.96"	28' 4.52"	29' 7.83"	28' 3.63"	29' 8.82"
27' 7.06"	28' 5.09"	27' 6.47"	28' 5.73"	27' 5.81"	28' 6.45"	27' 5.06"	28' 7.25"	27' 4.23"	28' 8.16"
26' 7.43"	27' 4.71"	26' 6.88"	27' 5.29"	26' 6.27"	27' 5.95"	26' 5.58"	27' 6.7"	26' 4.82"	27' 7.54"
25' 7.79"	26' 4.33"	25' 7.28"	26' 4.87"	25' 6.72"	26' 5.48"	25' 6.08"	26' 6.17"	25' 5.37"	26' 6.94"
24' 8.13"	25' 3.98"	24' 7.67"	25' 4.47"	24' 7.15"	25' 5.03"	24' 6.56"	25' 5.66"	24' 5.91"	25' 6.36"
23' 8.46"	24' 3.63"	23' 8.03"	24' 4.09"	23' 7.56"	24' 4.59"	23' 7.02"	24' 5.17"	23' 6.43"	24' 5.81"
22' 8.77"	23' 3.31"	22' 8.39"	23' 3.72"	22' 7.95"	23' 4.18"	22' 7.46"	23' 4.7"	22' 6.92"	23' 5.29"
21' 9.07"	22' 3"	21' 8.72"	22' 3.37"	21' 8.33"	22' 3.79"	21' 7.88"	22' 4.26"	21' 7.39"	22' 4.79"
20' 9.36"	21' 2.7"	20' 9.04"	21' 3.04"	20' 8.68"	21' 3.41"	20' 8.28"	21' 3.84"	20' 7.84"	21' 4.32"
19' 9.63"	20' 2.42"	19' 9.34"	20' 2.72"	19' 9.02"	20' 3.06"	19' 8.66"	20' 3.44"	19' 8.26"	20' 3.87"
19' 3.76"	19' 8.29"	19' 3.49"	19' 8.57"	19' 3.18"	19' 8.89"	19' 2.85"	19' 9.25"	19' 2.47"	19' 9.65"
18' 9.89"	19' 2.16"	18' 9.63"	19' 2.42"	18' 9.34"	19' 2.73"	18' 9.02"	19' 3.06"	18' 8.66"	19' 3.45"
18' 4.01"	18' 8.03"	18' 3.77"	18' 8.28"	18' 3.5"	18' 8.57"	18' 3.19"	18' 8.88"	18' 2.86"	18' 9.24"
17' 10.13"	18' 1.91"	17' 9.9"	18' 2.15"	17' 9.65"	18' 2.41"	17' 9.36"	18' 2.71"	17' 9.04"	18' 3.05"
17' 4.24"	17' 7.79"	17' 4.03"	17' 8.01"	17' 3.79"	17' 8.26"	17' 3.52"	17' 8.54"	17' 3.23"	17' 8.86"
16' 10.35"	17' 1.68"	16' 10.15"	17' 1.88"	16' 9.93"	17' 2.12"	16' 9.68"	17' 2.38"	16' 9.4"	17' 2.67"
16' 4.46"	16' 7.56"	16' 4.28"	16' 7.76"	16' 4.07"	16' 7.98"	16' 3.83"	16' 8.22"	16' 3.57"	16' 8.5"
15' 10.57"	16' 1.46"	15' 10.39"	16' 1.64"	15' 10.2"	16' 1.84"	15' 9.98"	16' 2.07"	15' 9.74"	16' 2.32"
15' 4.67"	15' 7.35"	15' 4.51"	15' 7.52"	15' 4.33"	15' 7.71"	15' 4.12"	15' 7.92"	15' 3.9"	15' 8.16"
14' 10.77"	15' 1.25"	14' 10.62"	15' 1.41"	14' 10.45"	15' 1.58"	14' 10.26"	15' 1.78"	14' 10.05"	15' 2"
14' 7.81"	14' 10.21"	14' 7.67"	14' 10.35"	14' 7.51"	14' 10.52"	14' 7.33"	14' 10.71"	14' 7.12"	14' 10.92"
14' 4.86"	14' 7.16"	14' 4.72"	14' 7.3"	14' 4.56"	14' 7.46"	14' 4.39"	14' 7.64"	14' 4.2"	14' 7.85"
14' 1.9"	14' 4.11"	14' 1.77"	14' 4.25"	14' 1.62"	14' 4.4"	14' 1.45"	14' 4.58"	14' 1.27"	14' 4.77"
13' 10.95"	14' 1.07"	13' 10.82"	14' 1.2"	13' 10.68"	14' 1.35"	13' 10.52"	14' 1.51"	13' 10.34"	14' 1.7"
13' 7.99"	13' 10.02"	13' 7.87"	13' 10.15"	13' 7.73"	13' 10.29"	13' 7.58"	13' 10.45"	13' 7.41"	13' 10.63"
13' 5.03"	13' 6.98"	13' 4.92"	13' 7.1"	13' 4.79"	13' 7.23"	13' 4.64"	13' 7.39"	13' 4.47"	13' 7.56"
13' 2.08"	13' 3.94"	13' 1.96"	13' 4.05"	13' 1.84"	13' 4.18"	13' 1.7"	13' 4.33"	13' 1.54"	13' 4.49"
12' 11.12"	13' 0.89"	12' 11.01"	13' 1"	12' 10.89"	13' 1.13"	12' 10.75"	13' 1.27"	12' 10.6"	13' 1.42"
12' 8.16"	12' 9.85"	12' 8.05"	12' 9.96"	12' 7.94"	12' 10.08"	12' 7.81"	12' 10.21"	12' 7.67"	12' 10.36"
12' 5.2"	12' 6.81"	12' 5.1"	12' 6.91"	12' 4.99"	12' 7.03"	12' 4.87"	12' 7.15"	12' 4.73"	12' 7.3"
12' 2.23"	12' 3.77"	12' 2.14"	12' 3.87"	12' 2.04"	12' 3.98"	12' 1.92"	12' 4.1"	12' 1.79"	12' 4.23"
11' 11.27"	12' 0.74"	11' 11.18"	12' 0.83"	11' 11.08"	12' 0.93"	11' 10.97"	12' 1.04"	11' 10.85"	12' 1.17"
11' 8.31"	11' 9.7"	11' 8.22"	11' 9.79"	11' 8.13"	11' 9.88"	11' 8.02"	11' 9.99"	11' 7.9"	11' 10.12"
11' 5.34"	11' 6.66"	11' 5.26"	11' 6.75"	11' 5.17"	11' 6.84"	11' 5.07"	11' 6.94"	11' 4.96"	11' 7.06"
11' 2.38"	11' 3.63"	11' 2.3"	11' 3.71"	11' 2.22"	11' 3.79"	11' 2.12"	11' 3.89"	11' 2.01"	11' 4"
10' 11.41"	11' 0.6"	10' 11.34"	11' 0.67"	10' 11.26"	11' 0.75"	10' 11.17"	11' 0.84"	10' 11.07"	11' 0.95"
10' 8.44"	10' 9.56"	10' 8.38"	10' 9.63"	10' 8.3"	10' 9.71"	10' 8.21"	10' 9.8"	10' 8.12"	10' 9.89"
10' 5.48"	10' 6.53"	10' 5.41"	10' 6.6"	10' 5.34"	10' 6.67"	10' 5.26"	10' 6.75"	10' 5.17"	10' 6.84"
10' 2.51"	10' 3.5"	10' 2.45"	10' 3.56"	10' 2.38"	10' 3.63"	10' 2.3"	10' 3.71"	10' 2.22"	10' 3.79"
9' 11.54"	10' 0.47"	9' 11.48"	10' 0.53"	9' 11.42"	10' 0.59"	9' 11.34"	10' 0.66"	9' 11.27"	10' 0.75"
9' 9.56"	9' 10.45"	9' 9.5"	9' 10.5"	9' 9.44"	9' 10.57"	9' 9.37"	9' 10.64"	9' 9.3"	9' 10.71"



18	20	22
904' 9.36"	806' 4.26"	718' 8.06"

18		20		22	
Short Focus (ft-inch)	Long Focus (ft-inch)	Short Focus (ft-inch)	Long Focus (ft-inch)	Short Focus (ft-inch)	Long Focus (ft-inch)
903' 4.6"	Infinity	805' 0.13"	Infinity	717' 4.4"	Infinity
322' 10.11"	1112' 6.01"	309' 5.29"	1309' 3.37"	295' 8.04"	1633' 9.56"
226' 0.03"	446' 9.14"	219' 4.66"	475' 3.46"	212' 4.95"	512'
164' 4.45"	255' 6.99"	160' 10.41"	264' 7.26"	157' 1.33"	275' 6.32"
129' 1.81"	178' 11.88"	126' 11.91"	183' 4.05"	124' 7.87"	188' 5.73"
110' 3.01"	144' 4.53"	108' 8.2"	147' 2.11"	106' 11.72"	150' 5.42"
90' 4.88"	111' 10.98"	89' 4.3"	113' 6.9"	88' 2.53"	115' 5.99"
82' 2.25"	99' 5.85"	81' 3.9"	100' 9.49"	80' 4.53"	102' 3.55"
73' 9.61"	87' 4.34"	73' 1.3"	88' 4.31"	72' 4.16"	89' 6.08"
65' 2.9"	75' 6.32"	64' 8.45"	76' 3.18"	64' 1.33"	77' 1.34"
56' 6.04"	63' 11.65"	56' 1.25"	64' 5.94"	55' 7.94"	65' 1.12"
52' 0.79"	58' 3.55"	51' 8.74"	58' 8.73"	51' 4.26"	59' 2.64"
47' 6.98"	52' 8.24"	47' 3.62"	53' 0.43"	46' 11.9"	53' 5.21"
43' 0.6"	47' 1.71"	42' 9.87"	47' 5.03"	42' 6.85"	47' 8.81"
38' 5.63"	41' 7.95"	38' 3.48"	41' 10.52"	38' 1.1"	42' 1.42"
36' 7.49"	39' 5.86"	36' 5.55"	39' 8.15"	36' 3.39"	39' 10.75"
34' 9.24"	37' 3.89"	34' 7.51"	37' 5.92"	34' 5.58"	37' 8.22"
32' 10.9"	35' 2.04"	32' 9.36"	35' 3.83"	32' 7.64"	35' 5.86"
31' 0.47"	33' 0.31"	30' 11.11"	33' 1.87"	30' 9.59"	33' 3.64"
29' 1.94"	30' 10.69"	29' 0.75"	31' 0.05"	28' 11.42"	31' 1.58"
28' 2.64"	29' 9.93"	28' 1.53"	29' 11.18"	28' 0.29"	30' 0.61"
27' 3.31"	28' 9.19"	27' 2.28"	28' 10.36"	27' 1.13"	28' 11.67"
26' 3.96"	27' 8.49"	26' 3"	27' 9.56"	26' 1.94"	27' 10.77"
25' 4.58"	26' 7.81"	25' 3.7"	26' 8.8"	25' 2.72"	26' 9.91"
24' 5.18"	25' 7.16"	24' 4.37"	25' 8.07"	24' 3.46"	25' 9.08"
23' 5.76"	24' 6.54"	23' 5.01"	24' 7.37"	23' 4.18"	24' 8.3"
22' 6.31"	23' 5.95"	22' 5.63"	23' 6.7"	22' 4.87"	23' 7.55"
21' 6.83"	22' 5.39"	21' 6.22"	22' 6.07"	21' 5.53"	22' 6.83"
20' 7.34"	21' 4.86"	20' 6.78"	21' 5.47"	20' 6.15"	21' 6.15"
19' 7.81"	20' 4.35"	19' 7.31"	20' 4.9"	19' 6.75"	20' 5.51"
19' 2.04"	19' 10.11"	19' 1.57"	19' 10.62"	19' 1.03"	19' 11.2"
18' 8.26"	19' 3.88"	18' 7.81"	19' 4.36"	18' 7.31"	19' 4.91"
18' 2.48"	18' 9.65"	18' 2.06"	18' 10.1"	18' 1.58"	18' 10.62"
17' 8.69"	18' 3.43"	17' 8.29"	18' 3.85"	17' 7.85"	18' 4.34"
17' 2.89"	17' 9.21"	17' 2.52"	17' 9.61"	17' 2.1"	17' 10.07"
16' 9.09"	17' 3.01"	16' 8.74"	17' 3.38"	16' 8.35"	17' 3.8"
16' 3.28"	16' 8.81"	16' 2.95"	16' 9.16"	16' 2.58"	16' 9.55"
15' 9.46"	16' 2.61"	15' 9.16"	16' 2.94"	15' 8.82"	16' 3.31"
15' 3.64"	15' 8.43"	15' 3.36"	15' 8.73"	15' 3.04"	15' 9.07"
14' 9.81"	15' 2.25"	14' 9.55"	15' 2.53"	14' 9.25"	15' 2.84"
14' 6.9"	14' 11.16"	14' 6.64"	14' 11.43"	14' 6.36"	14' 11.73"
14' 3.98"	14' 8.08"	14' 3.73"	14' 8.33"	14' 3.46"	14' 8.62"
14' 1.06"	14' 4.99"	14' 0.82"	14' 5.24"	14' 0.56"	14' 5.52"
13' 10.14"	14' 1.91"	13' 9.91"	14' 2.15"	13' 9.66"	14' 2.42"
13' 7.21"	13' 10.83"	13' 7"	13' 11.06"	13' 6.76"	13' 11.31"
13' 4.29"	13' 7.75"	13' 4.08"	13' 7.97"	13' 3.85"	13' 8.22"
13' 1.36"	13' 4.68"	13' 1.16"	13' 4.88"	13' 0.94"	13' 5.12"
12' 10.44"	13' 1.6"	12' 10.25"	13' 1.8"	12' 10.03"	13' 2.02"
12' 7.51"	12' 10.53"	12' 7.32"	12' 10.72"	12' 7.12"	12' 10.93"
12' 4.57"	12' 7.46"	12' 4.4"	12' 7.64"	12' 4.21"	12' 7.84"
12' 1.64"	12' 4.39"	12' 1.48"	12' 4.56"	12' 1.29"	12' 4.75"
11' 10.71"	12' 1.32"	11' 10.55"	12' 1.48"	11' 10.38"	12' 1.67"
11' 7.77"	11' 10.25"	11' 7.62"	11' 10.41"	11' 7.46"	11' 10.58"
11' 4.83"	11' 7.19"	11' 4.69"	11' 7.34"	11' 4.54"	11' 7.5"
11' 1.9"	11' 4.13"	11' 1.76"	11' 4.27"	11' 1.61"	11' 4.42"
10' 10.95"	11' 1.06"	10' 10.83"	11' 1.2"	10' 10.69"	11' 1.34"
10' 8.01"	10' 10.01"	10' 7.89"	10' 10.13"	10' 7.76"	10' 10.27"
10' 5.07"	10' 6.95"	10' 4.96"	10' 7.06"	10' 4.83"	10' 7.2"
10' 2.12"	10' 3.89"	10' 2.02"	10' 4"	10' 1.9"	10' 4.13"
9' 11.18"	10' 0.84"	9' 11.08"	10' 0.94"	9' 10.96"	10' 1.06"
9' 9.21"	9' 10.8"	9' 9.11"	9' 10.9"	9' 9.01"	9' 11.01"