



Focal Length 15 mm

Circle of Confusion 0.025 mm

T/No	2.1	2.2	2.5	2.8
Hyperfocal Distance (ft-inch)	15' 7.48"	14' 7.83"	13' 1.4"	11' 8.98"

T/No	2.1		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	15' 6.86"	Infinity	14' 7.21"	Infinity	13' 0.78"	Infinity	11' 8.37"	Infinity
120' 0"	13' 10.73"	Infinity	13' 1.47"	Infinity	11' 10.55"	Infinity	10' 8.96"	Infinity
60' 0"	12' 6.51"	Infinity	11' 10.99"	Infinity	10' 10.68"	Infinity	9' 11.26"	Infinity
40' 0"	11' 5.17"	Infinity	10' 10.94"	Infinity	10' 0.63"	Infinity	9' 2.91"	Infinity
30' 0"	10' 5.99"	Infinity	10' 0.76"	Infinity	9' 4.01"	Infinity	8' 7.65"	Infinity
25' 0"	9' 10.28"	Infinity	9' 5.69"	Infinity	8' 9.95"	Infinity	8' 2.49"	Infinity
20' 0"	9' 0.33"	Infinity	8' 8.51"	Infinity	8' 2"	Infinity	7' 7.65"	Infinity
17' 0"	8' 4.84"	Infinity	8' 1.55"	Infinity	7' 7.91"	Infinity	7' 2.35"	Infinity
15' 0"	7' 11"	350' 2.08"	7' 8.1"	Infinity	7' 3.1"	Infinity	6' 10.13"	Infinity
13' 0"	7' 4.31"	72' 0.85"	7' 1.83"	106' 9.7"	6' 9.51"	Infinity	6' 5.2"	Infinity
12' 0"	7' 0.59"	48' 2.03"	6' 10.32"	61' 5.01"	6' 6.37"	129' 4.78"	6' 2.4"	Infinity
11' 0"	6' 8.57"	34' 7.31"	6' 6.53"	40' 10.66"	6' 2.96"	62' 6.89"	5' 11.34"	156' 10.27"
10' 0"	6' 4.23"	25' 10.46"	6' 2.42"	29' 2.23"	5' 11.23"	38' 7.67"	5' 7.99"	61' 0.57"
9' 6"	6' 1.92"	22' 6.89"	6' 0.23"	25' 0.46"	5' 9.24"	31' 7.63"	5' 6.19"	45' 1.25"
9' 0"	5' 11.51"	19' 9.28"	5' 9.94"	21' 7.5"	5' 7.15"	26' 4.01"	5' 4.3"	34' 11.54"
8' 6"	5' 9"	17' 4.4"	5' 7.54"	18' 9.2"	5' 4.96"	22' 2.17"	5' 2.3"	27' 11.31"
8' 0"	5' 6.38"	15' 3.3"	5' 5.04"	16' 4.05"	5' 2.66"	18' 10.07"	5' 0.2"	22' 9.54"
7' 6"	5' 3.64"	13' 5.3"	5' 2.42"	14' 2.98"	5' 0.24"	16' 1.12"	4' 9.99"	18' 10.32"
7' 0"	5' 0.77"	11' 9.84"	4' 11.66"	12' 5.18"	4' 9.69"	13' 9.55"	4' 7.65"	15' 9.04"
6' 6"	4' 9.76"	10' 4.52"	4' 8.77"	10' 10.06"	4' 7.01"	11' 10.14"	4' 5.17"	13' 2.86"
6' 3"	4' 8.2"	9' 8.55"	4' 7.28"	10' 1.36"	4' 5.61"	10' 11.72"	4' 3.88"	12' 1.83"
6' 0"	4' 6.6"	9' 1"	4' 5.74"	9' 5.15"	4' 4.18"	10' 2.03"	4' 2.54"	11' 1.94"
5' 9"	4' 4.97"	8' 5.83"	4' 4.16"	8' 9.41"	4' 2.7"	9' 5"	4' 1.17"	10' 3.03"
5' 6"	4' 3.29"	7' 11.01"	4' 2.54"	8' 2.09"	4' 1.18"	8' 8.56"	3' 11.75"	9' 5"
5' 3"	4' 1.57"	7' 4.52"	4' 0.88"	7' 7.16"	3' 11.62"	8' 0.65"	3' 10.29"	8' 7.74"
5' 0"	3' 11.81"	6' 10.34"	3' 11.17"	7' 0.59"	3' 10.01"	7' 5.24"	3' 8.78"	7' 11.16"
4' 9"	3' 10"	6' 4.44"	3' 9.41"	6' 6.35"	3' 8.35"	6' 10.26"	3' 7.22"	7' 3.2"
4' 6"	3' 8.14"	5' 10.81"	3' 7.61"	6' 0.41"	3' 6.64"	6' 3.7"	3' 5.61"	6' 7.79"
4' 3"	3' 6.24"	5' 5.42"	3' 5.76"	5' 6.77"	3' 4.88"	5' 9.5"	3' 3.95"	6' 0.87"
4' 0"	3' 4.28"	5' 0.27"	3' 3.85"	5' 1.38"	3' 3.07"	5' 3.64"	3' 2.23"	5' 6.4"
3' 9"	3' 2.27"	4' 7.33"	3' 1.89"	4' 8.25"	3' 1.19"	4' 10.09"	3' 0.45"	5' 0.33"
3' 6"	3' 0.2"	4' 2.6"	2' 11.87"	4' 3.34"	2' 11.26"	4' 4.84"	2' 10.6"	4' 6.63"
3' 3"	2' 10.07"	3' 10.05"	2' 9.79"	3' 10.65"	2' 9.26"	3' 11.85"	2' 8.69"	4' 1.27"
3' 0"	2' 7.89"	3' 5.69"	2' 7.64"	3' 6.17"	2' 7.2"	3' 7.1"	2' 6.71"	3' 8.21"
2' 9"	2' 5.64"	3' 1.5"	2' 5.44"	3' 1.87"	2' 5.06"	3' 2.59"	2' 4.66"	3' 3.44"
2' 6"	2' 3.32"	2' 9.47"	2' 3.16"	2' 9.74"	2' 2.85"	2' 10.28"	2' 2.53"	2' 10.92"
2' 3"	2' 0.93"	2' 5.58"	2' 0.81"	2' 5.79"	2' 0.57"	2' 6.18"	2' 0.31"	2' 6.64"
2' 0"	1' 10.47"	2' 1.84"	1' 10.38"	2' 1.99"	1' 10.2"	2' 2.26"	1' 10.01"	2' 2.58"
1' 9"	1' 7.94"	1' 10.24"	1' 7.87"	1' 10.33"	1' 7.75"	1' 10.51"	1' 7.61"	1' 10.72"
1' 6"	1' 5.33"	1' 6.76"	1' 5.28"	1' 6.82"	1' 5.2"	1' 6.93"	1' 5.11"	1' 7.05"
1' 5"	1' 4.44"	1' 5.63"	1' 4.4"	1' 5.68"	1' 4.33"	1' 5.76"	1' 4.26"	1' 5.87"
1' 4"	1' 3.54"	1' 4.51"	1' 3.51"	1' 4.55"	1' 3.45"	1' 4.62"	1' 3.39"	1' 4.7"
1' 3"	1' 2.63"	1' 3.4"	1' 2.61"	1' 3.43"	1' 2.56"	1' 3.49"	1' 2.51"	1' 3.55"
1' 2"	1' 1.71"	1' 2.31"	1' 1.69"	1' 2.33"	1' 1.66"	1' 2.38"	1' 1.62"	1' 2.43"



3.2	3.5	4	4.5	5
10' 6.34"	9' 5.35"	8' 5.73"	7' 7.38"	6' 10.17"

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)
10' 5.74"	Infinity	9' 4.72"	Infinity	8' 5.11"	Infinity	7' 6.77"	Infinity	6' 9.56"	Infinity
9' 8.61"	Infinity	8' 9.41"	Infinity	7' 11.27"	Infinity	7' 2.1"	Infinity	6' 5.84"	Infinity
9' 0.7"	Infinity	8' 2.98"	Infinity	7' 6.06"	Infinity	6' 9.89"	Infinity	6' 2.44"	Infinity
8' 5.8"	Infinity	7' 9.3"	Infinity	7' 1.39"	Infinity	6' 6.07"	Infinity	5' 11.32"	Infinity
7' 11.72"	Infinity	7' 4.22"	Infinity	6' 9.18"	Infinity	6' 2.59"	Infinity	5' 8.45"	Infinity
7' 7.35"	Infinity	7' 0.55"	Infinity	6' 6.1"	Infinity	6' 0.02"	Infinity	5' 6.32"	Infinity
7' 1.5"	Infinity	6' 7.57"	Infinity	6' 1.89"	Infinity	5' 8.48"	Infinity	5' 3.35"	Infinity
6' 8.92"	Infinity	6' 3.63"	Infinity	5' 10.53"	Infinity	5' 5.62"	Infinity	5' 0.94"	Infinity
6' 5.24"	Infinity	6' 0.45"	Infinity	5' 7.79"	Infinity	5' 3.28"	Infinity	4' 10.95"	Infinity
6' 0.9"	Infinity	5' 8.66"	Infinity	5' 4.51"	Infinity	5' 0.46"	Infinity	4' 8.53"	Infinity
5' 10.43"	Infinity	5' 6.49"	Infinity	5' 2.61"	Infinity	4' 10.81"	Infinity	4' 7.12"	Infinity
5' 7.71"	Infinity	5' 4.1"	Infinity	5' 0.51"	Infinity	4' 8.98"	Infinity	4' 5.53"	Infinity
5' 4.72"	178' 6.05"	5' 1.44"	Infinity	4' 10.17"	Infinity	4' 6.93"	Infinity	4' 3.75"	Infinity
5' 3.1"	87' 2.93"	5'	Infinity	4' 8.89"	Infinity	4' 5.81"	Infinity	4' 2.76"	Infinity
5' 1.4"	55' 7.74"	4' 10.47"	169' 8.61"	4' 7.54"	Infinity	4' 4.61"	Infinity	4' 1.72"	Infinity
4' 11.6"	39' 7.39"	4' 8.86"	75' 4.84"	4' 6.1"	Infinity	4' 3.34"	Infinity	4' 0.59"	Infinity
4' 9.69"	29' 11.07"	4' 7.14"	46' 4.87"	4' 4.56"	124' 3.95"	4' 1.97"	Infinity	3' 11.39"	Infinity
4' 7.68"	23' 5.15"	4' 5.32"	32' 3.9"	4' 2.92"	56' 10.91"	4' 0.51"	427' 1.1"	3' 10.1"	Infinity
4' 5.54"	18' 9.3"	4' 3.37"	24' 0.07"	4' 1.17"	35' 1.74"	3' 10.94"	74' 6.95"	3' 8.7"	Infinity
4' 3.26"	15' 3.32"	4' 1.3"	18' 6.15"	3' 11.29"	24' 4.69"	3' 9.25"	38' 2.61"	3' 7.19"	108' 3.87"
4' 2.07"	13' 10"	4' 0.21"	16' 4.93"	3' 10.3"	20' 9.9"	3' 8.35"	30' 0.31"	3' 6.38"	60' 6.99"
4' 0.84"	12' 6.6"	3' 11.08"	14' 7.38"	3' 9.27"	17' 11.75"	3' 7.42"	24' 4.44"	3' 5.55"	41' 0.17"
3' 11.57"	11' 4.81"	3' 9.91"	13' 0.74"	3' 8.2"	15' 7.86"	3' 6.45"	20' 2.77"	3' 4.67"	30' 4.34"
3' 10.26"	10' 4.39"	3' 8.7"	11' 8.46"	3' 7.09"	13' 8.65"	3' 5.44"	17' 0.84"	3' 3.76"	23' 7.96"
3' 8.9"	9' 5.14"	3' 7.44"	10' 6.12"	3' 5.94"	12' 1.04"	3' 4.39"	14' 6.93"	3' 2.8"	19' 0.73"
3' 7.49"	8' 6.91"	3' 6.14"	9' 5.4"	3' 4.74"	10' 8.25"	3' 3.29"	12' 6.74"	3' 1.8"	15' 8.45"
3' 6.03"	7' 9.57"	3' 4.79"	8' 6.03"	3' 3.49"	9' 5.72"	3' 2.14"	10' 10.77"	3' 0.76"	13' 1.78"
3' 4.53"	7' 1"	3' 3.38"	7' 7.81"	3' 2.18"	8' 5.01"	3' 0.94"	9' 6.01"	2' 11.66"	11' 1.64"
3' 2.96"	6' 5.12"	3' 1.92"	6' 10.58"	3' 0.83"	7' 5.8"	2' 11.68"	8' 3.74"	2' 10.5"	9' 6.14"
3' 1.34"	5' 9.83"	3' 0.4"	6' 2.19"	2' 11.41"	6' 7.85"	2' 10.37"	7' 3.44"	2' 9.29"	8' 2.07"
2' 11.65"	5' 3.09"	2' 10.81"	5' 6.54"	2' 9.92"	5' 10.95"	2' 8.99"	6' 4.73"	2' 8.01"	7' 0.59"
2' 9.9"	4' 8.82"	2' 9.16"	4' 11.53"	2' 8.37"	5' 2.94"	2' 7.54"	5' 7.32"	2' 6.66"	6' 1.13"
2' 8.09"	4' 2.99"	2' 7.44"	4' 5.09"	2' 6.74"	4' 7.7"	2' 6.01"	4' 10.99"	2' 5.24"	5' 3.26"
2' 6.19"	3' 9.54"	2' 5.63"	3' 11.15"	2' 5.04"	4' 1.12"	2' 4.4"	4' 3.57"	2' 3.73"	4' 6.67"
2' 4.22"	3' 4.44"	2' 3.75"	3' 5.65"	2' 3.25"	3' 7.11"	2' 2.71"	3' 8.9"	2' 2.14"	3' 11.13"
2' 2.17"	2' 11.66"	2' 1.78"	3' 0.55"	2' 1.37"	3' 1.61"	2' 0.92"	3' 2.89"	2' 0.45"	3' 4.46"
2' 0.03"	2' 7.17"	1' 11.72"	2' 7.8"	1' 11.39"	2' 8.55"	1' 11.03"	2' 9.44"	1' 10.65"	2' 10.51"
1' 9.79"	2' 2.94"	1' 9.56"	2' 3.37"	1' 9.31"	2' 3.88"	1' 9.03"	2' 4.47"	1' 8.73"	2' 5.18"
1' 7.46"	1' 10.96"	1' 7.29"	1' 11.23"	1' 7.11"	1' 11.55"	1' 6.91"	1' 11.93"	1' 6.69"	2' 0.37"
1' 5.01"	1' 7.19"	1' 4.9"	1' 7.35"	1' 4.78"	1' 7.54"	1' 4.65"	1' 7.76"	1' 4.5"	1' 8.01"
1' 4.17"	1' 5.98"	1' 4.08"	1' 6.11"	1' 3.98"	1' 6.27"	1' 3.86"	1' 6.44"	1' 3.74"	1' 6.65"
1' 3.32"	1' 4.79"	1' 3.24"	1' 4.9"	1' 3.16"	1' 5.02"	1' 3.06"	1' 5.16"	1' 2.96"	1' 5.32"
1' 2.45"	1' 3.63"	1' 2.39"	1' 3.71"	1' 2.32"	1' 3.81"	1' 2.24"	1' 3.91"	1' 2.16"	1' 4.04"
1' 1.57"	1' 2.48"	1' 1.52"	1' 2.54"	1' 1.47"	1' 2.62"	1' 1.41"	1' 2.7"	1' 1.34"	1' 2.79"



5.6	6.3	7.1	8	9
6' 1.98"	5' 6.65"	5' 0.12"	4' 6.33"	4' 1.17"

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)
6' 1.35"	Infinity	5' 6.04"	Infinity	4' 11.52"	Infinity	4' 5.72"	Infinity	4' 0.55"	Infinity
5' 10.38"	Infinity	5' 3.67"	Infinity	4' 9.64"	Infinity	4' 4.22"	Infinity	3' 11.36"	Infinity
5' 7.64"	Infinity	5' 1.47"	Infinity	4' 7.87"	Infinity	4' 2.81"	Infinity	3' 10.22"	Infinity
5' 5.11"	Infinity	4' 11.42"	Infinity	4' 6.21"	Infinity	4' 1.46"	Infinity	3' 9.14"	Infinity
5' 2.76"	Infinity	4' 9.49"	Infinity	4' 4.64"	Infinity	4' 0.18"	Infinity	3' 8.11"	Infinity
5' 0.99"	Infinity	4' 8.04"	Infinity	4' 3.45"	Infinity	3' 11.21"	Infinity	3' 7.31"	Infinity
4' 10.52"	Infinity	4' 5.99"	Infinity	4' 1.75"	Infinity	3' 9.82"	Infinity	3' 6.17"	Infinity
4' 8.5"	Infinity	4' 4.3"	Infinity	4' 0.35"	Infinity	3' 8.65"	Infinity	3' 5.21"	Infinity
4' 6.81"	Infinity	4' 2.88"	Infinity	3' 11.16"	Infinity	3' 7.66"	Infinity	3' 4.39"	Infinity
4' 4.75"	Infinity	4' 1.14"	Infinity	3' 9.69"	Infinity	3' 6.44"	Infinity	3' 3.37"	Infinity
4' 3.54"	Infinity	4' 0.11"	Infinity	3' 8.82"	Infinity	3' 5.7"	Infinity	3' 2.75"	Infinity
4' 2.18"	Infinity	3' 10.94"	Infinity	3' 7.83"	Infinity	3' 4.87"	Infinity	3' 2.05"	Infinity
4' 0.64"	Infinity	3' 9.61"	Infinity	3' 6.7"	Infinity	3' 3.9"	Infinity	3' 1.24"	Infinity
3' 11.78"	Infinity	3' 8.88"	Infinity	3' 6.07"	Infinity	3' 3.37"	Infinity	3' 0.78"	Infinity
3' 10.87"	Infinity	3' 8.09"	Infinity	3' 5.39"	Infinity	3' 2.79"	Infinity	3' 0.29"	Infinity
3' 9.89"	Infinity	3' 7.24"	Infinity	3' 4.66"	Infinity	3' 2.16"	Infinity	2' 11.75"	Infinity
3' 8.83"	Infinity	3' 6.32"	Infinity	3' 3.86"	Infinity	3' 1.47"	Infinity	2' 11.17"	Infinity
3' 7.69"	Infinity	3' 5.32"	Infinity	3' 3"	Infinity	3' 0.73"	Infinity	2' 10.53"	Infinity
3' 6.46"	Infinity	3' 4.24"	Infinity	3' 2.05"	Infinity	2' 11.91"	Infinity	2' 9.82"	Infinity
3' 5.12"	Infinity	3' 3.06"	Infinity	3' 1.01"	Infinity	2' 11.01"	Infinity	2' 9.04"	Infinity
3' 4.4"	Infinity	3' 2.42"	Infinity	3' 0.46"	Infinity	2' 10.52"	Infinity	2' 8.62"	Infinity
3' 3.65"	187' 6.96"	3' 1.76"	Infinity	2' 11.87"	Infinity	2' 10.01"	Infinity	2' 8.18"	Infinity
3' 2.87"	71' 0.98"	3' 1.06"	Infinity	2' 11.26"	Infinity	2' 9.47"	Infinity	2' 7.7"	Infinity
3' 2.05"	42' 4.66"	3' 0.33"	Infinity	2' 10.61"	Infinity	2' 8.9"	Infinity	2' 7.21"	Infinity
3' 1.19"	29' 4.83"	2' 11.56"	77' 9.6"	2' 9.92"	Infinity	2' 8.29"	Infinity	2' 6.68"	Infinity
3' 0.29"	21' 11.97"	2' 10.75"	40' 8.27"	2' 9.2"	Infinity	2' 7.65"	Infinity	2' 6.11"	Infinity
2' 11.34"	17' 2.54"	2' 9.89"	26' 7.86"	2' 8.43"	72' 2.09"	2' 6.97"	Infinity	2' 5.51"	Infinity
2' 10.34"	13' 10.38"	2' 8.99"	19' 3.34"	2' 7.62"	34' 11.65"	2' 6.25"	Infinity	2' 4.87"	Infinity
2' 9.28"	11' 4.71"	2' 8.03"	14' 8.76"	2' 6.76"	22' 2.44"	2' 5.48"	53' 5.73"	2' 4.19"	Infinity
2' 8.17"	9' 5.9"	2' 7.02"	11' 7.74"	2' 5.85"	15' 8.98"	2' 4.66"	26' 6.21"	2' 3.46"	126' 9.28"
2' 6.99"	7' 11.82"	2' 5.95"	9' 4.98"	2' 4.87"	11' 10.24"	2' 3.78"	16' 10.71"	2' 2.67"	33' 2.65"
2' 5.75"	6' 9.12"	2' 4.8"	7' 8.73"	2' 3.83"	9' 2.95"	2' 2.83"	11' 11.4"	2' 1.82"	18' 0.61"
2' 4.43"	5' 8.96"	2' 3.59"	6' 4.88"	2' 2.72"	7' 4.55"	2' 1.82"	8' 11.31"	2' 0.9"	11' 10.07"
2' 3.03"	4' 10.71"	2' 2.29"	5' 4.13"	2' 1.52"	5' 11.72"	2' 0.72"	6' 11.03"	1' 11.9"	8' 5.5"
2' 1.53"	4' 1.97"	2' 0.9"	4' 5.65"	2' 0.23"	4' 10.61"	1' 11.54"	5' 5.58"	1' 10.82"	6' 4"
1' 11.94"	3' 6.41"	1' 11.41"	3' 8.89"	1' 10.84"	4' 0.11"	1' 10.25"	4' 4.43"	1' 9.64"	4' 10.48"
1' 10.24"	2' 11.83"	1' 9.8"	3' 1.46"	1' 9.34"	3' 3.51"	1' 8.85"	3' 6.17"	1' 8.34"	3' 9.71"
1' 8.42"	2' 6.03"	1' 8.07"	2' 7.07"	1' 7.71"	2' 8.34"	1' 7.32"	2' 9.94"	1' 6.92"	2' 11.98"
1' 6.46"	2' 0.89"	1' 6.2"	2' 1.52"	1' 5.93"	2' 2.27"	1' 5.64"	2' 3.19"	1' 5.34"	2' 4.32"
1' 4.35"	1' 8.31"	1' 4.18"	1' 8.65"	1' 3.99"	1' 9.06"	1' 3.79"	1' 9.55"	1' 3.58"	1' 10.14"
1' 3.61"	1' 6.88"	1' 3.46"	1' 7.16"	1' 3.3"	1' 7.49"	1' 3.13"	1' 7.87"	1' 2.95"	1' 8.34"
1' 2.85"	1' 5.51"	1' 2.73"	1' 5.73"	1' 2.59"	1' 5.98"	1' 2.45"	1' 6.28"	1' 2.29"	1' 6.64"
1' 2.07"	1' 4.18"	1' 1.97"	1' 4.35"	1' 1.86"	1' 4.55"	1' 1.74"	1' 4.78"	1' 1.61"	1' 5.04"
1' 1.27"	1' 2.9"	1' 1.19"	1' 3.03"	1' 1.1"	1' 3.17"	1' 1.01"	1' 3.34"	1' 0.9"	1' 3.54"



10	11	13	14	16
3' 8.57"	3' 4.43"	3' 0.81"	2' 9.54"	2' 6.63"

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)
3' 7.94"	Infinity	3' 3.84"	Infinity	3' 0.18"	Infinity	2' 8.93"	Infinity	2' 6.03"	Infinity
3' 7"	Infinity	3' 3.09"	Infinity	2' 11.59"	Infinity	2' 8.45"	Infinity	2' 5.65"	Infinity
3' 6.09"	Infinity	3' 2.36"	Infinity	2' 11.01"	Infinity	2' 7.99"	Infinity	2' 5.28"	Infinity
3' 5.22"	Infinity	3' 1.66"	Infinity	2' 10.45"	Infinity	2' 7.54"	Infinity	2' 4.92"	Infinity
3' 4.38"	Infinity	3' 0.99"	Infinity	2' 9.9"	Infinity	2' 7.11"	Infinity	2' 4.57"	Infinity
3' 3.74"	Infinity	3' 0.46"	Infinity	2' 9.48"	Infinity	2' 6.77"	Infinity	2' 4.3"	Infinity
3' 2.8"	Infinity	2' 11.71"	Infinity	2' 8.86"	Infinity	2' 6.27"	Infinity	2' 3.9"	Infinity
3' 2.01"	Infinity	2' 11.06"	Infinity	2' 8.34"	Infinity	2' 5.84"	Infinity	2' 3.55"	Infinity
3' 1.34"	Infinity	2' 10.5"	Infinity	2' 7.88"	Infinity	2' 5.47"	Infinity	2' 3.25"	Infinity
3' 0.49"	Infinity	2' 9.8"	Infinity	2' 7.31"	Infinity	2' 4.99"	Infinity	2' 2.86"	Infinity
2' 11.98"	Infinity	2' 9.38"	Infinity	2' 6.95"	Infinity	2' 4.7"	Infinity	2' 2.62"	Infinity
2' 11.39"	Infinity	2' 8.89"	Infinity	2' 6.55"	Infinity	2' 4.37"	Infinity	2' 2.35"	Infinity
2' 10.71"	Infinity	2' 8.32"	Infinity	2' 6.08"	Infinity	2' 3.98"	Infinity	2' 2.03"	Infinity
2' 10.32"	Infinity	2' 8"	Infinity	2' 5.81"	Infinity	2' 3.76"	Infinity	2' 1.84"	Infinity
2' 9.91"	Infinity	2' 7.65"	Infinity	2' 5.52"	Infinity	2' 3.51"	Infinity	2' 1.64"	Infinity
2' 9.45"	Infinity	2' 7.27"	Infinity	2' 5.2"	Infinity	2' 3.25"	Infinity	2' 1.42"	Infinity
2' 8.96"	Infinity	2' 6.85"	Infinity	2' 4.84"	Infinity	2' 2.95"	Infinity	2' 1.18"	Infinity
2' 8.41"	Infinity	2' 6.38"	Infinity	2' 4.45"	Infinity	2' 2.63"	Infinity	2' 0.9"	Infinity
2' 7.81"	Infinity	2' 5.87"	Infinity	2' 4.02"	Infinity	2' 2.26"	Infinity	2' 0.6"	Infinity
2' 7.14"	Infinity	2' 5.3"	Infinity	2' 3.53"	Infinity	2' 1.85"	Infinity	2' 0.25"	Infinity
2' 6.77"	Infinity	2' 4.99"	Infinity	2' 3.27"	Infinity	2' 1.63"	Infinity	2' 0.06"	Infinity
2' 6.39"	Infinity	2' 4.66"	Infinity	2' 2.99"	Infinity	2' 1.39"	Infinity	1' 11.86"	Infinity
2' 5.98"	Infinity	2' 4.31"	Infinity	2' 2.69"	Infinity	2' 1.13"	Infinity	1' 11.65"	Infinity
2' 5.55"	Infinity	2' 3.93"	Infinity	2' 2.37"	Infinity	2' 0.86"	Infinity	1' 11.42"	Infinity
2' 5.09"	Infinity	2' 3.53"	Infinity	2' 2.02"	Infinity	2' 0.57"	Infinity	1' 11.17"	Infinity
2' 4.59"	Infinity	2' 3.11"	Infinity	2' 1.66"	Infinity	2' 0.25"	Infinity	1' 10.9"	Infinity
2' 4.07"	Infinity	2' 2.65"	Infinity	2' 1.26"	Infinity	1' 11.91"	Infinity	1' 10.61"	Infinity
2' 3.51"	Infinity	2' 2.16"	Infinity	2' 0.83"	Infinity	1' 11.54"	Infinity	1' 10.3"	Infinity
2' 2.9"	Infinity	2' 1.63"	Infinity	2' 0.37"	Infinity	1' 11.15"	Infinity	1' 9.95"	Infinity
2' 2.25"	Infinity	2' 1.06"	Infinity	1' 11.87"	Infinity	1' 10.71"	Infinity	1' 9.58"	Infinity
2' 1.55"	Infinity	2' 0.44"	Infinity	1' 11.33"	Infinity	1' 10.24"	Infinity	1' 9.17"	Infinity
2' 0.79"	44' 3.4"	1' 11.76"	Infinity	1' 10.74"	Infinity	1' 9.72"	Infinity	1' 8.72"	Infinity
1' 11.97"	18' 11.53"	1' 11.03"	63' 4.52"	1' 10.08"	Infinity	1' 9.14"	Infinity	1' 8.22"	Infinity
1' 11.07"	11' 4.77"	1' 10.22"	19' 1.67"	1' 9.37"	93' 3.6"	1' 8.51"	Infinity	1' 7.66"	Infinity
1' 10.09"	7' 9.14"	1' 9.33"	10' 6.26"	1' 8.57"	18' 0.09"	1' 7.8"	110' 3.34"	1' 7.03"	Infinity
1' 9"	5' 7.49"	1' 8.35"	6' 10.22"	1' 7.69"	9' 2.31"	1' 7.01"	15' 4.23"	1' 6.33"	73' 10.92"
1' 7.81"	4' 2.62"	1' 7.26"	4' 9.82"	1' 6.69"	5' 9.32"	1' 6.11"	7' 6.4"	1' 5.52"	11' 8.99"
1' 6.49"	3' 2.66"	1' 6.04"	3' 6.32"	1' 5.58"	3' 11.55"	1' 5.1"	4' 7.6"	1' 4.6"	5' 9.41"
1' 5.01"	2' 5.75"	1' 4.66"	2' 7.6"	1' 4.3"	2' 10.05"	1' 3.93"	3' 1.45"	1' 3.54"	3' 6.4"
1' 3.35"	1' 10.86"	1' 3.1"	1' 11.75"	1' 2.85"	2' 0.86"	1' 2.57"	2' 2.3"	1' 2.29"	2' 4.21"
1' 2.75"	1' 8.89"	1' 2.54"	1' 9.58"	1' 2.31"	1' 10.42"	1' 2.07"	1' 11.49"	1' 1.82"	2' 0.87"
1' 2.12"	1' 7.07"	1' 1.94"	1' 7.58"	1' 1.75"	1' 8.21"	1' 1.54"	1' 8.99"	1' 1.33"	1' 9.98"
1' 1.47"	1' 5.36"	1' 1.32"	1' 5.74"	1' 1.16"	1' 6.2"	1' 0.98"	1' 6.77"	1' 0.8"	1' 7.47"
1' 0.79"	1' 3.77"	1' 0.67"	1' 4.05"	1' 0.53"	1' 4.37"	1' 0.39"	1' 4.77"	1' 0.24"	1' 5.25"



18	20	22
2' 4.07"	2' 1.75"	1' 11.7"

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)
2' 3.44"	Infinity	2' 1.14"	Infinity	1' 11.09"	Infinity
2' 3.14"	Infinity	2' 0.9"	Infinity	1' 10.9"	Infinity
2' 2.85"	Infinity	2' 0.67"	Infinity	1' 10.72"	Infinity
2' 2.57"	Infinity	2' 0.44"	Infinity	1' 10.53"	Infinity
2' 2.28"	Infinity	2' 0.22"	Infinity	1' 10.35"	Infinity
2' 2.06"	Infinity	2' 0.04"	Infinity	1' 10.21"	Infinity
2' 1.74"	Infinity	1' 11.78"	Infinity	1' 10"	Infinity
2' 1.46"	Infinity	1' 11.55"	Infinity	1' 9.82"	Infinity
2' 1.21"	Infinity	1' 11.35"	Infinity	1' 9.66"	Infinity
2' 0.9"	Infinity	1' 11.1"	Infinity	1' 9.45"	Infinity
2' 0.71"	Infinity	1' 10.94"	Infinity	1' 9.33"	Infinity
2' 0.48"	Infinity	1' 10.76"	Infinity	1' 9.18"	Infinity
2' 0.22"	Infinity	1' 10.54"	Infinity	1' 9"	Infinity
2' 0.06"	Infinity	1' 10.42"	Infinity	1' 8.9"	Infinity
1' 11.9"	Infinity	1' 10.28"	Infinity	1' 8.79"	Infinity
1' 11.72"	Infinity	1' 10.13"	Infinity	1' 8.67"	Infinity
1' 11.51"	Infinity	1' 9.97"	Infinity	1' 8.53"	Infinity
1' 11.29"	Infinity	1' 9.78"	Infinity	1' 8.38"	Infinity
1' 11.03"	Infinity	1' 9.57"	Infinity	1' 8.2"	Infinity
1' 10.75"	Infinity	1' 9.33"	Infinity	1' 8.01"	Infinity
1' 10.59"	Infinity	1' 9.2"	Infinity	1' 7.9"	Infinity
1' 10.42"	Infinity	1' 9.06"	Infinity	1' 7.78"	Infinity
1' 10.24"	Infinity	1' 8.91"	Infinity	1' 7.65"	Infinity
1' 10.04"	Infinity	1' 8.74"	Infinity	1' 7.52"	Infinity
1' 9.83"	Infinity	1' 8.57"	Infinity	1' 7.37"	Infinity
1' 9.61"	Infinity	1' 8.38"	Infinity	1' 7.21"	Infinity
1' 9.36"	Infinity	1' 8.17"	Infinity	1' 7.04"	Infinity
1' 9.09"	Infinity	1' 7.94"	Infinity	1' 6.85"	Infinity
1' 8.8"	Infinity	1' 7.69"	Infinity	1' 6.64"	Infinity
1' 8.48"	Infinity	1' 7.42"	Infinity	1' 6.41"	Infinity
1' 8.13"	Infinity	1' 7.12"	Infinity	1' 6.15"	Infinity
1' 7.74"	Infinity	1' 6.78"	Infinity	1' 5.87"	Infinity
1' 7.3"	Infinity	1' 6.41"	Infinity	1' 5.54"	Infinity
1' 6.82"	Infinity	1' 5.99"	Infinity	1' 5.18"	Infinity
1' 6.27"	Infinity	1' 5.51"	Infinity	1' 4.77"	Infinity
1' 5.64"	Infinity	1' 4.96"	Infinity	1' 4.29"	Infinity
1' 4.93"	35' 1.16"	1' 4.33"	Infinity	1' 3.74"	Infinity
1' 4.1"	8' 2.38"	1' 3.6"	16' 4.35"	1' 3.09"	Infinity
1' 3.14"	4' 2.24"	1' 2.73"	5' 4.42"	1' 2.31"	8' 1.46"
1' 1.99"	2' 6.84"	1' 1.68"	2' 10.65"	1' 1.36"	3' 4.65"
1' 1.56"	2' 2.71"	1' 1.28"	2' 5.26"	1' 1"	2' 9.02"
1' 1.1"	1' 11.27"	1' 0.86"	2' 0.98"	1' 0.61"	2' 3.38"
1' 0.61"	1' 8.35"	1' 0.4"	1' 9.5"	1' 0.18"	1' 11.03"
1' 0.08"	1' 5.85"	0' 11.91"	1' 6.61"	0' 11.73"	1' 7.58"



Focal Length 18 mm

Circle of Confusion 0.025 mm

T/No	2.1	2.2	2.5	2.8
Hyperfocal Distance (ft-inch)	21' 9.57"	20' 5.12"	18' 3.13"	16' 3.98"

T/No	2.1		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	21' 8.85"	Infinity	20' 4.41"	Infinity	18' 2.41"	Infinity	16' 3.25"	Infinity
120' 0"	18' 6.52"	Infinity	17' 6.54"	Infinity	15' 11.12"	Infinity	14' 5.28"	Infinity
60' 0"	16' 2"	Infinity	15' 4.91"	Infinity	14' 1.88"	Infinity	12' 11.76"	Infinity
40' 0"	14' 3.96"	Infinity	13' 8.84"	Infinity	12' 8.88"	Infinity	11' 9.44"	Infinity
30' 0"	12' 10.41"	Infinity	12' 4.69"	Infinity	11' 6.98"	Infinity	10' 9.54"	Infinity
25' 0"	11' 10.75"	Infinity	11' 5.89"	Infinity	10' 9.55"	Infinity	10' 1.36"	Infinity
20' 0"	10' 8.23"	230' 6.8"	10' 4.33"	904' 8.57"	9' 9.58"	Infinity	9' 2.87"	Infinity
17' 0"	9' 9.66"	73' 5.56"	9' 6.4"	96' 0.43"	9' 0.72"	231' 9.28"	8' 7"	Infinity
15' 0"	9' 1.63"	45' 9.08"	8' 10.82"	53' 6.26"	8' 5.89"	79' 1.33"	8' 0.89"	172' 0.69"
13' 0"	8' 4.65"	30' 7.75"	8' 2.3"	33' 10.82"	7' 10.15"	42' 6.1"	7' 5.91"	59' 7.26"
12' 0"	7' 11.74"	25' 4.84"	7' 9.63"	27' 7"	7' 5.88"	32' 11.7"	7' 2.04"	42' 3.87"
11' 0"	7' 6.53"	21' 1.59"	7' 4.65"	22' 7.26"	7' 1.31"	26' 0.81"	6' 9.87"	31' 6.28"
10' 0"	7' 0.97"	17' 7.02"	6' 11.33"	18' 6.99"	6' 8.4"	20' 9.99"	6' 5.37"	24' 1.62"
9' 6"	6' 10.05"	16' 0.34"	6' 8.53"	16' 10.16"	6' 5.81"	18' 7.96"	6' 2.98"	21' 3.03"
9' 0"	6' 7.04"	14' 7.11"	6' 5.64"	15' 3.16"	6' 3.12"	16' 8.74"	6' 0.5"	18' 9.15"
8' 6"	6' 3.92"	13' 3.18"	6' 2.64"	13' 9.75"	6' 0.32"	14' 11.89"	5' 9.91"	16' 7.09"
8' 0"	6' 0.7"	12' 0.4"	5' 11.53"	12' 5.74"	5' 9.42"	13' 5.08"	5' 7.2"	14' 8.16"
7' 6"	5' 9.36"	10' 10.66"	5' 8.3"	11' 2.97"	5' 6.39"	12' 0.02"	5' 4.38"	12' 11.83"
7' 0"	5' 5.89"	9' 9.84"	5' 4.95"	10' 1.3"	5' 3.24"	10' 8.47"	5' 1.43"	11' 5.67"
6' 6"	5' 2.3"	8' 9.86"	5' 1.47"	9' 0.61"	4' 11.95"	9' 6.24"	4' 10.35"	10' 1.36"
6' 3"	5' 0.46"	8' 4.16"	4' 11.68"	8' 6.6"	4' 10.26"	8' 11.57"	4' 8.75"	9' 5.81"
6' 0"	4' 10.58"	7' 10.65"	4' 9.85"	8' 0.8"	4' 8.53"	8' 5.18"	4' 7.12"	8' 10.63"
5' 9"	4' 8.67"	7' 5.3"	4' 7.99"	7' 7.19"	4' 6.76"	7' 11.04"	4' 5.44"	8' 3.79"
5' 6"	4' 6.71"	7' 0.11"	4' 6.09"	7' 1.78"	4' 4.95"	7' 5.13"	4' 3.73"	7' 9.26"
5' 3"	4' 4.72"	6' 7.09"	4' 4.15"	6' 8.54"	4' 3.1"	6' 11.46"	4' 1.98"	7' 3.02"
5' 0"	4' 2.7"	6' 2.21"	4' 2.17"	6' 3.47"	4' 1.21"	6' 6"	4' 0.18"	6' 9.07"
4' 9"	4' 0.63"	5' 9.48"	4' 0.15"	5' 10.57"	3' 11.27"	6' 0.74"	3' 10.33"	6' 3.37"
4' 6"	3' 10.52"	5' 4.88"	3' 10.09"	5' 5.82"	3' 9.3"	5' 7.68"	3' 8.44"	5' 9.91"
4' 3"	3' 8.37"	5' 0.41"	3' 7.98"	5' 1.21"	3' 7.27"	5' 2.79"	3' 6.5"	5' 4.67"
4' 0"	3' 6.17"	4' 8.07"	3' 5.83"	4' 8.75"	3' 5.2"	4' 10.07"	3' 4.51"	4' 11.65"
3' 9"	3' 3.93"	4' 3.85"	3' 3.63"	4' 4.41"	3' 3.08"	4' 5.52"	3' 2.47"	4' 6.83"
3' 6"	3' 1.65"	3' 11.75"	3' 1.39"	4' 0.21"	3' 0.9"	4' 1.12"	3' 0.37"	4' 2.19"
3' 3"	2' 11.31"	3' 7.75"	2' 11.09"	3' 8.13"	2' 10.67"	3' 8.87"	2' 10.22"	3' 9.74"
3' 0"	2' 8.93"	3' 3.86"	2' 8.74"	3' 4.17"	2' 8.39"	3' 4.76"	2' 8.01"	3' 5.45"
2' 9"	2' 6.5"	3' 0.08"	2' 6.34"	3' 0.32"	2' 6.05"	3' 0.78"	2' 5.73"	3' 1.32"
2' 6"	2' 4.01"	2' 8.39"	2' 3.88"	2' 8.57"	2' 3.65"	2' 8.92"	2' 3.39"	2' 9.33"
2' 3"	2' 1.47"	2' 4.79"	2' 1.37"	2' 4.93"	2' 1.19"	2' 5.19"	2' 0.99"	2' 5.49"
2' 0"	1' 10.87"	2' 1.29"	1' 10.8"	2' 1.39"	1' 10.66"	2' 1.57"	1' 10.51"	2' 1.78"
1' 9"	1' 8.22"	1' 9.88"	1' 8.17"	1' 9.94"	1' 8.07"	1' 10.06"	1' 7.96"	1' 10.2"
1' 6"	1' 5.5"	1' 6.54"	1' 5.47"	1' 6.58"	1' 5.41"	1' 6.66"	1' 5.34"	1' 6.75"
1' 5"	1' 4.58"	1' 5.45"	1' 4.55"	1' 5.48"	1' 4.5"	1' 5.55"	1' 4.45"	1' 5.62"
1' 4"	1' 3.66"	1' 4.37"	1' 3.63"	1' 4.4"	1' 3.59"	1' 4.45"	1' 3.54"	1' 4.5"
1' 3"	1' 2.72"	1' 3.29"	1' 2.71"	1' 3.32"	1' 2.67"	1' 3.36"	1' 2.63"	1' 3.4"
1' 2"	1' 1.78"	1' 2.23"	1' 1.77"	1' 2.24"	1' 1.74"	1' 2.28"	1' 1.71"	1' 2.31"



3.2	3.5	4	4.5	5
14' 7.35"	13' 0.97"	11' 8.59"	10' 5.98"	9' 4.99"

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)
14' 6.61"	Infinity	13' 0.23"	Infinity	11' 7.85"	Infinity	10' 5.26"	Infinity	9' 4.26"	Infinity
13' 0.96"	Infinity	11' 10.07"	Infinity	10' 8.5"	Infinity	9' 8.17"	Infinity	8' 8.99"	Infinity
11' 10.55"	Infinity	10' 10.25"	Infinity	9' 10.85"	Infinity	9' 0.31"	Infinity	8' 2.6"	Infinity
10' 10.56"	Infinity	10' 0.25"	Infinity	9' 2.54"	Infinity	8' 5.44"	Infinity	7' 8.95"	Infinity
10' 0.42"	Infinity	9' 3.67"	Infinity	8' 7.32"	Infinity	7' 11.39"	Infinity	7' 3.9"	Infinity
9' 5.38"	Infinity	8' 9.64"	Infinity	8' 2.18"	Infinity	7' 7.04"	Infinity	7' 0.24"	Infinity
8' 8.23"	Infinity	8' 1.72"	Infinity	7' 7.37"	Infinity	7' 1.21"	Infinity	6' 7.28"	Infinity
8' 1.3"	Infinity	7' 7.65"	Infinity	7' 2.09"	Infinity	6' 8.65"	Infinity	6' 3.37"	Infinity
7' 7.87"	Infinity	7' 2.86"	Infinity	6' 9.89"	Infinity	6' 4.99"	Infinity	6' 0.2"	Infinity
7' 1.62"	109' 3.93"	6' 9.3"	Infinity	6' 4.97"	Infinity	6' 0.67"	Infinity	5' 8.43"	Infinity
6' 10.13"	62' 3.44"	6' 6.17"	133' 7.58"	6' 2.19"	Infinity	5' 10.21"	Infinity	5' 6.27"	Infinity
6' 6.35"	41' 3.53"	6' 2.76"	63' 7.31"	5' 11.14"	164' 0.46"	5' 7.51"	Infinity	5' 3.88"	Infinity
6' 2.25"	29' 4.87"	5' 11.05"	39' 0.71"	5' 7.8"	62' 2.22"	5' 4.53"	189' 4.07"	5' 1.24"	Infinity
6' 0.06"	25' 2.47"	5' 9.06"	31' 11.13"	5' 6.01"	45' 8.96"	5' 2.91"	89' 10.36"	4' 11.8"	Infinity
5' 9.78"	21' 9.05"	5' 6.98"	26' 6.52"	5' 4.12"	35' 4.36"	5' 1.22"	56' 8.97"	4' 10.28"	181' 1.86"
5' 7.39"	18' 10.41"	5' 4.8"	22' 4.03"	5' 2.14"	28' 2.51"	4' 11.42"	40' 2.37"	4' 8.67"	77' 8.32"
5' 4.9"	16' 5.01"	5' 2.51"	18' 11.47"	5' 0.05"	22' 11.77"	4' 9.53"	30' 3.24"	4' 6.97"	47' 3.73"
5' 2.28"	14' 3.74"	5' 0.1"	16' 2.18"	4' 9.84"	18' 11.92"	4' 7.52"	23' 7.84"	4' 5.15"	32' 9.44"
4' 11.54"	12' 5.79"	4' 9.56"	13' 10.37"	4' 7.5"	15' 10.22"	4' 5.39"	18' 11.13"	4' 3.22"	24' 3.31"
4' 8.66"	10' 10.55"	4' 6.88"	11' 10.79"	4' 5.03"	13' 3.74"	4' 3.12"	15' 4.6"	4' 1.15"	18' 8.2"
4' 7.16"	10' 1.79"	4' 5.49"	11' 0.29"	4' 3.74"	12' 2.6"	4' 1.93"	13' 11.08"	4' 0.06"	16' 6.59"
4' 5.63"	9' 5.54"	4' 4.06"	10' 2.53"	4' 2.42"	11' 2.6"	4' 0.71"	12' 7.52"	3' 10.94"	14' 8.74"
4' 4.05"	8' 9.76"	4' 2.59"	9' 5.44"	4' 1.05"	10' 3.61"	3' 11.44"	11' 5.59"	3' 9.78"	13' 1.86"
4' 2.44"	8' 2.4"	4' 1.07"	8' 8.95"	3' 11.63"	9' 5.5"	3' 10.13"	10' 5.06"	3' 8.57"	11' 9.4"
4' 0.78"	7' 7.44"	3' 11.51"	8' 1"	3' 10.18"	8' 8.18"	3' 8.78"	9' 5.72"	3' 7.32"	10' 6.91"
3' 11.08"	7' 0.84"	3' 9.91"	7' 5.54"	3' 8.67"	7' 11.55"	3' 7.38"	8' 7.41"	3' 6.02"	9' 6.06"
3' 9.33"	6' 6.57"	3' 8.26"	6' 10.54"	3' 7.12"	7' 3.54"	3' 5.92"	7' 10"	3' 4.67"	8' 6.59"
3' 7.53"	6' 0.61"	3' 6.55"	6' 3.93"	3' 5.52"	6' 8.08"	3' 4.42"	7' 1.37"	3' 3.27"	7' 8.28"
3' 5.68"	5' 6.94"	3' 4.8"	5' 9.71"	3' 3.86"	6' 1.13"	3' 2.86"	6' 5.43"	3' 1.81"	6' 10.98"
3' 3.78"	5' 1.54"	3' 2.99"	5' 3.82"	3' 2.14"	5' 6.62"	3' 1.25"	5' 10.11"	3' 0.3"	6' 2.53"
3' 1.82"	4' 8.38"	3' 1.12"	4' 10.25"	3' 0.37"	5' 0.53"	2' 11.57"	5' 3.32"	2' 10.72"	5' 6.83"
2' 11.8"	4' 3.46"	2' 11.19"	4' 4.98"	2' 10.53"	4' 6.8"	2' 9.82"	4' 9.02"	2' 9.07"	4' 11.77"
2' 9.73"	3' 10.76"	2' 9.2"	3' 11.97"	2' 8.63"	4' 1.41"	2' 8.01"	4' 3.16"	2' 7.35"	4' 5.29"
2' 7.59"	3' 6.25"	2' 7.14"	3' 7.2"	2' 6.65"	3' 8.33"	2' 6.12"	3' 9.68"	2' 5.56"	3' 11.32"
2' 5.39"	3' 1.94"	2' 5.01"	3' 2.67"	2' 4.6"	3' 3.54"	2' 4.16"	3' 4.56"	2' 3.68"	3' 5.79"
2' 3.11"	2' 9.81"	2' 2.81"	2' 10.36"	2' 2.47"	2' 11"	2' 2.11"	2' 11.76"	2' 1.72"	3' 0.67"
2' 0.77"	2' 5.84"	2' 0.53"	2' 6.24"	2' 0.26"	2' 6.71"	1' 11.98"	2' 7.25"	1' 11.67"	2' 7.9"
1' 10.35"	2' 2.03"	1' 10.17"	2' 2.31"	1' 9.97"	2' 2.63"	1' 9.75"	2' 3.01"	1' 9.51"	2' 3.45"
1' 7.85"	1' 10.37"	1' 7.72"	1' 10.55"	1' 7.57"	1' 10.76"	1' 7.42"	1' 11.01"	1' 7.25"	1' 11.29"
1' 5.26"	1' 6.84"	1' 5.18"	1' 6.95"	1' 5.08"	1' 7.08"	1' 4.98"	1' 7.23"	1' 4.87"	1' 7.4"
1' 4.38"	1' 5.7"	1' 4.31"	1' 5.79"	1' 4.23"	1' 5.89"	1' 4.14"	1' 6.01"	1' 4.05"	1' 6.15"
1' 3.49"	1' 4.57"	1' 3.43"	1' 4.64"	1' 3.37"	1' 4.73"	1' 3.29"	1' 4.82"	1' 3.21"	1' 4.93"
1' 2.59"	1' 3.45"	1' 2.54"	1' 3.51"	1' 2.49"	1' 3.58"	1' 2.43"	1' 3.65"	1' 2.37"	1' 3.74"
1' 1.68"	1' 2.35"	1' 1.64"	1' 2.39"	1' 1.6"	1' 2.45"	1' 1.55"	1' 2.5"	1' 1.5"	1' 2.57"



5.6	6.3	7.1	8	9
8' 5.42"	7' 7.1"	6' 9.89"	6' 1.7"	5' 6.42"

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)
8' 4.68"	Infinity	7' 6.36"	Infinity	6' 9.17"	Infinity	6' 0.98"	Infinity	5' 5.69"	Infinity
7' 10.87"	Infinity	7' 1.73"	Infinity	6' 5.47"	Infinity	5' 10.04"	Infinity	5' 3.34"	Infinity
7' 5.7"	Infinity	6' 9.54"	Infinity	6' 2.09"	Infinity	5' 7.31"	Infinity	5' 1.15"	Infinity
7' 1.05"	Infinity	6' 5.74"	Infinity	5' 11"	Infinity	5' 4.79"	Infinity	4' 11.11"	Infinity
6' 8.86"	Infinity	6' 2.28"	Infinity	5' 8.14"	Infinity	5' 2.45"	Infinity	4' 9.19"	Infinity
6' 5.79"	Infinity	5' 11.72"	Infinity	5' 6.02"	Infinity	5' 0.7"	Infinity	4' 7.75"	Infinity
6' 1.6"	Infinity	5' 8.19"	Infinity	5' 3.07"	Infinity	4' 10.24"	Infinity	4' 5.71"	Infinity
5' 10.26"	Infinity	5' 5.36"	Infinity	5' 0.68"	Infinity	4' 8.23"	Infinity	4' 4.03"	Infinity
5' 7.54"	Infinity	5' 3.03"	Infinity	4' 10.7"	Infinity	4' 6.56"	Infinity	4' 2.62"	Infinity
5' 4.27"	Infinity	5' 0.22"	Infinity	4' 8.29"	Infinity	4' 4.51"	Infinity	4' 0.89"	Infinity
5' 2.39"	Infinity	4' 10.58"	Infinity	4' 6.88"	Infinity	4' 3.31"	Infinity	3' 11.87"	Infinity
5' 0.29"	Infinity	4' 8.76"	Infinity	4' 5.31"	Infinity	4' 1.95"	Infinity	3' 10.71"	Infinity
4' 9.96"	Infinity	4' 6.72"	Infinity	4' 3.53"	Infinity	4' 0.42"	Infinity	3' 9.39"	Infinity
4' 8.69"	Infinity	4' 5.6"	Infinity	4' 2.55"	Infinity	3' 11.57"	Infinity	3' 8.66"	Infinity
4' 7.34"	Infinity	4' 4.41"	Infinity	4' 1.51"	Infinity	3' 10.66"	Infinity	3' 7.88"	Infinity
4' 5.91"	Infinity	4' 3.14"	Infinity	4' 0.4"	Infinity	3' 9.69"	Infinity	3' 7.03"	Infinity
4' 4.38"	131' 5.89"	4' 1.78"	Infinity	3' 11.2"	Infinity	3' 8.64"	Infinity	3' 6.12"	Infinity
4' 2.75"	58' 5.49"	4' 0.33"	540' 6.44"	3' 9.91"	Infinity	3' 7.5"	Infinity	3' 5.13"	Infinity
4' 1"	35' 9.22"	3' 10.77"	77' 7.55"	3' 8.52"	Infinity	3' 6.27"	Infinity	3' 4.05"	Infinity
3' 11.13"	24' 8.53"	3' 9.08"	39' 0.77"	3' 7.02"	115' 10.05"	3' 4.94"	Infinity	3' 2.87"	Infinity
3' 10.15"	21' 0.8"	3' 8.19"	30' 6.8"	3' 6.22"	62' 11.59"	3' 4.23"	Infinity	3' 2.24"	Infinity
3' 9.12"	18' 1.98"	3' 7.27"	24' 8.88"	3' 5.38"	42' 1.7"	3' 3.48"	215' 2.95"	3' 1.58"	Infinity
3' 8.06"	15' 9.62"	3' 6.3"	20' 5.95"	3' 4.51"	31' 0.05"	3' 2.7"	74' 10.97"	3' 0.89"	Infinity
3' 6.95"	13' 10.06"	3' 5.3"	17' 3.2"	3' 3.6"	24' 0.84"	3' 1.89"	43' 9.53"	3' 0.16"	Infinity
3' 5.8"	12' 2.18"	3' 4.25"	14' 8.73"	3' 2.65"	19' 4.04"	3' 1.03"	30' 1.3"	2' 11.4"	83' 2.71"
3' 4.61"	10' 9.18"	3' 3.15"	12' 8.14"	3' 1.66"	15' 10.81"	3' 0.13"	22' 4.94"	2' 10.59"	42' 2.6"
3' 3.36"	9' 6.48"	3' 2.01"	10' 11.87"	3' 0.62"	13' 3.51"	2' 11.19"	17' 5.75"	2' 9.74"	27' 4.12"
3' 2.07"	8' 5.63"	3' 0.82"	9' 6.89"	2' 11.52"	11' 2.95"	2' 10.2"	14' 0.58"	2' 8.84"	19' 7.91"
3' 0.71"	7' 6.32"	2' 11.56"	8' 4.44"	2' 10.37"	9' 7.15"	2' 9.15"	11' 6.28"	2' 7.89"	14' 11.59"
2' 11.3"	6' 8.28"	2' 10.25"	7' 4.01"	2' 9.17"	8' 2.86"	2' 8.04"	9' 7.06"	2' 6.89"	11' 9.62"
2' 9.82"	5' 11.31"	2' 8.88"	6' 5.19"	2' 7.89"	7' 1.21"	2' 6.87"	8' 0.69"	2' 5.82"	9' 6.29"
2' 8.27"	5' 3.24"	2' 7.43"	5' 7.7"	2' 6.55"	6' 1.62"	2' 5.63"	6' 9.79"	2' 4.68"	7' 9.68"
2' 6.65"	4' 7.95"	2' 5.91"	4' 11.3"	2' 5.14"	5' 3.65"	2' 4.32"	5' 9.47"	2' 3.47"	6' 5.58"
2' 4.96"	4' 1.32"	2' 4.32"	4' 3.82"	2' 3.64"	4' 6.99"	2' 2.93"	4' 11.11"	2' 2.18"	5' 4.65"
2' 3.17"	3' 7.28"	2' 2.63"	3' 9.11"	2' 2.05"	3' 11.38"	2' 1.44"	4' 2.28"	2' 0.8"	4' 6.05"
2' 1.3"	3' 1.75"	2' 0.85"	3' 3.06"	2' 0.37"	3' 4.66"	1' 11.86"	3' 6.66"	1' 11.31"	3' 9.19"
1' 11.33"	2' 8.66"	1' 10.97"	2' 9.57"	1' 10.58"	2' 10.67"	1' 10.16"	3' 0.01"	1' 9.72"	3' 1.68"
1' 9.25"	2' 3.96"	1' 8.97"	2' 4.57"	1' 8.67"	2' 5.3"	1' 8.35"	2' 6.17"	1' 8"	2' 7.24"
1' 7.06"	1' 11.62"	1' 6.86"	2' 0.01"	1' 6.64"	2' 0.46"	1' 6.4"	2' 1"	1' 6.14"	2' 1.64"
1' 4.75"	1' 7.59"	1' 4.61"	1' 7.81"	1' 4.46"	1' 8.08"	1' 4.3"	1' 8.38"	1' 4.12"	1' 8.74"
1' 3.94"	1' 6.31"	1' 3.83"	1' 6.49"	1' 3.7"	1' 6.7"	1' 3.56"	1' 6.95"	1' 3.41"	1' 7.24"
1' 3.13"	1' 5.06"	1' 3.03"	1' 5.21"	1' 2.92"	1' 5.37"	1' 2.81"	1' 5.57"	1' 2.68"	1' 5.8"
1' 2.29"	1' 3.84"	1' 2.22"	1' 3.95"	1' 2.13"	1' 4.08"	1' 2.03"	1' 4.23"	1' 1.93"	1' 4.41"
1' 1.44"	1' 2.65"	1' 1.38"	1' 2.73"	1' 1.31"	1' 2.83"	1' 1.24"	1' 2.95"	1' 1.15"	1' 3.08"



10	11	13	14	16
4' 11.92"	4' 6.13"	4' 0.98"	3' 8.37"	3' 4.28"

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)
4' 11.19"	Infinity	4' 5.4"	Infinity	4' 0.24"	Infinity	3' 7.64"	Infinity	3' 3.55"	Infinity
4' 9.32"	Infinity	4' 3.91"	Infinity	3' 11.06"	Infinity	3' 6.7"	Infinity	3' 2.8"	Infinity
4' 7.56"	Infinity	4' 2.5"	Infinity	3' 9.93"	Infinity	3' 5.8"	Infinity	3' 2.08"	Infinity
4' 5.91"	Infinity	4' 1.17"	Infinity	3' 8.86"	Infinity	3' 4.94"	Infinity	3' 1.39"	Infinity
4' 4.35"	Infinity	3' 11.9"	Infinity	3' 7.83"	Infinity	3' 4.11"	Infinity	3' 0.72"	Infinity
4' 3.16"	Infinity	3' 10.93"	Infinity	3' 7.04"	Infinity	3' 3.47"	Infinity	3' 0.2"	Infinity
4' 1.48"	Infinity	3' 9.55"	Infinity	3' 5.9"	Infinity	3' 2.54"	Infinity	2' 11.45"	Infinity
4' 0.09"	Infinity	3' 8.39"	Infinity	3' 4.95"	Infinity	3' 1.76"	Infinity	2' 10.81"	Infinity
3' 10.91"	Infinity	3' 7.41"	Infinity	3' 4.14"	Infinity	3' 1.09"	Infinity	2' 10.26"	Infinity
3' 9.45"	Infinity	3' 6.19"	Infinity	3' 3.12"	Infinity	3' 0.25"	Infinity	2' 9.56"	Infinity
3' 8.58"	Infinity	3' 5.46"	Infinity	3' 2.51"	Infinity	2' 11.74"	Infinity	2' 9.14"	Infinity
3' 7.6"	Infinity	3' 4.63"	Infinity	3' 1.81"	Infinity	2' 11.15"	Infinity	2' 8.65"	Infinity
3' 6.48"	Infinity	3' 3.68"	Infinity	3' 1.01"	Infinity	2' 10.48"	Infinity	2' 8.09"	Infinity
3' 5.85"	Infinity	3' 3.14"	Infinity	3' 0.56"	Infinity	2' 10.1"	Infinity	2' 7.77"	Infinity
3' 5.17"	Infinity	3' 2.57"	Infinity	3' 0.07"	Infinity	2' 9.68"	Infinity	2' 7.42"	Infinity
3' 4.45"	Infinity	3' 1.94"	Infinity	2' 11.54"	Infinity	2' 9.23"	Infinity	2' 7.04"	Infinity
3' 3.66"	Infinity	3' 1.26"	Infinity	2' 10.96"	Infinity	2' 8.74"	Infinity	2' 6.63"	Infinity
3' 2.79"	Infinity	3' 0.52"	Infinity	2' 10.32"	Infinity	2' 8.2"	Infinity	2' 6.17"	Infinity
3' 1.86"	Infinity	2' 11.71"	Infinity	2' 9.62"	Infinity	2' 7.6"	Infinity	2' 5.66"	Infinity
3' 0.82"	Infinity	2' 10.81"	Infinity	2' 8.85"	Infinity	2' 6.94"	Infinity	2' 5.09"	Infinity
3' 0.27"	Infinity	2' 10.33"	Infinity	2' 8.43"	Infinity	2' 6.58"	Infinity	2' 4.78"	Infinity
2' 11.69"	Infinity	2' 9.82"	Infinity	2' 7.98"	Infinity	2' 6.19"	Infinity	2' 4.46"	Infinity
2' 11.08"	Infinity	2' 9.28"	Infinity	2' 7.52"	Infinity	2' 5.79"	Infinity	2' 4.11"	Infinity
2' 10.43"	Infinity	2' 8.72"	Infinity	2' 7.02"	Infinity	2' 5.36"	Infinity	2' 3.74"	Infinity
2' 9.75"	Infinity	2' 8.12"	Infinity	2' 6.5"	Infinity	2' 4.9"	Infinity	2' 3.34"	Infinity
2' 9.04"	Infinity	2' 7.48"	Infinity	2' 5.94"	Infinity	2' 4.41"	Infinity	2' 2.92"	Infinity
2' 8.28"	77' 8.75"	2' 6.81"	Infinity	2' 5.34"	Infinity	2' 3.89"	Infinity	2' 2.47"	Infinity
2' 7.47"	36' 3.82"	2' 6.09"	Infinity	2' 4.71"	Infinity	2' 3.33"	Infinity	2' 1.98"	Infinity
2' 6.61"	22' 9.35"	2' 5.32"	57' 1.48"	2' 4.03"	Infinity	2' 2.74"	Infinity	2' 1.46"	Infinity
2' 5.71"	16' 0.7"	2' 4.51"	27' 5.51"	2' 3.3"	152' 9.94"	2' 2.09"	Infinity	2' 0.89"	Infinity
2' 4.74"	12' 0.49"	2' 3.63"	17' 3.63"	2' 2.52"	34' 11.21"	2' 1.4"	Infinity	2' 0.27"	Infinity
2' 3.7"	9' 4.43"	2' 2.7"	12' 2.07"	2' 1.67"	18' 7.15"	2' 0.64"	47' 10.51"	1' 11.61"	Infinity
2' 2.59"	7' 5.57"	2' 1.69"	9' 0.93"	2' 0.76"	12' 1.13"	1' 11.82"	19' 7.97"	1' 10.88"	72' 4.55"
2' 1.4"	6' 0.44"	2' 0.6"	7' 0.08"	1' 11.77"	8' 7.21"	1' 10.93"	11' 8.12"	1' 10.08"	19' 11.86"
2' 0.12"	4' 11.13"	1' 11.42"	5' 6.29"	1' 10.7"	6' 5.05"	1' 9.96"	7' 10.86"	1' 9.2"	10' 9.68"
1' 10.74"	4' 0.49"	1' 10.15"	4' 4.93"	1' 9.53"	4' 11.17"	1' 8.88"	5' 8.5"	1' 8.23"	6' 11.84"
1' 9.25"	3' 3.79"	1' 8.76"	3' 6.52"	1' 8.24"	3' 10.17"	1' 7.7"	4' 3.24"	1' 7.14"	4' 10.72"
1' 7.63"	2' 8.55"	1' 7.24"	2' 10.19"	1' 6.82"	3' 0.29"	1' 6.39"	3' 3.07"	1' 5.93"	3' 6.86"
1' 5.87"	2' 2.42"	1' 5.57"	2' 3.36"	1' 5.26"	2' 4.54"	1' 4.92"	2' 6.02"	1' 4.57"	2' 7.94"
1' 3.94"	1' 9.16"	1' 3.73"	1' 9.67"	1' 3.51"	1' 10.28"	1' 3.28"	1' 11.03"	1' 3.03"	1' 11.95"
1' 3.25"	1' 7.58"	1' 3.07"	1' 7.98"	1' 2.88"	1' 8.46"	1' 2.68"	1' 9.04"	1' 2.46"	1' 9.75"
1' 2.54"	1' 6.06"	1' 2.4"	1' 6.38"	1' 2.23"	1' 6.75"	1' 2.06"	1' 7.19"	1' 1.87"	1' 7.73"
1' 1.82"	1' 4.61"	1' 1.69"	1' 4.85"	1' 1.56"	1' 5.13"	1' 1.41"	1' 5.47"	1' 1.26"	1' 5.87"
1' 1.06"	1' 3.23"	1' 0.96"	1' 3.41"	1' 0.85"	1' 3.61"	1' 0.74"	1' 3.86"	1' 0.61"	1' 4.15"



18	20	22
3' 0.61"	2' 9.39"	2' 6.47"

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)
2' 11.9"	Infinity	2' 8.65"	Infinity	2' 5.76"	Infinity
2' 11.31"	Infinity	2' 8.18"	Infinity	2' 5.38"	Infinity
2' 10.74"	Infinity	2' 7.73"	Infinity	2' 5.02"	Infinity
2' 10.18"	Infinity	2' 7.28"	Infinity	2' 4.67"	Infinity
2' 9.64"	Infinity	2' 6.85"	Infinity	2' 4.32"	Infinity
2' 9.22"	Infinity	2' 6.51"	Infinity	2' 4.05"	Infinity
2' 8.61"	Infinity	2' 6.01"	Infinity	2' 3.65"	Infinity
2' 8.09"	Infinity	2' 5.59"	Infinity	2' 3.3"	Infinity
2' 7.64"	Infinity	2' 5.22"	Infinity	2' 3"	Infinity
2' 7.06"	Infinity	2' 4.75"	Infinity	2' 2.62"	Infinity
2' 6.72"	Infinity	2' 4.47"	Infinity	2' 2.39"	Infinity
2' 6.31"	Infinity	2' 4.14"	Infinity	2' 2.12"	Infinity
2' 5.85"	Infinity	2' 3.75"	Infinity	2' 1.8"	Infinity
2' 5.58"	Infinity	2' 3.53"	Infinity	2' 1.61"	Infinity
2' 5.29"	Infinity	2' 3.29"	Infinity	2' 1.42"	Infinity
2' 4.97"	Infinity	2' 3.02"	Infinity	2' 1.2"	Infinity
2' 4.62"	Infinity	2' 2.73"	Infinity	2' 0.95"	Infinity
2' 4.24"	Infinity	2' 2.41"	Infinity	2' 0.68"	Infinity
2' 3.81"	Infinity	2' 2.05"	Infinity	2' 0.38"	Infinity
2' 3.33"	Infinity	2' 1.64"	Infinity	2' 0.04"	Infinity
2' 3.06"	Infinity	2' 1.42"	Infinity	1' 11.85"	Infinity
2' 2.78"	Infinity	2' 1.18"	Infinity	1' 11.66"	Infinity
2' 2.49"	Infinity	2' 0.93"	Infinity	1' 11.44"	Infinity
2' 2.17"	Infinity	2' 0.66"	Infinity	1' 11.21"	Infinity
2' 1.83"	Infinity	2' 0.37"	Infinity	1' 10.97"	Infinity
2' 1.47"	Infinity	2' 0.06"	Infinity	1' 10.7"	Infinity
2' 1.07"	Infinity	1' 11.72"	Infinity	1' 10.42"	Infinity
2' 0.65"	Infinity	1' 11.36"	Infinity	1' 10.1"	Infinity
2' 0.2"	Infinity	1' 10.96"	Infinity	1' 9.77"	Infinity
1' 11.7"	Infinity	1' 10.53"	Infinity	1' 9.4"	Infinity
1' 11.16"	Infinity	1' 10.06"	Infinity	1' 8.99"	Infinity
1' 10.57"	Infinity	1' 9.55"	Infinity	1' 8.54"	Infinity
1' 9.93"	Infinity	1' 8.98"	Infinity	1' 8.05"	Infinity
1' 9.22"	118' 9.63"	1' 8.35"	Infinity	1' 7.5"	Infinity
1' 8.43"	18' 10.91"	1' 7.65"	158' 1.06"	1' 6.88"	Infinity
1' 7.55"	9' 5.47"	1' 6.87"	16' 1.8"	1' 6.18"	98' 1.55"
1' 6.57"	5' 10.74"	1' 5.98"	7' 9.02"	1' 5.39"	12' 3.92"
1' 5.46"	4' 0.31"	1' 4.98"	4' 8.73"	1' 4.48"	5' 11.35"
1' 4.2"	2' 10.49"	1' 3.82"	3' 2.03"	1' 3.42"	3' 7.23"
1' 2.76"	2' 1.12"	1' 2.48"	2' 2.63"	1' 2.19"	2' 4.63"
1' 2.23"	1' 10.63"	1' 1.99"	1' 11.75"	1' 1.73"	2' 1.2"
1' 1.68"	1' 8.39"	1' 1.46"	1' 9.21"	1' 1.24"	1' 10.25"
1' 1.09"	1' 6.35"	1' 0.91"	1' 6.95"	1' 0.72"	1' 7.68"
1' 0.47"	1' 4.5"	1' 0.32"	1' 4.91"	1' 0.17"	1' 5.43"



Focal Length 21 mm

Circle of Confusion 0.025 mm

T/No	2.1	2.2	2.5	2.8
Hyperfocal Distance (ft-inch)	29' 0.62"	27' 2.54"	24' 3.65"	21' 8.59"

T/No	2.1		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	28' 11.76"	Infinity	27' 1.7"	Infinity	24' 2.82"	Infinity	21' 7.75"	Infinity
120' 0"	23' 6.12"	Infinity	22' 3.55"	Infinity	20' 3.75"	Infinity	18' 5.71"	Infinity
60' 0"	19' 9.32"	Infinity	18' 11.01"	Infinity	17' 5.78"	Infinity	16' 1.38"	Infinity
40' 0"	17' 0.79"	Infinity	16' 5.13"	Infinity	15' 4.12"	Infinity	14' 3.47"	Infinity
30' 0"	15' 0.1"	Infinity	14' 6.2"	Infinity	13' 8.05"	Infinity	12' 10.01"	Infinity
25' 0"	13' 8.26"	172' 9.08"	13' 3.37"	295' 6.83"	12' 6.89"	Infinity	11' 10.41"	Infinity
20' 0"	12' 1.11"	61' 10.31"	11' 9.32"	72' 6.36"	11' 2.68"	107' 11.92"	10' 7.95"	240' 9.36"
17' 0"	10' 11.57"	39' 5.93"	10' 8.48"	43' 6.52"	10' 3.01"	54' 1.25"	9' 9.43"	74' 5.73"
15' 0"	10' 1.49"	29' 10.68"	9' 10.87"	32' 1.58"	9' 6.22"	37' 5.79"	9' 1.43"	46' 1.81"
13' 0"	9' 2.43"	22' 8.15"	9' 0.29"	23' 11.17"	8' 8.45"	26' 8.9"	8' 4.47"	30' 9.88"
12' 0"	8' 8.48"	19' 8.49"	8' 6.57"	20' 7.67"	8' 3.15"	22' 8.16"	7' 11.58"	25' 6.32"
11' 0"	8' 2.23"	17' 0.79"	8' 0.56"	17' 9.05"	7' 9.54"	19' 2.75"	7' 6.39"	21' 2.61"
10' 0"	7' 7.65"	14' 8.42"	7' 6.2"	15' 2.44"	7' 3.59"	16' 3.13"	7' 0.85"	17' 7.74"
9' 6"	7' 4.22"	13' 7.32"	7' 2.89"	14' 0.44"	7' 0.48"	14' 11.13"	6' 9.94"	16' 0.93"
9' 0"	7' 0.71"	12' 6.87"	6' 11.49"	12' 11.2"	6' 9.27"	13' 8.17"	6' 6.93"	14' 7.6"
8' 6"	6' 9.1"	11' 7.04"	6' 7.98"	11' 10.67"	6' 5.96"	12' 6.15"	6' 3.82"	13' 3.59"
8' 0"	6' 5.38"	10' 7.76"	6' 4.38"	10' 10.8"	6' 2.55"	11' 5"	6' 0.6"	12' 0.74"
7' 6"	6' 1.56"	9' 9"	6' 0.66"	9' 11.52"	5' 11.02"	10' 4.63"	5' 9.27"	10' 10.94"
7' 0"	5' 9.64"	8' 10.74"	5' 8.84"	9' 0.81"	5' 7.38"	9' 4.97"	5' 5.82"	9' 10.07"
6' 6"	5' 5.6"	8' 0.93"	5' 4.9"	8' 2.61"	5' 3.61"	8' 5.97"	5' 2.24"	8' 10.05"
6' 3"	5' 3.53"	7' 8.18"	5' 2.88"	7' 9.69"	5' 1.68"	8' 0.7"	5' 0.39"	8' 4.33"
6' 0"	5' 1.43"	7' 3.54"	5' 0.83"	7' 4.89"	4' 11.72"	7' 7.57"	4' 10.52"	7' 10.8"
5' 9"	4' 11.31"	6' 11"	4' 10.75"	7' 0.2"	4' 9.72"	7' 2.58"	4' 8.61"	7' 5.43"
5' 6"	4' 9.15"	6' 6.56"	4' 8.63"	6' 7.62"	4' 7.68"	6' 9.72"	4' 6.66"	7' 0.23"
5' 3"	4' 6.96"	6' 2.2"	4' 6.49"	6' 3.14"	4' 5.62"	6' 4.99"	4' 4.67"	6' 7.19"
5' 0"	4' 4.73"	5' 9.94"	4' 4.3"	5' 10.77"	4' 3.51"	6' 0.39"	4' 2.65"	6' 2.3"
4' 9"	4' 2.48"	5' 5.77"	4' 2.09"	5' 6.49"	4' 1.37"	5' 7.9"	4' 0.59"	5' 9.56"
4' 6"	4' 0.18"	5' 1.68"	3' 11.83"	5' 2.3"	3' 11.18"	5' 3.52"	3' 10.48"	5' 4.95"
4' 3"	3' 9.85"	4' 9.67"	3' 9.54"	4' 10.21"	3' 8.96"	4' 11.25"	3' 8.33"	5' 0.48"
4' 0"	3' 7.49"	4' 5.75"	3' 7.21"	4' 6.2"	3' 6.7"	4' 7.09"	3' 6.14"	4' 8.13"
3' 9"	3' 5.08"	4' 1.9"	3' 4.84"	4' 2.28"	3' 4.39"	4' 3.03"	3' 3.9"	4' 3.9"
3' 6"	3' 2.64"	3' 10.13"	3' 2.44"	3' 10.45"	3' 2.05"	3' 11.07"	3' 1.62"	3' 11.79"
3' 3"	3' 0.16"	3' 6.43"	2' 11.99"	3' 6.69"	2' 11.65"	3' 7.2"	2' 11.29"	3' 7.79"
3' 0"	2' 9.64"	3' 2.8"	2' 9.49"	3' 3.01"	2' 9.22"	3' 3.42"	2' 8.91"	3' 3.89"
2' 9"	2' 7.08"	2' 11.24"	2' 6.96"	2' 11.4"	2' 6.73"	2' 11.73"	2' 6.48"	3' 0.1"
2' 6"	2' 4.48"	2' 7.74"	2' 4.38"	2' 7.87"	2' 4.2"	2' 8.12"	2' 3.99"	2' 8.41"
2' 3"	2' 1.83"	2' 4.31"	2' 1.76"	2' 4.41"	2' 1.61"	2' 4.6"	2' 1.46"	2' 4.81"
2' 0"	1' 11.14"	2' 0.95"	1' 11.08"	2' 1.02"	1' 10.98"	2' 1.15"	1' 10.86"	2' 1.3"
1' 9"	1' 8.4"	1' 9.65"	1' 8.36"	1' 9.69"	1' 8.29"	1' 9.78"	1' 8.21"	1' 9.89"
1' 6"	1' 5.62"	1' 6.4"	1' 5.6"	1' 6.43"	1' 5.55"	1' 6.49"	1' 5.5"	1' 6.55"
1' 5"	1' 4.68"	1' 5.34"	1' 4.66"	1' 5.36"	1' 4.62"	1' 5.41"	1' 4.58"	1' 5.46"
1' 4"	1' 3.74"	1' 4.27"	1' 3.72"	1' 4.29"	1' 3.69"	1' 4.33"	1' 3.65"	1' 4.37"
1' 3"	1' 2.79"	1' 3.22"	1' 2.78"	1' 3.24"	1' 2.75"	1' 3.26"	1' 2.72"	1' 3.3"
1' 2"	1' 1.84"	1' 2.17"	1' 1.83"	1' 2.18"	1' 1.8"	1' 2.21"	1' 1.78"	1' 2.23"



3.2	3.5	4	4.5	5
19' 4.91"	17' 4.23"	15' 6.26"	13' 10.69"	12' 5.25"

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)
19' 4.07"	Infinity	17' 3.4"	Infinity	15' 5.43"	Infinity	13' 9.86"	Infinity	12' 4.42"	Infinity
16' 9.38"	Infinity	15' 2.69"	Infinity	13' 9.56"	Infinity	12' 5.9"	Infinity	11' 3.62"	Infinity
14' 9.86"	Infinity	13' 7.24"	Infinity	12' 5.53"	Infinity	11' 4.74"	Infinity	10' 4.85"	Infinity
13' 3.25"	Infinity	12' 3.53"	Infinity	11' 4.33"	Infinity	10' 5.7"	Infinity	9' 7.67"	Infinity
12' 0.17"	Infinity	11' 2.57"	Infinity	10' 5.27"	Infinity	9' 8.31"	Infinity	8' 11.74"	Infinity
11' 2.01"	Infinity	10' 5.73"	Infinity	9' 9.63"	Infinity	9' 1.75"	Infinity	8' 6.13"	Infinity
10' 1.2"	Infinity	9' 6.46"	Infinity	8' 11.77"	Infinity	8' 5.18"	Infinity	7' 10.74"	Infinity
9' 3.77"	129' 6.25"	8' 10.06"	783' 2.94"	8' 4.35"	Infinity	7' 10.66"	Infinity	7' 5.05"	Infinity
8' 8.54"	62' 5.4"	8' 3.57"	103' 10.58"	7' 10.55"	415' 2.57"	7' 5.53"	Infinity	7' 0.53"	Infinity
8' 0.38"	37' 2.87"	7' 8.18"	48' 8.18"	7' 3.92"	74' 6.96"	6' 11.6"	187' 3.13"	6' 7.27"	Infinity
7' 7.89"	29' 8.86"	7' 4.1"	36' 6.57"	7' 0.22"	49' 3.68"	6' 8.28"	81' 5.77"	6' 4.3"	311' 10.95"
7' 3.11"	24' 0.25"	6' 11.71"	28' 2.8"	6' 8.23"	35' 2.52"	6' 4.68"	48' 10.41"	6' 1.07"	87' 1.59"
6' 9.98"	19' 6.23"	6' 7"	22' 2.16"	6' 3.92"	26' 2.61"	6' 0.76"	33' 0.19"	5' 9.53"	46' 8.81"
6' 7.27"	17' 7.31"	6' 4.5"	19' 8.77"	6' 1.62"	22' 10.1"	5' 10.66"	27' 9.57"	5' 7.63"	36' 10.17"
6' 4.47"	15' 10.59"	6' 1.9"	17' 6.91"	5' 11.23"	19' 11.79"	5' 8.47"	23' 7.75"	5' 5.64"	29' 10.03"
6' 1.57"	14' 3.77"	5' 11.2"	15' 7.96"	5' 8.74"	17' 6.38"	5' 6.18"	20' 3.17"	5' 3.55"	24' 7.26"
5' 10.55"	12' 10.6"	5' 8.39"	13' 11.47"	5' 6.13"	15' 4.87"	5' 3.78"	17' 5.47"	5' 1.35"	20' 6.63"
5' 7.41"	11' 6.87"	5' 5.46"	12' 5.06"	5' 3.4"	13' 6.54"	5' 1.26"	15' 1.05"	4' 11.04"	17' 3.85"
5' 4.16"	10' 4.41"	5' 2.4"	11' 0.43"	5' 0.55"	11' 10.83"	4' 10.61"	13' 0.75"	4' 8.6"	14' 8.2"
5' 0.77"	9' 3.06"	4' 11.21"	9' 9.32"	4' 9.56"	10' 5.3"	4' 7.83"	11' 3.74"	4' 6.02"	12' 5.88"
4' 11.02"	8' 8.77"	4' 9.56"	9' 2.28"	4' 8.01"	9' 9.25"	4' 6.38"	10' 6.27"	4' 4.67"	11' 6.31"
4' 9.24"	8' 2.72"	4' 7.87"	8' 7.55"	4' 6.42"	9' 1.62"	4' 4.89"	9' 9.4"	4' 3.29"	10' 7.64"
4' 7.42"	7' 8.88"	4' 6.15"	8' 1.11"	4' 4.8"	8' 6.38"	4' 3.37"	9' 1.07"	4' 1.86"	9' 9.77"
4' 5.56"	7' 3.26"	4' 4.38"	7' 6.94"	4' 3.13"	7' 11.5"	4' 1.8"	8' 5.24"	4' 0.4"	9' 0.62"
4' 3.66"	6' 9.83"	4' 2.58"	7' 1.03"	4' 1.42"	7' 4.96"	4' 0.19"	7' 9.86"	3' 10.88"	8' 4.1"
4' 1.72"	6' 4.59"	4' 0.73"	6' 7.36"	3' 11.66"	6' 10.72"	3' 10.53"	7' 2.89"	3' 9.33"	7' 8.15"
3' 11.74"	5' 11.54"	3' 10.83"	6' 1.91"	3' 9.86"	6' 4.78"	3' 8.82"	6' 8.31"	3' 7.72"	7' 0.72"
3' 9.72"	5' 6.65"	3' 8.9"	5' 8.67"	3' 8.01"	5' 11.11"	3' 7.07"	6' 2.08"	3' 6.06"	6' 5.75"
3' 7.65"	5' 1.92"	3' 6.91"	5' 3.63"	3' 6.12"	5' 5.68"	3' 5.26"	5' 8.17"	3' 4.35"	5' 11.21"
3' 5.53"	4' 9.34"	3' 4.88"	4' 10.78"	3' 4.17"	5' 0.5"	3' 3.4"	5' 2.56"	3' 2.59"	5' 5.06"
3' 3.37"	4' 4.92"	3' 2.79"	4' 6.11"	3' 2.16"	4' 7.53"	3' 1.49"	4' 9.22"	3' 0.76"	4' 11.27"
3' 1.16"	4' 0.63"	3' 0.65"	4' 1.61"	3' 0.1"	4' 2.77"	2' 11.51"	4' 4.14"	2' 10.88"	4' 5.79"
2' 10.89"	3' 8.47"	2' 10.46"	3' 9.27"	2' 9.99"	3' 10.2"	2' 9.48"	3' 11.3"	2' 8.92"	4' 0.62"
2' 8.57"	3' 4.44"	2' 8.21"	3' 5.07"	2' 7.81"	3' 5.82"	2' 7.37"	3' 6.69"	2' 6.9"	3' 7.72"
2' 6.2"	3' 0.53"	2' 5.9"	3' 1.03"	2' 5.57"	3' 1.6"	2' 5.21"	3' 2.28"	2' 4.81"	3' 3.07"
2' 3.77"	2' 8.74"	2' 3.53"	2' 9.12"	2' 3.26"	2' 9.55"	2' 2.97"	2' 10.06"	2' 2.65"	2' 10.66"
2' 1.28"	2' 5.05"	2' 1.09"	2' 5.33"	2' 0.88"	2' 5.66"	2' 0.65"	2' 6.03"	2' 0.4"	2' 6.46"
1' 10.73"	2' 1.48"	1' 10.59"	2' 1.67"	1' 10.43"	2' 1.9"	1' 10.26"	2' 2.16"	1' 10.07"	2' 2.46"
1' 8.12"	1' 10"	1' 8.02"	1' 10.13"	1' 7.9"	1' 10.28"	1' 7.78"	1' 10.46"	1' 7.65"	1' 10.65"
1' 5.44"	1' 6.62"	1' 5.37"	1' 6.7"	1' 5.3"	1' 6.79"	1' 5.22"	1' 6.9"	1' 5.13"	1' 7.02"
1' 4.53"	1' 5.52"	1' 4.47"	1' 5.58"	1' 4.41"	1' 5.66"	1' 4.34"	1' 5.74"	1' 4.27"	1' 5.84"
1' 3.61"	1' 4.42"	1' 3.57"	1' 4.48"	1' 3.52"	1' 4.54"	1' 3.46"	1' 4.61"	1' 3.4"	1' 4.69"
1' 2.69"	1' 3.34"	1' 2.65"	1' 3.38"	1' 2.61"	1' 3.43"	1' 2.56"	1' 3.48"	1' 2.51"	1' 3.55"
1' 1.76"	1' 2.26"	1' 1.73"	1' 2.29"	1' 1.69"	1' 2.33"	1' 1.66"	1' 2.37"	1' 1.62"	1' 2.42"



5.6	6.3	7.1	8	9
11' 1.74"	9' 11.88"	8' 11.56"	8' 0.57"	7' 2.77"

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)
11' 0.88"	Infinity	9' 11.04"	Infinity	8' 10.71"	Infinity	7' 11.72"	Infinity	7' 1.93"	Infinity
10' 2.63"	Infinity	9' 2.84"	Infinity	8' 4.15"	Infinity	7' 6.49"	Infinity	6' 9.76"	Infinity
9' 5.85"	Infinity	8' 7.69"	Infinity	7' 10.35"	Infinity	7' 1.79"	Infinity	6' 5.96"	Infinity
8' 10.23"	Infinity	8' 1.41"	Infinity	7' 5.19"	Infinity	6' 9.56"	Infinity	6' 2.51"	Infinity
8' 3.57"	Infinity	7' 7.84"	Infinity	7' 0.55"	Infinity	6' 5.72"	Infinity	5' 11.34"	Infinity
7' 10.81"	Infinity	7' 3.82"	Infinity	6' 9.18"	Infinity	6' 2.9"	Infinity	5' 8.99"	Infinity
7' 4.47"	Infinity	6' 10.41"	Infinity	6' 4.59"	Infinity	5' 11.03"	Infinity	5' 5.75"	Infinity
6' 11.53"	Infinity	6' 6.16"	Infinity	6' 0.95"	Infinity	5' 7.93"	Infinity	5' 3.12"	Infinity
6' 7.59"	Infinity	6' 2.73"	Infinity	5' 9.99"	Infinity	5' 5.39"	Infinity	5' 0.96"	Infinity
6' 2.95"	Infinity	5' 10.67"	Infinity	5' 6.46"	Infinity	5' 2.34"	Infinity	4' 10.34"	Infinity
6' 0.32"	Infinity	5' 8.35"	Infinity	5' 4.43"	Infinity	5' 0.58"	Infinity	4' 8.82"	Infinity
5' 9.44"	774' 1.8"	5' 5.8"	Infinity	5' 2.19"	Infinity	4' 10.62"	Infinity	4' 7.11"	Infinity
5' 6.26"	88' 3.94"	5' 2.98"	Infinity	4' 11.69"	Infinity	4' 8.42"	Infinity	4' 5.2"	Infinity
5' 4.56"	58' 4.7"	5' 1.45"	173' 5.78"	4' 10.33"	Infinity	4' 7.22"	Infinity	4' 4.15"	Infinity
5' 2.76"	42' 5.06"	4' 11.83"	81' 4.34"	4' 8.89"	Infinity	4' 5.95"	Infinity	4' 3.03"	Infinity
5' 0.86"	32' 5.91"	4' 10.13"	51' 0.8"	4' 7.37"	145' 8.02"	4' 4.59"	Infinity	4' 1.83"	Infinity
4' 10.86"	25' 8.67"	4' 8.32"	35' 11.94"	4' 5.74"	65' 10.65"	4' 3.15"	Infinity	4' 0.55"	Infinity
4' 8.75"	20' 9.72"	4' 6.4"	26' 11.72"	4' 4.01"	40' 7.95"	4' 1.6"	96' 2.15"	3' 11.18"	Infinity
4' 6.51"	17' 1.01"	4' 4.36"	20' 11.69"	4' 2.17"	28' 3.5"	3' 11.94"	46' 10.94"	3' 9.69"	187' 8.18"
4' 4.13"	14' 1.92"	4' 2.19"	16' 8.3"	4' 0.2"	20' 11.34"	3' 10.16"	29' 5.92"	3' 8.1"	55' 1.69"
4' 2.89"	12' 11.06"	4' 1.05"	14' 11.75"	3' 11.16"	18' 3.44"	3' 9.22"	24' 5.04"	3' 7.25"	39' 6.27"
4' 1.61"	11' 9.65"	3' 11.87"	13' 5.79"	3' 10.08"	16' 0.93"	3' 8.24"	20' 7.02"	3' 6.37"	30' 2.97"
4' 0.29"	10' 9.48"	3' 10.65"	12' 1.94"	3' 8.96"	14' 2.55"	3' 7.22"	17' 7.03"	3' 5.45"	24' 1.23"
3' 10.93"	9' 10.39"	3' 9.39"	10' 11.85"	3' 7.8"	12' 7.4"	3' 6.16"	15' 2.1"	3' 4.49"	19' 8.79"
3' 9.52"	9' 0.24"	3' 8.09"	9' 11.25"	3' 6.6"	11' 2.83"	3' 5.06"	13' 2.34"	3' 3.48"	16' 5.59"
3' 8.06"	8' 2.92"	3' 6.73"	8' 11.92"	3' 5.35"	10' 0.35"	3' 3.91"	11' 6.48"	3' 2.44"	13' 11.17"
3' 6.56"	7' 6.33"	3' 5.33"	8' 1.66"	3' 4.05"	8' 11.58"	3' 2.72"	10' 1.63"	3' 1.34"	11' 10.88"
3' 5"	6' 10.38"	3' 3.87"	7' 4.34"	3' 2.7"	8' 0.25"	3' 1.47"	8' 11.16"	3' 0.19"	10' 3.03"
3' 3.39"	6' 3.01"	3' 2.36"	6' 7.83"	3' 1.29"	7' 2.12"	3' 0.16"	7' 10.59"	2' 10.99"	8' 10.52"
3' 1.72"	5' 8.16"	3' 0.79"	6' 0.04"	2' 11.82"	6' 5.01"	2' 10.8"	6' 11.58"	2' 9.73"	7' 8.56"
2' 11.99"	5' 1.76"	2' 11.16"	5' 4.86"	2' 10.29"	5' 8.78"	2' 9.37"	6' 1.85"	2' 8.4"	6' 8.6"
2' 10.19"	4' 7.79"	2' 9.46"	4' 10.24"	2' 8.69"	5' 1.3"	2' 7.87"	5' 5.18"	2' 7.01"	5' 10.25"
2' 8.33"	4' 2.2"	2' 7.7"	4' 4.11"	2' 7.02"	4' 6.47"	2' 6.3"	4' 9.42"	2' 5.54"	5' 1.2"
2' 6.4"	3' 8.94"	2' 5.85"	3' 10.42"	2' 5.27"	4' 0.22"	2' 4.65"	4' 2.43"	2' 3.99"	4' 5.22"
2' 4.39"	3' 4.01"	2' 3.93"	3' 5.12"	2' 3.44"	3' 6.47"	2' 2.91"	3' 8.1"	2' 2.35"	3' 10.12"
2' 2.3"	2' 11.35"	2' 1.92"	3' 0.18"	2' 1.52"	3' 1.16"	2' 1.08"	3' 2.34"	2' 0.61"	3' 3.78"
2' 0.12"	2' 6.96"	1' 11.82"	2' 7.55"	1' 11.5"	2' 8.25"	1' 11.15"	2' 9.08"	1' 10.77"	2' 10.07"
1' 9.86"	2' 2.81"	1' 9.63"	2' 3.22"	1' 9.38"	2' 3.69"	1' 9.11"	2' 4.25"	1' 8.82"	2' 4.91"
1' 7.5"	1' 10.88"	1' 7.33"	1' 11.14"	1' 7.15"	1' 11.45"	1' 6.96"	1' 11.81"	1' 6.75"	2' 0.22"
1' 5.03"	1' 7.15"	1' 4.92"	1' 7.31"	1' 4.81"	1' 7.49"	1' 4.67"	1' 7.7"	1' 4.53"	1' 7.94"
1' 4.19"	1' 5.96"	1' 4.09"	1' 6.08"	1' 3.99"	1' 6.23"	1' 3.88"	1' 6.4"	1' 3.76"	1' 6.6"
1' 3.33"	1' 4.78"	1' 3.25"	1' 4.88"	1' 3.17"	1' 5"	1' 3.08"	1' 5.13"	1' 2.97"	1' 5.29"
1' 2.46"	1' 3.62"	1' 2.4"	1' 3.7"	1' 2.33"	1' 3.79"	1' 2.25"	1' 3.9"	1' 2.17"	1' 4.02"
1' 1.57"	1' 2.48"	1' 1.52"	1' 2.54"	1' 1.47"	1' 2.61"	1' 1.41"	1' 2.69"	1' 1.34"	1' 2.78"



10	11	13	14	16
6' 6.07"	5' 10.28"	5' 3.35"	4' 9.2"	4' 3.69"

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)
6' 5.21"	Infinity	5' 9.45"	Infinity	5' 2.53"	Infinity	4' 8.36"	Infinity	4' 2.87"	Infinity
6' 1.88"	Infinity	5' 6.79"	Infinity	5' 0.41"	Infinity	4' 6.68"	Infinity	4' 1.53"	Infinity
5' 10.83"	Infinity	5' 4.33"	Infinity	4' 10.44"	Infinity	4' 5.1"	Infinity	4' 0.26"	Infinity
5' 8.01"	Infinity	5' 2.05"	Infinity	4' 8.59"	Infinity	4' 3.6"	Infinity	3' 11.06"	Infinity
5' 5.41"	Infinity	4' 11.91"	Infinity	4' 6.85"	Infinity	4' 2.18"	Infinity	3' 9.91"	Infinity
5' 3.46"	Infinity	4' 10.31"	Infinity	4' 5.53"	Infinity	4' 1.1"	Infinity	3' 9.03"	Infinity
5' 0.75"	Infinity	4' 8.06"	Infinity	4' 3.66"	Infinity	3' 11.57"	Infinity	3' 7.77"	Infinity
4' 10.55"	Infinity	4' 6.21"	Infinity	4' 2.12"	Infinity	3' 10.29"	Infinity	3' 6.71"	Infinity
4' 8.71"	Infinity	4' 4.66"	Infinity	4' 0.83"	Infinity	3' 9.21"	Infinity	3' 5.81"	Infinity
4' 6.48"	Infinity	4' 2.77"	Infinity	3' 11.23"	Infinity	3' 7.87"	Infinity	3' 4.69"	Infinity
4' 5.17"	Infinity	4' 1.65"	Infinity	3' 10.28"	Infinity	3' 7.07"	Infinity	3' 4.02"	Infinity
4' 3.7"	Infinity	4' 0.39"	Infinity	3' 9.21"	Infinity	3' 6.16"	Infinity	3' 3.25"	Infinity
4' 2.04"	Infinity	3' 10.96"	Infinity	3' 7.98"	Infinity	3' 5.11"	Infinity	3' 2.37"	Infinity
4' 1.12"	Infinity	3' 10.17"	Infinity	3' 7.3"	Infinity	3' 4.53"	Infinity	3' 1.88"	Infinity
4' 0.15"	Infinity	3' 9.32"	Infinity	3' 6.57"	Infinity	3' 3.91"	Infinity	3' 1.34"	Infinity
3' 11.1"	Infinity	3' 8.41"	Infinity	3' 5.78"	Infinity	3' 3.23"	Infinity	3' 0.77"	Infinity
3' 9.97"	Infinity	3' 7.42"	Infinity	3' 4.93"	Infinity	3' 2.49"	Infinity	3' 0.13"	Infinity
3' 8.76"	Infinity	3' 6.36"	Infinity	3' 4"	Infinity	3' 1.69"	Infinity	2' 11.44"	Infinity
3' 7.44"	Infinity	3' 5.2"	Infinity	3' 2.99"	Infinity	3' 0.81"	Infinity	2' 10.68"	Infinity
3' 6.02"	Infinity	3' 3.94"	Infinity	3' 1.88"	Infinity	2' 11.84"	Infinity	2' 9.85"	Infinity
3' 5.26"	134' 5.78"	3' 3.27"	Infinity	3' 1.29"	Infinity	2' 11.32"	Infinity	2' 9.4"	Infinity
3' 4.47"	65' 1.96"	3' 2.57"	Infinity	3' 0.66"	Infinity	2' 10.78"	Infinity	2' 8.92"	Infinity
3' 3.64"	41' 9.3"	3' 1.83"	259' 2.82"	3' 0.01"	Infinity	2' 10.2"	Infinity	2' 8.42"	Infinity
3' 2.78"	30' 0.33"	3' 1.05"	74' 5.68"	2' 11.32"	Infinity	2' 9.6"	Infinity	2' 7.88"	Infinity
3' 1.87"	22' 11.53"	3' 0.24"	41' 10.11"	2' 10.6"	Infinity	2' 8.95"	Infinity	2' 7.32"	Infinity
3' 0.93"	18' 2.92"	2' 11.39"	28' 2.93"	2' 9.83"	76' 0.43"	2' 8.28"	Infinity	2' 6.72"	Infinity
2' 11.93"	14' 10.44"	2' 10.49"	20' 9.44"	2' 9.03"	38' 2.65"	2' 7.56"	Infinity	2' 6.09"	Infinity
2' 10.88"	12' 4.06"	2' 9.54"	16' 0.92"	2' 8.17"	24' 7.57"	2' 6.79"	63' 4.97"	2' 5.41"	Infinity
2' 9.78"	10' 4.41"	2' 8.54"	12' 9.98"	2' 7.27"	17' 7.61"	2' 5.98"	30' 11.33"	2' 4.68"	238' 3.04"
2' 8.62"	8' 9.49"	2' 7.48"	10' 5.52"	2' 6.31"	13' 4.44"	2' 5.12"	19' 7.79"	2' 3.91"	42' 10.03"
2' 7.4"	7' 5.99"	2' 6.36"	8' 7.82"	2' 5.29"	10' 5.98"	2' 4.19"	13' 10.91"	2' 3.08"	22' 2.75"
2' 6.11"	6' 5.08"	2' 5.17"	7' 2.72"	2' 4.2"	8' 5.2"	2' 3.21"	10' 5.22"	2' 2.19"	14' 4.31"
2' 4.74"	5' 6.15"	2' 3.9"	6' 0.9"	2' 3.04"	6' 10.52"	2' 2.14"	8' 1.27"	2' 1.23"	10' 2.46"
2' 3.29"	4' 8.78"	2' 2.56"	5' 1.49"	2' 1.8"	5' 7.94"	2' 1"	6' 5.23"	2' 0.19"	7' 7.65"
2' 1.75"	4' 0.66"	2' 1.12"	4' 3.93"	2' 0.46"	4' 8.24"	1' 11.77"	5' 2.16"	1' 11.06"	5' 10.72"
2' 0.11"	3' 5.56"	1' 11.59"	3' 7.78"	1' 11.03"	3' 10.64"	1' 10.44"	4' 2.41"	1' 9.83"	4' 7.58"
1' 10.37"	2' 11.28"	1' 9.94"	3' 0.77"	1' 9.48"	3' 2.63"	1' 9"	3' 5"	1' 8.49"	3' 8.12"
1' 8.51"	2' 5.71"	1' 8.17"	2' 6.66"	1' 7.81"	2' 7.84"	1' 7.43"	2' 9.29"	1' 7.03"	2' 11.13"
1' 6.52"	2' 0.72"	1' 6.27"	2' 1.3"	1' 6"	2' 2.01"	1' 5.71"	2' 2.86"	1' 5.41"	2' 3.91"
1' 4.38"	1' 8.23"	1' 4.21"	1' 8.56"	1' 4.02"	1' 8.95"	1' 3.83"	1' 9.41"	1' 3.61"	1' 9.96"
1' 3.63"	1' 6.83"	1' 3.48"	1' 7.09"	1' 3.33"	1' 7.4"	1' 3.16"	1' 7.77"	1' 2.97"	1' 8.21"
1' 2.86"	1' 5.47"	1' 2.74"	1' 5.68"	1' 2.61"	1' 5.93"	1' 2.46"	1' 6.22"	1' 2.31"	1' 6.56"
1' 2.08"	1' 4.16"	1' 1.98"	1' 4.32"	1' 1.87"	1' 4.51"	1' 1.75"	1' 4.74"	1' 1.62"	1' 5"
1' 1.27"	1' 2.89"	1' 1.19"	1' 3.01"	1' 1.1"	1' 3.16"	1' 1.01"	1' 3.32"	1' 0.9"	1' 3.51"



18	20	22
3' 10.81"	3' 6.44"	3' 2.58"

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)
3' 9.97"	Infinity	3' 5.61"	Infinity	3' 1.73"	Infinity
3' 8.91"	Infinity	3' 4.77"	Infinity	3' 1.06"	Infinity
3' 7.9"	Infinity	3' 3.96"	Infinity	3' 0.41"	Infinity
3' 6.93"	Infinity	3' 3.18"	Infinity	2' 11.79"	Infinity
3' 6"	Infinity	3' 2.43"	Infinity	2' 11.18"	Infinity
3' 5.28"	Infinity	3' 1.85"	Infinity	2' 10.71"	Infinity
3' 4.25"	Infinity	3' 1.01"	Infinity	2' 10.03"	Infinity
3' 3.38"	Infinity	3' 0.3"	Infinity	2' 9.45"	Infinity
3' 2.64"	Infinity	2' 11.68"	Infinity	2' 8.95"	Infinity
3' 1.71"	Infinity	2' 10.91"	Infinity	2' 8.31"	Infinity
3' 1.15"	Infinity	2' 10.45"	Infinity	2' 7.93"	Infinity
3' 0.5"	Infinity	2' 9.91"	Infinity	2' 7.49"	Infinity
2' 11.76"	Infinity	2' 9.29"	Infinity	2' 6.97"	Infinity
2' 11.35"	Infinity	2' 8.94"	Infinity	2' 6.68"	Infinity
2' 10.89"	Infinity	2' 8.56"	Infinity	2' 6.36"	Infinity
2' 10.4"	Infinity	2' 8.15"	Infinity	2' 6.01"	Infinity
2' 9.86"	Infinity	2' 7.69"	Infinity	2' 5.63"	Infinity
2' 9.27"	Infinity	2' 7.19"	Infinity	2' 5.2"	Infinity
2' 8.62"	Infinity	2' 6.64"	Infinity	2' 4.73"	Infinity
2' 7.9"	Infinity	2' 6.02"	Infinity	2' 4.21"	Infinity
2' 7.51"	Infinity	2' 5.68"	Infinity	2' 3.92"	Infinity
2' 7.1"	Infinity	2' 5.33"	Infinity	2' 3.62"	Infinity
2' 6.66"	Infinity	2' 4.95"	Infinity	2' 3.3"	Infinity
2' 6.2"	Infinity	2' 4.55"	Infinity	2' 2.95"	Infinity
2' 5.71"	Infinity	2' 4.12"	Infinity	2' 2.58"	Infinity
2' 5.18"	Infinity	2' 3.67"	Infinity	2' 2.19"	Infinity
2' 4.62"	Infinity	2' 3.18"	Infinity	2' 1.77"	Infinity
2' 4.03"	Infinity	2' 2.66"	Infinity	2' 1.31"	Infinity
2' 3.39"	Infinity	2' 2.1"	Infinity	2' 0.82"	Infinity
2' 2.7"	Infinity	2' 1.49"	Infinity	2' 0.29"	Infinity
2' 1.96"	72' 1.12"	2' 0.83"	Infinity	1' 11.71"	Infinity
2' 1.16"	25' 4.78"	2' 0.12"	235' 9.96"	1' 11.08"	Infinity
2' 0.29"	14' 6.73"	1' 11.35"	28' 10.06"	1' 10.39"	Infinity
1' 11.35"	9' 8.83"	1' 10.5"	14' 3.44"	1' 9.64"	31' 4.18"
1' 10.33"	7' 0.09"	1' 9.57"	8' 11.65"	1' 8.8"	13' 3.71"
1' 9.2"	5' 3.03"	1' 8.55"	6' 2.59"	1' 7.88"	7' 10.8"
1' 7.96"	4' 0.34"	1' 7.41"	4' 6.36"	1' 6.85"	5' 3.55"
1' 6.6"	3' 1.52"	1' 6.15"	3' 4.72"	1' 5.69"	3' 9.17"
1' 5.08"	2' 5.21"	1' 4.74"	2' 6.88"	1' 4.38"	2' 9.07"
1' 3.39"	1' 10.64"	1' 3.14"	1' 11.47"	1' 2.88"	2' 0.5"
1' 2.77"	1' 8.74"	1' 2.56"	1' 9.38"	1' 2.34"	1' 10.17"
1' 2.14"	1' 6.97"	1' 1.96"	1' 7.45"	1' 1.76"	1' 8.05"
1' 1.48"	1' 5.3"	1' 1.33"	1' 5.67"	1' 1.16"	1' 6.11"
1' 0.79"	1' 3.74"	1' 0.66"	1' 4.01"	1' 0.53"	1' 4.32"



Focal Length 25 mm

Circle of Confusion 0.025 mm

T/No	2.1	2.2	2.5	2.8
Hyperfocal Distance (ft-inch)	41' 7.09"	38' 11.28"	34' 9.05"	31' 0.24"

T/No	2.1		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	41' 6.06"	Infinity	38' 10.27"	Infinity	34' 8.02"	Infinity	30' 11.25"	Infinity
120' 0"	31' 0.41"	Infinity	29' 6.49"	Infinity	27' 0.9"	Infinity	24' 9.15"	Infinity
60' 0"	24' 9.38"	Infinity	23' 9.94"	Infinity	22' 2.52"	Infinity	20' 7.71"	Infinity
40' 0"	20' 7.51"	1020' 10.45"	19' 11.59"	Infinity	18' 9.92"	Infinity	17' 8.36"	Infinity
30' 0"	17' 7.96"	105' 0.3"	17' 2.18"	127' 3.06"	16' 4.05"	212' 11.46"	15' 5.84"	881' 2.08"
25' 0"	15' 10.11"	61' 1.74"	15' 5.48"	68' 0.17"	14' 9.3"	86' 5.82"	14' 0.96"	124' 6.99"
20' 0"	13' 8.65"	37' 7.08"	13' 5.2"	40' 0.6"	12' 11.05"	45' 8.91"	12' 4.7"	54' 5.48"
17' 0"	12' 3.25"	28' 0.66"	12' 0.51"	29' 4.68"	11' 7.59"	32' 3.75"	11' 2.47"	36' 4.65"
15' 0"	11' 2.6"	22' 10.72"	11' 0.33"	23' 9.2"	10' 8.22"	25' 7.51"	10' 3.92"	28' 1.2"
13' 0"	10' 1.01"	18' 5.45"	9' 11.19"	19' 0.14"	9' 7.88"	20' 2.02"	9' 4.39"	21' 7.83"
12' 0"	9' 5.83"	16' 5.52"	9' 4.22"	16' 10.78"	9' 1.31"	17' 9.6"	8' 10.22"	18' 11.25"
11' 0"	8' 10.36"	14' 7.15"	8' 8.97"	14' 11.24"	8' 6.44"	15' 7.57"	8' 3.74"	16' 5.92"
10' 0"	8' 2.6"	12' 10.19"	8' 1.42"	13' 1.32"	7' 11.25"	13' 7.64"	7' 8.94"	14' 3.38"
9' 6"	7' 10.61"	12' 0.21"	7' 9.52"	12' 2.92"	7' 7.53"	12' 8.38"	7' 5.41"	13' 3.04"
9' 0"	7' 6.53"	11' 2.53"	7' 5.54"	11' 4.87"	7' 3.73"	11' 9.57"	7' 1.78"	12' 3.25"
8' 6"	7' 2.37"	10' 5.14"	7' 1.48"	10' 7.15"	6' 11.83"	10' 11.16"	6' 10.07"	11' 3.99"
8' 0"	6' 10.12"	9' 8.03"	6' 9.32"	9' 9.74"	6' 7.85"	10' 1.15"	6' 6.26"	10' 5.22"
7' 6"	6' 5.79"	8' 11.19"	6' 5.08"	9' 0.64"	6' 3.76"	9' 3.5"	6' 2.34"	9' 6.91"
7' 0"	6' 1.36"	8' 2.6"	6' 0.73"	8' 3.81"	5' 11.57"	8' 6.2"	5' 10.32"	8' 9.02"
6' 6"	5' 8.84"	7' 6.26"	5' 8.3"	7' 7.26"	5' 7.28"	7' 9.23"	5' 6.19"	7' 11.54"
6' 3"	5' 6.55"	7' 2.18"	5' 6.04"	7' 3.08"	5' 5.1"	7' 4.86"	5' 4.08"	7' 6.95"
6' 0"	5' 4.23"	6' 10.15"	5' 3.76"	6' 10.97"	5' 2.89"	7' 0.57"	5' 1.94"	7' 2.44"
5' 9"	5' 1.88"	6' 6.18"	5' 1.45"	6' 6.92"	5' 0.64"	6' 8.35"	4' 11.77"	6' 10.03"
5' 6"	4' 11.51"	6' 2.27"	4' 11.11"	6' 2.93"	4' 10.37"	6' 4.2"	4' 9.57"	6' 5.7"
5' 3"	4' 9.11"	5' 10.41"	4' 8.75"	5' 10.99"	4' 8.08"	6' 0.13"	4' 7.34"	6' 1.45"
5' 0"	4' 6.69"	5' 6.6"	4' 6.36"	5' 7.12"	4' 5.75"	5' 8.12"	4' 5.08"	5' 9.29"
4' 9"	4' 4.24"	5' 2.85"	4' 3.94"	5' 3.3"	4' 3.39"	5' 4.18"	4' 2.78"	5' 5.2"
4' 6"	4' 1.76"	4' 11.14"	4' 1.49"	4' 11.54"	4' 1"	5' 0.31"	4' 0.46"	5' 1.19"
4' 3"	3' 11.25"	4' 7.49"	3' 11.02"	4' 7.83"	3' 10.58"	4' 8.5"	3' 10.09"	4' 9.26"
4' 0"	3' 8.72"	4' 3.88"	3' 8.51"	4' 4.18"	3' 8.12"	4' 4.75"	3' 7.7"	4' 5.4"
3' 9"	3' 6.16"	4' 0.32"	3' 5.98"	4' 0.57"	3' 5.64"	4' 1.06"	3' 5.26"	4' 1.61"
3' 6"	3' 3.57"	3' 8.81"	3' 3.41"	3' 9.02"	3' 3.12"	3' 9.43"	3' 2.8"	3' 9.89"
3' 3"	3' 0.94"	3' 5.35"	3' 0.81"	3' 5.52"	3' 0.56"	3' 5.85"	3' 0.29"	3' 6.24"
3' 0"	2' 10.29"	3' 1.92"	2' 10.18"	3' 2.07"	2' 9.97"	3' 2.34"	2' 9.74"	3' 2.65"
2' 9"	2' 7.61"	2' 10.55"	2' 7.52"	2' 10.66"	2' 7.35"	2' 10.88"	2' 7.16"	2' 11.12"
2' 6"	2' 4.9"	2' 7.21"	2' 4.83"	2' 7.3"	2' 4.69"	2' 7.47"	2' 4.54"	2' 7.66"
2' 3"	2' 2.15"	2' 3.92"	2' 2.1"	2' 3.99"	2' 1.99"	2' 4.11"	2' 1.87"	2' 4.26"
2' 0"	1' 11.38"	2' 0.67"	1' 11.33"	2' 0.72"	1' 11.26"	2' 0.81"	1' 11.17"	2' 0.91"
1' 9"	1' 8.57"	1' 9.46"	1' 8.54"	1' 9.49"	1' 8.48"	1' 9.56"	1' 8.42"	1' 9.63"
1' 6"	1' 5.72"	1' 6.29"	1' 5.7"	1' 6.31"	1' 5.67"	1' 6.35"	1' 5.63"	1' 6.4"
1' 5"	1' 4.77"	1' 5.24"	1' 4.75"	1' 5.26"	1' 4.72"	1' 5.29"	1' 4.69"	1' 5.33"
1' 4"	1' 3.81"	1' 4.2"	1' 3.79"	1' 4.21"	1' 3.77"	1' 4.24"	1' 3.74"	1' 4.27"
1' 3"	1' 2.84"	1' 3.16"	1' 2.83"	1' 3.17"	1' 2.81"	1' 3.19"	1' 2.79"	1' 3.22"
1' 2"	1' 1.88"	1' 2.13"	1' 1.87"	1' 2.14"	1' 1.85"	1' 2.15"	1' 1.84"	1' 2.17"



3.2	3.5	4	4.5	5
27' 8.36"	24' 8.85"	22' 1.16"	19' 8.97"	17' 7.85"

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)
27' 7.36"	Infinity	24' 7.82"	Infinity	22' 0.16"	Infinity	19' 7.96"	Infinity	17' 6.83"	Infinity
22' 7.24"	Infinity	20' 7.14"	Infinity	18' 8.82"	Infinity	17' 0.22"	Infinity	15' 5.26"	Infinity
19' 1.57"	Infinity	17' 8.21"	Infinity	16' 3.67"	Infinity	15'	Infinity	13' 9.22"	Infinity
16' 7"	Infinity	15' 5.92"	Infinity	14' 5.2"	Infinity	13' 4.91"	Infinity	12' 5.09"	Infinity
14' 7.61"	Infinity	13' 9.43"	Infinity	12' 11.36"	Infinity	12' 1.48"	Infinity	11' 3.82"	Infinity
13' 4.52"	247' 3.49"	12' 8.02"	Infinity	11' 11.53"	Infinity	11' 3.11"	Infinity	10' 6.8"	Infinity
11' 10.18"	69' 4.03"	11' 3.54"	100' 2.2"	10' 8.82"	201' 0.21"	10' 2.06"	Infinity	9' 7.3"	Infinity
10' 9.16"	42' 4.94"	10' 3.71"	52' 1.66"	9' 10.13"	70' 3.88"	9' 4.47"	115' 11.28"	8' 10.75"	432' 11.45"
9' 11.44"	31' 6.36"	9' 6.8"	36' 6.69"	9' 2.02"	44' 6.84"	8' 9.13"	59' 2.52"	8' 4.16"	94' 1.17"
9' 0.73"	23' 7.32"	8' 8.91"	26' 3.44"	8' 4.95"	30' 1.68"	8' 0.86"	36' 1.33"	7' 8.66"	46' 6.12"
8' 6.96"	20' 4.88"	8' 3.55"	22' 4.33"	8'	25' 0.82"	7' 8.32"	29' 0.4"	7' 4.52"	35' 4.1"
8' 0.89"	17' 7.04"	7' 9.88"	19' 0.09"	7' 6.74"	20' 10.93"	7' 3.47"	23' 6.88"	7' 0.08"	27' 6.37"
7' 6.48"	15' 1.03"	7' 3.88"	16' 1.3"	7' 1.14"	17' 5.28"	6' 10.28"	19' 2.81"	6' 7.31"	21' 9.13"
7' 3.14"	13' 11.27"	7' 0.74"	14' 9.62"	6' 10.21"	15' 10.94"	6' 7.55"	17' 4.59"	6' 4.78"	19' 4.88"
6' 11.71"	12' 10.23"	6' 9.51"	13' 6.93"	6' 7.17"	14' 6"	6' 4.72"	15' 8.43"	6' 2.16"	17' 3.9"
6' 8.18"	11' 9.88"	6' 6.17"	12' 5.15"	6' 4.04"	13' 2.3"	6' 1.79"	14' 2.07"	5' 11.43"	15' 5.64"
6' 4.55"	10' 10.15"	6' 2.73"	11' 4.2"	6' 0.79"	11' 11.72"	5' 10.75"	12' 9.27"	5' 8.59"	13' 9.69"
6' 0.81"	9' 11.01"	5' 11.18"	10' 3.99"	5' 9.43"	10' 10.14"	5' 7.59"	11' 5.84"	5' 5.63"	12' 3.7"
5' 8.96"	9' 0.4"	5' 7.51"	9' 4.48"	5' 5.96"	9' 9.45"	5' 4.3"	10' 3.62"	5' 2.55"	10' 11.41"
5' 5"	8' 2.29"	5' 3.72"	8' 5.59"	5' 2.35"	8' 9.58"	5' 0.89"	9' 2.47"	4' 11.33"	9' 8.57"
5' 2.97"	7' 9.42"	5' 1.78"	8' 0.37"	5' 0.5"	8' 3.93"	4' 11.13"	8' 8.27"	4' 9.67"	9' 1.64"
5' 0.91"	7' 4.65"	4' 11.8"	7' 7.29"	4' 10.61"	7' 10.45"	4' 9.33"	8' 2.28"	4' 7.97"	8' 7.01"
4' 10.82"	7'	4' 9.8"	7' 2.34"	4' 8.69"	7' 5.14"	4' 7.5"	7' 8.52"	4' 6.24"	8' 0.65"
4' 8.7"	6' 7.45"	4' 7.75"	6' 9.52"	4' 6.73"	6' 11.98"	4' 5.63"	7' 2.95"	4' 4.46"	7' 6.56"
4' 6.54"	6' 3"	4' 5.67"	6' 4.82"	4' 4.74"	6' 6.99"	4' 3.73"	6' 9.58"	4' 2.64"	7' 0.71"
4' 4.35"	5' 10.65"	4' 3.56"	6' 0.24"	4' 2.7"	6' 2.13"	4' 1.78"	6' 4.39"	4' 0.78"	6' 7.1"
4' 2.12"	5' 6.39"	4' 1.41"	5' 7.78"	4' 0.63"	5' 9.42"	3' 11.79"	5' 11.37"	3' 10.88"	6' 1.7"
3' 11.86"	5' 2.22"	3' 11.22"	5' 3.43"	3' 10.51"	5' 4.84"	3' 9.75"	5' 6.51"	3' 8.93"	5' 8.5"
3' 9.56"	4' 10.15"	3' 8.99"	4' 11.18"	3' 8.36"	5' 0.39"	3' 7.68"	5' 1.82"	3' 6.94"	5' 3.51"
3' 7.23"	4' 6.16"	3' 6.72"	4' 7.04"	3' 6.16"	4' 8.06"	3' 5.55"	4' 9.27"	3' 4.9"	4' 10.69"
3' 4.85"	4' 2.25"	3' 4.41"	4' 2.99"	3' 3.92"	4' 3.85"	3' 3.38"	4' 4.86"	3' 2.8"	4' 6.05"
3' 2.44"	3' 10.43"	3' 2.05"	3' 11.04"	3' 1.63"	3' 11.76"	3' 1.16"	4' 0.59"	3' 0.66"	4' 1.57"
2' 11.99"	3' 6.68"	2' 11.65"	3' 7.18"	2' 11.29"	3' 7.77"	2' 10.89"	3' 8.45"	2' 10.46"	3' 9.24"
2' 9.49"	3' 3.01"	2' 9.21"	3' 3.42"	2' 8.91"	3' 3.89"	2' 8.57"	3' 4.43"	2' 8.2"	3' 5.07"
2' 6.95"	2' 11.41"	2' 6.72"	2' 11.73"	2' 6.47"	3' 0.1"	2' 6.19"	3' 0.53"	2' 5.89"	3' 1.03"
2' 4.37"	2' 7.88"	2' 4.19"	2' 8.13"	2' 3.98"	2' 8.42"	2' 3.76"	2' 8.75"	2' 3.51"	2' 9.13"
2' 1.74"	2' 4.42"	2' 1.6"	2' 4.61"	2' 1.44"	2' 4.82"	2' 1.27"	2' 5.07"	2' 1.07"	2' 5.35"
1' 11.07"	2' 1.03"	1' 10.96"	2' 1.17"	1' 10.85"	2' 1.32"	1' 10.71"	2' 1.5"	1' 10.57"	2' 1.7"
1' 8.35"	1' 9.71"	1' 8.28"	1' 9.8"	1' 8.19"	1' 9.9"	1' 8.1"	1' 10.02"	1' 8"	1' 10.15"
1' 5.58"	1' 6.45"	1' 5.54"	1' 6.5"	1' 5.48"	1' 6.57"	1' 5.42"	1' 6.64"	1' 5.35"	1' 6.72"
1' 4.65"	1' 5.37"	1' 4.61"	1' 5.42"	1' 4.56"	1' 5.47"	1' 4.51"	1' 5.53"	1' 4.45"	1' 5.6"
1' 3.71"	1' 4.31"	1' 3.68"	1' 4.34"	1' 3.64"	1' 4.39"	1' 3.6"	1' 4.44"	1' 3.55"	1' 4.49"
1' 2.77"	1' 3.25"	1' 2.74"	1' 3.28"	1' 2.71"	1' 3.31"	1' 2.67"	1' 3.35"	1' 2.63"	1' 3.4"
1' 1.82"	1' 2.19"	1' 1.79"	1' 2.22"	1' 1.77"	1' 2.24"	1' 1.74"	1' 2.28"	1' 1.71"	1' 2.31"



5.6	6.3	7.1	8	9
15' 9.45"	14' 1.53"	12' 7.73"	11' 3.91"	10' 1.81"

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)
15' 8.45"	Infinity	14' 0.5"	Infinity	12' 6.73"	Infinity	11' 2.91"	Infinity	10' 0.8"	Infinity
13' 11.88"	Infinity	12' 7.99"	Infinity	11' 5.49"	Infinity	10' 4.3"	Infinity	9' 4.31"	Infinity
12' 7.36"	Infinity	11' 6.42"	Infinity	10' 6.38"	Infinity	9' 7.23"	Infinity	8' 8.94"	Infinity
11' 5.8"	Infinity	10' 7.07"	Infinity	9' 8.93"	Infinity	8' 11.4"	Infinity	8' 2.47"	Infinity
10' 6.46"	Infinity	9' 9.44"	Infinity	9' 0.79"	Infinity	8' 4.55"	Infinity	7' 8.74"	Infinity
9' 10.65"	Infinity	9' 2.73"	Infinity	8' 7.05"	Infinity	7' 11.68"	Infinity	7' 4.62"	Infinity
9' 0.59"	Infinity	8' 5.98"	Infinity	7' 11.49"	Infinity	7' 5.19"	Infinity	6' 11.08"	Infinity
8' 5.03"	Infinity	7' 11.33"	Infinity	7' 5.69"	Infinity	7' 0.15"	Infinity	6' 6.74"	Infinity
7' 11.14"	281' 4.28"	7' 6.1"	Infinity	7' 1.09"	Infinity	6' 8.12"	Infinity	6' 3.24"	Infinity
7' 4.39"	68' 11.18"	7' 0.08"	151' 5.87"	6' 7.74"	Infinity	6' 3.4"	Infinity	5' 11.11"	Infinity
7' 0.64"	46' 10.05"	6' 8.7"	74' 0.85"	6' 4.72"	216' 5.89"	6' 0.72"	Infinity	5' 8.74"	Infinity
6' 8.6"	33' 11.66"	6' 5.05"	46' 2.22"	6' 1.43"	77' 10.18"	5' 9.79"	348' 2.22"	5' 6.15"	Infinity
6' 4.23"	25' 6.62"	6' 1.07"	31' 9.79"	5' 9.85"	44' 0.32"	5' 6.57"	77' 10.47"	5' 3.28"	606' 2.13"
6' 1.91"	22' 4.15"	5' 10.95"	26' 11.53"	5' 7.92"	35' 2.17"	5' 4.84"	53' 8.78"	5' 1.72"	133' 6.98"
5' 11.49"	19' 7.35"	5' 8.74"	23' 0.64"	5' 5.91"	28' 9.14"	5' 3.02"	39' 11.62"	5' 0.09"	71' 7.05"
5' 8.97"	17' 3.05"	5' 6.42"	19' 10.08"	5' 3.79"	23' 10.69"	5' 1.1"	31' 0.89"	4' 10.36"	47' 1.72"
5' 6.34"	15' 2.38"	5' 3.99"	17' 1.82"	5' 1.56"	20' 0.82"	4' 11.07"	24' 10.26"	4' 8.52"	34' 0.76"
5' 3.58"	13' 4.69"	5' 1.44"	14' 10.42"	4' 11.22"	16' 11.87"	4' 8.93"	20' 3.13"	4' 6.58"	25' 11.01"
5' 0.7"	11' 9.47"	4' 10.77"	12' 10.87"	4' 8.75"	14' 5.46"	4' 6.67"	16' 8.74"	4' 4.52"	20' 4.28"
4' 9.69"	10' 4.32"	4' 7.96"	11' 2.41"	4' 6.15"	12' 4"	4' 4.27"	13' 11.14"	4' 2.32"	16' 3.83"
4' 8.13"	9' 8.42"	4' 6.5"	10' 5.15"	4' 4.79"	11' 4.77"	4' 3.01"	12' 8.82"	4' 1.17"	14' 8.26"
4' 6.53"	9' 0.92"	4' 5"	9' 8.47"	4' 3.39"	10' 6.38"	4' 1.72"	11' 7.84"	3' 11.98"	13' 3.05"
4' 4.89"	8' 5.79"	4' 3.46"	9' 0.3"	4' 1.96"	9' 8.74"	4' 0.38"	10' 8.03"	3' 10.75"	11' 11.79"
4' 3.21"	7' 11.01"	4' 1.88"	8' 4.6"	4' 0.48"	8' 11.77"	3' 11.01"	9' 9.23"	3' 9.47"	10' 10.18"
4' 1.49"	7' 4.56"	4' 0.26"	7' 9.34"	3' 10.96"	8' 3.42"	3' 9.59"	8' 11.32"	3' 8.16"	9' 9.95"
3' 11.72"	6' 10.4"	3' 10.59"	7' 2.48"	3' 9.39"	7' 7.61"	3' 8.12"	8' 2.2"	3' 6.79"	8' 10.91"
3' 9.91"	6' 4.52"	3' 8.87"	6' 7.98"	3' 7.77"	7' 0.29"	3' 6.6"	7' 5.76"	3' 5.38"	8' 0.89"
3' 8.05"	5' 10.9"	3' 7.11"	6' 1.82"	3' 6.1"	6' 5.42"	3' 5.04"	6' 9.95"	3' 3.91"	7' 3.76"
3' 6.15"	5' 5.53"	3' 5.29"	5' 7.97"	3' 4.38"	5' 10.97"	3' 3.41"	6' 2.69"	3' 2.39"	6' 7.4"
3' 4.19"	5' 0.38"	3' 3.42"	5' 2.41"	3' 2.61"	5' 4.88"	3' 1.74"	5' 7.92"	3' 0.81"	5' 11.73"
3' 2.18"	4' 7.45"	3' 1.5"	4' 9.12"	3' 0.77"	4' 11.14"	3'	5' 1.6"	2' 11.17"	5' 4.65"
3' 0.11"	4' 2.71"	2' 11.52"	4' 4.08"	2' 10.88"	4' 5.71"	2' 10.19"	4' 7.68"	2' 9.46"	4' 10.1"
2' 9.99"	3' 10.17"	2' 9.47"	3' 11.27"	2' 8.92"	4' 0.57"	2' 8.32"	4' 2.13"	2' 7.69"	4' 4.03"
2' 7.8"	3' 5.81"	2' 7.37"	3' 6.67"	2' 6.89"	3' 7.7"	2' 6.38"	3' 8.92"	2' 5.84"	3' 10.38"
2' 5.55"	3' 1.61"	2' 5.19"	3' 2.28"	2' 4.8"	3' 3.07"	2' 4.37"	3' 4"	2' 3.91"	3' 5.12"
2' 3.24"	2' 9.57"	2' 2.95"	2' 10.08"	2' 2.62"	2' 10.67"	2' 2.27"	2' 11.37"	2' 1.89"	3' 0.19"
2' 0.86"	2' 5.67"	2' 0.63"	2' 6.05"	2' 0.37"	2' 6.48"	2' 0.1"	2' 6.99"	1' 11.79"	2' 7.58"
1' 10.41"	2' 1.92"	1' 10.23"	2' 2.19"	1' 10.04"	2' 2.49"	1' 9.83"	2' 2.85"	1' 9.6"	2' 3.26"
1' 7.88"	1' 10.31"	1' 7.76"	1' 10.48"	1' 7.62"	1' 10.68"	1' 7.47"	1' 10.92"	1' 7.3"	1' 11.19"
1' 5.28"	1' 6.82"	1' 5.2"	1' 6.93"	1' 5.1"	1' 7.05"	1' 5"	1' 7.19"	1' 4.89"	1' 7.35"
1' 4.39"	1' 5.68"	1' 4.32"	1' 5.77"	1' 4.24"	1' 5.87"	1' 4.16"	1' 5.99"	1' 4.06"	1' 6.12"
1' 3.5"	1' 4.56"	1' 3.44"	1' 4.63"	1' 3.37"	1' 4.71"	1' 3.3"	1' 4.81"	1' 3.22"	1' 4.91"
1' 2.59"	1' 3.45"	1' 2.54"	1' 3.51"	1' 2.49"	1' 3.57"	1' 2.43"	1' 3.65"	1' 2.37"	1' 3.73"
1' 1.68"	1' 2.35"	1' 1.64"	1' 2.39"	1' 1.6"	1' 2.45"	1' 1.55"	1' 2.5"	1' 1.5"	1' 2.57"



10	11	13	14	16
9' 1.25"	8' 2.07"	7' 4.07"	6' 7.21"	5' 11.3"

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)
9' 0.24"	Infinity	8' 1.05"	Infinity	7' 3.07"	Infinity	6' 6.19"	Infinity	5' 10.27"	Infinity
8' 5.45"	Infinity	7' 7.63"	Infinity	6' 10.75"	Infinity	6' 2.74"	Infinity	5' 7.53"	Infinity
7' 11.47"	Infinity	7' 2.78"	Infinity	6' 6.83"	Infinity	5' 11.59"	Infinity	5' 4.99"	Infinity
7' 6.14"	Infinity	6' 10.42"	Infinity	6' 3.27"	Infinity	5' 8.68"	Infinity	5' 2.63"	Infinity
7' 1.38"	Infinity	6' 6.47"	Infinity	6' 0.01"	Infinity	5' 6"	Infinity	5' 0.44"	Infinity
6' 9.92"	Infinity	6' 3.57"	Infinity	5' 9.6"	Infinity	5' 4.01"	Infinity	4' 10.79"	Infinity
6' 5.22"	Infinity	5' 11.6"	Infinity	5' 6.27"	Infinity	5' 1.22"	Infinity	4' 8.48"	Infinity
6' 1.49"	Infinity	5' 8.43"	Infinity	5' 3.58"	Infinity	4' 10.96"	Infinity	4' 6.58"	Infinity
5' 10.47"	Infinity	5' 5.84"	Infinity	5' 1.37"	Infinity	4' 9.08"	Infinity	4' 5"	Infinity
5' 6.87"	Infinity	5' 2.73"	Infinity	4' 10.7"	Infinity	4' 6.8"	Infinity	4' 3.06"	Infinity
5' 4.8"	Infinity	5' 0.93"	Infinity	4' 9.14"	Infinity	4' 5.46"	Infinity	4' 1.92"	Infinity
5' 2.52"	Infinity	4' 10.93"	Infinity	4' 7.4"	Infinity	4' 3.97"	Infinity	4' 0.63"	Infinity
4' 11.98"	Infinity	4' 8.69"	Infinity	4' 5.45"	Infinity	4' 2.27"	Infinity	3' 11.17"	Infinity
4' 10.6"	Infinity	4' 7.48"	Infinity	4' 4.38"	Infinity	4' 1.34"	Infinity	3' 10.37"	Infinity
4' 9.14"	701' 8.93"	4' 6.18"	Infinity	4' 3.25"	Infinity	4' 0.35"	Infinity	3' 9.5"	Infinity
4' 7.59"	114' 1.57"	4' 4.8"	Infinity	4' 2.03"	Infinity	3' 11.28"	Infinity	3' 8.57"	Infinity
4' 5.94"	58' 9.38"	4' 3.34"	335' 5.08"	4' 0.73"	Infinity	3' 10.13"	Infinity	3' 7.57"	Infinity
4' 4.19"	37' 11.27"	4' 1.77"	80' 2.88"	3' 11.33"	Infinity	3' 8.9"	Infinity	3' 6.49"	Infinity
4' 2.32"	27' 0.04"	4' 0.09"	42' 11.21"	3' 9.83"	130' 8.45"	3' 7.57"	Infinity	3' 5.31"	Infinity
4' 0.32"	20' 3.21"	3' 10.28"	27' 11.41"	3' 8.21"	49' 2"	3' 6.12"	365' 4.86"	3' 4.04"	Infinity
3' 11.27"	17' 9.41"	3' 9.33"	23' 4.61"	3' 7.35"	36' 5.33"	3' 5.36"	100' 3.99"	3' 3.35"	Infinity
3' 10.18"	15' 8.41"	3' 8.34"	19' 10.42"	3' 6.46"	28' 5.61"	3' 4.55"	56' 2.35"	3' 2.64"	Infinity
3' 9.05"	13' 11.14"	3' 7.31"	17' 0.95"	3' 5.53"	23'	3' 3.72"	38' 0.31"	3' 1.89"	149' 10.54"
3' 7.88"	12' 4.82"	3' 6.24"	14' 9.74"	3' 4.56"	19' 0.2"	3' 2.84"	28' 1.38"	3' 1.11"	61' 11.9"
3' 6.67"	11' 0.88"	3' 5.13"	12' 11.19"	3' 3.54"	15' 11.85"	3' 1.93"	21' 10.51"	3' 0.29"	37' 9.13"
3' 5.41"	9' 10.88"	3' 3.97"	11' 4.2"	3' 2.49"	13' 7.26"	3' 0.97"	17' 7.04"	2' 11.42"	26' 4.98"
3' 4.09"	8' 10.49"	3' 2.76"	9' 11.98"	3' 1.38"	11' 8.18"	2' 11.96"	14' 5.47"	2' 10.51"	19' 10.01"
3' 2.73"	7' 11.44"	3' 1.5"	8' 9.97"	3' 0.22"	10' 1.17"	2' 10.9"	12' 0.86"	2' 9.55"	15' 6.46"
3' 1.31"	7' 1.53"	3' 0.18"	7' 9.75"	2' 11.01"	8' 9.24"	2' 9.79"	10' 2.33"	2' 8.54"	12' 6.16"
2' 11.83"	6' 4.59"	2' 10.81"	6' 10.99"	2' 9.74"	7' 7.69"	2' 8.62"	8' 8.13"	2' 7.48"	10' 3.21"
2' 10.29"	5' 8.49"	2' 9.37"	6' 1.45"	2' 8.4"	6' 8.03"	2' 7.39"	7' 5.13"	2' 6.34"	8' 6.42"
2' 8.68"	5' 1.11"	2' 7.86"	5' 4.92"	2' 7"	5' 9.89"	2' 6.09"	6' 4.55"	2' 5.15"	7' 1.88"
2' 7"	4' 6.36"	2' 6.28"	4' 9.27"	2' 5.52"	5' 0.98"	2' 4.71"	5' 5.84"	2' 3.87"	6' 0.42"
2' 5.25"	4' 0.16"	2' 4.62"	4' 2.36"	2' 3.96"	4' 5.1"	2' 3.26"	4' 8.62"	2' 2.52"	5' 1.25"
2' 3.41"	3' 6.45"	2' 2.88"	3' 8.08"	2' 2.31"	3' 10.08"	2' 1.71"	4' 0.6"	2' 1.08"	4' 3.83"
2' 1.49"	3' 1.18"	2' 1.04"	3' 2.36"	2' 0.57"	3' 3.79"	2' 0.07"	3' 5.56"	1' 11.54"	3' 7.77"
1' 11.47"	2' 8.28"	1' 11.11"	2' 9.12"	1' 10.73"	2' 10.11"	1' 10.32"	2' 11.32"	1' 9.89"	3' 0.81"
1' 9.35"	2' 3.74"	1' 9.07"	2' 4.3"	1' 8.78"	2' 4.97"	1' 8.46"	2' 5.77"	1' 8.12"	2' 6.73"
1' 7.12"	1' 11.5"	1' 6.92"	1' 11.86"	1' 6.7"	2' 0.28"	1' 6.46"	2' 0.79"	1' 6.21"	2' 1.38"
1' 4.77"	1' 7.54"	1' 4.64"	1' 7.75"	1' 4.49"	1' 8"	1' 4.33"	1' 8.29"	1' 4.15"	1' 8.63"
1' 3.96"	1' 6.27"	1' 3.85"	1' 6.45"	1' 3.72"	1' 6.65"	1' 3.58"	1' 6.89"	1' 3.43"	1' 7.16"
1' 3.14"	1' 5.04"	1' 3.04"	1' 5.18"	1' 2.93"	1' 5.34"	1' 2.82"	1' 5.53"	1' 2.69"	1' 5.75"
1' 2.3"	1' 3.83"	1' 2.22"	1' 3.94"	1' 2.13"	1' 4.07"	1' 2.03"	1' 4.22"	1' 1.93"	1' 4.39"
1' 1.44"	1' 2.64"	1' 1.38"	1' 2.73"	1' 1.31"	1' 2.83"	1' 1.23"	1' 2.94"	1' 1.15"	1' 3.07"



18	20	22
5' 4.25"	4' 9.95"	4' 4.36"

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)
5' 3.22"	Infinity	4' 8.94"	Infinity	4' 3.35"	Infinity
5' 1.04"	Infinity	4' 7.2"	Infinity	4' 1.96"	Infinity
4' 11"	Infinity	4' 5.57"	Infinity	4' 0.65"	Infinity
4' 9.09"	Infinity	4' 4.02"	Infinity	3' 11.41"	Infinity
4' 7.3"	Infinity	4' 2.57"	Infinity	3' 10.23"	Infinity
4' 5.94"	Infinity	4' 1.46"	Infinity	3' 9.32"	Infinity
4' 4.03"	Infinity	3' 11.88"	Infinity	3' 8.03"	Infinity
4' 2.45"	Infinity	3' 10.57"	Infinity	3' 6.94"	Infinity
4' 1.12"	Infinity	3' 9.46"	Infinity	3' 6.02"	Infinity
3' 11.48"	Infinity	3' 8.08"	Infinity	3' 4.87"	Infinity
3' 10.51"	Infinity	3' 7.27"	Infinity	3' 4.19"	Infinity
3' 9.42"	Infinity	3' 6.34"	Infinity	3' 3.4"	Infinity
3' 8.17"	Infinity	3' 5.27"	Infinity	3' 2.5"	Infinity
3' 7.47"	Infinity	3' 4.68"	Infinity	3' 2"	Infinity
3' 6.73"	Infinity	3' 4.04"	Infinity	3' 1.46"	Infinity
3' 5.92"	Infinity	3' 3.35"	Infinity	3' 0.86"	Infinity
3' 5.05"	Infinity	3' 2.6"	Infinity	3' 0.22"	Infinity
3' 4.11"	Infinity	3' 1.78"	Infinity	2' 11.52"	Infinity
3' 3.08"	Infinity	3' 0.89"	Infinity	2' 10.75"	Infinity
3' 1.96"	Infinity	2' 11.91"	Infinity	2' 9.9"	Infinity
3' 1.36"	Infinity	2' 11.38"	Infinity	2' 9.44"	Infinity
3' 0.73"	Infinity	2' 10.83"	Infinity	2' 8.95"	Infinity
3' 0.06"	Infinity	2' 10.24"	Infinity	2' 8.44"	Infinity
2' 11.37"	Infinity	2' 9.63"	Infinity	2' 7.9"	Infinity
2' 10.63"	223' 8.98"	2' 8.98"	Infinity	2' 7.33"	Infinity
2' 9.86"	62' 1.09"	2' 8.29"	Infinity	2' 6.72"	Infinity
2' 9.04"	34' 6.49"	2' 7.56"	231' 4.91"	2' 6.08"	Infinity
2' 8.18"	23' 1.74"	2' 6.79"	52' 9.52"	2' 5.39"	Infinity
2' 7.27"	16' 11"	2' 5.97"	28' 4.38"	2' 4.66"	128' 0.48"
2' 6.3"	12' 11.89"	2' 5.1"	18' 8"	2' 3.88"	37' 6.22"
2' 5.27"	10' 3.47"	2' 4.17"	13' 5.53"	2' 3.04"	20' 10.21"
2' 4.17"	8' 3.8"	2' 3.17"	10' 2.56"	2' 2.14"	13' 10.11"
2' 3"	6' 9.76"	2' 2.1"	7' 11.93"	2' 1.18"	9' 11.8"
2' 1.75"	5' 7.55"	2' 0.95"	6' 4.58"	2' 0.13"	7' 6.47"
2' 0.41"	4' 8.08"	1' 11.72"	5' 1.89"	1' 11"	5' 10.24"
1' 10.97"	3' 10.61"	1' 10.38"	4' 2.34"	1' 9.76"	4' 7.44"
1' 9.42"	3' 2.67"	1' 8.94"	3' 5.04"	1' 8.42"	3' 8.14"
1' 7.75"	2' 7.91"	1' 7.36"	2' 9.38"	1' 6.95"	2' 11.23"
1' 5.94"	2' 2.1"	1' 5.64"	2' 2.96"	1' 5.33"	2' 4.03"
1' 3.97"	1' 9.03"	1' 3.76"	1' 9.51"	1' 3.54"	1' 10.08"
1' 3.27"	1' 7.49"	1' 3.09"	1' 7.87"	1' 2.9"	1' 8.32"
1' 2.55"	1' 6.01"	1' 2.4"	1' 6.31"	1' 2.24"	1' 6.66"
1' 1.82"	1' 4.59"	1' 1.69"	1' 4.82"	1' 1.56"	1' 5.09"
1' 1.05"	1' 3.22"	1' 0.95"	1' 3.4"	1' 0.84"	1' 3.6"



Focal Length 29 mm

Circle of Confusion 0.025 mm

T/No	2.1	2.2	2.5
Hyperfocal Distance (ft-inch)	54' 9.72"	51' 3.67"	45' 9.21"

T/No	2.1		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)
Infinity	54' 8.53"	Infinity	51' 2.5"	Infinity	45' 8.05"	Infinity
120' 0"	37' 9.52"	Infinity	36' 1.22"	Infinity	33' 3.36"	Infinity
60' 0"	28' 10.39"	Infinity	27' 10.52"	Infinity	26' 2.13"	Infinity
40' 0"	23' 4.2"	145' 4.37"	22' 8.45"	178' 0.11"	21' 6.87"	310' 6.1"
30' 0"	19' 7.25"	65' 0.96"	19' 1.8"	70' 10.17"	18' 4.14"	85' 2.32"
25' 0"	17' 4.49"	45' 1.65"	17' 0.22"	47' 9.83"	16' 4.61"	53' 10.85"
20' 0"	14' 10.09"	30' 11.1"	14' 7.01"	32' 1.77"	14' 1.44"	34' 9.09"
17' 0"	13' 1.8"	24' 2.42"	12' 11.39"	24' 11.24"	12' 7.02"	26' 5.57"
15' 0"	11' 11.28"	20' 3.38"	11' 9.31"	20' 9.5"	11' 5.72"	21' 10.01"
13' 0"	10' 7.89"	16' 8.85"	10' 6.33"	17' 0.95"	10' 3.49"	17' 9.23"
12' 0"	9' 11.85"	15' 1.08"	9' 10.49"	15' 4.38"	9' 7.99"	15' 11"
11' 0"	9' 3.55"	13' 6.2"	9' 2.38"	13' 8.83"	9' 0.23"	14' 2.06"
10' 0"	8' 7"	12' 0.17"	8' 6.01"	12' 2.22"	8' 4.19"	12' 6.28"
9' 6"	8' 2.62"	11' 3.46"	8' 1.72"	11' 5.25"	8' 0.06"	11' 8.8"
9' 0"	7' 10.17"	10' 6.93"	7' 9.36"	10' 8.5"	7' 7.84"	10' 11.58"
8' 6"	7' 5.65"	9' 10.59"	7' 4.92"	9' 11.94"	7' 3.55"	10' 2.61"
8' 0"	7' 1.06"	9' 2.42"	7' 0.4"	9' 3.59"	6' 11.18"	9' 5.87"
7' 6"	6' 8.39"	8' 6.43"	6' 7.81"	8' 7.43"	6' 6.73"	8' 9.37"
7' 0"	6' 3.65"	7' 10.61"	6' 3.14"	7' 11.45"	6' 2.19"	8' 1.08"
6' 6"	5' 10.82"	7' 2.94"	5' 10.38"	7' 3.64"	5' 9.56"	7' 5"
6' 3"	5' 8.38"	6' 11.17"	5' 7.97"	6' 11.81"	5' 7.21"	7' 1.04"
6' 0"	5' 5.92"	6' 7.44"	5' 5.54"	6' 8.01"	5' 4.84"	6' 9.13"
5' 9"	5' 3.44"	6' 3.74"	5' 3.09"	6' 4.26"	5' 2.44"	6' 5.27"
5' 6"	5' 0.93"	6' 0.09"	5' 0.61"	6' 0.55"	5' 0.02"	6' 1.45"
5' 3"	4' 10.41"	5' 8.46"	4' 10.12"	5' 8.88"	4' 9.58"	5' 9.68"
5' 0"	4' 7.86"	5' 4.88"	4' 7.6"	5' 5.25"	4' 7.11"	5' 5.96"
4' 9"	4' 5.29"	5' 1.33"	4' 5.06"	5' 1.66"	4' 4.61"	5' 2.29"
4' 6"	4' 2.7"	4' 9.82"	4' 2.49"	4' 10.1"	4' 2.09"	4' 10.65"
4' 3"	4' 0.09"	4' 6.34"	3' 11.9"	4' 6.59"	3' 11.55"	4' 7.07"
4' 0"	3' 9.45"	4' 2.89"	3' 9.29"	4' 3.11"	3' 8.98"	4' 3.52"
3' 9"	3' 6.79"	3' 11.48"	3' 6.65"	3' 11.67"	3' 6.38"	4' 0.02"
3' 6"	3' 4.11"	3' 8.11"	3' 3.99"	3' 8.26"	3' 3.76"	3' 8.56"
3' 3"	3' 1.41"	3' 4.76"	3' 1.3"	3' 4.89"	3' 1.11"	3' 5.13"
3' 0"	2' 10.68"	3' 1.45"	2' 10.59"	3' 1.55"	2' 10.43"	3' 1.75"
2' 9"	2' 7.92"	2' 10.17"	2' 7.85"	2' 10.25"	2' 7.72"	2' 10.41"
2' 6"	2' 5.15"	2' 6.92"	2' 5.09"	2' 6.98"	2' 4.98"	2' 7.11"
2' 3"	2' 2.34"	2' 3.7"	2' 2.3"	2' 3.75"	2' 2.22"	2' 3.84"
2' 0"	1' 11.52"	2' 0.51"	1' 11.48"	2' 0.55"	1' 11.42"	2' 0.62"
1' 9"	1' 8.66"	1' 9.35"	1' 8.64"	1' 9.38"	1' 8.6"	1' 9.43"
1' 6"	1' 5.78"	1' 6.22"	1' 5.77"	1' 6.24"	1' 5.74"	1' 6.27"
1' 5"	1' 4.82"	1' 5.19"	1' 4.8"	1' 5.2"	1' 4.78"	1' 5.23"
1' 4"	1' 3.85"	1' 4.16"	1' 3.84"	1' 4.17"	1' 3.82"	1' 4.19"
1' 3"	1' 2.88"	1' 3.13"	1' 2.87"	1' 3.13"	1' 2.85"	1' 3.15"
1' 2"	1' 1.9"	1' 2.1"	1' 1.9"	1' 2.11"	1' 1.88"	1' 2.12"



2.8	3.2	3.5	4
40' 10"	36' 5.28"	32' 6.28"	29' 0.43"

2.8		3.2		3.5		4	
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)
40' 8.85"	Infinity	36' 4.1"	Infinity	32' 5.12"	Infinity	28' 11.25"	Infinity
30' 7.22"	Infinity	28' 0.87"	Infinity	25' 8.34"	Infinity	23' 5.65"	Infinity
24' 6.05"	Infinity	22' 10.41"	Infinity	21' 3.33"	Infinity	19' 8.89"	Infinity
20' 5.19"	1909' 10.64"	19' 3.49"	Infinity	18' 1.87"	Infinity	17' 0.41"	Infinity
17' 6.25"	110' 3.92"	16' 8.18"	165' 1.89"	15' 9.99"	374' 10.84"	14' 11.75"	Infinity
15' 8.73"	62' 10.92"	15' 0.63"	77' 5.72"	14' 4.34"	104' 9.48"	13' 7.93"	173' 9.36"
13' 7.61"	38' 3.03"	13' 1.55"	43' 1.59"	12' 7.27"	50' 4.39"	12' 0.81"	62' 1.09"
12' 2.42"	28' 5.08"	11' 9.58"	31' 0.08"	11' 4.53"	34' 6.47"	10' 11.3"	39' 7.49"
11' 1.9"	23' 1.67"	10' 9.88"	24' 9.69"	10' 5.65"	26' 11.99"	10' 1.24"	29' 11.78"
10' 0.44"	18' 7.37"	9' 9.21"	19' 8"	9' 5.79"	21' 0.05"	9' 2.2"	22' 8.95"
9' 5.32"	16' 7.04"	9' 2.48"	17' 4.94"	8' 11.45"	18' 5.34"	8' 8.26"	19' 9.17"
8' 9.92"	14' 8.35"	8' 7.45"	15' 4.01"	8' 4.81"	16' 1.48"	8' 2.02"	17' 1.37"
8' 2.22"	12' 11.13"	8' 0.11"	13' 4.97"	7' 9.85"	14' 0.09"	7' 7.45"	14' 8.9"
7' 10.26"	12' 1.02"	7' 8.32"	12' 6.09"	7' 6.25"	13' 0.22"	7' 4.03"	13' 7.76"
7' 6.21"	11' 3.24"	7' 4.45"	11' 7.6"	7' 2.55"	12' 0.86"	7' 0.53"	12' 7.28"
7' 2.08"	10' 5.76"	7' 0.48"	10' 9.49"	6' 10.76"	11' 1.97"	6' 8.92"	11' 7.41"
6' 9.86"	9' 8.56"	6' 8.42"	9' 11.74"	6' 6.88"	10' 3.53"	6' 5.22"	10' 8.09"
6' 5.55"	8' 11.64"	6' 4.27"	9' 2.32"	6' 2.89"	9' 5.5"	6' 1.41"	9' 9.31"
6' 1.15"	8' 2.99"	6' 0.02"	8' 5.22"	5' 10.8"	8' 7.87"	5' 9.49"	8' 11.01"
5' 8.66"	7' 6.58"	5' 7.67"	7' 8.43"	5' 6.61"	7' 10.6"	5' 5.45"	8' 1.17"
5' 6.37"	7' 2.47"	5' 5.46"	7' 4.14"	5' 4.47"	7' 6.1"	5' 3.39"	7' 8.42"
5' 4.06"	6' 10.42"	5' 3.22"	6' 11.93"	5' 2.3"	7' 1.69"	5' 1.3"	7' 3.76"
5' 1.73"	6' 6.43"	5' 0.95"	6' 7.78"	5' 0.1"	6' 9.36"	4' 11.18"	6' 11.21"
4' 11.37"	6' 2.49"	4' 10.65"	6' 3.7"	4' 9.87"	6' 5.1"	4' 9.03"	6' 6.75"
4' 8.98"	5' 10.61"	4' 8.33"	5' 11.68"	4' 7.62"	6' 0.93"	4' 6.84"	6' 2.39"
4' 6.57"	5' 6.78"	4' 5.98"	5' 7.73"	4' 5.33"	5' 8.83"	4' 4.62"	5' 10.11"
4' 4.13"	5' 3.01"	4' 3.59"	5' 3.84"	4' 3.01"	5' 4.81"	4' 2.37"	5' 5.93"
4' 1.66"	4' 11.29"	4' 1.18"	5' 0.01"	4' 0.65"	5' 0.85"	4' 0.08"	5' 1.83"
3' 11.16"	4' 7.61"	3' 10.74"	4' 8.24"	3' 10.27"	4' 8.97"	3' 9.76"	4' 9.81"
3' 8.64"	4' 3.99"	3' 8.26"	4' 4.53"	3' 7.85"	4' 5.15"	3' 7.4"	4' 5.87"
3' 6.08"	4' 0.42"	3' 5.76"	4' 0.88"	3' 5.4"	4' 1.41"	3' 5"	4' 2.01"
3' 3.5"	3' 8.89"	3' 3.22"	3' 9.28"	3' 2.91"	3' 9.72"	3' 2.56"	3' 10.23"
3' 0.89"	3' 5.42"	3' 0.65"	3' 5.73"	3' 0.38"	3' 6.1"	3' 0.09"	3' 6.52"
2' 10.24"	3' 1.98"	2' 10.04"	3' 2.24"	2' 9.82"	3' 2.54"	2' 9.58"	3' 2.88"
2' 7.57"	2' 10.6"	2' 7.4"	2' 10.8"	2' 7.22"	2' 11.04"	2' 7.02"	2' 11.31"
2' 4.86"	2' 7.25"	2' 4.73"	2' 7.41"	2' 4.59"	2' 7.6"	2' 4.42"	2' 7.81"
2' 2.12"	2' 3.95"	2' 2.02"	2' 4.07"	2' 1.91"	2' 4.21"	2' 1.78"	2' 4.37"
1' 11.35"	2' 0.7"	1' 11.28"	2' 0.78"	1' 11.19"	2' 0.88"	1' 11.1"	2' 1"
1' 8.55"	1' 9.48"	1' 8.49"	1' 9.54"	1' 8.44"	1' 9.61"	1' 8.37"	1' 9.69"
1' 5.71"	1' 6.3"	1' 5.67"	1' 6.34"	1' 5.64"	1' 6.39"	1' 5.59"	1' 6.44"
1' 4.76"	1' 5.26"	1' 4.73"	1' 5.29"	1' 4.69"	1' 5.32"	1' 4.66"	1' 5.36"
1' 3.8"	1' 4.21"	1' 3.77"	1' 4.24"	1' 3.75"	1' 4.27"	1' 3.72"	1' 4.3"
1' 2.84"	1' 3.17"	1' 2.82"	1' 3.19"	1' 2.79"	1' 3.22"	1' 2.77"	1' 3.24"
1' 1.87"	1' 2.13"	1' 1.85"	1' 2.15"	1' 1.84"	1' 2.17"	1' 1.82"	1' 2.19"



4.5	5	5.6	6.3	7.1
25' 11.1"	23' 1.91"	20' 8.31"	18' 5.93"	16' 6.43"

4.5		5		5.6		6.3		7.1	
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)
25' 9.96"	Infinity	23' 0.73"	Infinity	20' 7.13"	Infinity	18' 4.76"	Infinity	16' 5.26"	Infinity
21' 4.8"	Infinity	19' 5.74"	Infinity	17' 8.42"	Infinity	16' 0.78"	Infinity	14' 6.76"	Infinity
18' 3.2"	Infinity	16' 10.3"	Infinity	15' 6.25"	Infinity	14' 3.1"	Infinity	13' 0.85"	Infinity
15' 11.2"	Infinity	14' 10.31"	Infinity	13' 9.82"	Infinity	12' 9.79"	Infinity	11' 10.27"	Infinity
14' 1.53"	Infinity	13' 3.41"	Infinity	12' 5.43"	Infinity	11' 7.66"	Infinity	10' 10.17"	Infinity
12' 11.44"	672' 8.98"	12' 2.94"	Infinity	11' 6.47"	Infinity	10' 10.1"	Infinity	10' 1.88"	Infinity
11' 6.21"	84' 1.96"	10' 11.51"	140' 5.08"	10' 4.75"	570' 3.68"	9' 9.98"	Infinity	9' 3.24"	Infinity
10' 5.89"	47' 6.01"	10' 0.36"	61' 2.59"	9' 6.72"	90' 9.19"	9' 1.02"	199' 3.87"	8' 7.28"	Infinity
9' 8.65"	34' 2.92"	9' 3.92"	40' 9.3"	8' 11.07"	51' 11.37"	8' 6.12"	75' 2.29"	8' 1.11"	151' 11.31"
8' 10.43"	25' 1.06"	8' 6.52"	28' 4.61"	8' 2.47"	33' 3.82"	7' 10.31"	41' 5.36"	7' 6.07"	57' 2.4"
8' 4.91"	21' 5.97"	8' 1.4"	23' 10.25"	7' 9.77"	27' 2.62"	7' 6.01"	32' 4.43"	7' 2.16"	41' 1.95"
7' 11.07"	18' 4.64"	7' 7.98"	20' 0.83"	7' 4.75"	22' 4.53"	7' 1.41"	25' 8.58"	6' 9.96"	30' 11.03"
7' 4.9"	15' 8.01"	7' 2.22"	16' 10.32"	6' 11.4"	18' 5.31"	6' 8.47"	20' 7.53"	6' 5.42"	23' 9.73"
7' 1.68"	14' 5.18"	6' 11.2"	15' 5.18"	6' 8.59"	16' 8.87"	6' 5.86"	18' 6.09"	6' 3.02"	21' 0.18"
6' 10.37"	13' 3.23"	6' 8.08"	14' 1.25"	6' 5.68"	15' 2.17"	6' 3.15"	16' 7.34"	6' 0.52"	18' 7.07"
6' 6.96"	12' 2.08"	6' 4.87"	12' 10.4"	6' 2.66"	13' 9.01"	6' 0.34"	14' 10.86"	5' 9.92"	16' 5.59"
6' 3.44"	11' 1.66"	6' 1.54"	11' 8.54"	5' 11.54"	12' 5.2"	5' 9.42"	13' 4.34"	5' 7.2"	14' 7.09"
5' 11.81"	10' 1.92"	5' 10.11"	10' 7.56"	5' 8.3"	11' 2.58"	5' 6.38"	11' 11.5"	5' 4.36"	12' 11.09"
5' 8.07"	9' 2.79"	5' 6.55"	9' 7.38"	5' 4.93"	10' 1.04"	5' 3.22"	10' 8.12"	5' 1.4"	11' 5.18"
5' 4.21"	8' 4.24"	5' 2.87"	8' 7.94"	5' 1.44"	9' 0.45"	4' 11.92"	9' 6.03"	4' 10.31"	10' 1.05"
5' 2.23"	7' 11.17"	5' 0.98"	8' 2.47"	4' 11.65"	8' 6.48"	4' 10.22"	8' 11.41"	4' 8.71"	9' 5.58"
5' 0.22"	7' 6.22"	4' 11.06"	7' 9.16"	4' 9.82"	8' 0.71"	4' 8.48"	8' 5.06"	4' 7.07"	8' 10.46"
4' 10.18"	7' 1.4"	4' 9.11"	7' 4"	4' 7.95"	7' 7.14"	4' 6.71"	7' 10.96"	4' 5.39"	8' 3.67"
4' 8.11"	6' 8.69"	4' 7.11"	6' 10.99"	4' 6.04"	7' 1.75"	4' 4.9"	7' 5.09"	4' 3.67"	7' 9.19"
4' 6"	6' 4.1"	4' 5.08"	6' 6.12"	4' 4.1"	6' 8.54"	4' 3.04"	6' 11.45"	4' 1.91"	7' 3"
4' 3.85"	5' 11.61"	4' 3.02"	6' 1.39"	4' 2.12"	6' 3.49"	4' 1.15"	6' 6.01"	4' 0.11"	6' 9.07"
4' 1.67"	5' 7.24"	4' 0.91"	5' 8.78"	4' 0.1"	5' 10.6"	3' 11.21"	6' 0.77"	3' 10.26"	6' 3.4"
3' 11.45"	5' 2.96"	3' 10.77"	5' 4.29"	3' 10.03"	5' 5.86"	3' 9.23"	5' 7.72"	3' 8.37"	5' 9.96"
3' 9.2"	4' 10.79"	3' 8.59"	4' 11.93"	3' 7.92"	5' 1.27"	3' 7.2"	5' 2.85"	3' 6.43"	5' 4.74"
3' 6.9"	4' 6.71"	3' 6.36"	4' 7.67"	3' 5.77"	4' 8.81"	3' 5.13"	4' 10.14"	3' 4.44"	4' 11.73"
3' 4.56"	4' 2.72"	3' 4.09"	4' 3.53"	3' 3.57"	4' 4.48"	3' 3.01"	4' 5.6"	3' 2.39"	4' 6.92"
3' 2.19"	3' 10.82"	3' 1.77"	3' 11.5"	3' 1.32"	4' 0.28"	3' 0.83"	4' 1.2"	3' 0.3"	4' 2.29"
2' 11.77"	3' 7"	2' 11.41"	3' 7.56"	2' 11.03"	3' 8.2"	2' 10.6"	3' 8.95"	2' 10.14"	3' 9.83"
2' 9.3"	3' 3.27"	2' 9.01"	3' 3.72"	2' 8.68"	3' 4.24"	2' 8.32"	3' 4.84"	2' 7.93"	3' 5.54"
2' 6.8"	2' 11.62"	2' 6.55"	2' 11.98"	2' 6.28"	3' 0.39"	2' 5.98"	3' 0.86"	2' 5.66"	3' 1.41"
2' 4.24"	2' 8.05"	2' 4.05"	2' 8.32"	2' 3.83"	2' 8.64"	2' 3.59"	2' 9"	2' 3.32"	2' 9.42"
2' 1.64"	2' 4.55"	2' 1.49"	2' 4.76"	2' 1.32"	2' 4.99"	2' 1.13"	2' 5.26"	2' 0.92"	2' 5.57"
1' 10.99"	2' 1.13"	1' 10.88"	2' 1.28"	1' 10.75"	2' 1.44"	1' 10.61"	2' 1.64"	1' 10.45"	2' 1.86"
1' 8.29"	1' 9.78"	1' 8.21"	1' 9.88"	1' 8.12"	1' 9.99"	1' 8.02"	1' 10.12"	1' 7.91"	1' 10.27"
1' 5.54"	1' 6.49"	1' 5.49"	1' 6.55"	1' 5.43"	1' 6.62"	1' 5.37"	1' 6.71"	1' 5.29"	1' 6.8"
1' 4.62"	1' 5.41"	1' 4.57"	1' 5.46"	1' 4.52"	1' 5.52"	1' 4.46"	1' 5.59"	1' 4.4"	1' 5.67"
1' 3.68"	1' 4.34"	1' 3.64"	1' 4.38"	1' 3.6"	1' 4.43"	1' 3.56"	1' 4.48"	1' 3.5"	1' 4.55"
1' 2.74"	1' 3.27"	1' 2.71"	1' 3.31"	1' 2.68"	1' 3.35"	1' 2.64"	1' 3.39"	1' 2.6"	1' 3.44"
1' 1.8"	1' 2.21"	1' 1.77"	1' 2.24"	1' 1.74"	1' 2.27"	1' 1.71"	1' 2.31"	1' 1.68"	1' 2.35"



8	9	10	11	13
14' 9.48"	13' 2.86"	11' 10.24"	10' 7.44"	9' 6.25"

8		9		10		11		13	
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)
14' 8.33"	Infinity	13' 1.69"	Infinity	11' 9.07"	Infinity	10' 6.27"	Infinity	9' 5.09"	Infinity
13' 2.25"	Infinity	11' 11.17"	Infinity	10' 9.44"	Infinity	9' 8.96"	Infinity	8' 9.64"	Infinity
11' 11.52"	Infinity	10' 11.11"	Infinity	9' 11.58"	Infinity	9' 0.93"	Infinity	8' 3.12"	Infinity
10' 11.3"	Infinity	10' 0.91"	Infinity	9' 3.12"	Infinity	8' 5.93"	Infinity	7' 9.35"	Infinity
10' 1"	Infinity	9' 4.18"	Infinity	8' 7.77"	Infinity	7' 11.77"	Infinity	7' 4.21"	Infinity
9' 5.85"	Infinity	8' 10.06"	Infinity	8' 2.55"	Infinity	7' 7.35"	Infinity	7' 0.49"	Infinity
8' 8.57"	Infinity	8' 2.03"	Infinity	7' 7.64"	Infinity	7' 1.44"	Infinity	6' 7.46"	Infinity
8' 1.56"	Infinity	7' 7.88"	Infinity	7' 2.29"	Infinity	6' 8.82"	Infinity	6' 3.5"	Infinity
7' 8.07"	Infinity	7' 3.04"	Infinity	6' 10.04"	Infinity	6' 5.11"	Infinity	6' 0.29"	Infinity
7' 1.76"	100' 2.92"	6' 9.42"	671' 10.58"	6' 5.07"	Infinity	6' 0.75"	Infinity	5' 8.48"	Infinity
6' 10.23"	59' 4.64"	6' 6.26"	118' 10.91"	6' 2.26"	Infinity	5' 10.26"	Infinity	5' 6.29"	Infinity
6' 6.42"	40' 1.01"	6' 2.82"	60' 3.44"	5' 11.19"	140' 3.68"	5' 7.53"	Infinity	5' 3.88"	Infinity
6' 2.29"	28' 10.07"	5' 11.08"	37' 10.59"	5' 7.82"	58' 8.62"	5' 4.52"	155' 8.91"	5' 1.21"	Infinity
6' 0.09"	24' 9.73"	5' 9.08"	31' 2.12"	5' 6.01"	43' 11.19"	5' 2.9"	81' 10.5"	4' 11.77"	Infinity
5' 9.79"	21' 5.73"	5' 6.99"	26' 0.65"	5' 4.11"	34' 3.96"	5' 1.19"	53' 7.48"	4' 10.24"	147' 9.99"
5' 7.39"	18' 8.09"	5' 4.79"	22' 0.15"	5' 2.11"	27' 7.1"	4' 11.38"	38' 8.43"	4' 8.62"	71' 2.69"
5' 4.88"	16' 3.41"	5' 2.48"	18' 8.91"	5' 0.01"	22' 7.23"	4' 9.48"	29' 5.74"	4' 6.9"	45'
5' 2.25"	14' 2.66"	5' 0.06"	16' 0.51"	4' 9.79"	18' 9.11"	4' 7.46"	23' 2.53"	4' 5.07"	31' 9.07"
4' 11.5"	12' 5.08"	4' 9.51"	13' 9.3"	4' 7.44"	15' 8.49"	4' 5.31"	18' 8.11"	4' 3.13"	23' 9.19"
4' 8.61"	10' 10.11"	4' 6.82"	11' 10.13"	4' 4.96"	13' 2.72"	4' 3.04"	15' 2.89"	4' 1.05"	18' 5.05"
4' 7.11"	10' 1.46"	4' 5.42"	10' 11.79"	4' 3.67"	12' 1.83"	4' 1.84"	13' 9.82"	3' 11.96"	16' 4.33"
4' 5.57"	9' 5.3"	4' 3.99"	10' 2.17"	4' 2.33"	11' 2.03"	4' 0.61"	12' 6.6"	3' 10.83"	14' 7.13"
4' 3.99"	8' 9.59"	4' 2.51"	9' 5.18"	4' 0.96"	10' 3.21"	3' 11.34"	11' 4.94"	3' 9.66"	13' 0.74"
4' 2.37"	8' 2.3"	4' 0.99"	8' 8.78"	3' 11.54"	9' 5.23"	3' 10.03"	10' 4.61"	3' 8.45"	11' 8.63"
4' 0.71"	7' 7.38"	3' 11.43"	8' 0.9"	3' 10.08"	8' 8.01"	3' 8.67"	9' 5.44"	3' 7.2"	10' 6.41"
3' 11"	7' 0.82"	3' 9.82"	7' 5.51"	3' 8.58"	7' 11.47"	3' 7.27"	8' 7.25"	3' 5.9"	9' 5.77"
3' 9.25"	6' 6.59"	3' 8.17"	6' 10.54"	3' 7.02"	7' 3.52"	3' 5.81"	7' 9.94"	3' 4.55"	8' 6.45"
3' 7.45"	6' 0.66"	3' 6.46"	6' 3.98"	3' 5.41"	6' 8.12"	3' 4.31"	7' 1.38"	3' 3.14"	7' 8.25"
3' 5.59"	5' 7.01"	3' 4.7"	5' 9.78"	3' 3.75"	6' 1.2"	3' 2.75"	6' 5.5"	3' 1.68"	6' 11.02"
3' 3.69"	5' 1.63"	3' 2.89"	5' 3.92"	3' 2.04"	5' 6.72"	3' 1.13"	5' 10.21"	3' 0.17"	6' 2.63"
3' 1.73"	4' 8.48"	3' 1.02"	4' 10.36"	3' 0.26"	5' 0.65"	2' 11.45"	5' 3.46"	2' 10.59"	5' 6.97"
2' 11.72"	4' 3.57"	2' 11.09"	4' 5.09"	2' 10.42"	4' 6.93"	2' 9.71"	4' 9.17"	2' 8.94"	4' 11.94"
2' 9.64"	3' 10.86"	2' 9.1"	4' 0.09"	2' 8.52"	4' 1.55"	2' 7.89"	4' 3.32"	2' 7.23"	4' 5.48"
2' 7.51"	3' 6.36"	2' 7.05"	3' 7.33"	2' 6.55"	3' 8.47"	2' 6.01"	3' 9.85"	2' 5.43"	3' 11.5"
2' 5.31"	3' 2.05"	2' 4.92"	3' 2.79"	2' 4.5"	3' 3.68"	2' 4.05"	3' 4.72"	2' 3.56"	3' 5.97"
2' 3.04"	2' 9.91"	2' 2.72"	2' 10.47"	2' 2.38"	2' 11.13"	2' 2.01"	2' 11.91"	2' 1.61"	3' 0.84"
2' 0.7"	2' 5.93"	2' 0.45"	2' 6.35"	2' 0.17"	2' 6.83"	1' 11.88"	2' 7.39"	1' 11.56"	2' 8.06"
1' 10.28"	2' 2.11"	1' 10.09"	2' 2.4"	1' 9.88"	2' 2.74"	1' 9.66"	2' 3.13"	1' 9.41"	2' 3.59"
1' 7.79"	1' 10.44"	1' 7.65"	1' 10.63"	1' 7.5"	1' 10.86"	1' 7.34"	1' 11.11"	1' 7.16"	1' 11.41"
1' 5.21"	1' 6.9"	1' 5.12"	1' 7.02"	1' 5.02"	1' 7.16"	1' 4.91"	1' 7.31"	1' 4.79"	1' 7.49"
1' 4.33"	1' 5.75"	1' 4.26"	1' 5.85"	1' 4.17"	1' 5.97"	1' 4.08"	1' 6.09"	1' 3.98"	1' 6.24"
1' 3.45"	1' 4.62"	1' 3.38"	1' 4.7"	1' 3.31"	1' 4.79"	1' 3.23"	1' 4.9"	1' 3.15"	1' 5.02"
1' 2.55"	1' 3.5"	1' 2.5"	1' 3.56"	1' 2.44"	1' 3.64"	1' 2.37"	1' 3.72"	1' 2.3"	1' 3.81"
1' 1.64"	1' 2.39"	1' 1.6"	1' 2.44"	1' 1.55"	1' 2.5"	1' 1.5"	1' 2.56"	1' 1.45"	1' 2.64"



14	16	18	20	22
8' 6.48"	7' 8.05"	6' 10.72"	6' 2.41"	5' 7.01"

14		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)	Short Focus (ft-inch)	Long Focus (ft-inch)
8' 5.34"	Infinity	7' 6.87"	Infinity	6' 9.55"	Infinity	6' 1.24"	Infinity	5' 5.84"	Infinity
7' 11.39"	Infinity	7' 2.13"	Infinity	6' 5.77"	Infinity	5' 10.23"	Infinity	5' 3.44"	Infinity
7' 6.11"	Infinity	6' 9.85"	Infinity	6' 2.32"	Infinity	5' 7.45"	Infinity	5' 1.21"	Infinity
7' 1.37"	Infinity	6' 5.98"	Infinity	5' 11.16"	Infinity	5' 4.89"	Infinity	4' 11.13"	Infinity
6' 9.11"	Infinity	6' 2.46"	Infinity	5' 8.26"	Infinity	5' 2.51"	Infinity	4' 9.19"	Infinity
6' 5.99"	Infinity	5' 11.86"	Infinity	5' 6.1"	Infinity	5' 0.72"	Infinity	4' 7.72"	Infinity
6' 1.74"	Infinity	5' 8.28"	Infinity	5' 3.11"	Infinity	4' 10.23"	Infinity	4' 5.65"	Infinity
5' 10.35"	Infinity	5' 5.41"	Infinity	5' 0.68"	Infinity	4' 8.19"	Infinity	4' 3.95"	Infinity
5' 7.59"	Infinity	5' 3.04"	Infinity	4' 10.67"	Infinity	4' 6.5"	Infinity	4' 2.53"	Infinity
5' 4.29"	Infinity	5' 0.2"	Infinity	4' 8.24"	Infinity	4' 4.43"	Infinity	4' 0.77"	Infinity
5' 2.38"	Infinity	4' 10.55"	Infinity	4' 6.82"	Infinity	4' 3.21"	Infinity	3' 11.74"	Infinity
5' 0.27"	Infinity	4' 8.71"	Infinity	4' 5.23"	Infinity	4' 1.84"	Infinity	3' 10.57"	Infinity
4' 9.92"	Infinity	4' 6.65"	Infinity	4' 3.43"	Infinity	4' 0.29"	Infinity	3' 9.24"	Infinity
4' 8.63"	Infinity	4' 5.52"	Infinity	4' 2.45"	Infinity	3' 11.44"	Infinity	3' 8.5"	Infinity
4' 7.28"	Infinity	4' 4.32"	Infinity	4' 1.4"	Infinity	3' 10.52"	Infinity	3' 7.71"	Infinity
4' 5.83"	Infinity	4' 3.04"	Infinity	4' 0.28"	Infinity	3' 9.54"	Infinity	3' 6.86"	Infinity
4' 4.29"	111' 10.65"	4' 1.68"	Infinity	3' 11.07"	Infinity	3' 8.48"	Infinity	3' 5.94"	Infinity
4' 2.65"	54' 6.64"	4' 0.21"	296' 9.93"	3' 9.77"	Infinity	3' 7.34"	Infinity	3' 4.94"	Infinity
4' 0.9"	34' 4.95"	3' 10.64"	70' 1.54"	3' 8.38"	Infinity	3' 6.11"	Infinity	3' 3.86"	Infinity
3' 11.02"	24' 1.64"	3' 8.95"	37' 3.49"	3' 6.86"	98' 3.14"	3' 4.77"	Infinity	3' 2.68"	Infinity
3' 10.03"	20' 8.17"	3' 8.06"	29' 6.57"	3' 6.06"	57' 8.73"	3' 4.05"	Infinity	3' 2.05"	Infinity
3' 9"	17' 10.85"	3' 7.13"	24' 1.49"	3' 5.22"	39' 10.85"	3' 3.31"	157' 1.82"	3' 1.38"	Infinity
3' 7.93"	15' 7.51"	3' 6.16"	20' 1.35"	3' 4.35"	29' 10.58"	3' 2.52"	66' 11.87"	3' 0.69"	Infinity
3' 6.82"	13' 8.65"	3' 5.15"	17' 0.32"	3' 3.44"	23' 5.5"	3' 1.71"	41' 2.55"	2' 11.96"	305' 0.96"
3' 5.67"	12' 1.27"	3' 4.1"	14' 6.93"	3' 2.49"	18' 11.88"	3' 0.85"	29' 0.01"	2' 11.19"	72' 11.09"
3' 4.47"	10' 8.63"	3' 3"	12' 7.05"	3' 1.49"	15' 8.44"	2' 11.95"	21' 10.51"	2' 10.38"	39' 8.56"
3' 3.22"	9' 6.18"	3' 1.86"	10' 11.26"	3' 0.45"	13' 2.19"	2' 11"	17' 2.5"	2' 9.53"	26' 5.11"
3' 1.92"	8' 5.52"	3' 0.66"	9' 6.59"	2' 11.35"	11' 2.27"	2' 10.01"	13' 10.95"	2' 8.63"	19' 3.25"
3' 0.57"	7' 6.33"	2' 11.41"	8' 4.36"	2' 10.2"	9' 6.88"	2' 8.96"	11' 5.55"	2' 7.68"	14' 9.58"
2' 11.15"	6' 8.38"	2' 10.1"	7' 4.07"	2' 8.99"	8' 2.83"	2' 7.85"	9' 6.83"	2' 6.68"	11' 8.86"
2' 9.68"	5' 11.46"	2' 8.72"	6' 5.35"	2' 7.72"	7' 1.34"	2' 6.68"	8' 0.74"	2' 5.61"	9' 6.15"
2' 8.13"	5' 3.43"	2' 7.28"	5' 7.91"	2' 6.38"	6' 1.84"	2' 5.45"	6' 10.01"	2' 4.48"	7' 9.85"
2' 6.51"	4' 8.15"	2' 5.76"	4' 11.54"	2' 4.97"	5' 3.92"	2' 4.14"	5' 9.77"	2' 3.27"	6' 5.9"
2' 4.82"	4' 1.54"	2' 4.16"	4' 4.07"	2' 3.47"	4' 7.27"	2' 2.74"	4' 11.44"	2' 1.98"	5' 5.04"
2' 3.04"	3' 7.49"	2' 2.48"	3' 9.35"	2' 1.89"	3' 11.67"	2' 1.26"	4' 2.61"	2' 0.61"	4' 6.44"
2' 1.17"	3' 1.95"	2' 0.71"	3' 3.29"	2' 0.21"	3' 4.93"	1' 11.69"	3' 6.97"	1' 11.13"	3' 9.57"
1' 11.21"	2' 8.84"	1' 10.84"	2' 9.78"	1' 10.43"	2' 10.92"	1' 10"	3' 0.3"	1' 9.55"	3' 2.03"
1' 9.14"	2' 4.13"	1' 8.85"	2' 4.76"	1' 8.54"	2' 5.52"	1' 8.2"	2' 6.43"	1' 7.84"	2' 7.53"
1' 6.96"	1' 11.76"	1' 6.75"	2' 0.17"	1' 6.52"	2' 0.64"	1' 6.27"	2' 1.21"	1' 6"	2' 1.89"
1' 4.66"	1' 7.7"	1' 4.52"	1' 7.94"	1' 4.36"	1' 8.22"	1' 4.18"	1' 8.55"	1' 4"	1' 8.94"
1' 3.86"	1' 6.41"	1' 3.74"	1' 6.61"	1' 3.6"	1' 6.84"	1' 3.46"	1' 7.11"	1' 3.29"	1' 7.42"
1' 3.05"	1' 5.15"	1' 2.95"	1' 5.31"	1' 2.83"	1' 5.5"	1' 2.71"	1' 5.71"	1' 2.57"	1' 5.96"
1' 2.23"	1' 3.92"	1' 2.14"	1' 4.05"	1' 2.04"	1' 4.19"	1' 1.94"	1' 4.36"	1' 1.83"	1' 4.55"
1' 1.38"	1' 2.72"	1' 1.31"	1' 2.82"	1' 1.24"	1' 2.93"	1' 1.15"	1' 3.06"	1' 1.06"	1' 3.2"



Focal Length 35 mm

Circle of Confusion 0.025 mm

T/No	2.1	2.2	2.5	2.8
Hyperfocal Distance (ft-inch)	77' 9.62"	72' 9.78"	64' 11.13"	57' 10.84"

T/No	2.1		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	77' 8.22"	Infinity	72' 8.36"	Infinity	64' 9.73"	Infinity	57' 9.43"	Infinity
120' 0"	47' 4.6"	Infinity	45' 5.94"	Infinity	42' 3.59"	Infinity	39' 2.54"	Infinity
60' 0"	34' 1.04"	259' 0.46"	33' 1.27"	336' 6.25"	31' 4.72"	779' 0.46"	29' 8.08"	Infinity
40' 0"	26' 7.41"	81' 3.93"	26' 0.24"	87' 7.32"	24' 11.5"	102' 8.07"	23' 10.41"	127' 3.21"
30' 0"	21' 9.99"	48' 2.84"	21' 5.19"	50' 4.34"	20' 8.55"	54' 11.51"	19' 11.53"	61' 2.92"
25' 0"	19' 1.05"	36' 4.7"	18' 9.39"	37' 6.96"	18' 2.77"	40' 0.78"	17' 7.8"	43' 3.38"
20' 0"	16' 0.71"	26' 7.15"	15' 10.14"	27' 2.63"	15' 5.45"	28' 5.83"	15' 0.46"	30' 0.71"
17' 0"	14' 1.04"	21' 5.9"	13' 11.07"	21' 10.72"	13' 7.47"	22' 8.38"	13' 3.62"	23' 8.12"
15' 0"	12' 8.4"	18' 4.32"	12' 6.81"	18' 7.79"	12' 3.89"	19' 2.71"	12' 0.76"	19' 11.02"
13' 0"	11' 3.02"	15' 5.05"	11' 1.79"	15' 7.48"	10' 11.51"	16' 0.26"	10' 9.04"	16' 5.93"
12' 0"	10' 6.04"	14' 0.23"	10' 4.97"	14' 2.21"	10' 2.99"	14' 6.12"	10' 0.84"	14' 10.73"
11' 0"	9' 8.85"	12' 7.9"	9' 7.93"	12' 9.51"	9' 6.24"	13' 0.65"	9' 4.4"	13' 4.35"
10' 0"	8' 11.45"	11' 4.06"	8' 10.68"	11' 5.33"	8' 9.26"	11' 7.82"	8' 7.71"	11' 10.73"
9' 6"	8' 6.66"	10' 8.31"	8' 5.97"	10' 9.44"	8' 4.68"	10' 11.64"	8' 3.26"	11' 2.2"
9' 0"	8' 1.83"	10' 0.68"	8' 1.2"	10' 1.67"	8' 0.03"	10' 3.6"	7' 10.75"	10' 5.84"
8' 6"	7' 8.93"	9' 5.15"	7' 8.37"	9' 6.02"	7' 7.32"	9' 7.7"	7' 6.17"	9' 9.65"
8' 0"	7' 3.98"	8' 9.74"	7' 3.48"	8' 10.49"	7' 2.54"	8' 11.94"	7' 1.52"	9' 1.62"
7' 6"	6' 10.97"	8' 2.42"	6' 10.53"	8' 3.07"	6' 9.7"	8' 4.31"	6' 8.79"	8' 5.75"
7' 0"	6' 5.9"	7' 7.22"	6' 5.51"	7' 7.76"	6' 4.79"	7' 8.82"	6' 4"	7' 10.04"
6' 6"	6' 0.77"	7' 0.11"	6' 0.43"	7' 0.57"	5' 11.81"	7' 1.46"	5' 11.12"	7' 2.48"
6' 3"	5' 10.18"	6' 8.59"	5' 9.87"	6' 9.01"	5' 9.29"	6' 9.82"	5' 8.66"	6' 10.75"
6' 0"	5' 7.57"	6' 5.1"	5' 7.29"	6' 5.48"	5' 6.76"	6' 6.22"	5' 6.17"	6' 7.06"
5' 9"	5' 4.95"	6' 1.64"	5' 4.69"	6' 1.98"	5' 4.2"	6' 2.64"	5' 3.66"	6' 3.4"
5' 6"	5' 2.31"	5' 10.19"	5' 2.08"	5' 10.5"	5' 1.63"	5' 11.1"	5' 1.14"	5' 11.78"
5' 3"	4' 11.66"	5' 6.77"	4' 11.45"	5' 7.05"	4' 11.04"	5' 7.59"	4' 10.59"	5' 8.2"
5' 0"	4' 8.99"	5' 3.38"	4' 8.8"	5' 3.62"	4' 8.43"	5' 4.1"	4' 8.03"	5' 4.65"
4' 9"	4' 6.31"	5'	4' 6.13"	5' 0.22"	4' 5.8"	5' 0.64"	4' 5.44"	5' 1.13"
4' 6"	4' 3.61"	4' 8.65"	4' 3.45"	4' 8.85"	4' 3.16"	4' 9.22"	4' 2.83"	4' 9.64"
4' 3"	4' 0.89"	4' 5.33"	4' 0.75"	4' 5.49"	4' 0.49"	4' 5.82"	4' 0.2"	4' 6.19"
4' 0"	3' 10.15"	4' 2.02"	3' 10.03"	4' 2.17"	3' 9.8"	4' 2.45"	3' 9.55"	4' 2.77"
3' 9"	3' 7.4"	3' 10.74"	3' 7.3"	3' 10.86"	3' 7.1"	3' 11.1"	3' 6.88"	3' 11.38"
3' 6"	3' 4.63"	3' 7.48"	3' 4.54"	3' 7.58"	3' 4.37"	3' 7.79"	3' 4.18"	3' 8.02"
3' 3"	3' 1.84"	3' 4.24"	3' 1.77"	3' 4.33"	3' 1.62"	3' 4.5"	3' 1.46"	3' 4.69"
3' 0"	2' 11.04"	3' 1.02"	2' 10.98"	3' 1.1"	2' 10.86"	3' 1.24"	2' 10.72"	3' 1.39"
2' 9"	2' 8.22"	2' 9.83"	2' 8.17"	2' 9.89"	2' 8.07"	2' 10"	2' 7.96"	2' 10.13"
2' 6"	2' 5.38"	2' 6.65"	2' 5.34"	2' 6.7"	2' 5.26"	2' 6.79"	2' 5.17"	2' 6.89"
2' 3"	2' 2.52"	2' 3.5"	2' 2.49"	2' 3.54"	2' 2.43"	2' 3.6"	2' 2.36"	2' 3.68"
2' 0"	1' 11.65"	2' 0.37"	1' 11.62"	2' 0.39"	1' 11.58"	2' 0.44"	1' 11.53"	2' 0.5"
1' 9"	1' 8.75"	1' 9.26"	1' 8.73"	1' 9.27"	1' 8.7"	1' 9.31"	1' 8.67"	1' 9.35"
1' 6"	1' 5.84"	1' 6.16"	1' 5.83"	1' 6.18"	1' 5.81"	1' 6.2"	1' 5.78"	1' 6.22"
1' 5"	1' 4.86"	1' 5.14"	1' 4.85"	1' 5.15"	1' 4.84"	1' 5.17"	1' 4.82"	1' 5.19"
1' 4"	1' 3.89"	1' 4.12"	1' 3.88"	1' 4.12"	1' 3.86"	1' 4.14"	1' 3.85"	1' 4.16"
1' 3"	1' 2.91"	1' 3.09"	1' 2.9"	1' 3.1"	1' 2.89"	1' 3.11"	1' 2.88"	1' 3.13"
1' 2"	1' 1.93"	1' 2.07"	1' 1.92"	1' 2.08"	1' 1.91"	1' 2.09"	1' 1.9"	1' 2.1"



3.2	3.5	4	4.5	5
51' 7.72"	46' 0.8"	41' 1.19"	36' 8.08"	32' 8.76"

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)
51' 6.32"	Infinity	45' 11.41"	Infinity	40' 11.8"	Infinity	36' 6.69"	Infinity	32' 7.37"	Infinity
36' 2.97"	Infinity	33' 5.01"	Infinity	30' 8.75"	Infinity	28' 2.29"	Infinity	25' 9.64"	Infinity
27' 11.48"	Infinity	26' 3.06"	Infinity	24' 6.95"	Infinity	22' 11.27"	Infinity	21' 4.15"	Infinity
22' 9.03"	174' 2.18"	21' 7.45"	297' 6.2"	20' 5.76"	1461' 9.41"	19' 4.05"	Infinity	18' 2.41"	Infinity
19' 2.17"	70' 3.35"	18' 4.52"	84' 3.11"	17' 6.63"	108' 6.55"	16' 8.55"	160' 7.71"	15' 10.36"	349' 4.1"
17' 0.5"	47' 6.92"	16' 4.89"	53' 6.63"	15' 9.01"	62' 4.36"	15' 0.91"	76' 6.36"	14' 4.62"	102' 9.79"
14' 7.18"	32' 0.58"	14' 1.62"	34' 7.51"	13' 7.79"	38' 0.84"	13' 1.73"	42' 10.4"	12' 7.45"	49' 11.39"
12' 11.51"	24' 10.6"	12' 7.14"	26' 4.75"	12' 2.54"	28' 3.99"	11' 9.71"	30' 10.58"	11' 4.66"	34' 4.34"
11' 9.39"	20' 9.1"	11' 5.8"	21' 9.5"	11' 1.99"	23' 1.01"	10' 9.97"	24' 8.82"	10' 5.74"	26' 10.81"
10' 6.39"	17' 0.72"	10' 3.54"	17' 8.94"	10' 0.5"	18' 7"	9' 9.27"	19' 7.53"	9' 5.85"	20' 11.42"
9' 10.53"	15' 4.21"	9' 8.04"	15' 10.79"	9' 5.37"	16' 6.78"	9' 2.52"	17' 4.61"	8' 11.49"	18' 4.9"
9' 2.41"	13' 8.71"	9' 0.26"	14' 1.91"	8' 9.95"	14' 8.17"	8' 7.48"	15' 3.78"	8' 4.84"	16' 1.18"
8' 6.03"	12' 2.15"	8' 4.2"	12' 6.19"	8' 2.24"	12' 11.01"	8' 0.13"	13' 4.82"	7' 9.87"	13' 11.9"
8' 1.73"	11' 5.2"	8' 0.06"	11' 8.73"	7' 10.27"	12' 0.94"	7' 8.33"	12' 5.97"	7' 6.25"	13' 0.08"
7' 9.36"	10' 8.45"	7' 7.85"	10' 11.53"	7' 6.21"	11' 3.17"	7' 4.45"	11' 7.52"	7' 2.55"	12' 0.76"
7' 4.92"	9' 11.92"	7' 3.55"	10' 2.57"	7' 2.08"	10' 5.71"	7' 0.48"	10' 9.43"	6' 10.76"	11' 1.9"
7' 0.4"	9' 3.57"	6' 11.18"	9' 5.85"	6' 9.85"	9' 8.53"	6' 8.42"	9' 11.7"	6' 6.87"	10' 3.48"
6' 7.8"	8' 7.42"	6' 6.72"	8' 9.36"	6' 5.54"	8' 11.63"	6' 4.26"	9' 2.3"	6' 2.88"	9' 5.48"
6' 3.13"	7' 11.45"	6' 2.17"	8' 1.08"	6' 1.14"	8' 2.99"	6' 0.01"	8' 5.22"	5' 10.78"	8' 7.86"
5' 10.37"	7' 3.65"	5' 9.54"	7' 5.01"	5' 8.64"	7' 6.59"	5' 7.65"	7' 8.44"	5' 6.58"	7' 10.61"
5' 7.96"	6' 11.82"	5' 7.19"	7' 1.05"	5' 6.35"	7' 2.49"	5' 5.44"	7' 4.16"	5' 4.44"	7' 6.12"
5' 5.52"	6' 8.03"	5' 4.82"	6' 9.14"	5' 4.04"	6' 10.44"	5' 3.2"	6' 11.94"	5' 2.27"	7' 1.71"
5' 3.07"	6' 4.28"	5' 2.42"	6' 5.28"	5' 1.71"	6' 6.45"	5' 0.93"	6' 7.8"	5' 0.07"	6' 9.38"
5' 0.6"	6' 0.57"	5'	6' 1.47"	4' 11.34"	6' 2.51"	4' 10.63"	6' 3.72"	4' 9.85"	6' 5.13"
4' 10.1"	5' 8.9"	4' 9.55"	5' 9.7"	4' 8.96"	5' 10.63"	4' 8.3"	5' 11.71"	4' 7.59"	6' 0.96"
4' 7.58"	5' 5.27"	4' 7.09"	5' 5.98"	4' 6.54"	5' 6.81"	4' 5.95"	5' 7.76"	4' 5.3"	5' 8.86"
4' 5.04"	5' 1.68"	4' 4.59"	5' 2.31"	4' 4.1"	5' 3.03"	4' 3.57"	5' 3.87"	4' 2.98"	5' 4.84"
4' 2.47"	4' 10.12"	4' 2.07"	4' 10.68"	4' 1.63"	4' 11.31"	4' 1.15"	5' 0.04"	4' 0.62"	5' 0.89"
3' 11.88"	4' 6.61"	3' 11.53"	4' 7.09"	3' 11.14"	4' 7.64"	3' 10.71"	4' 8.28"	3' 10.24"	4' 9.01"
3' 9.27"	4' 3.13"	3' 8.96"	4' 3.55"	3' 8.61"	4' 4.02"	3' 8.23"	4' 4.56"	3' 7.82"	4' 5.19"
3' 6.63"	3' 11.69"	3' 6.36"	4' 0.04"	3' 6.06"	4' 0.45"	3' 5.73"	4' 0.91"	3' 5.37"	4' 1.44"
3' 3.97"	3' 8.28"	3' 3.74"	3' 8.58"	3' 3.48"	3' 8.92"	3' 3.19"	3' 9.31"	3' 2.88"	3' 9.76"
3' 1.28"	3' 4.91"	3' 1.08"	3' 5.16"	3' 0.86"	3' 5.44"	3' 0.62"	3' 5.77"	3' 0.35"	3' 6.13"
2' 10.57"	3' 1.57"	2' 10.41"	3' 1.78"	2' 10.22"	3' 2.01"	2' 10.02"	3' 2.27"	2' 9.79"	3' 2.57"
2' 7.84"	2' 10.27"	2' 7.7"	2' 10.43"	2' 7.55"	2' 10.62"	2' 7.38"	2' 10.83"	2' 7.2"	2' 11.07"
2' 5.07"	2' 7"	2' 4.96"	2' 7.13"	2' 4.84"	2' 7.27"	2' 4.71"	2' 7.44"	2' 4.56"	2' 7.63"
2' 2.28"	2' 3.77"	2' 2.2"	2' 3.86"	2' 2.11"	2' 3.97"	2' 2"	2' 4.1"	2' 1.89"	2' 4.24"
1' 11.47"	2' 0.56"	1' 11.41"	2' 0.63"	1' 11.34"	2' 0.71"	1' 11.26"	2' 0.8"	1' 11.17"	2' 0.91"
1' 8.63"	1' 9.39"	1' 8.58"	1' 9.44"	1' 8.53"	1' 9.5"	1' 8.48"	1' 9.56"	1' 8.42"	1' 9.63"
1' 5.76"	1' 6.25"	1' 5.73"	1' 6.28"	1' 5.7"	1' 6.32"	1' 5.66"	1' 6.36"	1' 5.62"	1' 6.4"
1' 4.8"	1' 5.21"	1' 4.77"	1' 5.24"	1' 4.74"	1' 5.27"	1' 4.71"	1' 5.3"	1' 4.68"	1' 5.34"
1' 3.83"	1' 4.18"	1' 3.81"	1' 4.2"	1' 3.79"	1' 4.22"	1' 3.76"	1' 4.25"	1' 3.73"	1' 4.28"
1' 2.86"	1' 3.14"	1' 2.84"	1' 3.16"	1' 2.83"	1' 3.18"	1' 2.81"	1' 3.2"	1' 2.78"	1' 3.23"
1' 1.89"	1' 2.11"	1' 1.88"	1' 2.13"	1' 1.86"	1' 2.14"	1' 1.84"	1' 2.16"	1' 1.83"	1' 2.18"



5.6	6.3	7.1	8	9
29' 2.59"	26' 1.03"	23' 3.61"	20' 9.8"	18' 7.23"

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)
29' 1.22"	Infinity	25' 11.66"	Infinity	23' 2.21"	Infinity	20' 8.4"	Infinity	18' 5.84"	Infinity
23' 6.84"	Infinity	21' 5.87"	Infinity	19' 6.7"	Infinity	17' 9.27"	Infinity	16' 1.54"	Infinity
19' 9.66"	Infinity	18' 3.91"	Infinity	16' 10.95"	Infinity	15' 6.85"	Infinity	14' 3.63"	Infinity
17' 0.92"	Infinity	15' 11.68"	Infinity	14' 10.77"	Infinity	13' 10.24"	Infinity	12' 10.18"	Infinity
15' 0.11"	Infinity	14' 1.88"	Infinity	13' 3.73"	Infinity	12' 5.73"	Infinity	11' 7.94"	Infinity
13' 8.2"	167' 7.65"	12' 11.71"	578' 1.54"	12' 3.19"	Infinity	11' 6.71"	Infinity	10' 10.32"	Infinity
12' 0.99"	61' 4.36"	11' 6.39"	82' 7.55"	10' 11.68"	135' 6.65"	10' 4.91"	487' 6.95"	9' 10.12"	Infinity
10' 11.42"	39' 4.25"	10' 6.02"	47' 0.62"	10' 0.47"	60' 4.24"	9' 6.83"	88' 6.94"	9' 1.12"	187' 5.13"
10' 1.33"	29' 10.09"	9' 8.74"	34' 0.36"	9' 4"	40' 5.08"	8' 11.14"	51' 3.39"	8' 6.19"	73' 6.84"
9' 2.25"	22' 8.09"	8' 10.49"	24' 11.85"	8' 6.57"	28' 2.8"	8' 2.52"	33' 0.9"	7' 10.35"	41' 0.05"
8' 8.3"	19' 8.59"	8' 4.94"	21' 5.16"	8' 1.44"	23' 9.08"	7' 9.8"	27' 0.83"	7' 6.03"	32' 1.44"
8' 2.04"	17' 0.98"	7' 11.09"	18' 4.12"	7' 8"	20' 0.09"	7' 4.77"	22' 3.45"	7' 1.42"	25' 6.87"
7' 7.46"	14' 8.66"	7' 4.91"	15' 7.68"	7' 2.22"	16' 9.87"	6' 11.4"	18' 4.68"	6' 8.46"	20' 6.57"
7' 4.04"	13' 7.58"	7' 1.69"	14' 4.93"	6' 11.2"	15' 4.84"	6' 8.58"	16' 8.39"	6' 5.85"	18' 5.39"
7' 0.52"	12' 7.14"	6' 10.36"	13' 3.04"	6' 8.08"	14' 1"	6' 5.66"	15' 1.82"	6' 3.13"	16' 6.83"
6' 8.91"	11' 7.31"	6' 6.94"	12' 1.95"	6' 4.85"	12' 10.23"	6' 2.64"	13' 8.76"	6' 0.32"	14' 10.51"
6' 5.2"	10' 8.03"	6' 3.42"	11' 1.57"	6' 1.52"	11' 8.42"	5' 11.51"	12' 5.03"	5' 9.39"	13' 4.1"
6' 1.39"	9' 9.27"	5' 11.79"	10' 1.87"	5' 10.08"	10' 7.49"	5' 8.27"	11' 2.48"	5' 6.34"	11' 11.35"
5' 9.46"	8' 11"	5' 8.04"	9' 2.77"	5' 6.52"	9' 7.35"	5' 4.9"	10' 0.99"	5' 3.18"	10' 8.04"
5' 5.43"	8' 1.18"	5' 4.18"	8' 4.24"	5' 2.84"	8' 7.93"	5' 1.4"	9' 0.43"	4' 11.88"	9' 6"
5' 3.37"	7' 8.43"	5' 2.2"	7' 11.18"	5' 0.95"	8' 2.48"	4' 11.61"	8' 6.48"	4' 10.17"	8' 11.4"
5' 1.27"	7' 3.78"	5' 0.19"	7' 6.24"	4' 11.02"	7' 9.18"	4' 9.77"	8' 0.73"	4' 8.44"	8' 5.07"
4' 11.15"	6' 11.23"	4' 10.15"	7' 1.42"	4' 9.07"	7' 4.03"	4' 7.9"	7' 7.17"	4' 6.66"	7' 10.98"
4' 8.99"	6' 6.78"	4' 8.07"	6' 8.72"	4' 7.07"	6' 11.03"	4' 6"	7' 1.79"	4' 4.85"	7' 5.13"
4' 6.81"	6' 2.42"	4' 5.96"	6' 4.13"	4' 5.04"	6' 6.16"	4' 4.05"	6' 8.58"	4' 2.99"	6' 11.49"
4' 4.59"	5' 10.15"	4' 3.81"	5' 11.65"	4' 2.98"	6' 1.43"	4' 2.07"	6' 3.54"	4' 1.1"	6' 6.07"
4' 2.33"	5' 5.96"	4' 1.63"	5' 7.28"	4' 0.87"	5' 8.82"	4' 0.05"	5' 10.65"	3' 11.16"	6' 0.83"
4' 0.05"	5' 1.87"	3' 11.41"	5' 3.01"	3' 10.73"	5' 4.34"	3' 9.98"	5' 5.92"	3' 9.18"	5' 7.79"
3' 9.72"	4' 9.85"	3' 9.16"	4' 10.83"	3' 8.54"	4' 11.98"	3' 7.87"	5' 1.32"	3' 7.15"	5' 2.92"
3' 7.36"	4' 5.91"	3' 6.86"	4' 6.75"	3' 6.32"	4' 7.73"	3' 5.72"	4' 8.87"	3' 5.08"	4' 10.21"
3' 4.97"	4' 2.05"	3' 4.53"	4' 2.76"	3' 4.05"	4' 3.58"	3' 3.52"	4' 4.54"	3' 2.95"	4' 5.67"
3' 2.53"	3' 10.27"	3' 2.15"	3' 10.86"	3' 1.73"	3' 11.55"	3' 1.28"	4' 0.34"	3' 0.78"	4' 1.27"
3' 0.06"	3' 6.56"	2' 11.73"	3' 7.05"	2' 11.37"	3' 7.61"	2' 10.98"	3' 8.26"	2' 10.55"	3' 9.02"
2' 9.54"	3' 2.92"	2' 9.27"	3' 3.31"	2' 8.97"	3' 3.77"	2' 8.64"	3' 4.29"	2' 8.27"	3' 4.9"
2' 6.99"	2' 11.35"	2' 6.76"	2' 11.66"	2' 6.51"	3' 0.02"	2' 6.24"	3' 0.44"	2' 5.94"	3' 0.92"
2' 4.39"	2' 7.84"	2' 4.21"	2' 8.09"	2' 4.01"	2' 8.37"	2' 3.79"	2' 8.69"	2' 3.54"	2' 9.06"
2' 1.76"	2' 4.4"	2' 1.61"	2' 4.59"	2' 1.46"	2' 4.8"	2' 1.28"	2' 5.04"	2' 1.09"	2' 5.31"
1' 11.07"	2' 1.02"	1' 10.97"	2' 1.16"	1' 10.85"	2' 1.31"	1' 10.72"	2' 1.48"	1' 10.57"	2' 1.68"
1' 8.35"	1' 9.71"	1' 8.27"	1' 9.8"	1' 8.19"	1' 9.9"	1' 8.09"	1' 10.02"	1' 7.99"	1' 10.16"
1' 5.58"	1' 6.45"	1' 5.53"	1' 6.51"	1' 5.47"	1' 6.58"	1' 5.41"	1' 6.65"	1' 5.34"	1' 6.74"
1' 4.64"	1' 5.38"	1' 4.6"	1' 5.43"	1' 4.55"	1' 5.49"	1' 4.5"	1' 5.55"	1' 4.44"	1' 5.62"
1' 3.7"	1' 4.32"	1' 3.67"	1' 4.36"	1' 3.63"	1' 4.4"	1' 3.58"	1' 4.45"	1' 3.53"	1' 4.51"
1' 2.76"	1' 3.26"	1' 2.73"	1' 3.29"	1' 2.69"	1' 3.33"	1' 2.66"	1' 3.37"	1' 2.62"	1' 3.41"
1' 1.81"	1' 2.2"	1' 1.78"	1' 2.23"	1' 1.76"	1' 2.26"	1' 1.73"	1' 2.29"	1' 1.69"	1' 2.33"



10	11	13	14	16
16' 7.57"	14' 10.5"	13' 3.72"	11' 10.99"	10' 8.07"

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)
16' 6.19"	Infinity	14' 9.11"	Infinity	13' 2.33"	Infinity	11' 9.6"	Infinity	10' 6.7"	Infinity
14' 7.41"	Infinity	13' 2.81"	Infinity	11' 11.65"	Infinity	10' 9.84"	Infinity	9' 9.28"	Infinity
13' 1.32"	Infinity	11' 11.93"	Infinity	10' 11.46"	Infinity	9' 11.88"	Infinity	9' 1.17"	Infinity
11' 10.62"	Infinity	10' 11.6"	Infinity	10' 1.17"	Infinity	9' 3.33"	Infinity	8' 6.1"	Infinity
10' 10.42"	Infinity	10' 1.22"	Infinity	9' 4.37"	Infinity	8' 7.92"	Infinity	7' 11.89"	Infinity
10' 2.07"	Infinity	9' 6.02"	Infinity	8' 10.2"	Infinity	8' 2.67"	Infinity	7' 7.44"	Infinity
9' 3.37"	Infinity	8' 8.69"	Infinity	8' 2.12"	Infinity	7' 7.71"	Infinity	7' 1.49"	Infinity
8' 7.37"	Infinity	8' 1.64"	Infinity	7' 7.94"	Infinity	7' 2.34"	Infinity	6' 8.84"	Infinity
8' 1.17"	144' 4.47"	7' 8.12"	Infinity	7' 3.07"	Infinity	6' 10.06"	Infinity	6' 5.12"	Infinity
7' 6.1"	56' 2.52"	7' 1.78"	96' 8.38"	6' 9.43"	519' 7.12"	6' 5.07"	Infinity	6' 0.73"	Infinity
7' 2.17"	40' 8.23"	6' 10.24"	58' 2.56"	6' 6.25"	113' 5.13"	6' 2.24"	Infinity	5' 10.23"	Infinity
6' 9.96"	30' 8.1"	6' 6.42"	39' 7.13"	6' 2.81"	58' 11.6"	5' 11.16"	131' 11.96"	5' 7.49"	Infinity
6' 5.41"	23' 8.21"	6' 2.27"	28' 7.38"	5' 11.05"	37' 4.98"	5' 7.78"	57' 4.4"	5' 4.47"	144' 8.33"
6' 3"	20' 11.08"	6' 0.07"	24' 7.88"	5' 9.05"	30' 10.59"	5' 5.97"	43' 2.67"	5' 2.85"	78' 10.9"
6' 0.5"	18' 6.3"	5' 9.76"	21' 4.48"	5' 6.95"	25' 10.39"	5' 4.06"	33' 11.15"	5' 1.13"	52' 5.15"
5' 9.89"	16' 5.06"	5' 7.36"	18' 7.25"	5' 4.74"	21' 10.7"	5' 2.06"	27' 4.29"	4' 11.32"	38' 1.58"
5' 7.16"	14' 6.74"	5' 4.84"	16' 2.86"	5' 2.43"	18' 7.99"	4' 11.95"	22' 5.56"	4' 9.41"	29' 2.19"
5' 4.32"	12' 10.87"	5' 2.21"	14' 2.32"	5'	15' 11.95"	4' 9.73"	18' 8.14"	4' 7.38"	23' 0.63"
5' 1.36"	11' 5.06"	4' 11.45"	12' 4.89"	4' 9.45"	13' 8.98"	4' 7.38"	15' 7.95"	4' 5.24"	18' 7.09"
4' 10.26"	10' 1"	4' 8.55"	10' 10.02"	4' 6.76"	11' 9.98"	4' 4.89"	13' 2.45"	4' 2.96"	15' 2.39"
4' 8.65"	9' 5.56"	4' 7.05"	10' 1.41"	4' 5.36"	10' 11.7"	4' 3.59"	12' 1.65"	4' 1.76"	13' 9.48"
4' 7.01"	8' 10.46"	4' 5.51"	9' 5.28"	4' 3.92"	10' 2.12"	4' 2.26"	11' 1.93"	4' 0.53"	12' 6.39"
4' 5.33"	8' 3.69"	4' 3.93"	8' 9.6"	4' 2.44"	9' 5.18"	4' 0.88"	10' 3.17"	3' 11.26"	11' 4.83"
4' 3.61"	7' 9.23"	4' 2.31"	8' 2.33"	4' 0.92"	8' 8.81"	3' 11.47"	9' 5.24"	3' 9.94"	10' 4.58"
4' 1.85"	7' 3.05"	4' 0.64"	7' 7.43"	3' 11.36"	8' 0.95"	3' 10"	8' 8.05"	3' 8.58"	9' 5.46"
4' 0.05"	6' 9.13"	3' 10.94"	7' 0.89"	3' 9.75"	7' 5.57"	3' 8.5"	7' 11.54"	3' 7.18"	8' 7.31"
3' 10.2"	6' 3.46"	3' 9.18"	6' 6.66"	3' 8.09"	6' 10.63"	3' 6.94"	7' 3.61"	3' 5.73"	7' 10.03"
3' 8.31"	5' 10.03"	3' 7.38"	6' 0.74"	3' 6.39"	6' 4.07"	3' 5.33"	6' 8.22"	3' 4.22"	7' 1.5"
3' 6.37"	5' 4.81"	3' 5.53"	5' 7.1"	3' 4.63"	5' 9.88"	3' 3.67"	6' 1.31"	3' 2.66"	6' 5.63"
3' 4.38"	4' 11.81"	3' 3.63"	5' 1.71"	3' 2.82"	5' 4.02"	3' 1.96"	5' 6.84"	3' 1.04"	5' 10.35"
3' 2.34"	4' 6.99"	3' 1.67"	4' 8.57"	3' 0.95"	4' 10.47"	3' 0.18"	5' 0.76"	2' 11.36"	5' 3.59"
3' 0.24"	4' 2.36"	2' 11.66"	4' 3.66"	2' 11.03"	4' 5.2"	2' 10.35"	4' 7.05"	2' 9.62"	4' 9.31"
2' 10.09"	3' 9.91"	2' 9.58"	3' 10.95"	2' 9.04"	4' 0.19"	2' 8.45"	4' 1.66"	2' 7.81"	4' 3.45"
2' 7.88"	3' 5.61"	2' 7.45"	3' 6.44"	2' 6.98"	3' 7.42"	2' 6.48"	3' 8.58"	2' 5.93"	3' 9.97"
2' 5.61"	3' 1.47"	2' 5.25"	3' 2.12"	2' 4.86"	3' 2.88"	2' 4.43"	3' 3.78"	2' 3.97"	3' 4.84"
2' 3.28"	2' 9.48"	2' 2.98"	2' 9.98"	2' 2.66"	2' 10.55"	2' 2.31"	2' 11.23"	2' 1.94"	3' 0.02"
2' 0.88"	2' 5.63"	2' 0.65"	2' 5.99"	2' 0.39"	2' 6.42"	2' 0.11"	2' 6.91"	1' 11.81"	2' 7.49"
1' 10.41"	2' 1.91"	1' 10.24"	2' 2.17"	1' 10.04"	2' 2.47"	1' 9.83"	2' 2.81"	1' 9.6"	2' 3.22"
1' 7.87"	1' 10.31"	1' 7.75"	1' 10.49"	1' 7.61"	1' 10.69"	1' 7.45"	1' 10.92"	1' 7.28"	1' 11.18"
1' 5.26"	1' 6.83"	1' 5.18"	1' 6.94"	1' 5.08"	1' 7.07"	1' 4.98"	1' 7.21"	1' 4.87"	1' 7.37"
1' 4.37"	1' 5.7"	1' 4.3"	1' 5.79"	1' 4.22"	1' 5.89"	1' 4.13"	1' 6.01"	1' 4.04"	1' 6.15"
1' 3.48"	1' 4.58"	1' 3.42"	1' 4.65"	1' 3.35"	1' 4.74"	1' 3.28"	1' 4.83"	1' 3.19"	1' 4.94"
1' 2.57"	1' 3.47"	1' 2.52"	1' 3.53"	1' 2.47"	1' 3.6"	1' 2.41"	1' 3.67"	1' 2.34"	1' 3.76"
1' 1.66"	1' 2.37"	1' 1.62"	1' 2.42"	1' 1.57"	1' 2.47"	1' 1.52"	1' 2.53"	1' 1.47"	1' 2.6"



18	20	22
9' 6.8"	8' 6.99"	7' 8.44"

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)
9' 5.42"	Infinity	8' 5.59"	Infinity	7' 7.05"	Infinity
8' 9.9"	Infinity	7' 11.58"	Infinity	7' 2.26"	Infinity
8' 3.3"	Infinity	7' 6.24"	Infinity	6' 9.94"	Infinity
7' 9.48"	Infinity	7' 1.46"	Infinity	6' 6.04"	Infinity
7' 4.3"	Infinity	6' 9.17"	Infinity	6' 2.48"	Infinity
7' 0.56"	Infinity	6' 6.02"	Infinity	5' 11.86"	Infinity
6' 7.49"	Infinity	6' 1.74"	Infinity	5' 8.26"	Infinity
6' 3.5"	Infinity	5' 10.33"	Infinity	5' 5.37"	Infinity
6' 0.27"	Infinity	5' 7.56"	Infinity	5' 2.99"	Infinity
5' 8.45"	Infinity	5' 4.24"	Infinity	5' 0.14"	Infinity
5' 6.25"	Infinity	5' 2.33"	Infinity	4' 10.48"	Infinity
5' 3.83"	Infinity	5' 0.21"	Infinity	4' 8.63"	Infinity
5' 1.15"	Infinity	4' 9.84"	Infinity	4' 6.56"	Infinity
4' 11.7"	Infinity	4' 8.56"	Infinity	4' 5.43"	Infinity
4' 10.17"	137' 1.83"	4' 7.19"	Infinity	4' 4.23"	Infinity
4' 8.54"	68' 10.26"	4' 5.75"	Infinity	4' 2.95"	Infinity
4' 6.82"	44' 1.65"	4' 4.2"	105' 4.87"	4' 1.58"	Infinity
4' 4.99"	31' 4.52"	4' 2.56"	53' 1.7"	4' 0.11"	250' 4.7"
4' 3.04"	23' 7.05"	4' 0.8"	33' 11.12"	3' 10.54"	67' 6.65"
4' 0.96"	18' 4.04"	3' 10.92"	23' 11.32"	3' 8.84"	36' 8.1"
3' 11.87"	16' 3.67"	3' 9.93"	20' 6.69"	3' 7.95"	29' 2.44"
3' 10.74"	14' 6.71"	3' 8.9"	17' 9.92"	3' 7.01"	23' 11.1"
3' 9.57"	13' 0.49"	3' 7.83"	15' 6.95"	3' 6.04"	19' 11.98"
3' 8.36"	11' 8.51"	3' 6.72"	13' 8.35"	3' 5.04"	16' 11.55"
3' 7.1"	10' 6.39"	3' 5.57"	12' 1.14"	3' 3.98"	14' 6.55"
3' 5.8"	9' 5.81"	3' 4.37"	10' 8.62"	3' 2.89"	12' 6.91"
3' 4.45"	8' 6.53"	3' 3.12"	9' 6.25"	3' 1.74"	10' 11.27"
3' 3.05"	7' 8.37"	3' 1.82"	8' 5.64"	3' 0.54"	9' 6.7"
3' 1.59"	6' 11.17"	3' 0.47"	7' 6.49"	2' 11.29"	8' 4.53"
3' 0.07"	6' 2.79"	2' 11.05"	6' 8.55"	2' 9.98"	7' 4.27"
2' 10.49"	5' 7.13"	2' 9.58"	5' 11.64"	2' 8.61"	6' 5.56"
2' 8.85"	5' 0.1"	2' 8.03"	5' 3.61"	2' 7.17"	5' 8.13"
2' 7.14"	4' 5.63"	2' 6.42"	4' 8.33"	2' 5.65"	4' 11.75"
2' 5.35"	3' 11.65"	2' 4.73"	4' 1.71"	2' 4.06"	4' 4.27"
2' 3.48"	3' 6.11"	2' 2.95"	3' 7.65"	2' 2.39"	3' 9.54"
2' 1.53"	3' 0.96"	2' 1.09"	3' 2.09"	2' 0.62"	3' 3.46"
1' 11.48"	2' 8.17"	1' 11.13"	2' 8.97"	1' 10.75"	2' 9.93"
1' 9.34"	2' 3.69"	1' 9.07"	2' 4.24"	1' 8.77"	2' 4.89"
1' 7.1"	1' 11.49"	1' 6.9"	1' 11.85"	1' 6.68"	2' 0.27"
1' 4.74"	1' 7.56"	1' 4.6"	1' 7.78"	1' 4.45"	1' 8.03"
1' 3.93"	1' 6.3"	1' 3.81"	1' 6.48"	1' 3.68"	1' 6.69"
1' 3.1"	1' 5.07"	1' 3"	1' 5.22"	1' 2.89"	1' 5.38"
1' 2.26"	1' 3.86"	1' 2.18"	1' 3.98"	1' 2.09"	1' 4.11"
1' 1.41"	1' 2.68"	1' 1.34"	1' 2.77"	1' 1.27"	1' 2.87"



Focal Length 40 mm

Circle of Confusion 0.025 mm

T/No	2.1	2.2	2.5	2.8
Hyperfocal Distance (ft-inch)	98' 2.27"	91' 10.64"	81' 11.03"	73' 0.5"

T/No	2.1		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	98' 0.68"	Infinity	91' 9.04"	Infinity	81' 9.45"	Infinity	72' 10.91"	Infinity
120' 0"	54' 2.36"	Infinity	52' 2.75"	Infinity	48' 10.39"	Infinity	45' 6.91"	Infinity
60' 0"	37' 5.35"	152' 9.46"	36' 6.04"	171' 1.6"	34' 10.09"	221' 7.96"	33' 1.78"	331' 8.83"
40' 0"	28' 7.26"	66' 10.21"	28' 0.67"	70' 1.36"	27' 0.85"	77' 3.27"	26' 0.55"	87' 3.46"
30' 0"	23' 1.69"	42' 9.43"	22' 9.4"	44' 1.06"	22' 1.61"	46' 9.52"	21' 5.39"	50' 3.09"
25' 0"	20' 0.88"	33' 2.64"	19' 9.66"	33' 11.93"	19' 3.79"	35' 6.83"	18' 9.55"	37' 6.28"
20' 0"	16' 8.93"	24' 10.52"	16' 6.71"	25' 3.66"	16' 2.62"	26' 1.9"	15' 10.24"	27' 2.27"
17' 0"	14' 7.28"	20' 4.37"	14' 5.6"	20' 7.77"	14' 2.5"	21' 2.49"	13' 11.16"	21' 10.49"
15' 0"	13' 1.41"	17' 6.44"	13' 0.06"	17' 8.94"	12' 9.58"	18' 1.85"	12' 6.88"	18' 7.64"
13' 0"	11' 6.9"	14' 10.11"	11' 5.86"	14' 11.87"	11' 3.93"	15' 3.33"	11' 1.83"	15' 7.37"
12' 0"	10' 9.39"	13' 6.5"	10' 8.49"	13' 7.96"	10' 6.82"	13' 10.81"	10' 5.01"	14' 2.12"
11' 0"	9' 11.7"	12' 3.25"	9' 10.94"	12' 4.44"	9' 9.52"	12' 6.75"	9' 7.97"	12' 9.44"
10' 0"	9' 1.83"	11' 0.35"	9' 1.19"	11' 1.3"	9' 0.01"	11' 3.15"	8' 10.71"	11' 5.28"
9' 6"	8' 8.83"	10' 5.03"	8' 8.25"	10' 5.87"	8' 7.18"	10' 7.5"	8' 6"	10' 9.39"
9' 0"	8' 3.78"	9' 9.78"	8' 3.26"	9' 10.53"	8' 2.29"	9' 11.97"	8' 1.22"	10' 1.63"
8' 6"	7' 10.68"	9' 2.62"	7' 10.21"	9' 3.27"	7' 9.34"	9' 4.53"	7' 8.39"	9' 5.98"
8' 0"	7' 5.53"	8' 7.54"	7' 5.12"	8' 8.11"	7' 4.35"	8' 9.2"	7' 3.5"	8' 10.45"
7' 6"	7' 0.34"	8' 0.53"	6' 11.97"	8' 1.02"	6' 11.29"	8' 1.96"	6' 10.54"	8' 3.04"
7' 0"	6' 7.09"	7' 5.61"	6' 6.77"	7' 6.02"	6' 6.18"	7' 6.82"	6' 5.53"	7' 7.74"
6' 6"	6' 1.79"	6' 10.75"	6' 1.52"	6' 11.11"	6' 1.01"	6' 11.78"	6' 0.44"	7' 0.55"
6' 3"	5' 11.13"	6' 7.36"	5' 10.87"	6' 7.68"	5' 10.4"	6' 8.29"	5' 9.88"	6' 9"
6' 0"	5' 8.44"	6' 3.98"	5' 8.21"	6' 4.27"	5' 7.78"	6' 4.83"	5' 7.3"	6' 5.47"
5' 9"	5' 5.75"	6' 0.62"	5' 5.54"	6' 0.88"	5' 5.14"	6' 1.39"	5' 4.7"	6' 1.97"
5' 6"	5' 3.04"	5' 9.27"	5' 2.85"	5' 9.51"	5' 2.49"	5' 9.97"	5' 2.08"	5' 10.49"
5' 3"	5' 0.32"	5' 5.95"	5' 0.15"	5' 6.16"	4' 11.82"	5' 6.57"	4' 11.45"	5' 7.04"
5' 0"	4' 9.59"	5' 2.64"	4' 9.43"	5' 2.83"	4' 9.13"	5' 3.2"	4' 8.8"	5' 3.61"
4' 9"	4' 6.84"	4' 11.35"	4' 6.7"	4' 11.52"	4' 6.44"	4' 11.84"	4' 6.14"	5' 0.21"
4' 6"	4' 4.08"	4' 8.08"	4' 3.96"	4' 8.23"	4' 3.72"	4' 8.51"	4' 3.45"	4' 8.84"
4' 3"	4' 1.31"	4' 4.82"	4' 1.2"	4' 4.95"	4' 0.99"	4' 5.2"	4' 0.75"	4' 5.49"
4' 0"	3' 10.52"	4' 1.58"	3' 10.43"	4' 1.7"	3' 10.24"	4' 1.92"	3' 10.03"	4' 2.16"
3' 9"	3' 7.72"	3' 10.36"	3' 7.64"	3' 10.46"	3' 7.48"	3' 10.65"	3' 7.3"	3' 10.86"
3' 6"	3' 4.91"	3' 7.16"	3' 4.83"	3' 7.24"	3' 4.7"	3' 7.4"	3' 4.54"	3' 7.58"
3' 3"	3' 2.08"	3' 3.97"	3' 2.02"	3' 4.04"	3' 1.9"	3' 4.18"	3' 1.77"	3' 4.33"
3' 0"	2' 11.23"	3' 0.8"	2' 11.18"	3' 0.86"	2' 11.09"	3' 0.97"	2' 10.98"	3' 1.09"
2' 9"	2' 8.38"	2' 9.65"	2' 8.34"	2' 9.7"	2' 8.26"	2' 9.79"	2' 8.17"	2' 9.89"
2' 6"	2' 5.51"	2' 6.52"	2' 5.47"	2' 6.55"	2' 5.41"	2' 6.62"	2' 5.34"	2' 6.7"
2' 3"	2' 2.62"	2' 3.39"	2' 2.59"	2' 3.42"	2' 2.54"	2' 3.48"	2' 2.49"	2' 3.54"
2' 0"	1' 11.72"	2' 0.29"	1' 11.7"	2' 0.31"	1' 11.66"	2' 0.35"	1' 11.62"	2' 0.39"
1' 9"	1' 8.8"	1' 9.2"	1' 8.79"	1' 9.22"	1' 8.76"	1' 9.24"	1' 8.73"	1' 9.27"
1' 6"	1' 5.87"	1' 6.13"	1' 5.86"	1' 6.14"	1' 5.85"	1' 6.16"	1' 5.83"	1' 6.18"
1' 5"	1' 4.89"	1' 5.11"	1' 4.88"	1' 5.12"	1' 4.87"	1' 5.13"	1' 4.85"	1' 5.15"
1' 4"	1' 3.91"	1' 4.09"	1' 3.9"	1' 4.1"	1' 3.89"	1' 4.11"	1' 3.88"	1' 4.12"
1' 3"	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' 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"



3.2	3.5	4	4.5	5
65' 1.57"	58' 1.01"	51' 9.65"	46' 2.53"	41' 2.72"

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)
64' 11.99"	Infinity	57' 11.43"	Infinity	51' 8.09"	Infinity	46' 0.97"	Infinity	41' 1.18"	Infinity
42' 4.53"	Infinity	39' 3.45"	Infinity	36' 3.83"	Infinity	33' 5.82"	Infinity	30' 9.51"	Infinity
31' 5.23"	750' 8.64"	29' 8.59"	Infinity	27' 11.98"	Infinity	26' 3.55"	Infinity	24' 7.43"	Infinity
24' 11.82"	102' 2.08"	23' 10.73"	126' 4.84"	22' 9.35"	172' 4.29"	21' 7.78"	291' 6.56"	20' 6.08"	1312' 1.47"
20' 8.76"	54' 9.82"	19' 11.75"	61' 0.56"	19' 2.4"	69' 11.83"	18' 4.75"	83' 9.39"	17' 6.86"	107' 7.81"
18' 2.94"	39' 11.9"	17' 7.97"	43' 2.22"	17' 0.67"	47' 5.33"	16' 5.07"	53' 4.35"	15' 9.2"	62' 0.86"
15' 5.56"	28' 5.39"	15' 0.58"	30' 0.16"	14' 7.3"	31' 11.88"	14' 1.75"	34' 6.58"	13' 7.93"	37' 11.56"
13' 7.56"	22' 8.11"	13' 3.71"	23' 7.79"	12' 11.6"	24' 10.18"	12' 7.25"	26' 4.22"	12' 2.65"	28' 3.29"
12' 3.96"	19' 2.52"	12' 0.83"	19' 10.78"	11' 9.47"	20' 8.81"	11' 5.89"	21' 9.14"	11' 2.08"	23' 0.56"
10' 11.56"	16' 0.13"	10' 9.1"	16' 5.77"	10' 6.45"	17' 0.53"	10' 3.61"	17' 8.71"	10' 0.57"	18' 6.72"
10' 3.03"	14' 6.01"	10' 0.89"	14' 10.6"	9' 10.58"	15' 4.06"	9' 8.09"	15' 10.61"	9' 5.42"	16' 6.56"
9' 6.28"	13' 0.57"	9' 4.44"	13' 4.25"	9' 2.46"	13' 8.59"	9' 0.31"	14' 1.77"	8' 10"	14' 8"
8' 9.29"	11' 7.76"	8' 7.74"	11' 10.65"	8' 6.06"	12' 2.06"	8' 4.24"	12' 6.08"	8' 2.28"	12' 10.88"
8' 4.7"	10' 11.58"	8' 3.3"	11' 2.13"	8' 1.76"	11' 5.12"	8' 0.1"	11' 8.64"	7' 10.3"	12' 0.82"
8' 0.06"	10' 3.55"	7' 10.78"	10' 5.78"	7' 9.39"	10' 8.39"	7' 7.88"	10' 11.45"	7' 6.25"	11' 3.08"
7' 7.34"	9' 7.66"	7' 6.2"	9' 9.6"	7' 4.94"	9' 11.86"	7' 3.58"	10' 2.51"	7' 2.11"	10' 5.63"
7' 2.56"	8' 11.9"	7' 1.54"	9' 1.58"	7' 0.42"	9' 3.52"	6' 11.2"	9' 5.79"	6' 9.88"	9' 8.46"
6' 9.72"	8' 4.28"	6' 8.81"	8' 5.72"	6' 7.82"	8' 7.38"	6' 6.74"	8' 9.31"	6' 5.56"	8' 11.57"
6' 4.8"	7' 8.8"	6' 4.01"	7' 10.01"	6' 3.14"	7' 11.41"	6' 2.19"	8' 1.04"	6' 1.16"	8' 2.94"
5' 11.82"	7' 1.44"	5' 11.14"	7' 2.45"	5' 10.38"	7' 3.62"	5' 9.56"	7' 4.98"	5' 8.66"	7' 6.55"
5' 9.3"	6' 9.8"	5' 8.67"	6' 10.73"	5' 7.97"	6' 11.79"	5' 7.21"	7' 1.02"	5' 6.37"	7' 2.45"
5' 6.77"	6' 6.2"	5' 6.18"	6' 7.04"	5' 5.54"	6' 8"	5' 4.83"	6' 9.12"	5' 4.06"	6' 10.41"
5' 4.21"	6' 2.63"	5' 3.67"	6' 3.39"	5' 3.08"	6' 4.26"	5' 2.43"	6' 5.26"	5' 1.72"	6' 6.42"
5' 1.64"	5' 11.09"	5' 1.15"	5' 11.77"	5' 0.61"	6' 0.55"	5' 0.01"	6' 1.45"	4' 11.36"	6' 2.49"
4' 11.05"	5' 7.57"	4' 10.6"	5' 8.18"	4' 10.11"	5' 8.88"	4' 9.56"	5' 9.69"	4' 8.97"	5' 10.61"
4' 8.44"	5' 4.09"	4' 8.03"	5' 4.63"	4' 7.59"	5' 5.25"	4' 7.09"	5' 5.97"	4' 6.55"	5' 6.79"
4' 5.81"	5' 0.64"	4' 5.45"	5' 1.12"	4' 5.04"	5' 1.67"	4' 4.6"	5' 2.3"	4' 4.11"	5' 3.02"
4' 3.16"	4' 9.21"	4' 2.84"	4' 9.63"	4' 2.48"	4' 10.11"	4' 2.08"	4' 10.67"	4' 1.64"	4' 11.3"
4' 0.49"	4' 5.81"	4' 0.21"	4' 6.18"	3' 11.89"	4' 6.6"	3' 11.53"	4' 7.08"	3' 11.14"	4' 7.63"
3' 9.81"	4' 2.44"	3' 9.55"	4' 2.76"	3' 9.27"	4' 3.12"	3' 8.96"	4' 3.54"	3' 8.62"	4' 4.01"
3' 7.1"	3' 11.1"	3' 6.88"	3' 11.37"	3' 6.63"	3' 11.68"	3' 6.36"	4' 0.04"	3' 6.06"	4' 0.44"
3' 4.37"	3' 7.78"	3' 4.18"	3' 8.01"	3' 3.97"	3' 8.28"	3' 3.74"	3' 8.57"	3' 3.48"	3' 8.91"
3' 1.63"	3' 4.5"	3' 1.46"	3' 4.69"	3' 1.29"	3' 4.91"	3' 1.09"	3' 5.15"	3' 0.87"	3' 5.44"
2' 10.86"	3' 1.23"	2' 10.72"	3' 1.39"	2' 10.57"	3' 1.57"	2' 10.41"	3' 1.77"	2' 10.22"	3' 2"
2' 8.07"	2' 10"	2' 7.96"	2' 10.12"	2' 7.84"	2' 10.27"	2' 7.7"	2' 10.43"	2' 7.55"	2' 10.62"
2' 5.26"	2' 6.79"	2' 5.17"	2' 6.89"	2' 5.07"	2' 7"	2' 4.97"	2' 7.13"	2' 4.84"	2' 7.27"
2' 2.43"	2' 3.6"	2' 2.36"	2' 3.68"	2' 2.29"	2' 3.76"	2' 2.2"	2' 3.86"	2' 2.11"	2' 3.97"
1' 11.58"	2' 0.44"	1' 11.53"	2' 0.5"	1' 11.47"	2' 0.56"	1' 11.41"	2' 0.63"	1' 11.34"	2' 0.71"
1' 8.7"	1' 9.31"	1' 8.67"	1' 9.35"	1' 8.63"	1' 9.39"	1' 8.58"	1' 9.44"	1' 8.53"	1' 9.49"
1' 5.81"	1' 6.2"	1' 5.78"	1' 6.22"	1' 5.76"	1' 6.25"	1' 5.73"	1' 6.28"	1' 5.7"	1' 6.32"
1' 4.84"	1' 5.17"	1' 4.82"	1' 5.19"	1' 4.8"	1' 5.21"	1' 4.77"	1' 5.24"	1' 4.74"	1' 5.27"
1' 3.86"	1' 4.14"	1' 3.85"	1' 4.16"	1' 3.83"	1' 4.18"	1' 3.81"	1' 4.2"	1' 3.79"	1' 4.22"
1' 2.89"	1' 3.11"	1' 2.88"	1' 3.13"	1' 2.86"	1' 3.14"	1' 2.84"	1' 3.16"	1' 2.83"	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' 2.13"	1' 1.86"	1' 2.14"



5.6	6.3	7.1	8	9
36' 9.46"	32' 10.02"	29' 3.73"	26' 2.06"	23' 4.47"

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)
36' 7.9"	Infinity	32' 8.44"	Infinity	29' 2.16"	Infinity	26' 0.49"	Infinity	23' 2.93"	Infinity
28' 2.99"	Infinity	25' 10.3"	Infinity	23' 7.45"	Infinity	21' 6.43"	Infinity	19' 7.2"	Infinity
22' 11.74"	Infinity	21' 4.59"	Infinity	19' 10.08"	Infinity	18' 4.3"	Infinity	16' 11.32"	Infinity
19' 4.37"	Infinity	18' 2.72"	Infinity	17' 1.23"	Infinity	15' 11.98"	Infinity	14' 11.05"	Infinity
16' 8.79"	158' 5.17"	15' 10.59"	337' 8.27"	15' 0.34"	Infinity	14' 2.1"	Infinity	13' 3.95"	Infinity
15' 1.09"	76' 0.39"	14' 4.81"	101' 9.57"	13' 8.39"	164' 6.98"	12' 11.89"	538' 9.63"	12' 3.37"	Infinity
13' 1.87"	42' 8.56"	12' 7.59"	49' 8.56"	12' 1.13"	60' 11.51"	11' 6.53"	81' 9.54"	10' 11.82"	133' 0.15"
11' 9.82"	30' 9.65"	11' 4.77"	34' 3.02"	10' 11.54"	39' 2.28"	10' 6.13"	46' 9.43"	10' 0.59"	59' 10.25"
10' 10.06"	24' 8.24"	10' 5.84"	26' 10.01"	10' 1.42"	29' 8.98"	9' 8.84"	33' 10.72"	9' 4.1"	40' 2.43"
9' 9.34"	19' 7.17"	9' 5.92"	20' 10.95"	9' 2.33"	22' 7.47"	8' 10.57"	24' 10.99"	8' 6.65"	28' 1.54"
9' 2.58"	17' 4.33"	8' 11.56"	18' 4.54"	8' 8.37"	19' 8.12"	8' 5.01"	21' 4.53"	8' 1.51"	23' 8.2"
8' 7.53"	15' 3.57"	8' 4.9"	16' 0.91"	8' 2.1"	17' 0.64"	7' 11.16"	18' 3.66"	7' 8.06"	19' 11.48"
8' 0.17"	13' 4.66"	7' 9.92"	13' 11.71"	7' 7.51"	14' 8.41"	7' 4.96"	15' 7.36"	7' 2.28"	16' 9.45"
7' 8.37"	12' 5.84"	7' 6.3"	12' 11.91"	7' 4.08"	13' 7.37"	7' 1.73"	14' 4.66"	6' 11.25"	15' 4.49"
7' 4.48"	11' 7.4"	7' 2.59"	12' 0.61"	7' 0.57"	12' 6.97"	6' 10.41"	13' 2.82"	6' 8.12"	14' 0.71"
7' 0.51"	10' 9.34"	6' 10.79"	11' 1.78"	6' 8.95"	11' 7.16"	6' 6.98"	12' 1.76"	6' 4.89"	12' 9.99"
6' 8.45"	9' 11.62"	6' 6.9"	10' 3.38"	6' 5.24"	10' 7.91"	6' 3.46"	11' 1.42"	6' 1.56"	11' 8.23"
6' 4.29"	9' 2.23"	6' 2.9"	9' 5.39"	6' 1.42"	9' 9.17"	5' 11.82"	10' 1.74"	5' 10.11"	10' 7.33"
6' 0.03"	8' 5.16"	5' 10.81"	8' 7.79"	5' 9.49"	8' 10.92"	5' 8.07"	9' 2.67"	5' 6.55"	9' 7.23"
5' 7.67"	7' 8.39"	5' 6.61"	7' 10.56"	5' 5.45"	8' 1.11"	5' 4.2"	8' 4.16"	5' 2.86"	8' 7.84"
5' 5.46"	7' 4.12"	5' 4.46"	7' 6.07"	5' 3.39"	7' 8.37"	5' 2.22"	7' 11.11"	5' 0.97"	8' 2.39"
5' 3.21"	6' 11.91"	5' 2.29"	7' 1.66"	5' 1.29"	7' 3.73"	5' 0.21"	7' 6.18"	4' 11.05"	7' 9.1"
5' 0.94"	6' 7.77"	5' 0.09"	6' 9.34"	4' 11.17"	6' 11.19"	4' 10.17"	7' 1.37"	4' 9.09"	7' 3.96"
4' 10.64"	6' 3.69"	4' 9.86"	6' 5.1"	4' 9.01"	6' 6.74"	4' 8.09"	6' 8.67"	4' 7.09"	6' 10.97"
4' 8.31"	5' 11.68"	4' 7.6"	6' 0.93"	4' 6.82"	6' 2.38"	4' 5.98"	6' 4.09"	4' 5.06"	6' 6.11"
4' 5.96"	5' 7.74"	4' 5.31"	5' 8.84"	4' 4.6"	5' 10.12"	4' 3.83"	5' 11.62"	4' 2.99"	6' 1.39"
4' 3.57"	5' 3.85"	4' 2.99"	5' 4.82"	4' 2.34"	5' 5.94"	4' 1.64"	5' 7.25"	4' 0.88"	5' 8.79"
4' 1.16"	5' 0.03"	4' 0.63"	5' 0.87"	4' 0.05"	5' 1.84"	3' 11.42"	5' 2.98"	3' 10.74"	5' 4.31"
3' 10.72"	4' 8.26"	3' 10.25"	4' 8.99"	3' 9.73"	4' 9.83"	3' 9.17"	4' 10.81"	3' 8.55"	4' 11.95"
3' 8.24"	4' 4.55"	3' 7.83"	4' 5.18"	3' 7.37"	4' 5.9"	3' 6.87"	4' 6.73"	3' 6.32"	4' 7.71"
3' 5.73"	4' 0.9"	3' 5.37"	4' 1.43"	3' 4.97"	4' 2.04"	3' 4.53"	4' 2.75"	3' 4.05"	4' 3.57"
3' 3.2"	3' 9.3"	3' 2.88"	3' 9.75"	3' 2.54"	3' 10.26"	3' 2.15"	3' 10.85"	3' 1.74"	3' 11.53"
3' 0.62"	3' 5.76"	3' 0.36"	3' 6.13"	3' 0.06"	3' 6.55"	2' 11.74"	3' 7.04"	2' 11.38"	3' 7.6"
2' 10.02"	3' 2.27"	2' 9.8"	3' 2.57"	2' 9.55"	3' 2.91"	2' 9.27"	3' 3.31"	2' 8.97"	3' 3.76"
2' 7.38"	2' 10.83"	2' 7.2"	2' 11.07"	2' 6.99"	2' 11.34"	2' 6.77"	2' 11.66"	2' 6.52"	3' 0.02"
2' 4.71"	2' 7.44"	2' 4.56"	2' 7.62"	2' 4.4"	2' 7.84"	2' 4.21"	2' 8.08"	2' 4.01"	2' 8.36"
2' 2"	2' 4.1"	2' 1.89"	2' 4.24"	2' 1.76"	2' 4.4"	2' 1.62"	2' 4.58"	2' 1.46"	2' 4.79"
1' 11.26"	2' 0.8"	1' 11.17"	2' 0.91"	1' 11.08"	2' 1.02"	1' 10.97"	2' 1.16"	1' 10.85"	2' 1.31"
1' 8.48"	1' 9.56"	1' 8.42"	1' 9.63"	1' 8.35"	1' 9.71"	1' 8.27"	1' 9.8"	1' 8.19"	1' 9.9"
1' 5.66"	1' 6.36"	1' 5.62"	1' 6.4"	1' 5.58"	1' 6.45"	1' 5.53"	1' 6.51"	1' 5.47"	1' 6.58"
1' 4.71"	1' 5.3"	1' 4.68"	1' 5.34"	1' 4.64"	1' 5.38"	1' 4.6"	1' 5.43"	1' 4.55"	1' 5.49"
1' 3.76"	1' 4.25"	1' 3.73"	1' 4.28"	1' 3.7"	1' 4.32"	1' 3.67"	1' 4.36"	1' 3.63"	1' 4.4"
1' 2.8"	1' 3.2"	1' 2.78"	1' 3.23"	1' 2.76"	1' 3.26"	1' 2.73"	1' 3.29"	1' 2.69"	1' 3.33"
1' 1.84"	1' 2.16"	1' 1.83"	1' 2.18"	1' 1.8"	1' 2.2"	1' 1.78"	1' 2.23"	1' 1.76"	1' 2.26"



10	11	13	14	16
20' 10.59"	18' 7.94"	16' 8.24"	14' 11.09"	13' 4.24"

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)
20' 9.03"	Infinity	18' 6.4"	Infinity	16' 6.67"	Infinity	14' 9.53"	Infinity	13' 2.69"	Infinity
17' 9.73"	Infinity	16' 1.95"	Infinity	14' 7.78"	Infinity	13' 3.14"	Infinity	11' 11.94"	Infinity
15' 7.19"	Infinity	14' 3.95"	Infinity	13' 1.62"	Infinity	12' 0.2"	Infinity	10' 11.69"	Infinity
13' 10.51"	Infinity	12' 10.43"	Infinity	11' 10.85"	Infinity	10' 11.82"	Infinity	10' 1.37"	Infinity
12' 5.94"	Infinity	11' 8.15"	Infinity	10' 10.61"	Infinity	10' 1.4"	Infinity	9' 4.54"	Infinity
11' 6.89"	Infinity	10' 10.49"	Infinity	10' 2.23"	Infinity	9' 6.17"	Infinity	8' 10.35"	Infinity
10' 5.05"	452' 0.33"	9' 10.26"	Infinity	9' 3.5"	Infinity	8' 8.81"	Infinity	8' 2.24"	Infinity
9' 6.95"	87' 4.26"	9' 1.23"	181' 3.2"	8' 7.48"	Infinity	8' 1.74"	Infinity	7' 8.05"	Infinity
8' 11.24"	50' 10.52"	8' 6.29"	72' 7.42"	8' 1.26"	140' 2.71"	7' 8.21"	Infinity	7' 3.16"	Infinity
8' 2.6"	32' 10.92"	7' 10.43"	40' 8.56"	7' 6.18"	55' 7.02"	7' 1.86"	94' 7.06"	6' 9.5"	456' 4.19"
7' 9.87"	26' 11.52"	7' 6.11"	31' 11.33"	7' 2.25"	40' 4.34"	6' 10.31"	57' 5.44"	6' 6.32"	110' 1.72"
7' 4.83"	22' 2.57"	7' 1.48"	25' 5.56"	6' 10.02"	30' 5.93"	6' 6.48"	39' 2.97"	6' 2.87"	58' 0.98"
6' 11.46"	18' 4.09"	6' 8.52"	20' 5.74"	6' 5.47"	23' 6.94"	6' 2.33"	28' 5.24"	5' 11.11"	37' 0.77"
6' 8.63"	16' 7.92"	6' 5.9"	18' 4.73"	6' 3.06"	20' 10.1"	6' 0.12"	24' 6.32"	5' 9.1"	30' 7.75"
6' 5.71"	15' 1.44"	6' 3.18"	16' 6.31"	6' 0.54"	18' 5.54"	5' 9.81"	21' 3.31"	5' 6.99"	25' 8.42"
6' 2.68"	13' 8.45"	6' 0.36"	14' 10.09"	5' 9.93"	16' 4.47"	5' 7.4"	18' 6.38"	5' 4.79"	21' 9.31"
5' 11.55"	12' 4.78"	5' 9.43"	13' 3.77"	5' 7.2"	14' 6.29"	5' 4.88"	16' 2.21"	5' 2.47"	18' 7"
5' 8.3"	11' 2.28"	5' 6.38"	11' 11.09"	5' 4.36"	12' 10.52"	5' 2.24"	14' 1.83"	5' 0.04"	15' 11.23"
5' 4.93"	10' 0.83"	5' 3.21"	10' 7.84"	5' 1.39"	11' 4.79"	4' 11.48"	12' 4.53"	4' 9.48"	13' 8.47"
5' 1.43"	9' 0.31"	4' 11.9"	9' 5.84"	4' 10.28"	10' 0.8"	4' 8.58"	10' 9.75"	4' 6.79"	11' 9.61"
4' 11.63"	8' 6.37"	4' 10.2"	8' 11.27"	4' 8.68"	9' 5.38"	4' 7.07"	10' 1.18"	4' 5.38"	10' 11.38"
4' 9.79"	8' 0.63"	4' 8.46"	8' 4.95"	4' 7.04"	8' 10.31"	4' 5.53"	9' 5.08"	4' 3.94"	10' 1.85"
4' 7.92"	7' 7.09"	4' 6.68"	7' 10.88"	4' 5.35"	8' 3.56"	4' 3.95"	8' 9.43"	4' 2.46"	9' 4.95"
4' 6.02"	7' 1.72"	4' 4.86"	7' 5.04"	4' 3.63"	7' 9.11"	4' 2.33"	8' 2.18"	4' 0.94"	8' 8.62"
4' 4.07"	6' 8.52"	4' 3.01"	6' 11.42"	4' 1.87"	7' 2.95"	4' 0.66"	7' 7.31"	3' 11.38"	8' 0.79"
4' 2.09"	6' 3.49"	4' 1.11"	6' 6"	4' 0.07"	6' 9.05"	3' 10.95"	7' 0.79"	3' 9.77"	7' 5.44"
4' 0.06"	5' 10.61"	3' 11.17"	6' 0.78"	3' 10.22"	6' 3.39"	3' 9.2"	6' 6.58"	3' 8.11"	6' 10.52"
3' 9.99"	5' 5.88"	3' 9.19"	5' 7.74"	3' 8.32"	5' 9.97"	3' 7.39"	6' 0.67"	3' 6.4"	6' 3.98"
3' 7.88"	5' 1.29"	3' 7.16"	5' 2.88"	3' 6.38"	5' 4.77"	3' 5.54"	5' 7.04"	3' 4.64"	5' 9.81"
3' 5.73"	4' 8.84"	3' 5.08"	4' 10.18"	3' 4.39"	4' 11.77"	3' 3.64"	5' 1.67"	3' 2.83"	5' 3.96"
3' 3.53"	4' 4.52"	3' 2.96"	4' 5.64"	3' 2.34"	4' 6.96"	3' 1.68"	4' 8.53"	3' 0.96"	4' 10.42"
3' 1.28"	4' 0.33"	3' 0.79"	4' 1.25"	3' 0.25"	4' 2.34"	2' 11.66"	4' 3.63"	2' 11.03"	4' 5.16"
2' 10.99"	3' 8.25"	2' 10.56"	3' 9"	2' 10.09"	3' 9.89"	2' 9.59"	3' 10.93"	2' 9.04"	4' 0.16"
2' 8.64"	3' 4.28"	2' 8.28"	3' 4.89"	2' 7.88"	3' 5.6"	2' 7.45"	3' 6.43"	2' 6.99"	3' 7.4"
2' 6.24"	3' 0.43"	2' 5.94"	3' 0.91"	2' 5.61"	3' 1.46"	2' 5.25"	3' 2.11"	2' 4.86"	3' 2.87"
2' 3.79"	2' 8.68"	2' 3.55"	2' 9.05"	2' 3.28"	2' 9.47"	2' 2.99"	2' 9.97"	2' 2.66"	2' 10.54"
2' 1.28"	2' 5.03"	2' 1.09"	2' 5.31"	2' 0.88"	2' 5.62"	2' 0.65"	2' 5.99"	2' 0.39"	2' 6.41"
1' 10.72"	2' 1.48"	1' 10.57"	2' 1.68"	1' 10.41"	2' 1.9"	1' 10.24"	2' 2.16"	1' 10.04"	2' 2.46"
1' 8.09"	1' 10.02"	1' 7.99"	1' 10.16"	1' 7.87"	1' 10.31"	1' 7.75"	1' 10.48"	1' 7.61"	1' 10.68"
1' 5.41"	1' 6.65"	1' 5.34"	1' 6.74"	1' 5.26"	1' 6.83"	1' 5.18"	1' 6.94"	1' 5.08"	1' 7.07"
1' 4.5"	1' 5.55"	1' 4.44"	1' 5.62"	1' 4.37"	1' 5.7"	1' 4.3"	1' 5.79"	1' 4.22"	1' 5.89"
1' 3.58"	1' 4.45"	1' 3.53"	1' 4.51"	1' 3.48"	1' 4.58"	1' 3.42"	1' 4.65"	1' 3.35"	1' 4.74"
1' 2.66"	1' 3.37"	1' 2.62"	1' 3.41"	1' 2.57"	1' 3.47"	1' 2.52"	1' 3.53"	1' 2.47"	1' 3.6"
1' 1.73"	1' 2.29"	1' 1.69"	1' 2.33"	1' 1.66"	1' 2.37"	1' 1.62"	1' 2.42"	1' 1.57"	1' 2.47"



18	20	22
11' 11.46"	10' 8.5"	9' 7.2"

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)
11' 9.91"	Infinity	10' 6.96"	Infinity	9' 5.64"	Infinity
10' 10.09"	Infinity	9' 9.5"	Infinity	8' 10.08"	Infinity
10' 0.09"	Infinity	9' 1.36"	Infinity	8' 3.47"	Infinity
9' 3.51"	Infinity	8' 6.26"	Infinity	7' 9.62"	Infinity
8' 8.07"	Infinity	8' 0.03"	Infinity	7' 4.43"	Infinity
8' 2.8"	Infinity	7' 7.57"	Infinity	7' 0.67"	Infinity
7' 7.82"	Infinity	7' 1.59"	Infinity	6' 7.59"	Infinity
7' 2.43"	Infinity	6' 8.93"	Infinity	6' 3.58"	Infinity
6' 10.15"	Infinity	6' 5.2"	Infinity	6' 0.35"	Infinity
6' 5.14"	Infinity	6' 0.8"	Infinity	5' 8.51"	Infinity
6' 2.31"	Infinity	5' 10.3"	Infinity	5' 6.31"	Infinity
5' 11.22"	126' 11.68"	5' 7.55"	Infinity	5' 3.89"	Infinity
5' 7.83"	56' 5"	5' 4.53"	137' 10.49"	5' 1.2"	Infinity
5' 6.02"	42' 8.25"	5' 2.89"	76' 10.31"	4' 11.75"	824' 5.05"
5' 4.11"	33' 7.24"	5' 1.17"	51' 6.34"	4' 10.21"	130' 2.36"
5' 2.1"	27' 1.78"	4' 11.36"	37' 7.93"	4' 8.58"	67' 0.99"
4' 11.99"	22' 3.89"	4' 9.44"	28' 10.92"	4' 6.85"	43' 4.97"
4' 9.76"	18' 7"	4' 7.42"	22' 10.63"	4' 5.02"	31' 0.2"
4' 7.41"	15' 7.17"	4' 5.27"	18' 5.82"	4' 3.07"	23' 4.65"
4' 4.92"	13' 1.91"	4' 2.98"	15' 1.56"	4' 0.99"	18' 2.63"
4' 3.62"	12' 1.2"	4' 1.79"	13' 8.81"	3' 11.89"	16' 2.56"
4' 2.28"	11' 1.56"	4' 0.55"	12' 5.84"	3' 10.76"	14' 5.84"
4' 0.91"	10' 2.86"	3' 11.28"	11' 4.38"	3' 9.59"	12' 11.81"
3' 11.49"	9' 4.98"	3' 9.96"	10' 4.21"	3' 8.38"	11' 7.97"
3' 10.02"	8' 7.84"	3' 8.6"	9' 5.16"	3' 7.12"	10' 5.96"
3' 8.51"	7' 11.36"	3' 7.19"	8' 7.08"	3' 5.82"	9' 5.47"
3' 6.96"	7' 3.47"	3' 5.74"	7' 9.84"	3' 4.46"	8' 6.27"
3' 5.35"	6' 8.1"	3' 4.23"	7' 1.34"	3' 3.06"	7' 8.16"
3' 3.69"	6' 1.22"	3' 2.67"	6' 5.5"	3' 1.6"	6' 11"
3' 1.97"	5' 6.77"	3' 1.05"	5' 10.25"	3' 0.08"	6' 2.66"
3' 0.19"	5' 0.71"	2' 11.37"	5' 3.52"	2' 10.5"	5' 7.03"
2' 10.35"	4' 7"	2' 9.63"	4' 9.25"	2' 8.86"	5' 0.03"
2' 8.45"	4' 1.63"	2' 7.82"	4' 3.41"	2' 7.14"	4' 5.57"
2' 6.48"	3' 8.56"	2' 5.94"	3' 9.94"	2' 5.35"	3' 11.61"
2' 4.44"	3' 3.76"	2' 3.98"	3' 4.82"	2' 3.48"	3' 6.08"
2' 2.32"	2' 11.21"	2' 1.94"	3'	2' 1.53"	3' 0.94"
2' 0.12"	2' 6.9"	1' 11.81"	2' 7.48"	1' 11.49"	2' 8.15"
1' 9.83"	2' 2.81"	1' 9.6"	2' 3.21"	1' 9.34"	2' 3.68"
1' 7.45"	1' 10.91"	1' 7.28"	1' 11.18"	1' 7.1"	1' 11.49"
1' 4.98"	1' 7.21"	1' 4.87"	1' 7.37"	1' 4.74"	1' 7.56"
1' 4.13"	1' 6.01"	1' 4.04"	1' 6.15"	1' 3.93"	1' 6.3"
1' 3.28"	1' 4.83"	1' 3.19"	1' 4.94"	1' 3.1"	1' 5.07"
1' 2.41"	1' 3.67"	1' 2.34"	1' 3.76"	1' 2.26"	1' 3.86"
1' 1.52"	1' 2.53"	1' 1.47"	1' 2.6"	1' 1.41"	1' 2.68"



Focal Length 50 mm

Circle of Confusion 0.025 mm

T/No	2.1	2.2	2.5	2.8
Hyperfocal Distance (ft-inch)	153' 8.17"	143' 9.59"	128' 2.07"	114' 2.98"

T/No	2.1		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	153' 6.15"	Infinity	143' 7.55"	Infinity	128' 0.05"	Infinity	114' 1.01"	Infinity
120' 0"	67' 7.13"	544' 0.56"	65' 7.46"	720' 2.06"	62' 2.18"	1867' 10.3"	58' 8.75"	Infinity
60' 0"	43' 4.05"	97' 9.65"	42' 6.29"	102' 3.16"	41' 0.77"	111' 11.41"	39' 6.5"	125' 3.38"
40' 0"	31' 10.7"	53' 8.79"	31' 5.44"	55' 0.48"	30' 7.85"	57' 8.47"	29' 9.65"	61' 0.3"
30' 0"	25' 2.75"	37' 0.5"	24' 11.47"	37' 7.84"	24' 5.45"	38' 10.45"	23' 10.97"	40' 4.04"
25' 0"	21' 7.39"	29' 8.02"	21' 5"	30' 0.69"	21' 0.58"	30' 9.88"	20' 7.8"	31' 8.78"
20' 0"	17' 9.52"	22' 10.17"	17' 7.92"	23' 0.9"	17' 4.93"	23' 6.23"	17' 1.68"	24' 0.47"
17' 0"	15' 4.71"	18' 11.93"	15' 3.51"	19' 1.8"	15' 1.29"	19' 5.43"	14' 10.86"	19' 9.64"
15' 0"	13' 8.92"	16' 6.22"	13' 7.97"	16' 7.62"	13' 6.21"	16' 10.33"	13' 4.28"	17' 1.46"
13' 0"	12' 0.65"	14' 1.35"	11' 11.93"	14' 2.36"	11' 10.59"	14' 4.31"	11' 9.11"	14' 6.55"
12' 0"	11' 2.34"	12' 11.22"	11' 1.72"	13' 0.06"	11' 0.56"	13' 1.69"	10' 11.29"	13' 3.55"
11' 0"	10' 3.89"	11' 9.29"	10' 3.37"	11' 9.98"	10' 2.4"	11' 11.31"	10' 1.32"	12' 0.84"
10' 0"	9' 5.32"	10' 7.55"	9' 4.89"	10' 8.11"	9' 4.08"	10' 9.19"	9' 3.18"	10' 10.41"
9' 6"	8' 11.99"	10' 0.76"	8' 11.6"	10' 1.25"	8' 10.86"	10' 2.21"	8' 10.05"	10' 3.3"
9' 0"	8' 6.62"	9' 6.01"	8' 6.27"	9' 6.45"	8' 5.61"	9' 7.29"	8' 4.88"	9' 8.26"
8' 6"	8' 1.22"	8' 11.3"	8' 0.91"	8' 11.69"	8' 0.32"	9' 0.43"	7' 11.67"	9' 1.28"
8' 0"	7' 7.78"	8' 4.65"	7' 7.51"	8' 4.98"	7' 6.99"	8' 5.63"	7' 6.41"	8' 6.37"
7' 6"	7' 2.31"	7' 10.03"	7' 2.07"	7' 10.33"	7' 1.62"	7' 10.89"	7' 1.11"	7' 11.52"
7' 0"	6' 8.81"	7' 3.47"	6' 8.6"	7' 3.72"	6' 8.21"	7' 4.2"	6' 7.77"	7' 4.74"
6' 6"	6' 3.27"	6' 8.95"	6' 3.09"	6' 9.16"	6' 2.75"	6' 9.56"	6' 2.38"	6' 10.02"
6' 3"	6' 0.49"	6' 5.7"	6' 0.33"	6' 5.89"	6' 0.01"	6' 6.27"	5' 11.66"	6' 6.69"
6' 0"	5' 9.7"	6' 2.47"	5' 9.55"	6' 2.64"	5' 9.26"	6' 2.98"	5' 8.94"	6' 3.37"
5' 9"	5' 6.9"	5' 11.24"	5' 6.76"	5' 11.41"	5' 6.5"	5' 11.71"	5' 6.21"	6' 0.06"
5' 6"	5' 4.09"	5' 8.03"	5' 3.97"	5' 8.18"	5' 3.73"	5' 8.46"	5' 3.46"	5' 8.77"
5' 3"	5' 1.28"	5' 4.83"	5' 1.16"	5' 4.96"	5' 0.94"	5' 5.21"	5' 0.7"	5' 5.49"
5' 0"	4' 10.45"	5' 1.64"	4' 10.35"	5' 1.76"	4' 10.15"	5' 1.98"	4' 9.93"	5' 2.23"
4' 9"	4' 7.62"	4' 10.46"	4' 7.52"	4' 10.57"	4' 7.35"	4' 10.76"	4' 7.15"	4' 10.99"
4' 6"	4' 4.77"	4' 7.29"	4' 4.69"	4' 7.39"	4' 4.53"	4' 7.56"	4' 4.36"	4' 7.76"
4' 3"	4' 1.92"	4' 4.14"	4' 1.85"	4' 4.22"	4' 1.71"	4' 4.37"	4' 1.55"	4' 4.54"
4' 0"	3' 11.06"	4' 0.99"	3' 10.99"	4' 1.06"	3' 10.87"	4' 1.19"	3' 10.74"	4' 1.34"
3' 9"	3' 8.18"	3' 9.85"	3' 8.13"	3' 9.91"	3' 8.02"	3' 10.03"	3' 7.91"	3' 10.15"
3' 6"	3' 5.3"	3' 6.72"	3' 5.26"	3' 6.77"	3' 5.17"	3' 6.87"	3' 5.07"	3' 6.98"
3' 3"	3' 2.41"	3' 3.61"	3' 2.37"	3' 3.65"	3' 2.3"	3' 3.73"	3' 2.21"	3' 3.82"
3' 0"	2' 11.51"	3' 0.5"	2' 11.48"	3' 0.54"	2' 11.42"	3' 0.6"	2' 11.35"	3' 0.68"
2' 9"	2' 8.61"	2' 9.41"	2' 8.58"	2' 9.43"	2' 8.53"	2' 9.49"	2' 8.47"	2' 9.55"
2' 6"	2' 5.69"	2' 6.32"	2' 5.67"	2' 6.34"	2' 5.63"	2' 6.39"	2' 5.58"	2' 6.43"
2' 3"	2' 2.76"	2' 3.25"	2' 2.74"	2' 3.26"	2' 2.71"	2' 3.29"	2' 2.68"	2' 3.33"
2' 0"	1' 11.82"	2' 0.18"	1' 11.81"	2' 0.19"	1' 11.79"	2' 0.22"	1' 11.76"	2' 0.24"
1' 11"	1' 10.84"	1' 11.16"	1' 10.83"	1' 11.17"	1' 10.81"	1' 11.19"	1' 10.79"	1' 11.22"
1' 10"	1' 9.86"	1' 10.14"	1' 9.85"	1' 10.15"	1' 9.83"	1' 10.17"	1' 9.81"	1' 10.19"
1' 9"	1' 8.88"	1' 9.13"	1' 8.87"	1' 9.13"	1' 8.85"	1' 9.15"	1' 8.83"	1' 9.17"
1' 8"	1' 7.89"	1' 8.11"	1' 7.89"	1' 8.12"	1' 7.87"	1' 8.13"	1' 7.86"	1' 8.15"



3.2	3.5	4	4.5	5
101' 10.17"	90' 9.57"	80' 11.46"	72' 2.22"	64' 4.44"

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)
101' 8.18"	Infinity	90' 7.6"	Infinity	80' 9.48"	Infinity	72' 0.24"	Infinity	64' 2.49"	Infinity
55' 3.43"	Infinity	51' 10.5"	Infinity	48' 6.23"	Infinity	45' 2.85"	Infinity	42' 0.6"	Infinity
37' 11.55"	144' 7.56"	36' 4.03"	174' 11.92"	34' 8.03"	229' 0.18"	32' 11.69"	350' 8.05"	31' 3.13"	870' 3.1"
28' 10.86"	65' 2.9"	27' 11.52"	70' 8.78"	26' 11.65"	78' 1.42"	25' 11.3"	88' 6.07"	24' 10.53"	104' 0.68"
23' 4.04"	42' 1.46"	22' 8.66"	44' 3.89"	22' 0.83"	47' 1.1"	21' 4.57"	50' 7.74"	20' 7.9"	55' 4.06"
20' 2.65"	32' 9.81"	19' 9.12"	34' 1.57"	19' 3.22"	35' 8.85"	18' 8.94"	37' 8.79"	18' 2.29"	40' 3.12"
16' 10.16"	24' 7.81"	16' 6.34"	25' 4.52"	16' 2.23"	26' 2.94"	15' 9.83"	27' 3.54"	15' 5.12"	28' 6.95"
14' 8.21"	20' 2.56"	14' 5.33"	20' 8.33"	14' 2.21"	21' 3.15"	13' 10.84"	21' 11.28"	13' 7.23"	22' 9.06"
13' 2.16"	17' 5.09"	12' 11.86"	17' 9.34"	12' 9.35"	18' 2.31"	12' 6.63"	18' 8.19"	12' 3.7"	19' 3.18"
11' 7.48"	14' 9.14"	11' 5.7"	15' 0.14"	11' 3.76"	15' 3.64"	11' 1.65"	15' 7.74"	10' 11.36"	16' 0.56"
10' 9.89"	13' 5.7"	10' 8.36"	13' 8.18"	10' 6.68"	13' 11.06"	10' 4.85"	14' 2.42"	10' 2.87"	14' 6.36"
10' 0.13"	12' 2.59"	9' 10.83"	12' 4.61"	9' 9.4"	12' 6.95"	9' 7.84"	12' 9.67"	9' 6.14"	13' 0.84"
9' 2.2"	10' 11.82"	9' 1.11"	11' 1.43"	8' 11.91"	11' 3.3"	8' 10.61"	11' 5.46"	8' 9.18"	11' 7.96"
8' 9.16"	10' 4.55"	8' 8.17"	10' 5.98"	8' 7.09"	10' 7.64"	8' 5.9"	10' 9.54"	8' 4.6"	10' 11.76"
8' 4.08"	9' 9.36"	8' 3.19"	9' 10.63"	8' 2.21"	10' 0.08"	8' 1.14"	10' 1.76"	7' 11.97"	10' 3.7"
7' 10.95"	9' 2.25"	7' 10.16"	9' 3.36"	7' 9.28"	9' 4.63"	7' 8.32"	9' 6.09"	7' 7.26"	9' 7.78"
7' 5.77"	8' 7.21"	7' 5.07"	8' 8.18"	7' 4.29"	8' 9.28"	7' 3.44"	8' 10.55"	7' 2.5"	9' 0.01"
7' 0.55"	8' 0.25"	6' 11.93"	8' 1.08"	6' 11.25"	8' 2.03"	6' 10.49"	8' 3.12"	6' 9.66"	8' 4.37"
6' 7.28"	7' 5.36"	6' 6.74"	7' 6.07"	6' 6.14"	7' 6.88"	6' 5.48"	7' 7.8"	6' 4.76"	7' 8.87"
6' 1.96"	6' 10.55"	6' 1.49"	6' 11.14"	6' 0.98"	6' 11.82"	6' 0.41"	7' 0.6"	5' 11.78"	7' 1.49"
5' 11.28"	6' 7.17"	5' 10.85"	6' 7.71"	5' 10.37"	6' 8.33"	5' 9.85"	6' 9.04"	5' 9.27"	6' 9.85"
5' 8.59"	6' 3.8"	5' 8.19"	6' 4.3"	5' 7.75"	6' 4.86"	5' 7.27"	6' 5.51"	5' 6.74"	6' 6.24"
5' 5.88"	6' 0.46"	5' 5.52"	6' 0.9"	5' 5.12"	6' 1.42"	5' 4.68"	6' 2"	5' 4.19"	6' 2.66"
5' 3.16"	5' 9.13"	5' 2.83"	5' 9.53"	5' 2.47"	5' 9.99"	5' 2.06"	5' 10.52"	5' 1.62"	5' 11.12"
5' 0.43"	5' 5.82"	5' 0.13"	5' 6.18"	4' 11.8"	5' 6.59"	4' 11.44"	5' 7.06"	4' 11.03"	5' 7.6"
4' 9.69"	5' 2.52"	4' 9.42"	5' 2.85"	4' 9.12"	5' 3.21"	4' 8.79"	5' 3.63"	4' 8.42"	5' 4.11"
4' 6.93"	4' 11.24"	4' 6.69"	4' 11.53"	4' 6.42"	4' 11.86"	4' 6.13"	5' 0.23"	4' 5.8"	5' 0.65"
4' 4.17"	4' 7.98"	4' 3.95"	4' 8.24"	4' 3.71"	4' 8.52"	4' 3.45"	4' 8.85"	4' 3.15"	4' 9.22"
4' 1.38"	4' 4.74"	4' 1.19"	4' 4.96"	4' 0.98"	4' 5.21"	4' 0.75"	4' 5.5"	4' 0.49"	4' 5.82"
3' 10.59"	4' 1.51"	3' 10.42"	4' 1.7"	3' 10.24"	4' 1.92"	3' 10.03"	4' 2.17"	3' 9.8"	4' 2.45"
3' 7.78"	3' 10.3"	3' 7.63"	3' 10.47"	3' 7.47"	3' 10.65"	3' 7.29"	3' 10.86"	3' 7.1"	3' 11.1"
3' 4.96"	3' 7.11"	3' 4.83"	3' 7.25"	3' 4.7"	3' 7.4"	3' 4.54"	3' 7.58"	3' 4.37"	3' 7.79"
3' 2.12"	3' 3.93"	3' 2.02"	3' 4.04"	3' 1.9"	3' 4.18"	3' 1.77"	3' 4.33"	3' 1.63"	3' 4.5"
2' 11.27"	3' 0.76"	2' 11.18"	3' 0.86"	2' 11.09"	3' 0.97"	2' 10.98"	3' 1.09"	2' 10.86"	3' 1.23"
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' 8.07"	2' 9.99"
2' 5.53"	2' 6.49"	2' 5.47"	2' 6.55"	2' 5.41"	2' 6.62"	2' 5.34"	2' 6.7"	2' 5.26"	2' 6.78"
2' 2.64"	2' 3.37"	2' 2.6"	2' 3.42"	2' 2.55"	2' 3.47"	2' 2.49"	2' 3.53"	2' 2.43"	2' 3.6"
1' 11.73"	2' 0.27"	1' 11.7"	2' 0.31"	1' 11.67"	2' 0.35"	1' 11.63"	2' 0.39"	1' 11.58"	2' 0.44"
1' 10.76"	1' 11.24"	1' 10.73"	1' 11.27"	1' 10.7"	1' 11.31"	1' 10.67"	1' 11.35"	1' 10.63"	1' 11.39"
1' 9.79"	1' 10.22"	1' 9.76"	1' 10.24"	1' 9.74"	1' 10.27"	1' 9.7"	1' 10.31"	1' 9.67"	1' 10.35"
1' 8.81"	1' 9.19"	1' 8.79"	1' 9.21"	1' 8.77"	1' 9.24"	1' 8.74"	1' 9.27"	1' 8.71"	1' 9.3"
1' 7.84"	1' 8.17"	1' 7.82"	1' 8.19"	1' 7.8"	1' 8.21"	1' 7.77"	1' 8.23"	1' 7.74"	1' 8.26"



5.6	6.3	7.1	8	9
57' 4.94"	51' 2.49"	45' 8.23"	40' 9.13"	36' 4.54"

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)
57' 2.96"	Infinity	51' 0.55"	Infinity	45' 6.25"	Infinity	40' 7.19"	Infinity	36' 2.57"	Infinity
38' 11.66"	Infinity	36' 0.2"	Infinity	33' 2.36"	Infinity	30' 6.25"	Infinity	27' 11.92"	Infinity
29' 6.48"	Infinity	27' 9.89"	Infinity	26' 1.48"	Infinity	24' 5.4"	Infinity	22' 9.76"	Infinity
23' 9.41"	129' 8"	22' 8.01"	179' 3.31"	21' 6.42"	314' 7.76"	20' 4.72"	2088' 5.21"	19' 3.01"	Infinity
19' 10.86"	61' 9.27"	19' 1.48"	71' 0.75"	18' 3.8"	85' 6.33"	17' 5.89"	110' 11.07"	16' 7.8"	166' 6.79"
17' 7.29"	43' 6.44"	16' 11.96"	47' 11.08"	16' 4.33"	54' 0.55"	15' 8.44"	63' 1.39"	15' 0.32"	77' 9.68"
15' 0.11"	30' 2.11"	14' 6.81"	32' 2.37"	14' 1.22"	34' 9.86"	13' 7.38"	38' 4.02"	13' 1.3"	43' 2.93"
13' 3.35"	23' 8.95"	12' 11.22"	24' 11.63"	12' 6.85"	26' 6.05"	12' 2.23"	28' 5.67"	11' 9.38"	31' 0.82"
12' 0.55"	19' 11.58"	11' 9.17"	20' 9.78"	11' 5.56"	21' 10.35"	11' 1.74"	23' 2.08"	10' 9.7"	24' 10.2"
10' 8.89"	16' 6.29"	10' 6.22"	17' 1.16"	10' 3.36"	17' 9.47"	10' 0.31"	18' 7.65"	9' 9.06"	19' 8.35"
10' 0.71"	14' 11.01"	9' 10.38"	15' 4.55"	9' 7.88"	15' 11.2"	9' 5.2"	16' 7.28"	9' 2.34"	17' 5.22"
9' 4.29"	13' 4.57"	9' 2.29"	13' 8.97"	9' 0.13"	14' 2.22"	8' 9.81"	14' 8.54"	8' 7.33"	15' 4.24"
8' 7.62"	11' 10.89"	8' 5.93"	12' 2.34"	8' 4.1"	12' 6.42"	8' 2.13"	12' 11.29"	8'	13' 5.15"
8' 3.19"	11' 2.34"	8' 1.64"	11' 5.36"	7' 11.97"	11' 8.93"	7' 10.17"	12' 1.17"	7' 8.22"	12' 6.25"
7' 10.68"	10' 5.95"	7' 9.29"	10' 8.59"	7' 7.77"	10' 11.69"	7' 6.12"	11' 3.37"	7' 4.35"	11' 7.75"
7' 6.11"	9' 9.74"	7' 4.85"	10' 0.03"	7' 3.48"	10' 2.71"	7' 2"	10' 5.87"	7' 0.39"	10' 9.62"
7' 1.47"	9' 1.7"	7' 0.34"	9' 3.67"	6' 11.12"	9' 5.96"	6' 9.79"	9' 8.66"	6' 8.34"	9' 11.85"
6' 8.75"	8' 5.82"	6' 7.76"	8' 7.49"	6' 6.67"	8' 9.45"	6' 5.48"	8' 11.73"	6' 4.2"	9' 2.42"
6' 3.96"	7' 10.09"	6' 3.09"	7' 11.51"	6' 2.13"	8' 1.15"	6' 1.09"	8' 3.07"	5' 11.96"	8' 5.31"
5' 11.09"	7' 2.52"	5' 10.34"	7' 3.7"	5' 9.51"	7' 5.06"	5' 8.6"	7' 6.65"	5' 7.61"	7' 8.51"
5' 8.63"	6' 10.78"	5' 7.93"	6' 11.86"	5' 7.16"	7' 1.1"	5' 6.32"	7' 2.54"	5' 5.4"	7' 4.22"
5' 6.15"	6' 7.09"	5' 5.5"	6' 8.06"	5' 4.79"	6' 9.18"	5' 4.01"	6' 10.48"	5' 3.16"	7'
5' 3.65"	6' 3.43"	5' 3.05"	6' 4.3"	5' 2.4"	6' 5.32"	5' 1.68"	6' 6.48"	5' 0.9"	6' 7.84"
5' 1.12"	5' 11.8"	5' 0.58"	6' 0.59"	4' 11.98"	6' 1.5"	4' 11.32"	6' 2.54"	4' 10.61"	6' 3.76"
4' 10.58"	5' 8.21"	4' 10.08"	5' 8.92"	4' 9.54"	5' 9.73"	4' 8.94"	5' 10.66"	4' 8.28"	5' 11.74"
4' 8.02"	5' 4.66"	4' 7.57"	5' 5.28"	4' 7.07"	5' 6"	4' 6.53"	5' 6.83"	4' 5.93"	5' 7.78"
4' 5.43"	5' 1.14"	4' 5.03"	5' 1.69"	4' 4.58"	5' 2.32"	4' 4.09"	5' 3.05"	4' 3.55"	5' 3.89"
4' 2.82"	4' 9.65"	4' 2.46"	4' 10.13"	4' 2.07"	4' 10.69"	4' 1.63"	4' 11.32"	4' 1.14"	5' 0.05"
4' 0.2"	4' 6.19"	3' 11.88"	4' 6.61"	3' 11.52"	4' 7.09"	3' 11.13"	4' 7.65"	3' 10.7"	4' 8.28"
3' 9.55"	4' 2.77"	3' 9.27"	4' 3.13"	3' 8.95"	4' 3.55"	3' 8.61"	4' 4.02"	3' 8.23"	4' 4.57"
3' 6.88"	3' 11.38"	3' 6.63"	3' 11.69"	3' 6.36"	4' 0.04"	3' 6.06"	4' 0.45"	3' 5.73"	4' 0.91"
3' 4.18"	3' 8.02"	3' 3.97"	3' 8.28"	3' 3.74"	3' 8.58"	3' 3.48"	3' 8.92"	3' 3.19"	3' 9.31"
3' 1.46"	3' 4.69"	3' 1.29"	3' 4.91"	3' 1.09"	3' 5.15"	3' 0.87"	3' 5.44"	3' 0.63"	3' 5.76"
2' 10.72"	3' 1.39"	2' 10.58"	3' 1.57"	2' 10.41"	3' 1.77"	2' 10.23"	3' 2"	2' 10.02"	3' 2.26"
2' 7.96"	2' 10.12"	2' 7.84"	2' 10.26"	2' 7.7"	2' 10.43"	2' 7.55"	2' 10.61"	2' 7.39"	2' 10.82"
2' 5.18"	2' 6.88"	2' 5.08"	2' 6.99"	2' 4.97"	2' 7.12"	2' 4.85"	2' 7.27"	2' 4.72"	2' 7.43"
2' 2.37"	2' 3.67"	2' 2.29"	2' 3.76"	2' 2.21"	2' 3.86"	2' 2.11"	2' 3.96"	2' 2.01"	2' 4.09"
1' 11.53"	2' 0.49"	1' 11.48"	2' 0.56"	1' 11.41"	2' 0.63"	1' 11.34"	2' 0.7"	1' 11.27"	2' 0.79"
1' 10.58"	1' 11.44"	1' 10.53"	1' 11.49"	1' 10.48"	1' 11.56"	1' 10.41"	1' 11.63"	1' 10.34"	1' 11.71"
1' 9.63"	1' 10.39"	1' 9.58"	1' 10.44"	1' 9.53"	1' 10.49"	1' 9.48"	1' 10.56"	1' 9.42"	1' 10.63"
1' 8.67"	1' 9.34"	1' 8.63"	1' 9.38"	1' 8.59"	1' 9.43"	1' 8.54"	1' 9.49"	1' 8.49"	1' 9.55"
1' 7.71"	1' 8.3"	1' 7.68"	1' 8.33"	1' 7.64"	1' 8.38"	1' 7.6"	1' 8.42"	1' 7.55"	1' 8.48"



10	11	13	14	16
32' 5.65"	28' 11.87"	25' 10.67"	23' 1.52"	20' 7.99"

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)
32' 3.69"	Infinity	28' 9.93"	Infinity	25' 8.72"	Infinity	22' 11.57"	Infinity	20' 6.04"	Infinity
25' 7.41"	Infinity	23' 4.75"	Infinity	21' 3.92"	Infinity	19' 4.88"	Infinity	17' 7.59"	Infinity
21' 2.67"	Infinity	19' 8.23"	Infinity	18' 2.54"	Infinity	16' 9.64"	Infinity	15' 5.6"	Infinity
18' 1.37"	Infinity	16' 11.9"	Infinity	15' 10.68"	Infinity	14' 9.78"	Infinity	13' 9.29"	Infinity
15' 9.6"	382' 6.17"	14' 11.35"	Infinity	14' 1.12"	Infinity	13' 2.97"	Infinity	12' 4.98"	Infinity
14' 4.02"	105' 5.05"	13' 7.59"	175' 6.8"	12' 11.08"	700' 5.09"	12' 2.57"	Infinity	11' 6.08"	Infinity
12' 7.01"	50' 6.31"	12' 0.53"	62' 4.12"	11' 5.92"	84' 7.63"	10' 11.2"	141' 8.8"	10' 4.43"	591' 5.71"
11' 4.31"	34' 7.45"	10' 11.06"	39' 8.83"	10' 5.64"	47' 8"	10' 0.09"	61' 5.9"	9' 6.44"	91' 4.3"
10' 5.46"	27' 0.63"	10' 1.03"	30' 0.61"	9' 8.43"	34' 4.04"	9' 3.68"	40' 10.91"	8' 10.82"	52' 1.94"
9' 5.63"	21' 0.47"	9' 2.02"	22' 9.46"	8' 10.24"	25' 1.72"	8' 6.32"	28' 5.47"	8' 2.25"	33' 5"
8' 11.31"	18' 5.67"	8' 8.1"	19' 9.58"	8' 4.73"	21' 6.47"	8' 1.22"	23' 10.89"	7' 9.57"	27' 3.47"
8' 4.68"	16' 1.75"	8' 1.88"	17' 1.69"	7' 10.92"	18' 5.04"	7' 7.81"	20' 1.32"	7' 4.57"	22' 5.15"
7' 9.74"	14' 0.31"	7' 7.32"	14' 9.16"	7' 4.76"	15' 8.31"	7' 2.07"	16' 10.69"	6' 11.24"	18' 5.77"
7' 6.14"	13' 0.42"	7' 3.91"	13' 7.99"	7' 1.55"	14' 5.45"	6' 11.06"	15' 5.5"	6' 8.43"	16' 9.26"
7' 2.45"	12' 1.03"	7' 0.41"	12' 7.48"	6' 10.25"	13' 3.46"	6' 7.95"	14' 1.53"	6' 5.53"	15' 2.5"
6' 10.67"	11' 2.12"	6' 8.82"	11' 7.58"	6' 6.84"	12' 2.28"	6' 4.74"	12' 10.64"	6' 2.52"	13' 9.29"
6' 6.79"	10' 3.66"	6' 5.12"	10' 8.25"	6' 3.33"	11' 1.84"	6' 1.43"	11' 8.75"	5' 11.41"	12' 5.44"
6' 2.81"	9' 5.62"	6' 1.32"	9' 9.44"	5' 11.71"	10' 2.07"	5' 10"	10' 7.74"	5' 8.18"	11' 2.8"
5' 10.73"	8' 7.97"	5' 9.4"	8' 11.13"	5' 7.98"	9' 2.93"	5' 6.45"	9' 7.54"	5' 4.82"	10' 1.22"
5' 6.54"	7' 10.69"	5' 5.38"	8' 1.28"	5' 4.13"	8' 4.36"	5' 2.78"	8' 8.07"	5' 1.34"	9' 0.6"
5' 4.4"	7' 6.19"	5' 3.32"	7' 8.51"	5' 2.15"	7' 11.28"	5' 0.9"	8' 2.59"	4' 11.55"	8' 6.62"
5' 2.24"	7' 1.77"	5' 1.24"	7' 3.85"	5' 0.15"	7' 6.32"	4' 10.98"	7' 9.28"	4' 9.73"	8' 0.85"
5' 0.04"	6' 9.43"	4' 11.12"	6' 11.29"	4' 10.11"	7' 1.49"	4' 9.03"	7' 4.11"	4' 7.86"	7' 7.26"
4' 9.82"	6' 5.17"	4' 8.97"	6' 6.82"	4' 8.04"	6' 8.77"	4' 7.04"	6' 11.09"	4' 5.96"	7' 1.86"
4' 7.57"	6' 0.99"	4' 6.78"	6' 2.45"	4' 5.94"	6' 4.18"	4' 5.02"	6' 6.21"	4' 4.02"	6' 8.64"
4' 5.28"	5' 8.89"	4' 4.57"	5' 10.18"	4' 3.79"	5' 11.69"	4' 2.95"	6' 1.47"	4' 2.05"	6' 3.58"
4' 2.96"	5' 4.86"	4' 2.32"	5' 5.99"	4' 1.62"	5' 7.3"	4' 0.85"	5' 8.85"	4' 0.03"	5' 10.68"
4' 0.61"	5' 0.9"	4' 0.03"	5' 1.88"	3' 11.4"	5' 3.02"	3' 10.71"	5' 4.36"	3' 9.97"	5' 5.94"
3' 10.23"	4' 9.01"	3' 9.71"	4' 9.86"	3' 9.15"	4' 10.84"	3' 8.53"	4' 11.99"	3' 7.86"	5' 1.34"
3' 7.82"	4' 5.19"	3' 7.36"	4' 5.92"	3' 6.86"	4' 6.75"	3' 6.31"	4' 7.73"	3' 5.72"	4' 8.87"
3' 5.36"	4' 1.44"	3' 4.96"	4' 2.05"	3' 4.52"	4' 2.76"	3' 4.04"	4' 3.58"	3' 3.52"	4' 4.54"
3' 2.88"	3' 9.75"	3' 2.53"	3' 10.27"	3' 2.15"	3' 10.86"	3' 1.73"	3' 11.54"	3' 1.28"	4' 0.33"
3' 0.36"	3' 6.13"	3' 0.06"	3' 6.55"	2' 11.74"	3' 7.04"	2' 11.38"	3' 7.6"	2' 10.99"	3' 8.25"
2' 9.8"	3' 2.56"	2' 9.55"	3' 2.91"	2' 9.28"	3' 3.3"	2' 8.97"	3' 3.76"	2' 8.64"	3' 4.28"
2' 7.2"	2' 11.06"	2' 7"	2' 11.33"	2' 6.77"	2' 11.65"	2' 6.52"	3' 0.01"	2' 6.25"	3' 0.42"
2' 4.57"	2' 7.62"	2' 4.4"	2' 7.83"	2' 4.22"	2' 8.07"	2' 4.02"	2' 8.35"	2' 3.8"	2' 8.67"
2' 1.89"	2' 4.23"	2' 1.77"	2' 4.39"	2' 1.62"	2' 4.57"	2' 1.47"	2' 4.78"	2' 1.29"	2' 5.02"
1' 11.18"	2' 0.9"	1' 11.08"	2' 1.01"	1' 10.98"	2' 1.14"	1' 10.86"	2' 1.29"	1' 10.73"	2' 1.46"
1' 10.27"	1' 11.8"	1' 10.18"	1' 11.9"	1' 10.09"	2' 0.02"	1' 9.98"	2' 0.15"	1' 9.86"	2' 0.3"
1' 9.35"	1' 10.71"	1' 9.27"	1' 10.8"	1' 9.19"	1' 10.9"	1' 9.09"	1' 11.01"	1' 8.99"	1' 11.15"
1' 8.43"	1' 9.62"	1' 8.36"	1' 9.7"	1' 8.28"	1' 9.79"	1' 8.2"	1' 9.89"	1' 8.11"	1' 10"
1' 7.5"	1' 8.54"	1' 7.44"	1' 8.61"	1' 7.37"	1' 8.68"	1' 7.3"	1' 8.77"	1' 7.22"	1' 8.87"



18	20	22
18' 5.69"	16' 6.23"	14' 9.36"

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)
18' 3.73"	Infinity	16' 4.29"	Infinity	14' 7.41"	Infinity
15' 11.98"	Infinity	14' 5.97"	Infinity	13' 1.49"	Infinity
14' 2.45"	Infinity	13' 0.21"	Infinity	11' 10.88"	Infinity
12' 9.25"	Infinity	11' 9.73"	Infinity	10' 10.76"	Infinity
11' 7.21"	Infinity	10' 9.71"	Infinity	10' 0.52"	Infinity
10' 9.7"	Infinity	10' 1.46"	Infinity	9' 5.42"	Infinity
9' 9.64"	Infinity	9' 2.89"	Infinity	8' 8.21"	Infinity
9' 0.72"	201' 11.89"	8' 6.97"	Infinity	8' 1.23"	Infinity
8' 5.85"	75' 7.41"	8' 0.83"	153' 5.98"	7' 7.77"	Infinity
7' 10.08"	41' 7.14"	7' 5.82"	57' 5.54"	7' 1.5"	100' 11.1"
7' 5.8"	32' 5.61"	7' 1.93"	41' 3.74"	6' 9.99"	59' 7.9"
7' 1.21"	25' 9.38"	6' 9.75"	31' 0.15"	6' 6.2"	40' 2.7"
6' 8.29"	20' 8.1"	6' 5.23"	23' 10.47"	6' 2.08"	28' 11.07"
6' 5.69"	18' 6.57"	6' 2.84"	21' 0.78"	5' 11.89"	24' 10.52"
6' 2.99"	16' 7.75"	6' 0.35"	18' 7.58"	5' 9.61"	21' 6.37"
6' 0.19"	14' 11.21"	5' 9.75"	16' 6.01"	5' 7.22"	18' 8.62"
5' 9.28"	13' 4.63"	5' 7.05"	14' 7.45"	5' 4.72"	16' 3.84"
5' 6.25"	11' 11.75"	5' 4.22"	12' 11.38"	5' 2.1"	14' 3.01"
5' 3.1"	10' 8.33"	5' 1.27"	11' 5.43"	4' 11.36"	12' 5.38"
4' 11.81"	9' 6.21"	4' 10.19"	10' 1.26"	4' 8.47"	10' 10.36"
4' 10.12"	8' 11.58"	4' 8.59"	9' 5.77"	4' 6.98"	10' 1.68"
4' 8.38"	8' 5.21"	4' 6.96"	8' 10.64"	4' 5.45"	9' 5.5"
4' 6.61"	7' 11.1"	4' 5.28"	8' 3.83"	4' 3.87"	8' 9.77"
4' 4.81"	7' 5.22"	4' 3.57"	7' 9.34"	4' 2.26"	8' 2.46"
4' 2.96"	6' 11.56"	4' 1.82"	7' 3.13"	4' 0.6"	7' 7.53"
4' 1.07"	6' 6.12"	4' 0.02"	6' 9.19"	3' 10.9"	7' 0.96"
3' 11.14"	6' 0.87"	3' 10.18"	6' 3.5"	3' 9.16"	6' 6.71"
3' 9.16"	5' 7.81"	3' 8.29"	5' 10.05"	3' 7.36"	6' 0.77"
3' 7.14"	5' 2.93"	3' 6.36"	5' 4.83"	3' 5.52"	5' 7.11"
3' 5.07"	4' 10.22"	3' 4.37"	4' 11.81"	3' 3.62"	5' 1.72"
3' 2.95"	4' 5.66"	3' 2.33"	4' 6.99"	3' 1.67"	4' 8.56"
3' 0.78"	4' 1.26"	3' 0.24"	4' 2.35"	2' 11.66"	4' 3.64"
2' 10.56"	3' 9"	2' 10.09"	3' 9.89"	2' 9.59"	3' 10.93"
2' 8.28"	3' 4.88"	2' 7.89"	3' 5.59"	2' 7.46"	3' 6.42"
2' 5.95"	3' 0.9"	2' 5.62"	3' 1.45"	2' 5.26"	3' 2.09"
2' 3.56"	2' 9.03"	2' 3.29"	2' 9.46"	2' 3"	2' 9.95"
2' 1.1"	2' 5.29"	2' 0.89"	2' 5.6"	2' 0.66"	2' 5.96"
1' 10.59"	2' 1.66"	1' 10.43"	2' 1.88"	1' 10.25"	2' 2.14"
1' 9.73"	2' 0.47"	1' 9.59"	2' 0.67"	1' 9.43"	2' 0.9"
1' 8.87"	1' 11.3"	1' 8.74"	1' 11.47"	1' 8.6"	1' 11.67"
1' 8"	1' 10.14"	1' 7.89"	1' 10.29"	1' 7.77"	1' 10.46"
1' 7.13"	1' 8.99"	1' 7.03"	1' 9.12"	1' 6.92"	1' 9.26"



Focal Length 65 mm

Circle of Confusion 0.025 mm

T/No	2.1	2.2	2.5	2.8
Hyperfocal Distance (ft-inch)	244' 3.81"	228' 6.99"	203' 8.49"	181' 6.54"

T/No	2.1		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	244' 1.15"	Infinity	228' 4.36"	Infinity	203' 5.89"	Infinity	181' 3.98"	Infinity
120' 0"	80' 7.95"	234' 10.97"	78' 10.57"	251' 6.79"	75' 8.51"	290' 7.97"	72' 5.3"	352' 1.4"
60' 0"	48' 3.75"	79' 2.67"	47' 8.08"	81' 0.2"	46' 6.06"	84' 7.86"	45' 3.13"	89' 1.8"
40' 0"	34' 5.8"	47' 7.75"	34' 1.9"	48' 3.4"	33' 6.71"	49' 6.51"	32' 10.94"	51' 0.43"
30' 0"	26' 9.71"	34' 0.81"	26' 7.37"	34' 4.67"	26' 3.02"	35' 0.22"	25' 10.28"	35' 9.02"
25' 0"	22' 9.09"	27' 8.91"	22' 7.41"	27' 11.45"	22' 4.28"	28' 4.38"	22' 0.86"	28' 10.1"
20' 0"	18' 6.62"	21' 8.39"	18' 5.51"	21' 9.93"	18' 3.45"	22' 0.9"	18' 1.17"	22' 4.31"
17' 0"	15' 11.41"	18' 2.41"	15' 10.6"	18' 3.49"	15' 9.08"	18' 5.55"	15' 7.4"	18' 7.91"
15' 0"	14' 2.2"	15' 11.04"	14' 1.56"	15' 11.85"	14' 0.36"	16' 1.41"	13' 11.05"	16' 3.2"
13' 0"	12' 4.65"	13' 8.14"	12' 4.17"	13' 8.73"	12' 3.27"	13' 9.87"	12' 2.27"	13' 11.17"
12' 0"	11' 5.75"	12' 6.86"	11' 5.34"	12' 7.36"	11' 4.57"	12' 8.31"	11' 3.72"	12' 9.4"
11' 0"	10' 6.77"	11' 5.7"	10' 6.43"	11' 6.11"	10' 5.78"	11' 6.9"	10' 5.06"	11' 7.79"
10' 0"	9' 7.7"	10' 4.64"	9' 7.42"	10' 4.98"	9' 6.88"	10' 5.62"	9' 6.28"	10' 6.34"
9' 6"	9' 2.13"	9' 10.16"	9' 1.88"	9' 10.46"	9' 1.39"	9' 11.03"	9' 0.85"	9' 11.68"
9' 0"	8' 8.54"	9' 3.7"	8' 8.31"	9' 3.97"	8' 7.88"	9' 4.48"	8' 7.4"	9' 5.05"
8' 6"	8' 2.93"	8' 9.28"	8' 2.73"	8' 9.51"	8' 2.34"	8' 9.96"	8' 1.91"	8' 10.46"
8' 0"	7' 9.3"	8' 2.87"	7' 9.11"	8' 3.08"	7' 8.77"	8' 3.47"	7' 8.39"	8' 3.91"
7' 6"	7' 3.64"	7' 8.5"	7' 3.48"	7' 8.68"	7' 3.18"	7' 9.02"	7' 2.85"	7' 9.4"
7' 0"	6' 9.96"	7' 2.15"	6' 9.82"	7' 2.3"	6' 9.56"	7' 2.6"	6' 9.27"	7' 2.93"
6' 6"	6' 4.26"	6' 7.83"	6' 4.14"	6' 7.96"	6' 3.92"	6' 8.21"	6' 3.67"	6' 8.49"
6' 3"	6' 1.4"	6' 4.68"	6' 1.29"	6' 4.8"	6' 1.08"	6' 5.03"	6' 0.86"	6' 5.28"
6' 0"	5' 10.53"	6' 1.54"	5' 10.43"	6' 1.64"	5' 10.24"	6' 1.85"	5' 10.04"	6' 2.09"
5' 9"	5' 7.66"	5' 10.4"	5' 7.57"	5' 10.5"	5' 7.4"	5' 10.69"	5' 7.21"	5' 10.9"
5' 6"	5' 4.78"	5' 7.27"	5' 4.7"	5' 7.36"	5' 4.54"	5' 7.53"	5' 4.37"	5' 7.72"
5' 3"	5' 1.9"	5' 4.14"	5' 1.83"	5' 4.22"	5' 1.68"	5' 4.38"	5' 1.53"	5' 4.55"
5' 0"	4' 11.01"	5' 1.03"	4' 10.94"	5' 1.1"	4' 10.82"	5' 1.24"	4' 10.68"	5' 1.39"
4' 9"	4' 8.12"	4' 9.91"	4' 8.06"	4' 9.98"	4' 7.94"	4' 10.1"	4' 7.82"	4' 10.24"
4' 6"	4' 5.22"	4' 6.81"	4' 5.16"	4' 6.87"	4' 5.06"	4' 6.97"	4' 4.95"	4' 7.1"
4' 3"	4' 2.31"	4' 3.71"	4' 2.26"	4' 3.76"	4' 2.17"	4' 3.86"	4' 2.07"	4' 3.96"
4' 0"	3' 11.4"	4' 0.62"	3' 11.36"	4' 0.66"	3' 11.28"	4' 0.75"	3' 11.19"	4' 0.84"
3' 9"	3' 8.48"	3' 9.53"	3' 8.44"	3' 9.57"	3' 8.38"	3' 9.64"	3' 8.3"	3' 9.72"
3' 6"	3' 5.56"	3' 6.46"	3' 5.53"	3' 6.49"	3' 5.47"	3' 6.55"	3' 5.4"	3' 6.62"
3' 3"	3' 2.63"	3' 3.38"	3' 2.6"	3' 3.41"	3' 2.55"	3' 3.46"	3' 2.5"	3' 3.52"
3' 0"	2' 11.69"	3' 0.32"	2' 11.67"	3' 0.34"	2' 11.63"	3' 0.38"	2' 11.58"	3' 0.43"
2' 9"	2' 8.75"	2' 9.26"	2' 8.73"	2' 9.27"	2' 8.7"	2' 9.31"	2' 8.66"	2' 9.35"
2' 6"	2' 5.8"	2' 6.2"	2' 5.79"	2' 6.22"	2' 5.76"	2' 6.24"	2' 5.73"	2' 6.27"
2' 5"	2' 4.82"	2' 5.19"	2' 4.8"	2' 5.2"	2' 4.78"	2' 5.22"	2' 4.75"	2' 5.25"
2' 4"	2' 3.83"	2' 4.17"	2' 3.82"	2' 4.18"	2' 3.8"	2' 4.2"	2' 3.77"	2' 4.23"
2' 3"	2' 2.85"	2' 3.16"	2' 2.84"	2' 3.17"	2' 2.82"	2' 3.19"	2' 2.79"	2' 3.21"
2' 2"	2' 1.86"	2' 2.14"	2' 1.85"	2' 2.15"	2' 1.83"	2' 2.17"	2' 1.81"	2' 2.19"



3.2	3.5	4	4.5	5
161' 9.61"	144' 2.55"	128' 6.52"	114' 6.96"	102' 1.71"

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)
161' 7.08"	Infinity	144' 0.02"	Infinity	128' 3.99"	Infinity	114' 4.47"	Infinity	101' 11.22"	Infinity
69' 1.15"	461' 8.97"	65' 8.31"	710' 0.17"	62' 3.03"	1792' 4.68"	58' 9.58"	Infinity	55' 4.24"	Infinity
43' 11.31"	94' 9.64"	42' 6.61"	102' 0.88"	41' 1.1"	111' 8.31"	39' 6.84"	124' 10.97"	37' 11.9"	144' 0.87"
32' 2.57"	52' 9.9"	31' 5.6"	54' 11.88"	30' 8.01"	57' 7.71"	29' 9.82"	60' 11.35"	28' 11.04"	65' 1.65"
25' 5.13"	36' 7.36"	24' 11.56"	37' 7.58"	24' 5.54"	38' 10.15"	23' 11.07"	40' 3.67"	23' 4.15"	42' 0.99"
21' 9.12"	29' 4.76"	21' 5.06"	30' 0.54"	21' 0.64"	30' 9.7"	20' 7.86"	31' 8.56"	20' 2.72"	32' 9.55"
17' 10.68"	22' 8.26"	17' 7.95"	23' 0.83"	17' 4.96"	23' 6.14"	17' 1.72"	24' 0.36"	16' 10.19"	24' 7.68"
15' 5.56"	18' 10.63"	15' 3.53"	19' 1.76"	15' 1.31"	19' 5.37"	14' 10.88"	19' 9.58"	14' 8.23"	20' 2.48"
13' 9.59"	16' 5.24"	13' 7.99"	16' 7.59"	13' 6.22"	16' 10.29"	13' 4.29"	17' 1.42"	13' 2.18"	17' 5.05"
12' 1.16"	14' 0.65"	11' 11.94"	14' 2.34"	11' 10.59"	14' 4.29"	11' 9.11"	14' 6.53"	11' 7.49"	14' 9.11"
11' 2.77"	12' 10.64"	11' 1.72"	13' 0.05"	11' 0.57"	13' 1.67"	10' 11.29"	13' 3.53"	10' 9.9"	13' 5.68"
10' 4.26"	11' 8.81"	10' 3.37"	11' 9.98"	10' 2.4"	11' 11.31"	10' 1.32"	12' 0.83"	10' 0.13"	12' 2.58"
9' 5.62"	10' 7.17"	9' 4.89"	10' 8.11"	9' 4.08"	10' 9.18"	9' 3.18"	10' 10.41"	9' 2.19"	10' 11.81"
9' 0.26"	10' 0.42"	8' 11.6"	10' 1.25"	8' 10.86"	10' 2.21"	8' 10.05"	10' 3.3"	8' 9.16"	10' 4.55"
8' 6.86"	9' 5.71"	8' 6.27"	9' 6.45"	8' 5.61"	9' 7.29"	8' 4.88"	9' 8.26"	8' 4.07"	9' 9.36"
8' 1.43"	8' 11.04"	8' 0.9"	8' 11.69"	8' 0.32"	9' 0.44"	7' 11.66"	9' 1.28"	7' 10.94"	9' 2.25"
7' 7.97"	8' 4.42"	7' 7.5"	8' 4.99"	7' 6.98"	8' 5.63"	7' 6.41"	8' 6.37"	7' 5.77"	8' 7.21"
7' 2.48"	7' 9.84"	7' 2.07"	7' 10.33"	7' 1.61"	7' 10.89"	7' 1.1"	7' 11.53"	7' 0.54"	8' 0.25"
6' 8.95"	7' 3.3"	6' 8.6"	7' 3.72"	6' 8.2"	7' 4.2"	6' 7.76"	7' 4.75"	6' 7.27"	7' 5.37"
6' 3.4"	6' 8.8"	6' 3.09"	6' 9.16"	6' 2.75"	6' 9.57"	6' 2.37"	6' 10.03"	6' 1.95"	6' 10.55"
6' 0.6"	6' 5.57"	6' 0.32"	6' 5.9"	6' 0.01"	6' 6.27"	5' 11.66"	6' 6.69"	5' 11.27"	6' 7.17"
5' 9.8"	6' 2.35"	5' 9.54"	6' 2.65"	5' 9.26"	6' 2.99"	5' 8.93"	6' 3.37"	5' 8.58"	6' 3.81"
5' 6.99"	5' 11.14"	5' 6.76"	5' 11.41"	5' 6.49"	5' 11.72"	5' 6.2"	6' 0.07"	5' 5.87"	6' 0.46"
5' 4.18"	5' 7.94"	5' 3.96"	5' 8.18"	5' 3.72"	5' 8.46"	5' 3.45"	5' 8.78"	5' 3.16"	5' 9.13"
5' 1.35"	5' 4.75"	5' 1.16"	5' 4.97"	5' 0.94"	5' 5.22"	5' 0.7"	5' 5.5"	5' 0.43"	5' 5.82"
4' 10.52"	5' 1.57"	4' 10.34"	5' 1.76"	4' 10.15"	5' 1.99"	4' 9.93"	5' 2.24"	4' 9.68"	5' 2.53"
4' 7.68"	4' 10.39"	4' 7.52"	4' 10.57"	4' 7.34"	4' 10.77"	4' 7.15"	4' 10.99"	4' 6.93"	4' 11.25"
4' 4.82"	4' 7.23"	4' 4.68"	4' 7.39"	4' 4.53"	4' 7.57"	4' 4.35"	4' 7.76"	4' 4.16"	4' 7.99"
4' 1.96"	4' 4.08"	4' 1.84"	4' 4.22"	4' 1.7"	4' 4.37"	4' 1.55"	4' 4.55"	4' 1.38"	4' 4.74"
3' 11.1"	4' 0.94"	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' 8.22"	3' 9.81"	3' 8.12"	3' 9.91"	3' 8.02"	3' 10.03"	3' 7.9"	3' 10.16"	3' 7.77"	3' 10.31"
3' 5.33"	3' 6.69"	3' 5.25"	3' 6.78"	3' 5.16"	3' 6.88"	3' 5.06"	3' 6.99"	3' 4.95"	3' 7.11"
3' 2.44"	3' 3.58"	3' 2.37"	3' 3.65"	3' 2.29"	3' 3.74"	3' 2.21"	3' 3.83"	3' 2.12"	3' 3.93"
2' 11.53"	3' 0.48"	2' 11.48"	3' 0.54"	2' 11.41"	3' 0.61"	2' 11.34"	3' 0.68"	2' 11.27"	3' 0.77"
2' 8.62"	2' 9.39"	2' 8.58"	2' 9.44"	2' 8.52"	2' 9.49"	2' 8.47"	2' 9.55"	2' 8.4"	2' 9.62"
2' 5.7"	2' 6.31"	2' 5.66"	2' 6.35"	2' 5.62"	2' 6.39"	2' 5.58"	2' 6.44"	2' 5.53"	2' 6.49"
2' 4.72"	2' 5.28"	2' 4.69"	2' 5.32"	2' 4.65"	2' 5.36"	2' 4.61"	2' 5.4"	2' 4.56"	2' 5.45"
2' 3.75"	2' 4.26"	2' 3.72"	2' 4.29"	2' 3.68"	2' 4.33"	2' 3.64"	2' 4.37"	2' 3.6"	2' 4.41"
2' 2.77"	2' 3.24"	2' 2.74"	2' 3.27"	2' 2.71"	2' 3.3"	2' 2.67"	2' 3.34"	2' 2.64"	2' 3.38"
2' 1.79"	2' 2.21"	2' 1.76"	2' 2.24"	2' 1.74"	2' 2.27"	2' 1.7"	2' 2.3"	2' 1.67"	2' 2.34"



5.6	6.3	7.1	8	9
91' 0.76"	81' 2.29"	72' 4.74"	64' 6.72"	57' 6.94"

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)
90' 10.26"	Infinity	80' 11.8"	Infinity	72' 2.27"	Infinity	64' 4.25"	Infinity	57' 4.49"	Infinity
51' 11.29"	Infinity	48' 6.99"	Infinity	45' 3.57"	Infinity	42' 1.27"	Infinity	39' 0.29"	Infinity
36' 4.37"	174' 0.77"	34' 8.38"	227' 2.42"	33' 0.03"	345' 10.01"	31' 3.46"	836' 11.32"	29' 6.8"	Infinity
27' 11.7"	70' 7.11"	26' 11.83"	77' 11.1"	25' 11.48"	88' 2.65"	24' 10.71"	103' 7.25"	23' 9.59"	128' 10.32"
22' 8.77"	44' 3.3"	22' 0.94"	47' 0.33"	21' 4.68"	50' 6.72"	20' 8.01"	55' 2.66"	19' 10.97"	61' 7.26"
19' 9.19"	34' 1.25"	19' 3.29"	35' 8.44"	18' 9.01"	37' 8.27"	18' 2.36"	40' 2.43"	17' 7.36"	43' 5.52"
16' 6.38"	25' 4.37"	16' 2.27"	26' 2.75"	15' 9.87"	27' 3.3"	15' 5.16"	28' 6.65"	15' 0.15"	30' 1.72"
14' 5.35"	20' 8.24"	14' 2.23"	21' 3.04"	13' 10.87"	21' 11.15"	13' 7.25"	22' 8.89"	13' 3.38"	23' 8.74"
12' 11.87"	17' 9.28"	12' 9.36"	18' 2.24"	12' 6.65"	18' 8.1"	12' 3.71"	19' 3.07"	12' 0.56"	19' 11.45"
11' 5.71"	15' 0.11"	11' 3.77"	15' 3.6"	11' 1.66"	15' 7.69"	10' 11.37"	16' 0.5"	10' 8.89"	16' 6.22"
10' 8.36"	13' 8.16"	10' 6.69"	13' 11.03"	10' 4.86"	14' 2.38"	10' 2.87"	14' 6.32"	10' 0.71"	14' 10.96"
9' 10.83"	12' 4.6"	9' 9.4"	12' 6.93"	9' 7.84"	12' 9.65"	9' 6.14"	13' 0.81"	9' 4.29"	13' 4.53"
9' 1.11"	11' 1.43"	8' 11.91"	11' 3.29"	8' 10.6"	11' 5.44"	8' 9.17"	11' 7.95"	8' 7.61"	11' 10.87"
8' 8.17"	10' 5.98"	8' 7.09"	10' 7.63"	8' 5.9"	10' 9.53"	8' 4.6"	10' 11.75"	8' 3.18"	11' 2.32"
8' 3.19"	9' 10.62"	8' 2.21"	10' 0.08"	8' 1.14"	10' 1.75"	7' 11.96"	10' 3.69"	7' 10.67"	10' 5.95"
7' 10.15"	9' 3.36"	7' 9.27"	9' 4.63"	7' 8.31"	9' 6.09"	7' 7.26"	9' 7.78"	7' 6.1"	9' 9.74"
7' 5.06"	8' 8.18"	7' 4.28"	8' 9.28"	7' 3.43"	8' 10.55"	7' 2.49"	9' 0.01"	7' 1.46"	9' 1.7"
6' 11.92"	8' 1.08"	6' 11.24"	8' 2.03"	6' 10.48"	8' 3.12"	6' 9.65"	8' 4.37"	6' 8.74"	8' 5.82"
6' 6.73"	7' 6.07"	6' 6.13"	7' 6.88"	6' 5.47"	7' 7.81"	6' 4.75"	7' 8.87"	6' 3.95"	7' 10.1"
6' 1.48"	6' 11.15"	6' 0.97"	6' 11.83"	6' 0.4"	7' 0.61"	5' 11.77"	7' 1.5"	5' 11.08"	7' 2.52"
5' 10.84"	6' 7.72"	5' 10.36"	6' 8.34"	5' 9.84"	6' 9.05"	5' 9.26"	6' 9.86"	5' 8.62"	6' 10.79"
5' 8.18"	6' 4.3"	5' 7.75"	6' 4.87"	5' 7.26"	6' 5.51"	5' 6.73"	6' 6.25"	5' 6.14"	6' 7.1"
5' 5.51"	6' 0.91"	5' 5.11"	6' 1.42"	5' 4.67"	6' 2.01"	5' 4.18"	6' 2.67"	5' 3.63"	6' 3.44"
5' 2.83"	5' 9.54"	5' 2.46"	5' 10"	5' 2.05"	5' 10.53"	5' 1.61"	5' 11.13"	5' 1.11"	5' 11.81"
5' 0.13"	5' 6.19"	4' 11.79"	5' 6.6"	4' 11.43"	5' 7.07"	4' 11.02"	5' 7.61"	4' 10.57"	5' 8.22"
4' 9.41"	5' 2.85"	4' 9.11"	5' 3.22"	4' 8.78"	5' 3.64"	4' 8.41"	5' 4.12"	4' 8"	5' 4.67"
4' 6.69"	4' 11.54"	4' 6.42"	4' 11.87"	4' 6.12"	5' 0.24"	4' 5.79"	5' 0.66"	4' 5.42"	5' 1.15"
4' 3.94"	4' 8.24"	4' 3.7"	4' 8.53"	4' 3.44"	4' 8.86"	4' 3.14"	4' 9.23"	4' 2.81"	4' 9.66"
4' 1.19"	4' 4.97"	4' 0.97"	4' 5.22"	4' 0.74"	4' 5.51"	4' 0.48"	4' 5.83"	4' 0.18"	4' 6.2"
3' 10.41"	4' 1.71"	3' 10.23"	4' 1.93"	3' 10.02"	4' 2.18"	3' 9.79"	4' 2.46"	3' 9.54"	4' 2.78"
3' 7.63"	3' 10.47"	3' 7.47"	3' 10.66"	3' 7.29"	3' 10.87"	3' 7.09"	3' 11.11"	3' 6.86"	3' 11.39"
3' 4.83"	3' 7.25"	3' 4.69"	3' 7.41"	3' 4.53"	3' 7.59"	3' 4.36"	3' 7.8"	3' 4.17"	3' 8.03"
3' 2.01"	3' 4.05"	3' 1.89"	3' 4.18"	3' 1.76"	3' 4.33"	3' 1.62"	3' 4.5"	3' 1.45"	3' 4.7"
2' 11.18"	3' 0.87"	2' 11.08"	3' 0.98"	2' 10.97"	3' 1.1"	2' 10.85"	3' 1.24"	2' 10.72"	3' 1.4"
2' 8.33"	2' 9.7"	2' 8.25"	2' 9.79"	2' 8.16"	2' 9.89"	2' 8.06"	2' 10"	2' 7.95"	2' 10.13"
2' 5.47"	2' 6.55"	2' 5.41"	2' 6.62"	2' 5.33"	2' 6.7"	2' 5.26"	2' 6.79"	2' 5.17"	2' 6.89"
2' 4.51"	2' 5.51"	2' 4.45"	2' 5.57"	2' 4.39"	2' 5.64"	2' 4.32"	2' 5.73"	2' 4.23"	2' 5.82"
2' 3.55"	2' 4.47"	2' 3.5"	2' 4.52"	2' 3.44"	2' 4.59"	2' 3.37"	2' 4.66"	2' 3.3"	2' 4.75"
2' 2.59"	2' 3.42"	2' 2.54"	2' 3.48"	2' 2.49"	2' 3.54"	2' 2.43"	2' 3.6"	2' 2.36"	2' 3.68"
2' 1.63"	2' 2.38"	2' 1.58"	2' 2.43"	2' 1.53"	2' 2.49"	2' 1.48"	2' 2.55"	2' 1.42"	2' 2.62"



10	11	13	14	16
51' 4.34"	45' 9.84"	40' 10.63"	36' 5.83"	32' 6.83"

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)
51' 1.86"	Infinity	45' 7.38"	Infinity	40' 8.15"	Infinity	36' 3.38"	Infinity	32' 4.37"	Infinity
36' 0.79"	Infinity	33' 2.9"	Infinity	30' 6.72"	Infinity	28' 0.34"	Infinity	25' 7.78"	Infinity
27' 10.2"	Infinity	26' 1.77"	Infinity	24' 5.67"	Infinity	22' 10"	Infinity	21' 2.89"	Infinity
22' 8.19"	177' 6.02"	21' 6.59"	308' 4.67"	20' 4.88"	1806' 2.36"	19' 3.15"	Infinity	18' 1.5"	Infinity
19' 1.58"	70' 9.68"	18' 3.91"	85' 1.17"	17' 5.99"	110' 1"	16' 7.89"	164' 4.44"	15' 9.68"	369' 3.06"
17' 0.03"	47' 9.78"	16' 4.4"	53' 10.63"	15' 8.5"	62' 10.35"	15' 0.37"	77' 4.28"	14' 4.07"	104' 5.46"
14' 6.84"	32' 1.86"	14' 1.26"	34' 9.15"	13' 7.42"	38' 3.02"	13' 1.33"	43' 1.44"	12' 7.03"	50' 3.91"
12' 11.25"	24' 11.35"	12' 6.87"	26' 5.68"	12' 2.24"	28' 5.18"	11' 9.39"	31' 0.13"	11' 4.32"	34' 6.44"
11' 9.18"	20' 9.62"	11' 5.57"	21' 10.13"	11' 1.75"	23' 1.79"	10' 9.71"	24' 9.8"	10' 5.46"	27' 0.07"
10' 6.22"	17' 1.06"	10' 3.36"	17' 9.35"	10' 0.31"	18' 7.5"	9' 9.06"	19' 8.13"	9' 5.62"	21' 0.18"
9' 10.38"	15' 4.49"	9' 7.88"	15' 11.12"	9' 5.19"	16' 7.17"	9' 2.33"	17' 5.08"	8' 11.29"	18' 5.47"
9' 2.29"	13' 8.93"	9' 0.13"	14' 2.17"	8' 9.8"	14' 8.47"	8' 7.32"	15' 4.14"	8' 4.67"	16' 1.61"
8' 5.92"	12' 2.31"	8' 4.09"	12' 6.38"	8' 2.11"	12' 11.24"	7' 11.99"	13' 5.09"	7' 9.72"	14' 0.22"
8' 1.63"	11' 5.34"	7' 11.96"	11' 8.9"	7' 10.15"	12' 1.13"	7' 8.2"	12' 6.21"	7' 6.12"	13' 0.35"
7' 9.27"	10' 8.58"	7' 7.75"	10' 11.68"	7' 6.11"	11' 3.34"	7' 4.33"	11' 7.72"	7' 2.43"	12' 0.99"
7' 4.84"	10' 0.02"	7' 3.47"	10' 2.7"	7' 1.98"	10' 5.85"	7' 0.38"	10' 9.6"	6' 10.65"	11' 2.09"
7' 0.33"	9' 3.66"	6' 11.1"	9' 5.96"	6' 9.77"	9' 8.65"	6' 8.32"	9' 11.84"	6' 6.77"	10' 3.64"
6' 7.74"	8' 7.5"	6' 6.65"	8' 9.45"	6' 5.47"	8' 11.73"	6' 4.18"	9' 2.42"	6' 2.79"	9' 5.61"
6' 3.07"	7' 11.51"	6' 2.12"	8' 1.15"	6' 1.07"	8' 3.07"	5' 11.94"	8' 5.32"	5' 10.71"	8' 7.97"
5' 10.32"	7' 3.7"	5' 9.49"	7' 5.07"	5' 8.58"	7' 6.66"	5' 7.59"	7' 8.52"	5' 6.52"	7' 10.7"
5' 7.92"	6' 11.87"	5' 7.14"	7' 1.11"	5' 6.3"	7' 2.55"	5' 5.38"	7' 4.23"	5' 4.38"	7' 6.2"
5' 5.49"	6' 8.07"	5' 4.77"	6' 9.19"	5' 3.99"	6' 10.49"	5' 3.14"	7' 0.01"	5' 2.22"	7' 1.78"
5' 3.04"	6' 4.32"	5' 2.38"	6' 5.33"	5' 1.66"	6' 6.5"	5' 0.88"	6' 7.86"	5' 0.02"	6' 9.44"
5' 0.56"	6' 0.6"	4' 11.96"	6' 1.51"	4' 11.31"	6' 2.56"	4' 10.58"	6' 3.77"	4' 9.8"	6' 5.19"
4' 10.07"	5' 8.93"	4' 9.52"	5' 9.74"	4' 8.92"	5' 10.67"	4' 8.26"	5' 11.75"	4' 7.54"	6' 1.01"
4' 7.55"	5' 5.3"	4' 7.06"	5' 6.01"	4' 6.51"	5' 6.84"	4' 5.91"	5' 7.8"	4' 5.26"	5' 8.9"
4' 5.01"	5' 1.7"	4' 4.57"	5' 2.33"	4' 4.07"	5' 3.06"	4' 3.53"	5' 3.9"	4' 2.94"	5' 4.88"
4' 2.45"	4' 10.14"	4' 2.05"	4' 10.7"	4' 1.61"	4' 11.34"	4' 1.12"	5' 0.07"	4' 0.59"	5' 0.92"
3' 11.86"	4' 6.63"	3' 11.51"	4' 7.11"	3' 11.12"	4' 7.66"	3' 10.68"	4' 8.3"	3' 10.21"	4' 9.03"
3' 9.25"	4' 3.14"	3' 8.94"	4' 3.56"	3' 8.59"	4' 4.04"	3' 8.21"	4' 4.58"	3' 7.8"	4' 5.21"
3' 6.62"	3' 11.7"	3' 6.35"	4' 0.05"	3' 6.04"	4' 0.46"	3' 5.71"	4' 0.93"	3' 5.35"	4' 1.46"
3' 3.96"	3' 8.29"	3' 3.72"	3' 8.59"	3' 3.46"	3' 8.93"	3' 3.18"	3' 9.32"	3' 2.86"	3' 9.77"
3' 1.27"	3' 4.92"	3' 1.08"	3' 5.17"	3' 0.85"	3' 5.45"	3' 0.61"	3' 5.77"	3' 0.34"	3' 6.15"
2' 10.57"	3' 1.58"	2' 10.4"	3' 1.78"	2' 10.21"	3' 2.01"	2' 10.01"	3' 2.28"	2' 9.78"	3' 2.58"
2' 7.83"	2' 10.27"	2' 7.69"	2' 10.44"	2' 7.54"	2' 10.62"	2' 7.37"	2' 10.84"	2' 7.19"	2' 11.08"
2' 5.07"	2' 7"	2' 4.96"	2' 7.13"	2' 4.84"	2' 7.28"	2' 4.7"	2' 7.44"	2' 4.55"	2' 7.63"
2' 4.14"	2' 5.92"	2' 4.04"	2' 6.04"	2' 3.93"	2' 6.17"	2' 3.81"	2' 6.32"	2' 3.67"	2' 6.49"
2' 3.21"	2' 4.84"	2' 3.12"	2' 4.95"	2' 3.02"	2' 5.07"	2' 2.9"	2' 5.21"	2' 2.78"	2' 5.37"
2' 2.28"	2' 3.77"	2' 2.2"	2' 3.86"	2' 2.1"	2' 3.97"	2' 2"	2' 4.1"	2' 1.88"	2' 4.24"
2' 1.35"	2' 2.69"	2' 1.27"	2' 2.78"	2' 1.18"	2' 2.88"	2' 1.09"	2' 3"	2' 0.98"	2' 3.12"



18	20	22
29' 0.94"	25' 11.65"	23' 2.39"

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)
28' 10.49"	Infinity	25' 9.17"	Infinity	22' 11.93"	Infinity
23' 5.07"	Infinity	21' 4.18"	Infinity	19' 5.1"	Infinity
19' 8.42"	Infinity	18' 2.69"	Infinity	16' 9.77"	Infinity
17' 0.01"	Infinity	15' 10.77"	Infinity	14' 9.86"	Infinity
14' 11.41"	Infinity	14' 1.17"	Infinity	13' 3.01"	Infinity
13' 7.63"	172' 5.28"	12' 11.12"	645' 3.18"	12' 2.59"	Infinity
12' 0.55"	61' 11.81"	11' 5.93"	83' 10.24"	10' 11.2"	139' 1.69"
10' 11.06"	39' 7.25"	10' 5.64"	47' 5.28"	10' 0.08"	61' 0.51"
10' 1.03"	29' 11.79"	9' 8.42"	34' 2.75"	9' 3.67"	40' 8.71"
9' 2.01"	22' 9.05"	8' 10.23"	25' 1.12"	8' 6.29"	28' 4.53"
8' 8.08"	19' 9.3"	8' 4.71"	21' 6.07"	8' 1.19"	23' 10.29"
8' 1.86"	17' 1.51"	7' 10.89"	18' 4.78"	7' 7.78"	20' 0.94"
7' 7.3"	14' 9.05"	7' 4.74"	15' 8.15"	7' 2.03"	16' 10.46"
7' 3.89"	13' 7.9"	7' 1.52"	14' 5.33"	6' 11.02"	15' 5.32"
7' 0.39"	12' 7.42"	6' 10.22"	13' 3.37"	6' 7.92"	14' 1.4"
6' 8.79"	11' 7.54"	6' 6.81"	12' 2.22"	6' 4.71"	12' 10.55"
6' 5.09"	10' 8.22"	6' 3.3"	11' 1.8"	6' 1.39"	11' 8.69"
6' 1.29"	9' 9.43"	5' 11.68"	10' 2.05"	5' 9.96"	10' 7.7"
5' 9.38"	8' 11.13"	5' 7.95"	9' 2.92"	5' 6.42"	9' 7.52"
5' 5.35"	8' 1.28"	5' 4.1"	8' 4.36"	5' 2.75"	8' 8.07"
5' 3.3"	7' 8.52"	5' 2.12"	7' 11.28"	5' 0.86"	8' 2.6"
5' 1.21"	7' 3.86"	5' 0.12"	7' 6.33"	4' 10.95"	7' 9.28"
4' 11.09"	6' 11.3"	4' 10.08"	7' 1.5"	4' 8.99"	7' 4.12"
4' 8.94"	6' 6.84"	4' 8.01"	6' 8.79"	4' 7.01"	6' 11.11"
4' 6.76"	6' 2.47"	4' 5.91"	6' 4.19"	4' 4.98"	6' 6.23"
4' 4.54"	5' 10.19"	4' 3.77"	5' 11.71"	4' 2.92"	6' 1.49"
4' 2.29"	5' 6.01"	4' 1.59"	5' 7.32"	4' 0.82"	5' 8.88"
4' 0.01"	5' 1.9"	3' 11.38"	5' 3.05"	3' 10.68"	5' 4.38"
3' 9.69"	4' 9.88"	3' 9.12"	4' 10.86"	3' 8.5"	5' 0.01"
3' 7.34"	4' 5.94"	3' 6.83"	4' 6.78"	3' 6.28"	4' 7.76"
3' 4.94"	4' 2.07"	3' 4.5"	4' 2.78"	3' 4.02"	4' 3.61"
3' 2.51"	3' 10.29"	3' 2.13"	3' 10.88"	3' 1.71"	3' 11.56"
3' 0.04"	3' 6.57"	2' 11.71"	3' 7.06"	2' 11.35"	3' 7.62"
2' 9.53"	3' 2.93"	2' 9.26"	3' 3.32"	2' 8.95"	3' 3.78"
2' 6.98"	2' 11.35"	2' 6.75"	2' 11.67"	2' 6.5"	3' 0.03"
2' 4.39"	2' 7.84"	2' 4.2"	2' 8.09"	2' 4"	2' 8.37"
2' 3.51"	2' 6.69"	2' 3.34"	2' 6.91"	2' 3.16"	2' 7.17"
2' 2.64"	2' 5.54"	2' 2.48"	2' 5.75"	2' 2.31"	2' 5.98"
2' 1.75"	2' 4.4"	2' 1.61"	2' 4.59"	2' 1.45"	2' 4.8"
2' 0.86"	2' 3.27"	2' 0.73"	2' 3.44"	2' 0.59"	2' 3.62"



Focal Length 75 mm

Circle of Confusion 0.025 mm

T/No	2.1	2.2	2.5	2.8
Hyperfocal Distance (ft-inch)	352' 0.21"	329' 3.93"	293' 5.46"	261' 5.99"

T/No	2.1		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	351' 8.79"	Infinity	329' 0.57"	Infinity	293' 2.2"	Infinity	261' 2.78"	Infinity
120' 0"	89' 7.63"	181' 7.59"	88' 1.18"	188' 3.75"	85' 3.88"	202' 5.28"	82' 4.92"	221' 0.71"
60' 0"	51' 4.34"	72' 1.88"	50' 10.28"	73' 2.17"	49' 11.11"	75' 2.47"	48' 11.05"	77' 7.41"
40' 0"	35' 11.91"	45' 0.25"	35' 8.95"	45' 4.98"	35' 3.44"	46' 2.17"	34' 9.42"	47' 0.88"
30' 0"	27' 8.43"	32' 8.61"	27' 6.69"	32' 11.08"	27' 3.43"	33' 3.86"	26' 11.84"	33' 9.36"
25' 0"	23' 4.71"	26' 10.17"	23' 3.47"	26' 11.83"	23' 1.15"	27' 3.01"	22' 10.6"	27' 6.66"
20' 0"	18' 11.6"	21' 1.86"	18' 10.79"	21' 2.87"	18' 9.27"	21' 4.83"	18' 7.59"	21' 7.05"
17' 0"	16' 3.03"	17' 9.85"	16' 2.44"	17' 10.56"	16' 1.34"	17' 11.93"	16' 0.11"	18' 1.49"
15' 0"	14' 5.03"	15' 7.57"	14' 4.57"	15' 8.12"	14' 3.7"	15' 9.16"	14' 2.74"	15' 10.35"
13' 0"	12' 6.78"	13' 5.6"	12' 6.43"	13' 6"	12' 5.78"	13' 6.77"	12' 5.05"	13' 7.64"
12' 0"	11' 7.57"	12' 4.73"	11' 7.27"	12' 5.07"	11' 6.71"	12' 5.72"	11' 6.09"	12' 6.45"
11' 0"	10' 8.29"	11' 3.94"	10' 8.04"	11' 4.22"	10' 7.57"	11' 4.76"	10' 7.05"	11' 5.36"
10' 0"	9' 8.95"	10' 3.22"	9' 8.74"	10' 3.45"	9' 8.36"	10' 3.89"	9' 7.93"	10' 4.38"
9' 6"	9' 3.25"	9' 8.89"	9' 3.07"	9' 9.09"	9' 2.72"	9' 9.48"	9' 2.33"	9' 9.93"
9' 0"	8' 9.55"	9' 2.58"	8' 9.38"	9' 2.76"	8' 9.07"	9' 3.11"	8' 8.72"	9' 3.5"
8' 6"	8' 3.82"	8' 8.28"	8' 3.67"	8' 8.44"	8' 3.4"	8' 8.75"	8' 3.09"	8' 9.1"
8' 0"	7' 10.08"	8' 2"	7' 9.95"	8' 2.15"	7' 9.7"	8' 2.42"	7' 9.43"	8' 2.72"
7' 6"	7' 4.32"	7' 7.75"	7' 4.21"	7' 7.87"	7' 3.99"	7' 8.1"	7' 3.75"	7' 8.37"
7' 0"	6' 10.55"	7' 1.51"	6' 10.45"	7' 1.61"	6' 10.26"	7' 1.81"	6' 10.06"	7' 2.04"
6' 6"	6' 4.76"	6' 7.28"	6' 4.67"	6' 7.37"	6' 4.52"	6' 7.55"	6' 4.34"	6' 7.74"
6' 3"	6' 1.86"	6' 4.18"	6' 1.78"	6' 4.26"	6' 1.63"	6' 4.42"	6' 1.47"	6' 4.6"
6' 0"	5' 10.95"	6' 1.08"	5' 10.88"	6' 1.16"	5' 10.75"	6' 1.3"	5' 10.6"	6' 1.46"
5' 6"	5' 5.13"	5' 6.89"	5' 5.07"	5' 6.96"	5' 4.96"	5' 7.08"	5' 4.84"	5' 7.21"
5' 0"	4' 11.29"	5' 0.73"	4' 11.24"	5' 0.78"	4' 11.15"	5' 0.87"	4' 11.05"	5' 0.98"
4' 9"	4' 8.37"	4' 9.65"	4' 8.32"	4' 9.69"	4' 8.24"	4' 9.78"	4' 8.15"	4' 9.88"
4' 6"	4' 5.44"	4' 6.57"	4' 5.4"	4' 6.61"	4' 5.33"	4' 6.69"	4' 5.25"	4' 6.78"
4' 3"	4' 2.5"	4' 3.51"	4' 2.47"	4' 3.54"	4' 2.41"	4' 3.61"	4' 2.34"	4' 3.68"
4' 0"	3' 11.57"	4' 0.44"	3' 11.54"	4' 0.47"	3' 11.48"	4' 0.53"	3' 11.42"	4' 0.6"
3' 9"	3' 8.63"	3' 9.38"	3' 8.6"	3' 9.41"	3' 8.55"	3' 9.46"	3' 8.5"	3' 9.52"
3' 6"	3' 5.68"	3' 6.33"	3' 5.66"	3' 6.35"	3' 5.62"	3' 6.39"	3' 5.57"	3' 6.44"
3' 3"	3' 2.73"	3' 3.28"	3' 2.71"	3' 3.29"	3' 2.68"	3' 3.33"	3' 2.64"	3' 3.37"
3' 0"	2' 11.77"	3' 0.23"	2' 11.76"	3' 0.24"	2' 11.73"	3' 0.27"	2' 11.7"	3' 0.31"
2' 9"	2' 8.82"	2' 9.19"	2' 8.8"	2' 9.2"	2' 8.78"	2' 9.22"	2' 8.75"	2' 9.25"
2' 6"	2' 1.9"	2' 2.1"	2' 1.89"	2' 2.11"	2' 1.88"	2' 2.13"	2' 1.86"	2' 2.14"



3.2	3.5	4	4.5	5
233' 0.34"	207' 7.97"	185' 0.79"	164' 11.21"	146' 11.98"

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)
232' 9.18"	Infinity	207' 4.85"	Infinity	184' 9.71"	Infinity	164' 8.16"	Infinity	146' 8.95"	Infinity
79' 4.43"	246' 6.18"	76' 2.57"	283' 1.45"	72' 11.51"	339' 9.27"	69' 7.47"	438' 2.84"	66' 2.7"	649' 7.73"
47' 10.09"	80' 6.2"	46' 8.2"	84' 0.49"	45' 5.4"	88' 4.61"	44' 1.7"	93' 9.96"	42' 9.12"	100' 9.65"
34' 2.87"	48' 1.4"	33' 7.76"	49' 4.13"	33' 0.07"	50' 9.6"	32' 3.78"	52' 6.48"	31' 6.88"	54' 7.7"
26' 7.91"	34' 3.72"	26' 3.62"	34' 11.1"	25' 10.93"	35' 7.72"	25' 5.83"	36' 5.82"	25' 0.31"	37' 5.75"
22' 7.78"	27' 10.85"	22' 4.69"	28' 3.69"	22' 1.3"	28' 9.3"	21' 9.61"	29' 3.82"	21' 5.58"	29' 11.43"
18' 5.74"	21' 9.6"	18' 3.69"	22' 0.52"	18' 1.44"	22' 3.87"	17' 10.97"	22' 7.75"	17' 8.27"	23' 0.23"
15' 10.75"	18' 3.27"	15' 9.24"	18' 5.3"	15' 7.59"	18' 7.63"	15' 5.76"	18' 10.3"	15' 3.75"	19' 1.38"
14' 1.67"	15' 11.7"	14' 0.49"	16' 1.24"	13' 11.18"	16' 3"	13' 9.74"	16' 5.02"	13' 8.15"	16' 7.33"
12' 4.25"	13' 8.63"	12' 3.35"	13' 9.76"	12' 2.36"	13' 11.04"	12' 1.26"	14' 0.5"	12' 0.05"	14' 2.17"
11' 5.4"	12' 7.28"	11' 4.64"	12' 8.23"	11' 3.79"	12' 9.3"	11' 2.85"	12' 10.52"	11' 1.81"	12' 11.92"
10' 6.47"	11' 6.05"	10' 5.83"	11' 6.83"	10' 5.11"	11' 7.72"	10' 4.32"	11' 8.73"	10' 3.44"	11' 9.88"
9' 7.45"	10' 4.94"	9' 6.91"	10' 5.57"	9' 6.32"	10' 6.29"	9' 5.66"	10' 7.11"	9' 4.94"	10' 8.04"
9' 1.9"	9' 10.43"	9' 1.42"	9' 10.99"	9' 0.89"	9' 11.64"	9' 0.29"	10' 0.37"	8' 11.63"	10' 1.2"
8' 8.33"	9' 3.94"	8' 7.9"	9' 4.45"	8' 7.42"	9' 5.02"	8' 6.89"	9' 5.67"	8' 6.3"	9' 6.4"
8' 2.74"	8' 9.49"	8' 2.36"	8' 9.93"	8' 1.93"	8' 10.44"	8' 1.45"	8' 11.01"	8' 0.93"	8' 11.66"
7' 9.13"	8' 3.06"	7' 8.79"	8' 3.45"	7' 8.41"	8' 3.89"	7' 7.99"	8' 4.39"	7' 7.52"	8' 4.96"
7' 3.49"	7' 8.67"	7' 3.19"	7' 9.01"	7' 2.86"	7' 9.39"	7' 2.49"	7' 9.82"	7' 2.08"	7' 10.31"
6' 9.83"	7' 2.3"	6' 9.57"	7' 2.59"	6' 9.28"	7' 2.92"	6' 8.96"	7' 3.29"	6' 8.6"	7' 3.71"
6' 4.14"	6' 7.96"	6' 3.92"	6' 8.21"	6' 3.67"	6' 8.48"	6' 3.4"	6' 8.8"	6' 3.09"	6' 9.16"
6' 1.29"	6' 4.8"	6' 1.08"	6' 5.03"	6' 0.86"	6' 5.28"	6' 0.6"	6' 5.57"	6' 0.32"	6' 5.9"
5' 10.43"	6' 1.65"	5' 10.24"	6' 1.85"	5' 10.03"	6' 2.09"	5' 9.8"	6' 2.35"	5' 9.54"	6' 2.65"
5' 4.7"	5' 7.36"	5' 4.54"	5' 7.53"	5' 4.37"	5' 7.72"	5' 4.17"	5' 7.94"	5' 3.95"	5' 8.19"
4' 10.94"	5' 1.1"	4' 10.81"	5' 1.24"	4' 10.67"	5' 1.4"	4' 10.51"	5' 1.57"	4' 10.33"	5' 1.77"
4' 8.05"	4' 9.99"	4' 7.94"	4' 10.11"	4' 7.81"	4' 10.25"	4' 7.67"	4' 10.4"	4' 7.51"	4' 10.58"
4' 5.16"	4' 6.87"	4' 5.05"	4' 6.98"	4' 4.94"	4' 7.11"	4' 4.81"	4' 7.24"	4' 4.67"	4' 7.4"
4' 2.26"	4' 3.77"	4' 2.17"	4' 3.87"	4' 2.07"	4' 3.97"	4' 1.95"	4' 4.1"	4' 1.83"	4' 4.23"
3' 11.35"	4' 0.67"	3' 11.27"	4' 0.75"	3' 11.18"	4' 0.85"	3' 11.08"	4' 0.96"	3' 10.97"	4' 1.08"
3' 8.44"	3' 9.58"	3' 8.37"	3' 9.65"	3' 8.29"	3' 9.73"	3' 8.21"	3' 9.83"	3' 8.11"	3' 9.93"
3' 5.52"	3' 6.5"	3' 5.46"	3' 6.56"	3' 5.39"	3' 6.63"	3' 5.32"	3' 6.7"	3' 5.24"	3' 6.79"
3' 2.59"	3' 3.42"	3' 2.54"	3' 3.47"	3' 2.49"	3' 3.53"	3' 2.43"	3' 3.59"	3' 2.36"	3' 3.67"
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' 0.55"
2' 8.72"	2' 9.28"	2' 8.69"	2' 9.32"	2' 8.65"	2' 9.36"	2' 8.61"	2' 9.4"	2' 8.56"	2' 9.45"
2' 1.84"	2' 2.16"	2' 1.83"	2' 2.18"	2' 1.8"	2' 2.2"	2' 1.78"	2' 2.22"	2' 1.75"	2' 2.25"



5.6	6.3	7.1	8	9
131' 0.24"	116' 9.42"	104' 1.21"	92' 9.66"	82' 8.87"

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)
130' 9.23"	Infinity	116' 6.41"	Infinity	103' 10.24"	Infinity	92' 6.66"	Infinity	82' 5.88"	Infinity
62' 9.44"	1417' 7.32"	59' 3.98"	Infinity	55' 10.58"	Infinity	52' 5.52"	Infinity	49' 1.06"	Infinity
41' 3.72"	109' 11.82"	39' 9.55"	122' 6.18"	38' 2.69"	140' 5.91"	36' 7.23"	168' 2.6"	34' 11.28"	216' 1.48"
30' 9.37"	57' 2.55"	29' 11.26"	60' 4.84"	29' 0.55"	64' 5.28"	28' 1.27"	69' 8.03"	27' 1.46"	76' 7.89"
24' 6.35"	38' 7.94"	23' 11.93"	40' 0.99"	23' 5.06"	41' 9.7"	22' 9.73"	43' 11.19"	22' 1.96"	46' 7.11"
21' 1.2"	30' 8.39"	20' 8.47"	31' 7"	20' 3.36"	32' 7.66"	19' 9.88"	33' 10.94"	19' 4.02"	35' 5.58"
17' 5.31"	23' 5.44"	17' 2.1"	23' 11.54"	16' 10.6"	24' 6.71"	16' 6.82"	25' 3.2"	16' 2.74"	26' 1.34"
15' 1.55"	19' 4.93"	14' 11.14"	19' 9.06"	14' 8.51"	20' 1.88"	14' 5.66"	20' 7.52"	14' 2.56"	21' 2.19"
13' 6.4"	16' 9.99"	13' 4.48"	17' 1.06"	13' 2.38"	17' 4.63"	13' 0.09"	17' 8.79"	12' 9.61"	18' 1.66"
11' 10.71"	14' 4.09"	11' 9.24"	14' 6.3"	11' 7.63"	14' 8.85"	11' 5.86"	14' 11.8"	11' 3.93"	15' 3.23"
11' 0.66"	13' 1.52"	10' 11.4"	13' 3.36"	10' 10.01"	13' 5.47"	10' 8.48"	13' 7.92"	10' 6.82"	13' 10.75"
10' 2.47"	11' 11.19"	10' 1.4"	12' 0.7"	10' 0.22"	12' 2.43"	9' 10.92"	12' 4.42"	9' 9.5"	12' 6.73"
9' 4.13"	10' 9.1"	9' 3.24"	10' 10.31"	9' 2.25"	10' 11.7"	9' 1.17"	11' 1.3"	8' 11.98"	11' 3.14"
8' 10.9"	10' 2.14"	8' 10.1"	10' 3.22"	8' 9.21"	10' 4.46"	8' 8.22"	10' 5.88"	8' 7.15"	10' 7.51"
8' 5.64"	9' 7.24"	8' 4.92"	9' 8.2"	8' 4.11"	9' 9.29"	8' 3.23"	9' 10.54"	8' 2.25"	9' 11.98"
8' 0.34"	9' 0.39"	7' 11.69"	9' 1.24"	7' 10.97"	9' 2.2"	7' 10.18"	9' 3.29"	7' 9.31"	9' 4.55"
7' 7"	8' 5.61"	7' 6.43"	8' 6.34"	7' 5.79"	8' 7.17"	7' 5.09"	8' 8.13"	7' 4.31"	8' 9.23"
7' 1.62"	7' 10.87"	7' 1.12"	7' 11.5"	7' 0.56"	8' 0.23"	6' 11.94"	8' 1.05"	6' 11.25"	8' 2"
6' 8.21"	7' 4.19"	6' 7.77"	7' 4.73"	6' 7.28"	7' 5.35"	6' 6.74"	7' 6.06"	6' 6.14"	7' 6.86"
6' 2.75"	6' 9.56"	6' 2.37"	6' 10.02"	6' 1.95"	6' 10.54"	6' 1.48"	6' 11.14"	6' 0.97"	6' 11.82"
6'	6' 6.27"	5' 11.66"	6' 6.69"	5' 11.27"	6' 7.17"	5' 10.84"	6' 7.71"	5' 10.36"	6' 8.33"
5' 9.25"	6' 2.99"	5' 8.93"	6' 3.37"	5' 8.57"	6' 3.81"	5' 8.18"	6' 4.3"	5' 7.74"	6' 4.87"
5' 3.71"	5' 8.47"	5' 3.45"	5' 8.78"	5' 3.15"	5' 9.14"	5' 2.81"	5' 9.55"	5' 2.45"	5' 10.01"
4' 10.13"	5' 2"	4' 9.91"	5' 2.25"	4' 9.67"	5' 2.54"	4' 9.4"	5' 2.87"	4' 9.1"	5' 3.24"
4' 7.33"	4' 10.78"	4' 7.13"	4' 11.01"	4' 6.91"	4' 11.26"	4' 6.67"	4' 11.55"	4' 6.4"	4' 11.88"
4' 4.51"	4' 7.58"	4' 4.34"	4' 7.78"	4' 4.14"	4' 8"	4' 3.92"	4' 8.26"	4' 3.68"	4' 8.55"
4' 1.69"	4' 4.39"	4' 1.53"	4' 4.56"	4' 1.36"	4' 4.76"	4' 1.17"	4' 4.99"	4' 0.95"	4' 5.24"
3' 10.85"	4' 1.21"	3' 10.72"	4' 1.36"	3' 10.56"	4' 1.54"	3' 10.39"	4' 1.73"	3' 10.21"	4' 1.95"
3' 8.01"	3' 10.04"	3' 7.89"	3' 10.18"	3' 7.75"	3' 10.33"	3' 7.61"	3' 10.49"	3' 7.44"	3' 10.68"
3' 5.15"	3' 6.89"	3' 5.05"	3' 7"	3' 4.93"	3' 7.13"	3' 4.81"	3' 7.27"	3' 4.66"	3' 7.44"
3' 2.28"	3' 3.75"	3' 2.19"	3' 3.85"	3' 2.1"	3' 3.95"	3' 1.99"	3' 4.07"	3' 1.87"	3' 4.21"
2' 11.4"	3' 0.62"	2' 11.33"	3' 0.7"	2' 11.25"	3' 0.79"	2' 11.16"	3' 0.89"	2' 11.06"	3' 1"
2' 8.51"	2' 9.51"	2' 8.45"	2' 9.57"	2' 8.39"	2' 9.64"	2' 8.31"	2' 9.72"	2' 8.23"	2' 9.81"
2' 1.72"	2' 2.28"	2' 1.69"	2' 2.32"	2' 1.65"	2' 2.36"	2' 1.61"	2' 2.4"	2' 1.56"	2' 2.45"



10	11	13	14	16
73' 9.24"	65' 9.37"	58' 7.98"	52' 3.87"	46' 8.08"

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)
73' 6.27"	Infinity	65' 6.4"	Infinity	58' 4.99"	Infinity	52' 0.9"	Infinity	46' 5.11"	Infinity
45' 9.46"	Infinity	42' 6.93"	Infinity	39' 5.7"	Infinity	36' 5.91"	Infinity	33' 7.73"	Infinity
33' 2.95"	317' 9.56"	31' 6.38"	674' 0.95"	29' 9.7"	Infinity	28' 1.05"	Infinity	26' 4.56"	Infinity
26' 1.17"	86' 4.7"	25' 0.44"	100' 9.22"	23' 11.34"	123' 11.33"	22' 9.95"	167' 1.71"	21' 8.35"	274' 9.41"
21' 5.74"	49' 11.9"	20' 9.12"	54' 5.47"	20' 0.1"	60' 6.34"	19' 2.75"	69' 2.41"	18' 5.09"	82' 5.8"
18' 9.78"	37' 4.67"	18' 3.17"	39' 9.8"	17' 8.2"	42' 11.39"	17' 0.89"	47' 1.38"	16' 5.28"	52' 10.55"
15' 10.36"	27' 1.57"	15' 5.68"	28' 4.5"	15' 0.69"	29' 11"	14' 7.42"	31' 10.35"	14' 1.85"	34' 4.5"
13' 11.22"	21' 10.11"	13' 7.62"	22' 7.63"	13' 3.76"	23' 7.18"	12' 11.65"	24' 9.4"	12' 7.29"	26' 3.18"
12' 6.91"	18' 7.41"	12' 3.99"	19' 2.24"	12' 0.85"	19' 10.43"	11' 9.48"	20' 8.36"	11' 5.89"	21' 8.55"
11' 1.83"	15' 7.25"	10' 11.56"	15' 11.98"	10' 9.09"	16' 5.59"	10' 6.43"	17' 0.3"	10' 3.58"	17' 8.4"
10' 5"	14' 2.05"	10' 3.02"	14' 5.92"	10' 0.87"	14' 10.49"	9' 10.55"	15' 3.91"	9' 8.06"	15' 10.41"
9' 7.95"	12' 9.4"	9' 6.25"	13' 0.52"	9' 4.41"	13' 4.18"	9' 2.42"	13' 8.51"	9' 0.26"	14' 1.66"
8' 10.68"	11' 5.27"	8' 9.25"	11' 7.75"	8' 7.7"	11' 10.63"	8' 6.01"	12' 2.02"	8' 4.19"	12' 6.03"
8' 5.96"	10' 9.4"	8' 4.66"	10' 11.58"	8' 3.25"	11' 2.13"	8' 1.71"	11' 5.11"	8' 0.04"	11' 8.62"
8' 1.18"	10' 1.64"	8' 0.01"	10' 3.56"	7' 10.73"	10' 5.79"	7' 9.33"	10' 8.39"	7' 7.82"	10' 11.45"
7' 8.35"	9' 6"	7' 7.3"	9' 7.68"	7' 6.14"	9' 9.62"	7' 4.88"	9' 11.88"	7' 3.51"	10' 2.53"
7' 3.45"	8' 10.48"	7' 2.52"	8' 11.93"	7' 1.49"	9' 1.61"	7' 0.36"	9' 3.56"	6' 11.13"	9' 5.83"
6' 10.5"	8' 3.08"	6' 9.67"	8' 4.32"	6' 8.76"	8' 5.76"	6' 7.76"	8' 7.42"	6' 6.67"	8' 9.36"
6' 5.48"	7' 7.78"	6' 4.75"	7' 8.84"	6' 3.95"	7' 10.06"	6' 3.08"	7' 11.46"	6' 2.12"	8' 1.1"
6' 0.4"	7' 0.59"	5' 11.77"	7' 1.48"	5' 11.08"	7' 2.5"	5' 10.32"	7' 3.68"	5' 9.48"	7' 5.04"
5' 9.83"	6' 9.04"	5' 9.25"	6' 9.85"	5' 8.61"	6' 10.78"	5' 7.91"	6' 11.85"	5' 7.13"	7' 1.09"
5' 7.25"	6' 5.51"	5' 6.72"	6' 6.25"	5' 6.12"	6' 7.09"	5' 5.47"	6' 8.07"	5' 4.76"	6' 9.19"
5' 2.04"	5' 10.54"	5' 1.59"	5' 11.14"	5' 1.09"	5' 11.82"	5' 0.54"	6' 0.61"	4' 11.94"	6' 1.52"
4' 8.76"	5' 3.66"	4' 8.39"	5' 4.14"	4' 7.98"	5' 4.69"	4' 7.52"	5' 5.32"	4' 7.03"	5' 6.04"
4' 6.1"	5' 0.26"	4' 5.76"	5' 0.69"	4' 5.39"	5' 1.17"	4' 4.98"	5' 1.73"	4' 4.53"	5' 2.37"
4' 3.41"	4' 8.88"	4' 3.11"	4' 9.26"	4' 2.78"	4' 9.69"	4' 2.42"	4' 10.18"	4' 2.01"	4' 10.74"
4' 0.71"	4' 5.53"	4' 0.45"	4' 5.86"	4' 0.15"	4' 6.23"	3' 11.83"	4' 6.66"	3' 11.47"	4' 7.15"
3' 10"	4' 2.2"	3' 9.76"	4' 2.49"	3' 9.5"	4' 2.81"	3' 9.22"	4' 3.18"	3' 8.9"	4' 3.6"
3' 7.26"	3' 10.9"	3' 7.06"	3' 11.14"	3' 6.83"	3' 11.42"	3' 6.58"	3' 11.74"	3' 6.3"	4' 0.1"
3' 4.51"	3' 7.62"	3' 4.33"	3' 7.83"	3' 4.14"	3' 8.06"	3' 3.92"	3' 8.33"	3' 3.68"	3' 8.63"
3' 1.74"	3' 4.36"	3' 1.59"	3' 4.54"	3' 1.42"	3' 4.73"	3' 1.24"	3' 4.96"	3' 1.03"	3' 5.21"
2' 10.95"	3' 1.13"	2' 10.82"	3' 1.27"	2' 10.68"	3' 1.43"	2' 10.53"	3' 1.62"	2' 10.36"	3' 1.83"
2' 8.14"	2' 9.92"	2' 8.04"	2' 10.03"	2' 7.92"	2' 10.16"	2' 7.8"	2' 10.31"	2' 7.65"	2' 10.48"
2' 1.51"	2' 2.51"	2' 1.45"	2' 2.57"	2' 1.39"	2' 2.65"	2' 1.32"	2' 2.73"	2' 1.24"	2' 2.82"



18	20	22
41' 7.69"	37' 1.87"	33' 1.95"

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)
41' 4.72"	Infinity	36' 10.91"	Infinity	32' 10.98"	Infinity
30' 11.24"	Infinity	28' 4.54"	Infinity	25' 11.66"	Infinity
24' 8.37"	Infinity	23' 0.6"	Infinity	21' 5.36"	Infinity
20' 6.62"	995' 4.62"	19' 4.87"	Infinity	18' 3.17"	Infinity
17' 7.18"	105' 2.11"	16' 9.08"	152' 3.37"	15' 10.85"	306' 9.55"
15' 9.4"	61' 3.74"	15' 1.28"	74' 8.47"	14' 4.97"	99' 0.42"
13' 8.02"	37' 8.61"	13' 1.95"	42' 4.18"	12' 7.65"	49' 1.58"
12' 2.68"	28' 1.89"	11' 9.84"	30' 7.68"	11' 4.78"	34' 0.13"
11' 2.08"	22' 11.77"	10' 10.05"	24' 7.15"	10' 5.81"	26' 8.47"
10' 0.54"	18' 6.32"	9' 9.3"	19' 6.63"	9' 5.87"	20' 10.2"
9' 5.38"	16' 6.3"	9' 2.52"	17' 3.97"	8' 11.49"	18' 4.05"
8' 9.94"	14' 7.84"	8' 7.46"	15' 3.36"	8' 4.82"	16' 0.62"
8' 2.21"	12' 10.81"	8' 0.09"	13' 4.56"	7' 9.82"	13' 11.55"
7' 10.23"	12' 0.79"	7' 8.29"	12' 5.78"	7' 6.2"	12' 11.82"
7' 6.17"	11' 3.07"	7' 4.4"	11' 7.38"	7' 2.49"	12' 0.57"
7' 2.03"	10' 5.64"	7' 0.42"	10' 9.34"	6' 10.69"	11' 1.77"
6' 9.8"	9' 8.5"	6' 8.35"	9' 11.65"	6' 6.8"	10' 3.4"
6' 5.48"	8' 11.62"	6' 4.19"	9' 2.28"	6' 2.8"	9' 5.44"
6' 1.07"	8' 3"	5' 11.94"	8' 5.23"	5' 10.7"	8' 7.86"
5' 8.57"	7' 6.62"	5' 7.58"	7' 8.47"	5' 6.5"	7' 10.64"
5' 6.29"	7' 2.52"	5' 5.36"	7' 4.2"	5' 4.36"	7' 6.16"
5' 3.97"	6' 10.48"	5' 3.12"	6' 11.99"	5' 2.19"	7' 1.76"
4' 11.28"	6' 2.57"	4' 10.55"	6' 3.78"	4' 9.76"	6' 5.19"
4' 6.48"	5' 6.87"	4' 5.87"	5' 7.83"	4' 5.21"	5' 8.94"
4' 4.04"	5' 3.1"	4' 3.49"	5' 3.94"	4' 2.89"	5' 4.92"
4' 1.57"	4' 11.38"	4' 1.08"	5' 0.12"	4' 0.54"	5' 0.97"
3' 11.07"	4' 7.71"	3' 10.64"	4' 8.35"	3' 10.16"	4' 9.09"
3' 8.55"	4' 4.08"	3' 8.16"	4' 4.64"	3' 7.74"	4' 5.27"
3' 6"	4' 0.51"	3' 5.66"	4' 0.98"	3' 5.29"	4' 1.52"
3' 3.42"	3' 8.98"	3' 3.13"	3' 9.38"	3' 2.8"	3' 9.83"
3' 0.81"	3' 5.5"	3' 0.56"	3' 5.83"	3' 0.28"	3' 6.21"
2' 10.17"	3' 2.06"	2' 9.96"	3' 2.34"	2' 9.73"	3' 2.64"
2' 7.5"	2' 10.67"	2' 7.32"	2' 10.89"	2' 7.13"	2' 11.14"
2' 1.15"	2' 2.92"	2' 1.05"	2' 3.04"	2' 0.93"	2' 3.18"



Focal Length 100 mm

Circle of Confusion 0.025 mm

T/No	2.1	2.2	2.5	2.8
Hyperfocal Distance (ft-inch)	598' 2.43"	559' 7.47"	498' 7.5"	444' 3.42"

T/No	2.1		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	597' 9.29"	Infinity	559' 2.46"	Infinity	498' 2.76"	Infinity	443' 10.86"	Infinity
120' 0"	100' 0.6"	149' 11"	98' 10.99"	152' 6.51"	96' 9.99"	157' 9.42"	94' 7.17"	164' 1.39"
60' 0"	54' 7.11"	66' 7.22"	54' 3.06"	67' 1.34"	53' 7.52"	68' 1.21"	52' 11.26"	69' 2.95"
40' 0"	37' 6.45"	42' 9.73"	37' 4.55"	43' 0.23"	37' 0.98"	43' 5.05"	36' 9.04"	43' 10.57"
30' 0"	28' 7.22"	31' 6.51"	28' 6.12"	31' 7.86"	28' 4.06"	31' 10.45"	28' 1.77"	32' 1.39"
25' 0"	24' 0.32"	26' 0.68"	23' 11.55"	26' 1.59"	23' 10.09"	26' 3.34"	23' 8.48"	26' 5.33"
20' 0"	19' 4.52"	20' 7.98"	19' 4.02"	20' 8.55"	19' 3.08"	20' 9.64"	19' 2.04"	20' 10.87"
17' 0"	16' 6.61"	17' 5.69"	16' 6.25"	17' 6.1"	16' 5.57"	17' 6.87"	16' 4.81"	17' 7.75"
15' 0"	14' 7.82"	15' 4.39"	14' 7.54"	15' 4.7"	14' 7"	15' 5.29"	14' 6.41"	15' 5.97"
13' 0"	12' 8.87"	13' 3.26"	12' 8.66"	13' 3.49"	12' 8.26"	13' 3.93"	12' 7.82"	13' 4.42"
12' 0"	11' 9.35"	12' 2.76"	11' 9.17"	12' 2.95"	11' 8.83"	12' 3.32"	11' 8.45"	12' 3.74"
11' 0"	10' 9.78"	11' 2.3"	10' 9.63"	11' 2.46"	10' 9.34"	11' 2.77"	10' 9.03"	11' 3.12"
10' 0"	9' 10.18"	10' 1.88"	9' 10.05"	10' 2.02"	9' 9.82"	10' 2.27"	9' 9.56"	10' 2.55"
9' 6"	9' 4.36"	9' 7.69"	9' 4.25"	9' 7.81"	9' 4.04"	9' 8.03"	9' 3.8"	9' 8.29"
9' 0"	8' 10.53"	9' 1.51"	8' 10.43"	9' 1.61"	8' 10.24"	9' 1.82"	8' 10.03"	9' 2.04"
8' 6"	8' 4.7"	8' 7.34"	8' 4.61"	8' 7.43"	8' 4.44"	8' 7.61"	8' 4.25"	8' 7.81"
8' 0"	7' 10.85"	8' 1.18"	7' 10.77"	8' 1.26"	7' 10.63"	8' 1.42"	7' 10.46"	8' 1.59"
7' 6"	7' 5"	7' 7.03"	7' 4.93"	7' 7.1"	7' 4.8"	7' 7.23"	7' 4.66"	7' 7.39"
7' 0"	6' 11.13"	7' 0.89"	6' 11.07"	7' 0.95"	6' 10.96"	7' 1.07"	6' 10.84"	7' 1.2"
6' 6"	6' 5.26"	6' 6.76"	6' 5.21"	6' 6.81"	6' 5.11"	6' 6.91"	6' 5"	6' 7.02"
6' 3"	6' 2.32"	6' 3.7"	6' 2.27"	6' 3.74"	6' 2.18"	6' 3.84"	6' 2.08"	6' 3.94"
6' 0"	5' 11.37"	6' 0.64"	5' 11.33"	6' 0.68"	5' 11.25"	6' 0.77"	5' 11.16"	6' 0.86"
5' 9"	5' 8.43"	5' 9.58"	5' 8.39"	5' 9.62"	5' 8.32"	5' 9.7"	5' 8.23"	5' 9.79"
5' 6"	5' 5.48"	5' 6.53"	5' 5.45"	5' 6.56"	5' 5.38"	5' 6.63"	5' 5.3"	5' 6.71"
5' 3"	5' 2.53"	5' 3.48"	5' 2.5"	5' 3.51"	5' 2.44"	5' 3.57"	5' 2.37"	5' 3.64"
5' 0"	4' 11.58"	5' 0.43"	4' 11.55"	5' 0.46"	4' 11.49"	5' 0.52"	4' 11.43"	5' 0.58"
4' 9"	4' 8.62"	4' 9.38"	4' 8.6"	4' 9.41"	4' 8.55"	4' 9.46"	4' 8.49"	4' 9.52"
4' 6"	4' 5.66"	4' 6.34"	4' 5.64"	4' 6.36"	4' 5.6"	4' 6.41"	4' 5.55"	4' 6.46"
4' 3"	4' 2.7"	4' 3.3"	4' 2.68"	4' 3.32"	4' 2.64"	4' 3.36"	4' 2.6"	4' 3.41"
4' 0"	3' 11.74"	4' 0.26"	3' 11.72"	4' 0.28"	3' 11.69"	4' 0.32"	3' 11.65"	4' 0.35"
3' 9"	3' 8.78"	3' 9.23"	3' 8.76"	3' 9.24"	3' 8.73"	3' 9.27"	3' 8.7"	3' 9.31"
3' 6"	3' 5.81"	3' 6.19"	3' 5.79"	3' 6.21"	3' 5.77"	3' 6.23"	3' 5.74"	3' 6.26"
3' 3"	3' 2.84"	3' 3.16"	3' 2.83"	3' 3.18"	3' 2.8"	3' 3.2"	3' 2.78"	3' 3.22"
3' 0"	2' 1.94"	2' 2.06"	2' 1.93"	2' 2.07"	2' 1.92"	2' 2.08"	2' 1.92"	2' 2.08"
2' 10"	2' 1.94"	2' 2.06"	2' 1.93"	2' 2.07"	2' 1.92"	2' 2.08"	2' 1.92"	2' 2.08"



3.2	3.5	4	4.5	5
395' 10.47"	352' 8.91"	314' 3.81"	280' 1.02"	249' 7.08"

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)
395' 6.06"	Infinity	352' 4.62"	Infinity	313' 11.62"	Infinity	279' 8.9"	Infinity	249' 2.99"	Infinity
92' 2.5"	171' 10.3"	89' 8"	181' 5.61"	86' 11.72"	193' 7.47"	84' 1.72"	209' 4.39"	81' 2.11"	230' 4.77"
52' 2.24"	70' 6.95"	51' 4.42"	72' 1.65"	50' 5.75"	73' 11.66"	49' 6.22"	76' 1.73"	48' 5.78"	78' 8.9"
36' 4.7"	44' 4.9"	35' 11.93"	45' 0.2"	35' 6.7"	45' 8.63"	35' 0.98"	46' 6.41"	34' 6.74"	47' 5.82"
27' 11.23"	32' 4.75"	27' 8.44"	32' 8.6"	27' 5.35"	33' 1"	27' 1.95"	33' 6.06"	26' 10.22"	33' 11.91"
23' 6.69"	26' 7.59"	23' 4.71"	26' 10.17"	23' 2.51"	27' 1.12"	23' 0.09"	27' 4.49"	22' 9.43"	27' 8.36"
19' 0.88"	21' 0.27"	18' 11.59"	21' 1.87"	18' 10.15"	21' 3.68"	18' 8.57"	21' 5.74"	18' 6.82"	21' 8.1"
16' 3.96"	17' 8.74"	16' 3.02"	17' 9.86"	16' 1.98"	17' 11.13"	16' 0.82"	18' 0.58"	15' 11.53"	18' 2.23"
14' 5.75"	15' 6.72"	14' 5.02"	15' 7.58"	14' 4.2"	15' 8.56"	14' 3.29"	15' 9.66"	14' 2.28"	15' 10.92"
12' 7.32"	13' 4.98"	12' 6.77"	13' 5.61"	12' 6.15"	13' 6.33"	12' 5.47"	13' 7.14"	12' 4.71"	13' 8.06"
11' 8.03"	12' 4.21"	11' 7.55"	12' 4.75"	11' 7.03"	12' 5.35"	11' 6.44"	12' 6.03"	11' 5.79"	12' 6.81"
10' 8.67"	11' 3.51"	10' 8.28"	11' 3.95"	10' 7.84"	11' 4.45"	10' 7.34"	11' 5.02"	10' 6.8"	11' 5.66"
9' 9.26"	10' 2.87"	9' 8.94"	10' 3.23"	9' 8.57"	10' 3.64"	9' 8.17"	10' 4.1"	9' 7.71"	10' 4.62"
9' 3.54"	9' 8.58"	9' 3.24"	9' 8.9"	9' 2.92"	9' 9.27"	9' 2.55"	9' 9.68"	9' 2.14"	9' 10.15"
8' 9.8"	9' 2.3"	8' 9.53"	9' 2.59"	8' 9.24"	9' 2.91"	8' 8.91"	9' 3.28"	8' 8.55"	9' 3.7"
8' 4.04"	8' 8.04"	8' 3.81"	8' 8.29"	8' 3.55"	8' 8.58"	8' 3.26"	8' 8.9"	8' 2.93"	8' 9.27"
7' 10.28"	8' 1.79"	7' 10.07"	8' 2.01"	7' 9.84"	8' 2.27"	7' 9.58"	8' 2.55"	7' 9.29"	8' 2.87"
7' 4.49"	7' 7.56"	7' 4.31"	7' 7.76"	7' 4.11"	7' 7.98"	7' 3.88"	7' 8.22"	7' 3.63"	7' 8.5"
6' 10.7"	7' 1.35"	6' 10.54"	7' 1.52"	6' 10.36"	7' 1.7"	6' 10.17"	7' 1.92"	6' 9.95"	7' 2.16"
6' 4.88"	6' 7.15"	6' 4.75"	6' 7.29"	6' 4.6"	6' 7.45"	6' 4.43"	6' 7.64"	6' 4.24"	6' 7.84"
6' 1.97"	6' 4.06"	6' 1.85"	6' 4.19"	6' 1.71"	6' 4.34"	6' 1.56"	6' 4.5"	6' 1.38"	6' 4.69"
5' 11.06"	6' 0.97"	5' 10.95"	6' 1.09"	5' 10.82"	6' 1.22"	5' 10.68"	6' 1.38"	5' 10.52"	6' 1.55"
5' 8.14"	5' 9.88"	5' 8.04"	5' 9.99"	5' 7.92"	5' 10.12"	5' 7.79"	5' 10.26"	5' 7.65"	5' 10.41"
5' 5.22"	5' 6.8"	5' 5.12"	5' 6.9"	5' 5.02"	5' 7.01"	5' 4.9"	5' 7.14"	5' 4.77"	5' 7.28"
5' 2.29"	5' 3.72"	5' 2.21"	5' 3.81"	5' 2.11"	5' 3.92"	5' 2"	5' 4.03"	5' 1.88"	5' 4.16"
4' 11.36"	5' 0.65"	4' 11.29"	5' 0.73"	4' 11.2"	5' 0.82"	4' 11.1"	5' 0.93"	4' 11"	5' 1.04"
4' 8.43"	4' 9.58"	4' 8.36"	4' 9.65"	4' 8.28"	4' 9.74"	4' 8.2"	4' 9.83"	4' 8.1"	4' 9.93"
4' 5.49"	4' 6.52"	4' 5.43"	4' 6.58"	4' 5.36"	4' 6.65"	4' 5.29"	4' 6.73"	4' 5.2"	4' 6.83"
4' 2.55"	4' 3.46"	4' 2.5"	4' 3.51"	4' 2.44"	4' 3.58"	4' 2.37"	4' 3.65"	4' 2.29"	4' 3.73"
3' 11.61"	4' 0.4"	3' 11.56"	4' 0.45"	3' 11.51"	4' 0.5"	3' 11.45"	4' 0.56"	3' 11.38"	4' 0.64"
3' 8.66"	3' 9.34"	3' 8.62"	3' 9.39"	3' 8.57"	3' 9.43"	3' 8.52"	3' 9.49"	3' 8.46"	3' 9.55"
3' 5.71"	3' 6.29"	3' 5.67"	3' 6.33"	3' 5.63"	3' 6.37"	3' 5.59"	3' 6.42"	3' 5.54"	3' 6.47"
3' 2.75"	3' 3.25"	3' 2.72"	3' 3.28"	3' 2.69"	3' 3.31"	3' 2.65"	3' 3.35"	3' 2.61"	3' 3.4"
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' 1.85"	2' 2.15"
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' 1.85"	2' 2.15"



5.6	6.3	7.1	8	9
222' 5.02"	198' 2.54"	176' 7.76"	157' 5.21"	140' 3.82"

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)
222' 0.99"	Infinity	197' 10.56"	Infinity	176' 3.81"	Infinity	157' 1.28"	Infinity	139' 11.91"	Infinity
78' 1.02"	259' 8.21"	74' 10.63"	302' 10.98"	71' 7.12"	372' 6.58"	68' 2.74"	502' 1.92"	64' 9.71"	824' 0.96"
47' 4.43"	81' 10.52"	46' 2.16"	85' 8.5"	44' 10.98"	90' 5.53"	43' 6.9"	96' 5.61"	42' 1.97"	104' 2.86"
33' 11.96"	48' 7.2"	33' 4.6"	49' 10.99"	32' 8.66"	51' 5.77"	32' 0.11"	53' 4.31"	31' 2.95"	55' 7.66"
26' 6.14"	34' 6.67"	26' 1.68"	35' 2.54"	25' 8.82"	35' 11.74"	25' 3.54"	36' 10.55"	24' 9.83"	37' 11.36"
22' 6.5"	28' 0.81"	22' 3.28"	28' 5.95"	21' 11.76"	28' 11.92"	21' 7.93"	29' 6.87"	21' 3.75"	30' 3.01"
18' 4.88"	21' 10.79"	18' 2.75"	22' 1.89"	18' 0.41"	22' 5.45"	17' 9.83"	22' 9.57"	17' 7.02"	23' 2.35"
15' 10.11"	18' 4.11"	15' 8.54"	18' 6.27"	15' 6.81"	18' 8.73"	15' 4.9"	18' 11.57"	15' 2.81"	19' 2.84"
14' 1.16"	16' 0.35"	13' 11.93"	16' 1.98"	13' 10.56"	16' 3.84"	13' 9.05"	16' 5.98"	13' 7.4"	16' 8.43"
12' 3.86"	13' 9.11"	12' 2.92"	13' 10.3"	12' 1.88"	13' 11.66"	12' 0.74"	14' 1.21"	11' 11.47"	14' 2.98"
11' 5.07"	12' 7.68"	11' 4.27"	12' 8.68"	11' 3.38"	12' 9.82"	11' 2.39"	12' 11.12"	11' 1.31"	13' 0.6"
10' 6.19"	11' 6.39"	10' 5.51"	11' 7.21"	10' 4.76"	11' 8.15"	10' 3.93"	11' 9.22"	10' 3.01"	11' 10.44"
9' 7.21"	10' 5.21"	9' 6.65"	10' 5.89"	9' 6.03"	10' 6.65"	9' 5.34"	10' 7.51"	9' 4.58"	10' 8.5"
9' 1.69"	9' 10.67"	9' 1.18"	9' 11.27"	9' 0.62"	9' 11.95"	9'	10' 0.73"	8' 11.31"	10' 1.61"
8' 8.14"	9' 4.17"	8' 7.69"	9' 4.7"	8' 7.18"	9' 5.3"	8' 6.62"	9' 5.99"	8' 6"	9' 6.77"
8' 2.57"	8' 9.69"	8' 2.16"	8' 10.16"	8' 1.71"	8' 10.69"	8' 1.21"	8' 11.3"	8' 0.66"	8' 11.98"
7' 8.97"	8' 3.24"	7' 8.61"	8' 3.65"	7' 8.22"	8' 4.12"	7' 7.77"	8' 4.65"	7' 7.28"	8' 5.25"
7' 3.35"	7' 8.82"	7' 3.04"	7' 9.18"	7' 2.69"	7' 9.58"	7' 2.3"	7' 10.04"	7' 1.87"	7' 10.56"
6' 9.71"	7' 2.43"	6' 9.43"	7' 2.74"	6' 9.13"	7' 3.09"	6' 8.79"	7' 3.48"	6' 8.42"	7' 3.93"
6' 4.04"	6' 8.07"	6' 3.8"	6' 8.33"	6' 3.54"	6' 8.63"	6' 3.25"	6' 8.96"	6' 2.93"	6' 9.34"
6' 1.19"	6' 4.9"	6' 0.98"	6' 5.14"	6' 0.74"	6' 5.42"	6' 0.47"	6' 5.72"	6' 0.17"	6' 6.07"
5' 10.34"	6' 1.74"	5' 10.14"	6' 1.96"	5' 9.92"	6' 2.21"	5' 9.68"	6' 2.49"	5' 9.4"	6' 2.81"
5' 7.48"	5' 10.59"	5' 7.3"	5' 10.79"	5' 7.1"	5' 11.01"	5' 6.88"	5' 11.27"	5' 6.62"	5' 11.56"
5' 4.62"	5' 7.44"	5' 4.46"	5' 7.62"	5' 4.27"	5' 7.83"	5' 4.07"	5' 8.06"	5' 3.84"	5' 8.32"
5' 1.75"	5' 4.3"	5' 1.6"	5' 4.47"	5' 1.43"	5' 4.65"	5' 1.25"	5' 4.86"	5' 1.04"	5' 5.1"
4' 10.88"	5' 1.17"	4' 10.74"	5' 1.32"	4' 10.59"	5' 1.48"	4' 10.42"	5' 1.67"	4' 10.23"	5' 1.88"
4' 7.99"	4' 10.05"	4' 7.87"	4' 10.18"	4' 7.74"	4' 10.32"	4' 7.59"	4' 10.49"	4' 7.42"	4' 10.68"
4' 5.1"	4' 6.93"	4' 5"	4' 7.04"	4' 4.88"	4' 7.18"	4' 4.74"	4' 7.32"	4' 4.59"	4' 7.49"
4' 2.21"	4' 3.82"	4' 2.11"	4' 3.92"	4' 2.01"	4' 4.03"	4' 1.89"	4' 4.16"	4' 1.76"	4' 4.31"
3' 11.31"	4' 0.71"	3' 11.22"	4' 0.8"	3' 11.13"	4' 0.9"	3' 11.03"	4' 1.02"	3' 10.91"	4' 1.14"
3' 8.4"	3' 9.62"	3' 8.33"	3' 9.69"	3' 8.25"	3' 9.78"	3' 8.16"	3' 9.88"	3' 8.06"	3' 9.99"
3' 5.49"	3' 6.53"	3' 5.42"	3' 6.59"	3' 5.35"	3' 6.67"	3' 5.28"	3' 6.75"	3' 5.19"	3' 6.85"
3' 2.56"	3' 3.45"	3' 2.51"	3' 3.5"	3' 2.45"	3' 3.56"	3' 2.39"	3' 3.63"	3' 2.31"	3' 3.71"
2' 1.83"	2' 2.17"	2' 1.81"	2' 2.19"	2' 1.79"	2' 2.22"	2' 1.76"	2' 2.24"	2' 1.73"	2' 2.27"
2' 1.83"	2' 2.17"	2' 1.81"	2' 2.19"	2' 1.79"	2' 2.22"	2' 1.76"	2' 2.24"	2' 1.73"	2' 2.27"



10	11	13	14	16
125' 0.83"	111' 5.83"	99' 4.6"	88' 7.19"	78' 11.91"

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)
124' 8.94"	Infinity	111' 1.93"	Infinity	99' 0.7"	Infinity	88' 3.32"	Infinity	78' 8.05"	Infinity
61' 4.32"	2941' 7.32"	57' 10.82"	Infinity	54' 5.51"	Infinity	51' 0.64"	Infinity	47' 8.47"	Infinity
40' 8.23"	114' 7.26"	39' 1.75"	129' 0.17"	37' 6.61"	150' 2.68"	35' 10.92"	184' 2.87"	34' 2.78"	247' 0.89"
30' 5.18"	58' 5.3"	29' 6.81"	61' 11.36"	28' 7.85"	66' 5.03"	27' 8.34"	72' 3.37"	26' 8.31"	80' 2.8"
24' 3.67"	39' 2.65"	23' 9.06"	40' 9.1"	23' 1.99"	42' 7.62"	22' 6.47"	44' 11.52"	21' 10.49"	47' 10.72"
20' 11.22"	31' 0.62"	20' 6.32"	32' 0.02"	20' 1.05"	33' 1.7"	19' 7.4"	34' 6.26"	19' 1.37"	36' 2.59"
17' 3.95"	23' 7.91"	17' 0.61"	24' 2.43"	16' 8.99"	24' 10.12"	16' 5.08"	25' 7.26"	16' 0.87"	26' 6.21"
15' 0.52"	19' 6.63"	14' 10.02"	19' 11.03"	14' 7.29"	20' 4.18"	14' 4.32"	20' 10.23"	14' 1.12"	21' 5.39"
13' 5.57"	16' 11.26"	13' 3.58"	17' 2.54"	13' 1.39"	17' 6.35"	12' 11.02"	17' 10.79"	12' 8.43"	18' 4.02"
11' 10.07"	14' 5.02"	11' 8.54"	14' 7.37"	11' 6.86"	14' 10.08"	11' 5.02"	15' 1.23"	11' 3.01"	15' 4.9"
11' 0.11"	13' 2.3"	10' 10.79"	13' 4.25"	10' 9.34"	13' 6.5"	10' 7.75"	13' 9.11"	10' 6.01"	14' 0.13"
10' 2"	11' 11.84"	10' 0.88"	12' 1.44"	9' 11.64"	12' 3.28"	9' 10.29"	12' 5.4"	9' 8.81"	12' 7.86"
9' 3.73"	10' 9.63"	9' 2.8"	10' 10.91"	9' 1.77"	11' 0.39"	9' 0.64"	11' 2.09"	8' 11.4"	11' 4.05"
8' 10.54"	10' 2.61"	8' 9.7"	10' 3.76"	8' 8.77"	10' 5.07"	8' 7.74"	10' 6.58"	8' 6.61"	10' 8.32"
8' 5.31"	9' 7.66"	8' 4.55"	9' 8.67"	8' 3.71"	9' 9.84"	8' 2.79"	9' 11.17"	8' 1.77"	10' 0.7"
8' 0.05"	9' 0.77"	7' 11.37"	9' 1.66"	7' 10.61"	9' 2.68"	7' 9.78"	9' 3.85"	7' 8.87"	9' 5.19"
7' 6.74"	8' 5.93"	7' 6.13"	8' 6.71"	7' 5.47"	8' 7.6"	7' 4.73"	8' 8.62"	7' 3.92"	8' 9.78"
7' 1.39"	7' 11.16"	7' 0.86"	7' 11.83"	7' 0.27"	8' 0.6"	6' 11.62"	8' 1.47"	6' 10.9"	8' 2.48"
6' 8"	7' 4.44"	6' 7.54"	7' 5.01"	6' 7.02"	7' 5.67"	6' 6.46"	7' 6.42"	6' 5.83"	7' 7.28"
6' 2.57"	6' 9.77"	6' 2.17"	6' 10.26"	6' 1.73"	6' 10.82"	6' 1.24"	6' 11.45"	6' 0.7"	7' 0.17"
5' 11.84"	6' 6.46"	5' 11.47"	6' 6.91"	5' 11.06"	6' 7.42"	5' 10.61"	6' 8"	5' 10.11"	6' 8.66"
5' 9.1"	6' 3.17"	5' 8.76"	6' 3.58"	5' 8.38"	6' 4.04"	5' 7.97"	6' 4.57"	5' 7.5"	6' 5.17"
5' 6.35"	5' 11.89"	5' 6.04"	6' 0.26"	5' 5.69"	6' 0.68"	5' 5.31"	6' 1.16"	5' 4.88"	6' 1.7"
5' 3.58"	5' 8.62"	5' 3.3"	5' 8.95"	5' 2.99"	5' 9.33"	5' 2.64"	5' 9.77"	5' 2.25"	5' 10.26"
5' 0.81"	5' 5.36"	5' 0.55"	5' 5.66"	5' 0.27"	5' 6.01"	4' 11.95"	5' 6.4"	4' 11.6"	5' 6.84"
4' 10.03"	5' 2.12"	4' 9.79"	5' 2.39"	4' 9.53"	5' 2.7"	4' 9.25"	5' 3.05"	4' 8.93"	5' 3.44"
4' 7.23"	4' 10.89"	4' 7.02"	4' 11.13"	4' 6.79"	4' 11.41"	4' 6.53"	4' 11.72"	4' 6.24"	5' 0.07"
4' 4.43"	4' 7.68"	4' 4.24"	4' 7.89"	4' 4.03"	4' 8.13"	4' 3.8"	4' 8.41"	4' 3.54"	4' 8.72"
4' 1.61"	4' 4.48"	4' 1.44"	4' 4.66"	4' 1.26"	4' 4.88"	4' 1.06"	4' 5.11"	4' 0.83"	4' 5.39"
3' 10.78"	4' 1.29"	3' 10.64"	4' 1.45"	3' 10.48"	4' 1.64"	3' 10.3"	4' 1.84"	3' 10.1"	4' 2.08"
3' 7.94"	3' 10.11"	3' 7.82"	3' 10.25"	3' 7.68"	3' 10.41"	3' 7.52"	3' 10.59"	3' 7.35"	3' 10.8"
3' 5.09"	3' 6.95"	3' 4.98"	3' 7.07"	3' 4.86"	3' 7.21"	3' 4.73"	3' 7.36"	3' 4.58"	3' 7.53"
3' 2.23"	3' 3.8"	3' 2.14"	3' 3.9"	3' 2.04"	3' 4.02"	3' 1.92"	3' 4.15"	3' 1.8"	3' 4.29"
2' 1.7"	2' 2.31"	2' 1.67"	2' 2.34"	2' 1.63"	2' 2.39"	2' 1.58"	2' 2.43"	2' 1.53"	2' 2.49"
2' 1.7"	2' 2.31"	2' 1.67"	2' 2.34"	2' 1.63"	2' 2.39"	2' 1.58"	2' 2.43"	2' 1.53"	2' 2.49"



18	20	22
70' 5.24"	62' 9.74"	56' 0.2"

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)
70' 1.36"	Infinity	62' 5.87"	Infinity	55' 8.36"	Infinity
44' 5.26"	Infinity	41' 3.21"	Infinity	38' 2.52"	Infinity
32' 6.32"	400' 5.95"	30' 9.67"	1324' 0.76"	29' 0.96"	Infinity
25' 7.81"	91' 6.56"	24' 6.9"	108' 9.31"	23' 5.65"	137' 11.28"
21' 2.09"	51' 8.17"	20' 5.29"	56' 8.62"	19' 8.11"	63' 8.33"
18' 6.97"	38' 3.94"	18' 0.19"	41' 0.19"	17' 5.07"	44' 6.27"
15' 8.35"	27' 7.48"	15' 3.53"	28' 11.77"	14' 10.41"	30' 8.09"
13' 9.66"	22' 1.94"	13' 5.95"	23' 0.25"	13' 1.97"	24' 0.83"
12' 5.64"	18' 10.19"	12' 2.62"	19' 5.56"	11' 11.37"	20' 2.43"
11' 0.83"	15' 9.21"	10' 10.47"	16' 2.29"	10' 7.91"	16' 8.34"
10' 4.12"	14' 3.67"	10' 2.06"	14' 7.82"	9' 11.84"	15' 0.73"
9' 7.19"	12' 10.72"	9' 5.43"	13' 2.06"	9' 3.52"	13' 5.99"
8' 10.04"	11' 6.33"	8' 8.55"	11' 8.97"	8' 6.94"	12' 0.07"
8' 5.37"	10' 10.33"	8' 4.02"	11' 0.67"	8' 2.55"	11' 3.4"
8' 0.65"	10' 2.47"	7' 11.43"	10' 4.52"	7' 10.09"	10' 6.91"
7' 7.87"	9' 6.73"	7' 6.77"	9' 8.52"	7' 5.56"	9' 10.6"
7' 3.02"	8' 11.12"	7' 2.04"	9' 0.67"	7' 0.96"	9' 2.46"
6' 10.11"	8' 3.63"	6' 9.24"	8' 4.96"	6' 8.29"	8' 6.49"
6' 5.14"	7' 8.26"	6' 4.38"	7' 9.39"	6' 3.54"	7' 10.69"
6' 0.1"	7' 1"	5' 11.44"	7' 1.95"	5' 10.71"	7' 3.04"
5' 9.55"	6' 9.41"	5' 8.94"	6' 10.28"	5' 8.27"	6' 11.27"
5' 6.99"	6' 5.85"	5' 6.43"	6' 6.64"	5' 5.81"	6' 7.54"
5' 4.41"	6' 2.32"	5' 3.9"	6' 3.03"	5' 3.32"	6' 3.85"
5' 1.82"	5' 10.82"	5' 1.34"	5' 11.46"	5' 0.82"	6' 0.19"
4' 11.21"	5' 7.34"	4' 10.77"	5' 7.92"	4' 10.3"	5' 8.57"
4' 8.58"	5' 3.89"	4' 8.18"	5' 4.4"	4' 7.75"	5' 4.99"
4' 5.93"	5' 0.47"	4' 5.57"	5' 0.92"	4' 5.18"	5' 1.44"
4' 3.26"	4' 9.07"	4' 2.94"	4' 9.47"	4' 2.6"	4' 9.93"
4' 0.58"	4' 5.7"	4' 0.3"	4' 6.05"	3' 11.99"	4' 6.45"
3' 9.87"	4' 2.35"	3' 9.63"	4' 2.65"	3' 9.35"	4' 3"
3' 7.15"	3' 11.03"	3' 6.94"	3' 11.29"	3' 6.7"	3' 11.58"
3' 4.41"	3' 7.73"	3' 4.23"	3' 7.95"	3' 4.02"	3' 8.2"
3' 1.65"	3' 4.46"	3' 1.49"	3' 4.64"	3' 1.32"	3' 4.85"
2' 1.48"	2' 2.55"	2' 1.41"	2' 2.62"	2' 1.34"	2' 2.7"
2' 1.48"	2' 2.55"	2' 1.41"	2' 2.62"	2' 1.34"	2' 2.7"



Focal Length 125 mm

Circle of Confusion 0.025 mm

T/No	2.1	2.2	2.5	2.8
Hyperfocal Distance (ft-inch)	936' 9.85"	876' 4.57"	780' 9.96"	695' 8.46"

T/No	2.1		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	936' 1.82"	Infinity	875' 8.95"	Infinity	780' 2.93"	Infinity	695' 1.89"	Infinity
200' 0"	164' 10.98"	254' 0.9"	162' 11.32"	258' 10.88"	159' 3.95"	268' 7.17"	155' 5.5"	280' 4.53"
100' 0"	90' 5.04"	111' 10.28"	89' 9.91"	112' 9.35"	88' 8.65"	114' 6.88"	87' 6.15"	116' 7.87"
75' 0"	69' 5.91"	81' 5.51"	69' 1.7"	81' 11.35"	68' 5.84"	82' 10.63"	67' 9.2"	83' 11.61"
50' 0"	47' 6.04"	52' 9.3"	47' 4.08"	52' 11.74"	47' 0.4"	53' 4.41"	46' 8.34"	53' 9.73"
40' 0"	38' 4.7"	41' 8.99"	38' 3.43"	41' 10.51"	38' 1.03"	42' 1.41"	37' 10.37"	42' 4.71"
35' 0"	33' 9.19"	36' 3.94"	33' 8.21"	36' 5.08"	33' 6.36"	36' 7.27"	33' 4.3"	36' 9.75"
30' 0"	29' 1.11"	30' 11.6"	29' 0.38"	31' 0.43"	28' 11.01"	31' 2.01"	28' 9.48"	31' 3.8"
25' 0"	24' 4.44"	25' 7.97"	24' 3.93"	25' 8.53"	24' 2.97"	25' 9.61"	24' 1.9"	25' 10.83"
20' 0"	19' 7.17"	20' 5.03"	19' 6.85"	20' 5.39"	19' 6.23"	20' 6.06"	19' 5.54"	20' 6.83"
18' 0"	17' 8.1"	18' 4.05"	17' 7.84"	18' 4.33"	17' 7.34"	18' 4.88"	17' 6.78"	18' 5.49"
16' 0"	15' 8.93"	16' 3.17"	15' 8.72"	16' 3.4"	15' 8.33"	16' 3.82"	15' 7.89"	16' 4.3"
15' 0"	14' 9.31"	15' 2.78"	14' 9.12"	15' 2.97"	14' 8.78"	15' 3.34"	14' 8.39"	15' 3.76"
14' 0"	13' 9.66"	14' 2.41"	13' 9.5"	14' 2.58"	13' 9.2"	14' 2.9"	13' 8.86"	14' 3.26"
13' 0"	12' 9.99"	13' 2.06"	12' 9.85"	13' 2.21"	12' 9.59"	13' 2.48"	12' 9.3"	13' 2.79"
12' 6"	12' 4.14"	12' 7.9"	12' 4.02"	12' 8.04"	12' 3.78"	12' 8.29"	12' 3.51"	12' 8.57"
12' 0"	11' 10.29"	12' 1.75"	11' 10.18"	12' 1.87"	11' 9.96"	12' 2.1"	11' 9.71"	12' 2.36"
11' 6"	11' 4.44"	11' 7.6"	11' 4.33"	11' 7.71"	11' 4.13"	11' 7.92"	11' 3.9"	11' 8.16"
11' 0"	10' 10.57"	11' 1.46"	10' 10.48"	11' 1.56"	10' 10.29"	11' 1.75"	10' 10.09"	11' 1.97"
10' 6"	10' 4.7"	10' 7.32"	10' 4.62"	10' 7.42"	10' 4.45"	10' 7.59"	10' 4.26"	10' 7.79"
10' 0"	9' 10.83"	10' 1.19"	9' 10.75"	10' 1.28"	9' 10.6"	10' 1.44"	9' 10.43"	10' 1.61"
9' 6"	9' 4.95"	9' 7.07"	9' 4.88"	9' 7.15"	9' 4.74"	9' 7.29"	9' 4.59"	9' 7.45"
9' 0"	8' 11.06"	9' 0.96"	8' 10.99"	9' 1.02"	8' 10.87"	9' 1.15"	8' 10.74"	9' 1.29"
8' 6"	8' 5.16"	8' 6.85"	8' 5.11"	8' 6.91"	8' 5"	8' 7.02"	8' 4.88"	8' 7.15"
8' 3"	8' 2.22"	8' 3.8"	8' 2.16"	8' 3.85"	8' 2.06"	8' 3.96"	8' 1.95"	8' 4.08"
8' 0"	7' 11.26"	8' 0.75"	7' 11.21"	8' 0.8"	7' 11.12"	8' 0.9"	7' 11.01"	8' 1.01"
7' 9"	7' 8.31"	7' 9.7"	7' 8.26"	7' 9.75"	7' 8.18"	7' 9.84"	7' 8.08"	7' 9.94"
7' 6"	7' 5.36"	7' 6.65"	7' 5.31"	7' 6.7"	7' 5.23"	7' 6.78"	7' 5.14"	7' 6.88"
7' 3"	7' 2.4"	7' 3.61"	7' 2.36"	7' 3.65"	7' 2.28"	7' 3.73"	7' 2.2"	7' 3.82"
7' 0"	6' 11.44"	7' 0.56"	6' 11.41"	7' 0.6"	6' 11.33"	7' 0.68"	6' 11.25"	7' 0.76"
6' 9"	6' 8.49"	6' 9.52"	6' 8.45"	6' 9.56"	6' 8.38"	6' 9.63"	6' 8.31"	6' 9.7"
6' 6"	6' 5.53"	6' 6.48"	6' 5.49"	6' 6.51"	6' 5.43"	6' 6.58"	6' 5.36"	6' 6.65"
6' 3"	6' 2.56"	6' 3.44"	6' 2.53"	6' 3.47"	6' 2.48"	6' 3.53"	6' 2.41"	6' 3.6"
6' 0"	5' 11.6"	6' 0.4"	5' 11.57"	6' 0.43"	5' 11.52"	6' 0.49"	5' 11.46"	6' 0.55"
5' 9"	5' 8.63"	5' 9.37"	5' 8.61"	5' 9.4"	5' 8.56"	5' 9.44"	5' 8.51"	5' 9.5"
5' 6"	5' 5.67"	5' 6.34"	5' 5.64"	5' 6.36"	5' 5.6"	5' 6.4"	5' 5.55"	5' 6.45"
5' 3"	5' 2.7"	5' 3.3"	5' 2.68"	5' 3.32"	5' 2.64"	5' 3.36"	5' 2.6"	5' 3.41"
5' 0"	4' 11.73"	5' 0.27"	4' 11.71"	5' 0.29"	4' 11.68"	5' 0.33"	4' 11.64"	5' 0.37"
4' 9"	4' 8.76"	4' 9.24"	4' 8.74"	4' 9.26"	4' 8.71"	4' 9.29"	4' 8.67"	4' 9.33"
4' 6"	4' 5.79"	4' 6.22"	4' 5.77"	4' 6.23"	4' 5.74"	4' 6.26"	4' 5.71"	4' 6.29"
4' 3"	4' 2.81"	4' 3.19"	4' 2.8"	4' 3.2"	4' 2.77"	4' 3.23"	4' 2.75"	4' 3.26"
4' 2"	4' 1.82"	4' 2.18"	4' 1.81"	4' 2.2"	4' 1.78"	4' 2.22"	4' 1.76"	4' 2.25"
4' 1"	4' 0.83"	4' 1.17"	4' 0.81"	4' 1.19"	4' 0.79"	4' 1.21"	4' 0.77"	4' 1.24"



3.2	3.5	4	4.5	5
619' 10.43"	552' 3.64"	492' 1.35"	438' 5.85"	390' 8.54"

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)
619' 4.2"	Infinity	551' 9.72"	Infinity	491' 7.64"	Infinity	438' 0.32"	Infinity	390' 3.17"	Infinity
151' 3.99"	294' 10.74"	146' 11.46"	313' 1.12"	142' 4"	336' 4.77"	137' 5.77"	367' 0.81"	132' 4.97"	408' 11.04"
86' 2.33"	119' 1.02"	84' 9.14"	121' 11.23"	83' 2.52"	125' 3.64"	81' 6.41"	129' 3.75"	79' 8.78"	134' 1.55"
66' 11.71"	85' 2.59"	66' 1.32"	86' 7.94"	65' 1.97"	88' 4.14"	64' 1.62"	90' 3.77"	63' 0.21"	92' 7.57"
46' 3.84"	54' 3.82"	45' 10.87"	54' 10.79"	45' 5.41"	55' 6.8"	44' 11.4"	56' 4.02"	44' 4.81"	57' 2.68"
37' 7.42"	42' 8.46"	37' 4.15"	43' 0.75"	37' 0.54"	43' 5.64"	36' 8.56"	43' 11.24"	36' 4.17"	44' 5.68"
33' 2.01"	37' 0.57"	32' 11.48"	37' 3.78"	32' 8.67"	37' 7.44"	32' 5.57"	37' 11.62"	32' 2.15"	38' 4.4"
28' 7.78"	31' 5.83"	28' 5.9"	31' 8.14"	28' 3.81"	31' 10.76"	28' 1.49"	32' 1.75"	27' 10.93"	32' 5.16"
24' 0.71"	26' 0.22"	23' 11.39"	26' 1.78"	23' 9.92"	26' 3.56"	23' 8.28"	26' 5.57"	23' 6.47"	26' 7.87"
19' 4.78"	20' 7.69"	19' 3.92"	20' 8.67"	19' 2.97"	20' 9.77"	19' 1.91"	20' 11.02"	19' 0.73"	21' 0.44"
17' 6.16"	18' 6.18"	17' 5.46"	18' 6.96"	17' 4.69"	18' 7.85"	17' 3.83"	18' 8.85"	17' 2.87"	18' 9.98"
15' 7.39"	16' 4.84"	15' 6.85"	16' 5.45"	15' 6.23"	16' 6.14"	15' 5.55"	16' 6.92"	15' 4.79"	16' 7.8"
14' 7.96"	15' 4.23"	14' 7.48"	15' 4.77"	14' 6.94"	15' 5.37"	14' 6.34"	15' 6.05"	14' 5.67"	15' 6.81"
13' 8.49"	14' 3.67"	13' 8.07"	14' 4.13"	13' 7.6"	14' 4.65"	13' 7.08"	14' 5.23"	13' 6.49"	14' 5.9"
12' 8.98"	13' 3.14"	12' 8.62"	13' 3.54"	12' 8.22"	13' 3.98"	12' 7.76"	13' 4.48"	12' 7.26"	13' 5.05"
12' 3.21"	12' 8.9"	12' 2.88"	12' 9.26"	12' 2.51"	12' 9.67"	12' 2.09"	12' 10.13"	12' 1.63"	12' 10.65"
11' 9.44"	12' 2.66"	11' 9.13"	12' 2.99"	11' 8.79"	12' 3.37"	11' 8.4"	12' 3.79"	11' 7.97"	12' 4.27"
11' 3.65"	11' 8.43"	11' 3.37"	11' 8.74"	11' 3.05"	11' 9.08"	11' 2.7"	11' 9.47"	11' 2.31"	11' 9.9"
10' 9.86"	11' 2.22"	10' 9.6"	11' 2.49"	10' 9.31"	11' 2.81"	10' 8.99"	11' 3.16"	10' 8.63"	11' 3.56"
10' 4.05"	10' 8.01"	10' 3.82"	10' 8.26"	10' 3.56"	10' 8.54"	10' 3.26"	10' 8.86"	10' 2.94"	10' 9.22"
9' 10.24"	10' 1.82"	9' 10.03"	10' 2.04"	9' 9.79"	10' 2.3"	9' 9.52"	10' 2.58"	9' 9.23"	10' 2.91"
9' 4.42"	9' 7.63"	9' 4.23"	9' 7.83"	9' 4.01"	9' 8.06"	9' 3.77"	9' 8.32"	9' 3.51"	9' 8.61"
8' 10.58"	9' 1.45"	8' 10.41"	9' 1.64"	8' 10.22"	9' 1.84"	8' 10.01"	9' 2.07"	8' 9.77"	9' 2.33"
8' 4.74"	8' 7.29"	8' 4.59"	8' 7.45"	8' 4.42"	8' 7.63"	8' 4.23"	8' 7.83"	8' 4.02"	8' 8.06"
8' 1.82"	8' 4.21"	8' 1.68"	8' 4.36"	8' 1.52"	8' 4.53"	8' 1.34"	8' 4.72"	8' 1.14"	8' 4.94"
7' 10.89"	8' 1.13"	7' 10.76"	8' 1.28"	7' 10.61"	8' 1.43"	7' 10.44"	8' 1.61"	7' 10.25"	8' 1.81"
7' 7.96"	7' 10.06"	7' 7.84"	7' 10.19"	7' 7.7"	7' 10.34"	7' 7.54"	7' 10.51"	7' 7.37"	7' 10.7"
7' 5.03"	7' 6.99"	7' 4.92"	7' 7.11"	7' 4.78"	7' 7.25"	7' 4.64"	7' 7.41"	7' 4.47"	7' 7.58"
7' 2.1"	7' 3.92"	7' 1.99"	7' 4.03"	7' 1.87"	7' 4.16"	7' 1.73"	7' 4.31"	7' 1.58"	7' 4.47"
6' 11.16"	7' 0.85"	6' 11.06"	7' 0.96"	6' 10.95"	7' 1.08"	6' 10.82"	7' 1.21"	6' 10.68"	7' 1.36"
6' 8.23"	6' 9.79"	6' 8.13"	6' 9.89"	6' 8.03"	6' 10"	6' 7.91"	6' 10.12"	6' 7.78"	6' 10.26"
6' 5.28"	6' 6.73"	6' 5.2"	6' 6.82"	6' 5.1"	6' 6.92"	6' 4.99"	6' 7.04"	6' 4.87"	6' 7.16"
6' 2.34"	6' 3.67"	6' 2.26"	6' 3.75"	6' 2.17"	6' 3.85"	6' 2.07"	6' 3.95"	6' 1.96"	6' 4.07"
5' 11.4"	6' 0.61"	5' 11.32"	6' 0.69"	5' 11.24"	6' 0.78"	5' 11.15"	6' 0.87"	5' 11.05"	6' 0.98"
5' 8.45"	5' 9.56"	5' 8.38"	5' 9.63"	5' 8.31"	5' 9.71"	5' 8.22"	5' 9.8"	5' 8.13"	5' 9.89"
5' 5.5"	5' 6.51"	5' 5.44"	5' 6.57"	5' 5.37"	5' 6.64"	5' 5.29"	5' 6.72"	5' 5.21"	5' 6.81"
5' 2.55"	5' 3.46"	5' 2.49"	5' 3.52"	5' 2.43"	5' 3.58"	5' 2.36"	5' 3.65"	5' 2.28"	5' 3.73"
4' 11.59"	5' 0.41"	4' 11.54"	5' 0.46"	4' 11.49"	5' 0.52"	4' 11.42"	5' 0.59"	4' 11.36"	5' 0.66"
4' 8.64"	4' 9.37"	4' 8.59"	4' 9.42"	4' 8.54"	4' 9.47"	4' 8.49"	4' 9.52"	4' 8.42"	4' 9.59"
4' 5.68"	4' 6.33"	4' 5.64"	4' 6.37"	4' 5.59"	4' 6.41"	4' 5.54"	4' 6.47"	4' 5.49"	4' 6.52"
4' 2.71"	4' 3.29"	4' 2.68"	4' 3.33"	4' 2.64"	4' 3.37"	4' 2.6"	4' 3.41"	4' 2.55"	4' 3.46"
4' 1.73"	4' 2.28"	4' 1.69"	4' 2.31"	4' 1.66"	4' 2.35"	4' 1.61"	4' 2.39"	4' 1.57"	4' 2.44"
4' 0.74"	4' 1.26"	4' 0.71"	4' 1.3"	4' 0.67"	4' 1.33"	4' 0.63"	4' 1.38"	4' 0.59"	4' 1.42"



5.6	6.3	7.1	8	9
348' 1.8"	310' 2.76"	276' 5.4"	246' 4.22"	219' 6.49"

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)
347' 8.53"	Infinity	309' 9.6"	Infinity	276' 0.29"	Infinity	245' 11.19"	Infinity	219' 1.48"	Infinity
127' 1.86"	468' 11.29"	121' 8.75"	561' 5.47"	116' 1.99"	721' 2.16"	110' 5.97"	1059' 6.95"	104' 9.14"	2239' 1.41"
77' 9.62"	139' 11.8"	75' 8.93"	147' 2.34"	73' 6.73"	156' 2.76"	71' 3.06"	167' 9.53"	68' 10.01"	183'
61' 9.7"	95' 4.54"	60' 6.07"	98' 7.96"	59' 1.3"	102' 7.58"	57' 7.37"	107' 5.82"	56' 0.3"	113' 6.13"
43' 9.61"	58' 3.05"	43' 1.75"	59' 5.48"	42' 5.21"	60' 10.41"	41' 7.95"	62' 6.4"	40' 9.95"	64' 6.19"
35' 11.35"	45' 1.09"	35' 6.07"	45' 9.66"	35' 0.29"	46' 7.62"	34' 5.98"	47' 7.23"	33' 11.13"	48' 8.85"
31' 10.37"	38' 9.9"	31' 6.23"	39' 4.22"	31' 1.68"	39' 11.53"	30' 8.7"	40' 8"	30' 3.27"	41' 5.88"
27' 8.09"	32' 9.06"	27' 4.97"	33' 1.54"	27' 1.54"	33' 6.68"	26' 9.77"	34' 0.62"	26' 5.64"	34' 7.5"
23' 4.46"	26' 10.49"	23' 2.25"	27' 1.48"	22' 11.8"	27' 4.9"	22' 9.1"	27' 8.83"	22' 6.14"	28' 1.35"
18' 11.43"	21' 2.06"	18' 9.98"	21' 3.9"	18' 8.38"	21' 5.99"	18' 6.6"	21' 8.38"	18' 4.65"	21' 11.12"
17' 1.81"	18' 11.27"	17' 0.63"	19' 0.73"	16' 11.31"	19' 2.39"	16' 9.86"	19' 4.29"	16' 8.26"	19' 6.46"
15' 3.95"	16' 8.8"	15' 3.01"	16' 9.93"	15' 1.96"	16' 11.22"	15' 0.81"	17' 0.69"	14' 11.53"	17' 2.36"
14' 4.93"	15' 7.69"	14' 4.1"	15' 8.67"	14' 3.18"	15' 9.79"	14' 2.16"	15' 11.07"	14' 1.03"	16' 0.52"
13' 5.84"	14' 6.65"	13' 5.12"	14' 7.5"	13' 4.32"	14' 8.47"	13' 3.43"	14' 9.56"	13' 2.44"	14' 10.81"
12' 6.7"	13' 5.69"	12' 6.08"	13' 6.42"	12' 5.38"	13' 7.24"	12' 4.61"	13' 8.17"	12' 3.76"	13' 9.23"
12' 1.11"	12' 11.24"	12' 0.53"	12' 11.91"	11' 11.89"	13' 0.66"	11' 11.17"	13' 1.52"	11' 10.38"	13' 2.5"
11' 7.5"	12' 4.81"	11' 6.96"	12' 5.42"	11' 6.37"	12' 6.11"	11' 5.71"	12' 6.9"	11' 4.98"	12' 7.79"
11' 1.87"	11' 10.4"	11' 1.38"	11' 10.96"	11' 0.84"	11' 11.59"	11' 0.23"	12' 0.3"	10' 11.56"	12' 1.12"
10' 8.23"	11' 4"	10' 7.78"	11' 4.51"	10' 7.28"	11' 5.09"	10' 6.73"	11' 5.74"	10' 6.11"	11' 6.47"
10' 2.57"	10' 9.63"	10' 2.16"	10' 10.09"	10' 1.71"	10' 10.61"	10' 1.21"	10' 11.2"	10' 0.64"	10' 11.86"
9' 8.9"	10' 3.27"	9' 8.53"	10' 3.69"	9' 8.12"	10' 4.16"	9' 7.66"	10' 4.69"	9' 7.15"	10' 5.28"
9' 3.21"	9' 8.94"	9' 2.88"	9' 9.31"	9' 2.51"	9' 9.73"	9' 2.09"	9' 10.2"	9' 1.63"	9' 10.74"
8' 9.5"	9' 2.62"	8' 9.21"	9' 2.95"	8' 8.87"	9' 3.32"	8' 8.5"	9' 3.74"	8' 8.09"	9' 4.22"
8' 3.78"	8' 8.32"	8' 3.52"	8' 8.61"	8' 3.22"	8' 8.94"	8' 2.89"	8' 9.31"	8' 2.52"	8' 9.74"
8' 0.92"	8' 5.18"	8' 0.67"	8' 5.45"	8' 0.39"	8' 5.76"	8' 0.08"	8' 6.11"	7' 11.73"	8' 6.5"
7' 10.04"	8' 2.04"	7' 9.81"	8' 2.3"	7' 9.55"	8' 2.59"	7' 9.26"	8' 2.91"	7' 8.93"	8' 3.28"
7' 7.17"	7' 10.91"	7' 6.95"	7' 11.15"	7' 6.71"	7' 11.42"	7' 6.43"	7' 11.72"	7' 6.13"	8' 0.07"
7' 4.29"	7' 7.78"	7' 4.09"	7' 8"	7' 3.86"	7' 8.25"	7' 3.6"	7' 8.54"	7' 3.32"	7' 8.86"
7' 1.41"	7' 4.65"	7' 1.22"	7' 4.86"	7' 1"	7' 5.09"	7' 0.77"	7' 5.36"	7' 0.5"	7' 5.66"
6' 10.52"	7' 1.53"	6' 10.34"	7' 1.73"	6' 10.15"	7' 1.94"	6' 9.92"	7' 2.19"	6' 9.68"	7' 2.46"
6' 7.63"	6' 10.42"	6' 7.47"	6' 10.6"	6' 7.28"	6' 10.8"	6' 7.08"	6' 11.02"	6' 6.85"	6' 11.28"
6' 4.73"	6' 7.31"	6' 4.58"	6' 7.47"	6' 4.41"	6' 7.66"	6' 4.22"	6' 7.86"	6' 4.01"	6' 8.1"
6' 1.84"	6' 4.2"	6' 1.7"	6' 4.35"	6' 1.54"	6' 4.52"	6' 1.36"	6' 4.71"	6' 1.17"	6' 4.93"
5' 10.93"	6' 1.1"	5' 10.8"	6' 1.24"	5' 10.66"	6' 1.39"	5' 10.5"	6' 1.57"	5' 10.32"	6' 1.77"
5' 8.02"	5' 10"	5' 7.91"	5' 10.13"	5' 7.78"	5' 10.27"	5' 7.63"	5' 10.43"	5' 7.46"	5' 10.61"
5' 5.11"	5' 6.91"	5' 5.01"	5' 7.03"	5' 4.89"	5' 7.15"	5' 4.75"	5' 7.3"	5' 4.6"	5' 7.46"
5' 2.2"	5' 3.82"	5' 2.1"	5' 3.93"	5' 1.99"	5' 4.04"	5' 1.87"	5' 4.17"	5' 1.74"	5' 4.32"
4' 11.28"	5' 0.74"	4' 11.19"	5' 0.83"	4' 11.09"	5' 0.94"	4' 10.98"	5' 1.05"	4' 10.86"	5' 1.19"
4' 8.35"	4' 9.66"	4' 8.28"	4' 9.74"	4' 8.19"	4' 9.84"	4' 8.09"	4' 9.94"	4' 7.98"	4' 10.06"
4' 5.43"	4' 6.59"	4' 5.36"	4' 6.66"	4' 5.28"	4' 6.74"	4' 5.19"	4' 6.84"	4' 5.09"	4' 6.94"
4' 2.49"	4' 3.52"	4' 2.43"	4' 3.58"	4' 2.36"	4' 3.65"	4' 2.29"	4' 3.74"	4' 2.2"	4' 3.83"
4' 1.51"	4' 2.5"	4' 1.46"	4' 2.56"	4' 1.39"	4' 2.63"	4' 1.32"	4' 2.7"	4' 1.23"	4' 2.79"
4' 0.54"	4' 1.47"	4' 0.48"	4' 1.53"	4' 0.42"	4' 1.6"	4' 0.35"	4' 1.67"	4' 0.27"	4' 1.76"



10	11	13	14
195' 7.83"	174' 4.44"	155' 4.92"	138' 6.24"

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)
195' 2.87"	Infinity	173' 11.52"	Infinity	155' 0.03"	Infinity	138' 1.36"	Infinity
98' 11.93"	Infinity	93' 2.81"	Infinity	87' 6.24"	Infinity	81' 10.65"	Infinity
66' 3.67"	203' 8.73"	63' 8.17"	233' 4.91"	60' 11.67"	279' 0.68"	58' 2.34"	357' 6.86"
54' 4.12"	121' 1.63"	52' 6.86"	131' 0.19"	50' 8.6"	144' 2.68"	48' 9.42"	162' 7.57"
39' 11.2"	66' 10.75"	38' 11.68"	69' 9.45"	37' 11.4"	73' 4.15"	36' 10.36"	77' 9.61"
33' 3.71"	50' 0.94"	32' 7.7"	51' 8.1"	31' 11.08"	53' 7.11"	31' 1.84"	55' 11.08"
29' 9.37"	42' 5.46"	29' 2.96"	43' 7.12"	28' 8.05"	44' 11.36"	28' 0.6"	46' 6.84"
26' 1.14"	35' 3.5"	25' 8.23"	36' 0.86"	25' 2.9"	36' 11.88"	24' 9.14"	38' 0.93"
22' 2.89"	28' 6.58"	21' 11.34"	29' 0.65"	21' 7.46"	29' 7.72"	21' 3.24"	30' 4.01"
18' 2.49"	22' 2.26"	18' 0.12"	22' 5.88"	17' 9.52"	22' 10.07"	17' 6.68"	23' 2.92"
16' 6.49"	19' 8.94"	16' 4.54"	19' 11.79"	16' 2.4"	20' 3.07"	16' 0.05"	20' 6.87"
14' 10.11"	17' 4.27"	14' 8.55"	17' 6.46"	14' 6.83"	17' 8.97"	14' 4.94"	17' 11.86"
13' 11.78"	16' 2.17"	13' 10.39"	16' 4.07"	13' 8.87"	16' 6.23"	13' 7.19"	16' 8.73"
13' 1.34"	15' 0.23"	13' 0.13"	15' 1.85"	12' 10.79"	15' 3.71"	12' 9.32"	15' 5.84"
12' 2.81"	13' 10.44"	12' 1.76"	13' 11.82"	12' 0.6"	14' 1.39"	11' 11.31"	14' 3.19"
11' 9.5"	13' 3.6"	11' 8.53"	13' 4.87"	11' 7.45"	13' 6.31"	11' 6.26"	13' 7.96"
11' 4.17"	12' 8.8"	11' 3.27"	12' 9.96"	11' 2.28"	12' 11.27"	11' 1.18"	13' 0.78"
10' 10.81"	12' 2.04"	10' 9.99"	12' 3.09"	10' 9.07"	12' 4.29"	10' 8.05"	12' 5.65"
10' 5.43"	11' 7.31"	10' 4.67"	11' 8.26"	10' 3.83"	11' 9.35"	10' 2.9"	11' 10.59"
10' 0.02"	11' 0.62"	9' 11.33"	11' 1.48"	9' 10.56"	11' 2.46"	9' 9.71"	11' 3.57"
9' 6.58"	10' 5.96"	9' 5.96"	10' 6.74"	9' 5.26"	10' 7.62"	9' 4.48"	10' 8.62"
9' 1.12"	9' 11.35"	9' 0.55"	10' 0.04"	8' 11.92"	10' 0.82"	8' 11.22"	10' 1.71"
8' 7.63"	9' 4.76"	8' 7.12"	9' 5.37"	8' 6.56"	9' 6.07"	8' 5.93"	9' 6.86"
8' 2.12"	8' 10.21"	8' 1.66"	8' 10.75"	8' 1.15"	8' 11.37"	8' 0.59"	9' 0.06"
7' 11.35"	8' 6.95"	7' 10.92"	8' 7.46"	7' 10.44"	8' 8.03"	7' 9.91"	8' 8.68"
7' 8.57"	8' 3.7"	7' 8.17"	8' 4.17"	7' 7.72"	8' 4.71"	7' 7.22"	8' 5.32"
7' 5.79"	8' 0.46"	7' 5.41"	8' 0.9"	7' 4.99"	8' 1.4"	7' 4.53"	8' 1.96"
7' 3"	7' 9.22"	7' 2.65"	7' 9.63"	7' 2.25"	7' 10.1"	7' 1.82"	7' 10.62"
7' 0.2"	7' 5.99"	6' 11.87"	7' 6.37"	6' 11.51"	7' 6.81"	6' 11.1"	7' 7.3"
6' 9.4"	7' 2.78"	6' 9.09"	7' 3.13"	6' 8.75"	7' 3.53"	6' 8.37"	7' 3.98"
6' 6.59"	6' 11.57"	6' 6.31"	6' 11.89"	6' 5.99"	7' 0.26"	6' 5.64"	7' 0.68"
6' 3.77"	6' 8.36"	6' 3.51"	6' 8.66"	6' 3.22"	6' 9"	6' 2.89"	6' 9.39"
6' 0.95"	6' 5.17"	6' 0.71"	6' 5.45"	6' 0.44"	6' 5.76"	6' 0.14"	6' 6.11"
5' 10.12"	6' 1.99"	5' 9.9"	6' 2.24"	5' 9.65"	6' 2.52"	5' 9.37"	6' 2.84"
5' 7.28"	5' 10.81"	5' 7.08"	5' 11.04"	5' 6.85"	5' 11.3"	5' 6.6"	5' 11.59"
5' 4.44"	5' 7.64"	5' 4.25"	5' 7.85"	5' 4.04"	5' 8.09"	5' 3.81"	5' 8.35"
5' 1.58"	5' 4.49"	5' 1.42"	5' 4.67"	5' 1.23"	5' 4.88"	5' 1.02"	5' 5.12"
4' 10.72"	5' 1.33"	4' 10.57"	5' 1.5"	4' 10.4"	5' 1.69"	4' 10.21"	5' 1.9"
4' 7.86"	4' 10.19"	4' 7.72"	4' 10.34"	4' 7.57"	4' 10.51"	4' 7.4"	4' 10.7"
4' 4.98"	4' 7.06"	4' 4.86"	4' 7.19"	4' 4.73"	4' 7.34"	4' 4.58"	4' 7.51"
4' 2.1"	4' 3.93"	4' 2"	4' 4.05"	4' 1.88"	4' 4.18"	4' 1.74"	4' 4.33"
4' 1.14"	4' 2.89"	4' 1.04"	4' 3"	4' 0.92"	4' 3.13"	4' 0.79"	4' 3.27"
4' 0.18"	4' 1.85"	4' 0.08"	4' 1.96"	3' 11.97"	4' 2.08"	3' 11.85"	4' 2.21"



16	18	20	22
123' 5.65"	110' 0.79"	98' 1.48"	87' 5.76"

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)
123' 0.79"	Infinity	109' 7.93"	Infinity	97' 8.61"	Infinity	87' 0.93"	Infinity
76' 4.48"	Infinity	71' 0.09"	Infinity	65' 9.82"	Infinity	60' 9.98"	Infinity
55' 4.38"	522' 8.4"	52' 6"	1085' 8.04"	49' 7.44"	Infinity	46' 8.91"	Infinity
46' 9.43"	189' 10.03"	44' 8.74"	233' 8.87"	42' 7.51"	315' 8.82"	40' 5.88"	520' 11.54"
35' 8.59"	83' 5.94"	34' 6.13"	90' 11.65"	33' 3.02"	101' 1.67"	31' 11.33"	115' 7.89"
30' 4"	58' 9.53"	29' 5.55"	62' 4.68"	28' 6.53"	66' 11.89"	27' 6.94"	73' 0.48"
27' 4.62"	48' 6.45"	26' 8.11"	50' 11.46"	25' 11.07"	53' 11.69"	25' 1.51"	57' 9.85"
24' 2.92"	39' 4.54"	23' 8.26"	40' 11.38"	23' 1.13"	42' 10.42"	22' 5.55"	45' 3"
20' 10.67"	31' 1.79"	20' 5.73"	32' 1.42"	20' 0.41"	33' 3.37"	19' 6.71"	34' 8.3"
17' 3.58"	23' 8.59"	17' 0.2"	24' 3.22"	16' 8.55"	24' 11.05"	16' 4.6"	25' 8.36"
15' 9.48"	20' 11.27"	15' 6.68"	21' 4.41"	15' 3.63"	21' 10.43"	15' 0.33"	22' 5.54"
14' 2.86"	18' 3.2"	14' 0.59"	18' 7.07"	13' 10.12"	18' 11.59"	13' 7.43"	19' 4.89"
13' 5.35"	16' 11.6"	13' 3.33"	17' 2.93"	13' 1.13"	17' 6.8"	12' 10.72"	17' 11.32"
12' 7.7"	15' 8.3"	12' 5.92"	15' 11.13"	12' 3.97"	16' 2.41"	12' 1.85"	16' 6.24"
11' 9.9"	14' 5.26"	11' 8.35"	14' 7.65"	11' 6.65"	14' 10.4"	11' 4.79"	15' 1.61"
11' 4.95"	13' 9.85"	11' 3.51"	14' 0.03"	11' 1.93"	14' 2.54"	11' 0.2"	14' 5.46"
10' 11.96"	13' 2.5"	10' 10.63"	13' 4.48"	10' 9.16"	13' 6.77"	10' 7.55"	13' 9.42"
10' 6.94"	12' 7.22"	10' 5.7"	12' 9.02"	10' 4.35"	12' 11.09"	10' 2.86"	13' 1.48"
10' 1.87"	12'	10' 0.74"	12' 1.63"	9' 11.49"	12' 3.49"	9' 10.13"	12' 5.65"
9' 8.77"	11' 4.85"	9' 7.73"	11' 6.31"	9' 6.59"	11' 7.99"	9' 5.34"	11' 9.92"
9' 3.63"	10' 9.76"	9' 2.69"	10' 11.07"	9' 1.64"	11' 0.57"	9' 0.5"	11' 2.29"
8' 10.45"	10' 2.73"	8' 9.59"	10' 3.89"	8' 8.65"	10' 5.23"	8' 7.61"	10' 6.76"
8' 5.23"	9' 7.76"	8' 4.46"	9' 8.79"	8' 3.61"	9' 9.97"	8' 2.67"	9' 11.32"
7' 11.97"	9' 0.86"	7' 11.28"	9' 1.76"	7' 10.52"	9' 2.8"	7' 9.68"	9' 3.98"
7' 9.33"	8' 9.43"	7' 8.68"	8' 10.27"	7' 7.96"	8' 11.24"	7' 7.17"	9' 0.35"
7' 6.67"	8' 6.01"	7' 6.06"	8' 6.8"	7' 5.39"	8' 7.7"	7' 4.64"	8' 8.73"
7' 4.01"	8' 2.61"	7' 3.43"	8' 3.35"	7' 2.8"	8' 4.18"	7' 2.1"	8' 5.14"
7' 1.33"	7' 11.22"	7' 0.79"	7' 11.91"	7' 0.2"	8' 0.69"	6' 11.54"	8' 1.57"
6' 10.65"	7' 7.85"	6' 10.14"	7' 8.49"	6' 9.59"	7' 9.21"	6' 8.97"	7' 10.03"
6' 7.95"	7' 4.5"	6' 7.48"	7' 5.08"	6' 6.96"	7' 5.75"	6' 6.39"	7' 6.51"
6' 5.24"	7' 1.15"	6' 4.81"	7' 1.69"	6' 4.33"	7' 2.3"	6' 3.79"	7' 3"
6' 2.53"	6' 9.82"	6' 2.12"	6' 10.32"	6' 1.68"	6' 10.88"	6' 1.18"	6' 11.52"
5' 11.8"	6' 6.51"	5' 11.43"	6' 6.96"	5' 11.01"	6' 7.48"	5' 10.56"	6' 8.06"
5' 9.06"	6' 3.21"	5' 8.72"	6' 3.62"	5' 8.34"	6' 4.09"	5' 7.92"	6' 4.63"
5' 6.31"	5' 11.92"	5' 6"	6' 0.3"	5' 5.65"	6' 0.72"	5' 5.26"	6' 1.21"
5' 3.55"	5' 8.65"	5' 3.27"	5' 8.99"	5' 2.95"	5' 9.38"	5' 2.59"	5' 9.81"
5' 0.78"	5' 5.39"	5' 0.52"	5' 5.7"	5' 0.23"	5' 6.04"	4' 11.91"	5' 6.44"
4' 10"	5' 2.15"	4' 9.77"	5' 2.42"	4' 9.5"	5' 2.73"	4' 9.21"	5' 3.08"
4' 7.21"	4' 10.92"	4' 7"	4' 11.16"	4' 6.76"	4' 11.44"	4' 6.5"	4' 11.75"
4' 4.41"	4' 7.7"	4' 4.22"	4' 7.91"	4' 4.01"	4' 8.16"	4' 3.77"	4' 8.43"
4' 1.59"	4' 4.49"	4' 1.43"	4' 4.68"	4' 1.24"	4' 4.9"	4' 1.03"	4' 5.14"
4' 0.65"	4' 3.43"	4' 0.49"	4' 3.61"	4' 0.31"	4' 3.81"	4' 0.12"	4' 4.05"
3' 11.71"	4' 2.37"	3' 11.56"	4' 2.54"	3' 11.39"	4' 2.73"	3' 11.2"	4' 2.96"



Focal Length 150 mm

Circle of Confusion 0.025 mm

T/No	2.1	2.2	2.5	2.8
Hyperfocal Distance (ft-inch)	1353' 5.18"	1266' 1.27"	1128' 0.61"	1005' 0.67"

T/No	2.1		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	1352' 4.72"	Infinity	1265' 1.63"	Infinity	1127' 2.17"	Infinity	1004' 3.2"	Infinity
200' 0"	174' 4.18"	234' 6.19"	172' 9.83"	237' 4.12"	169' 11.88"	242' 10.78"	166' 11.08"	249' 5.43"
100' 0"	93' 2.13"	107' 10.84"	92' 8.89"	108' 5.94"	91' 11.09"	109' 7.63"	91' 0.29"	110' 11.34"
75' 0"	71' 1.29"	79' 4.14"	70' 10.25"	79' 7.96"	70' 4.53"	80' 3.3"	69' 10.21"	80' 11.67"
50' 0"	48' 3"	51' 10.58"	48' 1.61"	52' 0.21"	47' 10.98"	52' 3.31"	47' 8.06"	52' 6.82"
40' 0"	38' 10.53"	41' 2.28"	38' 9.63"	41' 3.29"	38' 7.93"	41' 5.23"	38' 6.03"	41' 7.43"
35' 0"	34' 1.69"	35' 10.85"	34' 0.99"	35' 11.62"	33' 11.68"	36' 1.09"	33' 10.23"	36' 2.75"
30' 0"	29' 4.43"	30' 7.91"	29' 3.92"	30' 8.46"	29' 2.95"	30' 9.53"	29' 1.88"	30' 10.73"
25' 0"	24' 6.76"	25' 5.43"	24' 6.4"	25' 5.82"	24' 5.73"	25' 6.54"	24' 4.98"	25' 7.37"
20' 0"	19' 8.66"	20' 3.43"	19' 8.44"	20' 3.67"	19' 8.01"	20' 4.13"	19' 7.53"	20' 4.65"
18' 0"	17' 9.31"	18' 2.76"	17' 9.13"	18' 2.95"	17' 8.78"	18' 3.32"	17' 8.39"	18' 3.73"
16' 0"	15' 9.89"	16' 2.16"	15' 9.74"	16' 2.31"	15' 9.47"	16' 2.6"	15' 9.16"	16' 2.93"
15' 0"	14' 10.15"	15' 1.89"	14' 10.02"	15' 2.02"	14' 9.78"	15' 2.28"	14' 9.51"	15' 2.56"
14' 0"	13' 10.39"	14' 1.64"	13' 10.28"	14' 1.75"	13' 10.08"	14' 1.97"	13' 9.84"	14' 2.22"
13' 0"	12' 10.62"	13' 1.4"	12' 10.53"	13' 1.5"	12' 10.35"	13' 1.69"	12' 10.15"	13' 1.9"
12' 6"	12' 4.73"	12' 7.29"	12' 4.64"	12' 7.38"	12' 4.48"	12' 7.56"	12' 4.29"	12' 7.75"
12' 0"	11' 10.83"	12' 1.19"	11' 10.75"	12' 1.27"	11' 10.6"	12' 1.43"	11' 10.43"	12' 1.61"
11' 6"	11' 4.93"	11' 7.09"	11' 4.86"	11' 7.16"	11' 4.72"	11' 7.31"	11' 4.56"	11' 7.47"
11' 0"	10' 11.02"	11' 0.99"	10' 10.96"	11' 1.06"	10' 10.83"	11' 1.19"	10' 10.69"	11' 1.34"
10' 6"	10' 5.11"	10' 6.9"	10' 5.05"	10' 6.96"	10' 4.94"	10' 7.08"	10' 4.81"	10' 7.21"
10' 0"	9' 11.2"	10' 0.81"	9' 11.15"	10' 0.87"	9' 11.04"	10' 0.97"	9' 10.93"	10' 1.09"
9' 6"	9' 5.28"	9' 6.73"	9' 5.23"	9' 6.78"	9' 5.14"	9' 6.87"	9' 5.04"	9' 6.98"
9' 0"	8' 11.36"	9' 0.65"	8' 11.32"	9' 0.69"	8' 11.23"	9' 0.78"	8' 11.14"	9' 0.88"
8' 9"	8' 8.4"	8' 9.61"	8' 8.35"	8' 9.65"	8' 8.28"	8' 9.73"	8' 8.19"	8' 9.82"
8' 6"	8' 5.43"	8' 6.57"	8' 5.39"	8' 6.61"	8' 5.32"	8' 6.69"	8' 5.24"	8' 6.78"
8' 3"	8' 2.47"	8' 3.54"	8' 2.43"	8' 3.58"	8' 2.36"	8' 3.65"	8' 2.28"	8' 3.73"
8' 0"	7' 11.5"	8' 0.51"	7' 11.47"	8' 0.54"	7' 11.4"	8' 0.61"	7' 11.33"	8' 0.68"
7' 9"	7' 8.53"	7' 9.47"	7' 8.5"	7' 9.5"	7' 8.44"	7' 9.57"	7' 8.37"	7' 9.64"
7' 6"	7' 5.56"	7' 6.44"	7' 5.53"	7' 6.47"	7' 5.48"	7' 6.53"	7' 5.41"	7' 6.59"
7' 3"	7' 2.59"	7' 3.41"	7' 2.57"	7' 3.44"	7' 2.51"	7' 3.49"	7' 2.46"	7' 3.55"
7' 0"	6' 11.62"	7' 0.38"	6' 11.6"	7' 0.41"	6' 11.55"	7' 0.46"	6' 11.49"	7' 0.51"
6' 9"	6' 8.65"	6' 9.35"	6' 8.63"	6' 9.38"	6' 8.58"	6' 9.42"	6' 8.53"	6' 9.47"
6' 6"	6' 5.68"	6' 6.32"	6' 5.66"	6' 6.35"	6' 5.62"	6' 6.39"	6' 5.57"	6' 6.44"
6' 3"	6' 2.71"	6' 3.3"	6' 2.69"	6' 3.32"	6' 2.65"	6' 3.36"	6' 2.6"	6' 3.4"
6' 0"	5' 11.73"	6' 0.27"	5' 11.71"	6' 0.29"	5' 11.68"	6' 0.33"	5' 11.64"	6' 0.37"
5' 9"	5' 8.75"	5' 9.25"	5' 8.74"	5' 9.26"	5' 8.71"	5' 9.3"	5' 8.67"	5' 9.33"
5' 6"	5' 5.78"	5' 6.22"	5' 5.76"	5' 6.24"	5' 5.73"	5' 6.27"	5' 5.7"	5' 6.3"
5' 3"	5' 2.8"	5' 3.2"	5' 2.78"	5' 3.22"	5' 2.76"	5' 3.24"	5' 2.73"	5' 3.27"
5' 2"	5' 1.81"	5' 2.2"	5' 1.79"	5' 2.21"	5' 1.77"	5' 2.24"	5' 1.74"	5' 2.26"
5' 1"	5' 0.81"	5' 1.19"	5' 0.8"	5' 1.2"	5' 0.78"	5' 1.23"	5' 0.75"	5' 1.25"
5' 0"	4' 11.82"	5' 0.18"	4' 11.81"	5' 0.19"	4' 11.78"	5' 0.22"	4' 11.76"	5' 0.25"



3.2	3.5	4	4.5	5
895' 5.79"	797' 10.33"	710' 10.71"	633' 4.91"	564' 4.56"

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)
894' 9.05"	Infinity	797' 2.21"	Infinity	710' 3.05"	Infinity	632' 9.66"	Infinity	563' 9.62"	Infinity
163' 7.33"	257' 2.92"	160' 0.55"	266' 7.08"	156' 2.7"	277' 11.11"	152' 1.78"	291' 10.29"	147' 9.83"	309' 3.1"
90' 0.42"	112' 5.43"	88' 11.4"	114' 2.34"	87' 9.15"	116' 2.59"	86' 5.6"	118' 6.85"	85' 0.7"	121' 3.98"
69' 3.22"	81' 9.24"	68' 7.51"	82' 8.21"	67' 11.03"	83' 8.82"	67' 1.72"	84' 11.36"	66' 3.52"	86' 4.2"
47' 4.82"	52' 10.82"	47' 1.22"	53' 3.36"	46' 9.24"	53' 8.54"	46' 4.84"	54' 2.46"	45' 11.98"	54' 9.23"
38' 3.93"	41' 9.92"	38' 1.58"	42' 0.74"	37' 10.98"	42' 3.95"	37' 8.1"	42' 7.6"	37' 4.9"	42' 11.76"
33' 8.6"	36' 4.63"	33' 6.79"	36' 6.75"	33' 4.78"	36' 9.17"	33' 2.55"	36' 11.91"	33' 0.07"	37' 3.02"
29' 0.68"	31' 0.09"	28' 11.34"	31' 1.63"	28' 9.85"	31' 3.37"	28' 8.19"	31' 5.34"	28' 6.35"	31' 7.58"
24' 4.14"	25' 8.29"	24' 3.21"	25' 9.34"	24' 2.17"	25' 10.53"	24' 1.01"	25' 11.87"	23' 11.72"	26' 1.38"
19' 6.99"	20' 5.23"	19' 6.4"	20' 5.88"	19' 5.73"	20' 6.62"	19' 4.98"	20' 7.46"	19' 4.15"	20' 8.41"
17' 7.96"	18' 4.2"	17' 7.47"	18' 4.73"	17' 6.93"	18' 5.32"	17' 6.33"	18' 5.99"	17' 5.65"	18' 6.75"
15' 8.82"	16' 3.29"	15' 8.44"	16' 3.7"	15' 8.01"	16' 4.16"	15' 7.54"	16' 4.69"	15' 7"	16' 5.28"
14' 9.21"	15' 2.88"	14' 8.88"	15' 3.23"	14' 8.5"	15' 3.64"	14' 8.09"	15' 4.09"	14' 7.62"	15' 4.61"
13' 9.58"	14' 2.49"	13' 9.29"	14' 2.8"	13' 8.97"	14' 3.15"	13' 8.6"	14' 3.54"	13' 8.19"	14' 3.99"
12' 9.92"	13' 2.13"	12' 9.67"	13' 2.4"	12' 9.39"	13' 2.7"	12' 9.08"	13' 3.04"	12' 8.73"	13' 3.42"
12' 4.09"	12' 7.97"	12' 3.85"	12' 8.21"	12' 3.6"	12' 8.49"	12' 3.31"	12' 8.8"	12' 2.98"	12' 9.14"
11' 10.24"	12' 1.8"	11' 10.03"	12' 2.03"	11' 9.79"	12' 2.28"	11' 9.52"	12' 2.57"	11' 9.23"	12' 2.89"
11' 4.39"	11' 7.65"	11' 4.19"	11' 7.86"	11' 3.98"	11' 8.09"	11' 3.73"	11' 8.35"	11' 3.46"	11' 8.64"
10' 10.53"	11' 1.5"	10' 10.35"	11' 1.69"	10' 10.15"	11' 1.9"	10' 9.93"	11' 2.14"	10' 9.68"	11' 2.4"
10' 4.67"	10' 7.36"	10' 4.51"	10' 7.53"	10' 4.32"	10' 7.72"	10' 4.12"	10' 7.94"	10' 3.9"	10' 8.18"
9' 10.8"	10' 1.23"	9' 10.65"	10' 1.38"	9' 10.49"	10' 1.55"	9' 10.3"	10' 1.75"	9' 10.1"	10' 1.96"
9' 4.92"	9' 7.1"	9' 4.79"	9' 7.24"	9' 4.64"	9' 7.39"	9' 4.48"	9' 7.57"	9' 4.29"	9' 7.76"
8' 11.03"	9' 0.98"	8' 10.92"	9' 1.11"	8' 10.79"	9' 1.24"	8' 10.64"	9' 1.4"	8' 10.48"	9' 1.57"
8' 8.09"	8' 9.93"	8' 7.98"	8' 10.04"	8' 7.86"	8' 10.17"	8' 7.72"	8' 10.32"	8' 7.56"	8' 10.48"
8' 5.14"	8' 6.87"	8' 5.04"	8' 6.98"	8' 4.92"	8' 7.1"	8' 4.79"	8' 7.24"	8' 4.65"	8' 7.39"
8' 2.2"	8' 3.82"	8' 2.1"	8' 3.92"	8' 1.99"	8' 4.03"	8' 1.87"	8' 4.16"	8' 1.73"	8' 4.3"
7' 11.25"	8' 0.77"	7' 11.16"	8' 0.86"	7' 11.05"	8' 0.97"	7' 10.94"	8' 1.09"	7' 10.81"	8' 1.22"
7' 8.3"	7' 9.72"	7' 8.21"	7' 9.8"	7' 8.11"	7' 9.9"	7' 8.01"	7' 10.02"	7' 7.89"	7' 10.14"
7' 5.34"	7' 6.67"	7' 5.26"	7' 6.75"	7' 5.17"	7' 6.84"	7' 5.07"	7' 6.95"	7' 4.96"	7' 7.06"
7' 2.39"	7' 3.62"	7' 2.31"	7' 3.7"	7' 2.23"	7' 3.78"	7' 2.14"	7' 3.88"	7' 2.03"	7' 3.99"
6' 11.43"	7' 0.57"	6' 11.36"	7' 0.65"	6' 11.29"	7' 0.73"	6' 11.2"	7' 0.82"	6' 11.1"	7' 0.92"
6' 8.48"	6' 9.53"	6' 8.41"	6' 9.6"	6' 8.34"	6' 9.67"	6' 8.26"	6' 9.75"	6' 8.17"	6' 9.85"
6' 5.52"	6' 6.49"	6' 5.46"	6' 6.55"	6' 5.39"	6' 6.62"	6' 5.32"	6' 6.69"	6' 5.24"	6' 6.78"
6' 2.56"	6' 3.45"	6' 2.5"	6' 3.51"	6' 2.44"	6' 3.57"	6' 2.37"	6' 3.64"	6' 2.3"	6' 3.72"
5' 11.59"	6' 0.41"	5' 11.54"	6' 0.46"	5' 11.49"	6' 0.52"	5' 11.43"	6' 0.58"	5' 11.36"	6' 0.66"
5' 8.63"	5' 9.38"	5' 8.58"	5' 9.42"	5' 8.53"	5' 9.47"	5' 8.48"	5' 9.53"	5' 8.41"	5' 9.6"
5' 5.66"	5' 6.34"	5' 5.62"	5' 6.38"	5' 5.58"	5' 6.43"	5' 5.53"	5' 6.48"	5' 5.47"	5' 6.54"
5' 2.7"	5' 3.31"	5' 2.66"	5' 3.34"	5' 2.62"	5' 3.39"	5' 2.57"	5' 3.44"	5' 2.52"	5' 3.49"
5' 1.71"	5' 2.3"	5' 1.67"	5' 2.33"	5' 1.63"	5' 2.37"	5' 1.59"	5' 2.42"	5' 1.54"	5' 2.47"
5' 0.72"	5' 1.29"	5' 0.68"	5' 1.32"	5' 0.64"	5' 1.36"	5' 0.6"	5' 1.41"	5' 0.55"	5' 1.46"
4' 11.73"	5' 0.28"	4' 11.69"	5' 0.31"	4' 11.66"	5' 0.35"	4' 11.61"	5' 0.39"	4' 11.57"	5' 0.44"



5.6	6.3	7.1	8	9
502' 10.61"	448' 1.17"	399' 3.46"	355' 9.61"	317' 0.72"

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)
502' 3.9"	Infinity	447' 6.64"	Infinity	398' 9.07"	Infinity	355' 3.37"	Infinity	316' 6.57"	Infinity
143' 2.93"	331' 5.3"	138' 5.23"	360' 5.62"	133' 4.92"	399' 9.26"	128' 2.24"	455' 6.34"	122' 9.49"	540' 1.13"
83' 6.36"	124' 7.05"	81' 10.55"	128' 5.49"	80' 1.24"	133' 1.18"	78' 2.39"	138' 8.7"	76' 2"	145' 7.64"
65' 4.37"	87' 11.78"	64' 4.23"	89' 10.65"	63' 3.04"	92' 1.54"	62' 0.77"	94' 9.37"	60' 9.37"	97' 11.36"
45' 6.62"	55' 5"	45' 0.73"	56' 1.94"	44' 6.27"	57' 0.28"	43' 11.2"	58' 0.26"	43' 3.49"	59' 2.22"
37' 1.37"	43' 4.51"	36' 9.47"	43' 9.94"	36' 5.18"	44' 4.19"	36' 0.46"	44' 11.37"	35' 7.28"	45' 7.67"
32' 9.33"	37' 6.58"	32' 6.3"	37' 10.63"	32' 2.95"	38' 3.27"	31' 11.26"	38' 8.6"	31' 7.2"	39' 2.72"
28' 4.31"	31' 10.13"	28' 2.05"	32' 1.02"	27' 11.55"	32' 4.33"	27' 8.78"	32' 8.11"	27' 5.73"	33' 0.45"
23' 10.29"	26' 3.11"	23' 8.69"	26' 5.06"	23' 6.93"	26' 7.29"	23' 4.97"	26' 9.82"	23' 2.81"	27' 0.72"
19' 3.22"	20' 9.48"	19' 2.19"	20' 10.69"	19' 1.05"	21' 0.06"	18' 11.78"	21' 1.63"	18' 10.37"	21' 3.4"
17' 4.9"	18' 7.6"	17' 4.07"	18' 8.57"	17' 3.14"	18' 9.67"	17' 2.1"	18' 10.91"	17' 0.95"	19' 0.33"
15' 6.41"	16' 5.94"	15' 5.75"	16' 6.7"	15' 5.01"	16' 7.55"	15' 4.19"	16' 8.51"	15' 3.28"	16' 9.61"
14' 7.1"	15' 5.19"	14' 6.51"	15' 5.85"	14' 5.87"	15' 6.59"	14' 5.14"	15' 7.43"	14' 4.34"	15' 8.38"
13' 7.74"	14' 4.49"	13' 7.23"	14' 5.06"	13' 6.67"	14' 5.7"	13' 6.04"	14' 6.42"	13' 5.34"	14' 7.25"
12' 8.34"	13' 3.84"	12' 7.9"	13' 4.33"	12' 7.42"	13' 4.87"	12' 6.87"	13' 5.49"	12' 6.27"	13' 6.19"
12' 2.62"	12' 9.54"	12' 2.22"	12' 9.98"	12' 1.77"	12' 10.49"	12' 1.27"	12' 11.06"	12' 0.71"	12' 11.7"
11' 8.9"	12' 3.25"	11' 8.52"	12' 3.66"	11' 8.11"	12' 4.12"	11' 7.65"	12' 4.64"	11' 7.13"	12' 5.23"
11' 3.16"	11' 8.97"	11' 2.82"	11' 9.34"	11' 2.44"	11' 9.76"	11' 2.01"	11' 10.24"	11' 1.54"	11' 10.77"
10' 9.41"	11' 2.7"	10' 9.09"	11' 3.04"	10' 8.75"	11' 3.42"	10' 8.36"	11' 3.86"	10' 7.93"	11' 4.34"
10' 3.64"	10' 8.45"	10' 3.36"	10' 8.76"	10' 3.05"	10' 9.1"	10' 2.69"	10' 9.49"	10' 2.3"	10' 9.93"
9' 9.87"	10' 2.21"	9' 9.62"	10' 2.49"	9' 9.33"	10' 2.8"	9' 9.01"	10' 3.15"	9' 8.66"	10' 3.55"
9' 4.09"	9' 7.98"	9' 3.86"	9' 8.23"	9' 3.6"	9' 8.51"	9' 3.31"	9' 8.82"	9' 2.99"	9' 9.18"
8' 10.29"	9' 1.77"	8' 10.09"	9' 1.99"	8' 9.86"	9' 2.23"	8' 9.6"	9' 2.52"	8' 9.31"	9' 2.83"
8' 7.39"	8' 10.66"	8' 7.2"	8' 10.87"	8' 6.98"	8' 11.1"	8' 6.74"	8' 11.37"	8' 6.47"	8' 11.67"
8' 4.48"	8' 7.56"	8' 4.3"	8' 7.76"	8' 4.1"	8' 7.98"	8' 3.87"	8' 8.23"	8' 3.62"	8' 8.5"
8' 1.58"	8' 4.47"	8' 1.41"	8' 4.65"	8' 1.21"	8' 4.86"	8' 1"	8' 5.09"	8' 0.76"	8' 5.35"
7' 10.67"	8' 1.37"	7' 10.51"	8' 1.54"	7' 10.33"	8' 1.74"	7' 10.12"	8' 1.95"	7' 9.9"	8' 2.2"
7' 7.75"	7' 10.28"	7' 7.6"	7' 10.44"	7' 7.43"	7' 10.62"	7' 7.25"	7' 10.82"	7' 7.04"	7' 11.05"
7' 4.84"	7' 7.2"	7' 4.7"	7' 7.34"	7' 4.54"	7' 7.51"	7' 4.36"	7' 7.7"	7' 4.17"	7' 7.91"
7' 1.92"	7' 4.11"	7' 1.79"	7' 4.25"	7' 1.64"	7' 4.4"	7' 1.48"	7' 4.58"	7' 1.29"	7' 4.78"
6' 11"	7' 1.03"	6' 10.87"	7' 1.16"	6' 10.74"	7' 1.3"	6' 10.59"	7' 1.46"	6' 10.42"	7' 1.65"
6' 8.07"	6' 9.95"	6' 7.96"	6' 10.07"	6' 7.83"	6' 10.2"	6' 7.69"	6' 10.35"	6' 7.53"	6' 10.52"
6' 5.14"	6' 6.88"	6' 5.04"	6' 6.99"	6' 4.92"	6' 7.11"	6' 4.79"	6' 7.25"	6' 4.65"	6' 7.4"
6' 2.21"	6' 3.81"	6' 2.12"	6' 3.91"	6' 2.01"	6' 4.02"	6' 1.89"	6' 4.14"	6' 1.76"	6' 4.29"
5' 11.28"	6' 0.74"	5' 11.19"	6' 0.83"	5' 11.09"	6' 0.93"	5' 10.98"	6' 1.05"	5' 10.86"	6' 1.18"
5' 8.34"	5' 9.67"	5' 8.26"	5' 9.75"	5' 8.17"	5' 9.85"	5' 8.07"	5' 9.95"	5' 7.96"	5' 10.07"
5' 5.4"	5' 6.61"	5' 5.33"	5' 6.68"	5' 5.25"	5' 6.77"	5' 5.16"	5' 6.86"	5' 5.06"	5' 6.97"
5' 2.46"	5' 3.55"	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' 1.48"	5' 2.53"	5' 1.42"	5' 2.6"	5' 1.35"	5' 2.67"	5' 1.27"	5' 2.75"	5' 1.18"	5' 2.85"
5' 0.5"	5' 1.51"	5' 0.44"	5' 1.57"	5' 0.37"	5' 1.65"	5' 0.29"	5' 1.73"	5' 0.21"	5' 1.82"
4' 11.52"	5' 0.49"	4' 11.46"	5' 0.55"	4' 11.39"	5' 0.62"	4' 11.32"	5' 0.7"	4' 11.23"	5' 0.79"



10	11	13	14
282' 6.55"	251' 9.57"	224' 4.87"	200' 0"

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)
282' 0.48"	Infinity	251' 3.56"	Infinity	223' 10.88"	Infinity	199' 6.06"	Infinity
117' 3.03"	682' 3.51"	111' 7.23"	968' 7.08"	105' 10.54"	1831' 3.84"	100' 1.38"	Infinity
74' 0.1"	154' 3.18"	71' 8.73"	165' 3.09"	69' 3.95"	179' 7.52"	66' 9.87"	199' 0.72"
59' 4.83"	101' 9.15"	57' 11.15"	106' 5.01"	56' 4.31"	112' 2.13"	54' 8.36"	119' 5.23"
42' 7.1"	60' 6.58"	41' 10"	62' 1.87"	41' 0.17"	64' 0.78"	40' 1.58"	66' 4.25"
35' 1.61"	46' 5.3"	34' 7.43"	47' 4.53"	34' 0.7"	48' 5.68"	33' 5.41"	49' 9.19"
31' 2.74"	39' 9.79"	30' 9.87"	40' 5.99"	30' 4.55"	41' 3.53"	29' 10.75"	42' 2.7"
27' 2.37"	33' 5.43"	26' 10.68"	33' 11.17"	26' 6.64"	34' 5.82"	26' 2.23"	35' 1.55"
23' 0.42"	27' 4.03"	22' 9.78"	27' 7.83"	22' 6.89"	28' 0.2"	22' 3.71"	28' 5.25"
18' 8.8"	21' 5.43"	18' 7.08"	21' 7.74"	18' 5.17"	21' 10.39"	18' 3.07"	22' 1.42"
16' 11.68"	19' 1.93"	16' 10.26"	19' 3.77"	16' 8.7"	19' 5.86"	16' 6.98"	19' 8.26"
15' 2.26"	16' 10.85"	15' 1.14"	17' 0.27"	14' 11.89"	17' 1.88"	14' 10.52"	17' 3.72"
14' 3.45"	15' 9.47"	14' 2.46"	15' 10.69"	14' 1.36"	16' 0.09"	14' 0.14"	16' 1.69"
13' 4.56"	14' 8.18"	13' 3.69"	14' 9.23"	13' 2.73"	14' 10.44"	13' 1.67"	14' 11.8"
12' 5.6"	13' 6.99"	12' 4.85"	13' 7.89"	12' 4.02"	13' 8.91"	12' 3.1"	13' 10.07"
12' 0.09"	13' 0.43"	11' 11.4"	13' 1.25"	11' 10.63"	13' 2.19"	11' 9.78"	13' 3.26"
11' 6.56"	12' 5.89"	11' 5.92"	12' 6.65"	11' 5.22"	12' 7.51"	11' 4.43"	12' 8.48"
11' 1.01"	11' 11.38"	11' 0.43"	12' 0.07"	10' 11.78"	12' 0.85"	10' 11.06"	12' 1.74"
10' 7.45"	11' 4.9"	10' 6.91"	11' 5.52"	10' 6.32"	11' 6.23"	10' 5.66"	11' 7.03"
10' 1.86"	10' 10.43"	10' 1.38"	10' 11"	10' 0.83"	10' 11.64"	10' 0.23"	11' 0.37"
9' 8.26"	10' 4"	9' 7.82"	10' 4.5"	9' 7.33"	10' 5.08"	9' 6.78"	10' 5.73"
9' 2.64"	9' 9.58"	9' 2.24"	9' 10.03"	9' 1.8"	9' 10.55"	9' 1.3"	9' 11.13"
8' 8.99"	9' 3.19"	8' 8.64"	9' 3.59"	8' 8.24"	9' 4.05"	8' 7.8"	9' 4.57"
8' 6.17"	9'	8' 5.83"	9' 0.38"	8' 5.45"	9' 0.81"	8' 5.04"	9' 1.3"
8' 3.33"	8' 8.82"	8' 3.01"	8' 9.18"	8' 2.66"	8' 9.58"	8' 2.27"	8' 10.04"
8' 0.49"	8' 5.64"	8' 0.2"	8' 5.98"	7' 11.86"	8' 6.36"	7' 11.49"	8' 6.78"
7' 9.65"	8' 2.48"	7' 9.37"	8' 2.79"	7' 9.06"	8' 3.14"	7' 8.71"	8' 3.54"
7' 6.8"	7' 11.31"	7' 6.54"	7' 11.6"	7' 6.25"	7' 11.93"	7' 5.92"	8' 0.3"
7' 3.95"	7' 8.15"	7' 3.7"	7' 8.42"	7' 3.43"	7' 8.73"	7' 3.13"	7' 9.08"
7' 1.09"	7' 5"	7' 0.86"	7' 5.25"	7' 0.61"	7' 5.54"	7' 0.32"	7' 5.86"
6' 10.23"	7' 1.85"	6' 10.02"	7' 2.09"	6' 9.78"	7' 2.35"	6' 9.52"	7' 2.65"
6' 7.36"	6' 10.71"	6' 7.16"	6' 10.93"	6' 6.94"	6' 11.17"	6' 6.7"	6' 11.44"
6' 4.49"	6' 7.58"	6' 4.3"	6' 7.78"	6' 4.1"	6' 8"	6' 3.88"	6' 8.25"
6' 1.61"	6' 4.45"	6' 1.44"	6' 4.63"	6' 1.25"	6' 4.83"	6' 1.05"	6' 5.06"
5' 10.72"	6' 1.32"	5' 10.57"	6' 1.49"	5' 10.4"	6' 1.68"	5' 10.21"	6' 1.89"
5' 7.84"	5' 10.21"	5' 7.7"	5' 10.36"	5' 7.54"	5' 10.53"	5' 7.37"	5' 10.72"
5' 4.94"	5' 7.09"	5' 4.82"	5' 7.23"	5' 4.67"	5' 7.38"	5' 4.52"	5' 7.56"
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' 1.08"	5' 2.95"	5' 0.97"	5' 3.07"	5' 0.84"	5' 3.2"	5' 0.7"	5' 3.35"
5' 0.11"	5' 1.92"	5'	5' 2.03"	4' 11.88"	5' 2.16"	4' 11.75"	5' 2.31"
4' 11.14"	5' 0.88"	4' 11.04"	5' 0.99"	4' 10.92"	5' 1.12"	4' 10.79"	5' 1.26"



16	18	20	22
178' 3.09"	158' 10.65"	141' 7.57"	126' 3.08"

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)
177' 9.18"	Infinity	158' 4.76"	Infinity	141' 1.69"	Infinity	125' 9.22"	Infinity
94' 4.22"	Infinity	88' 7.52"	Infinity	82' 11.73"	Infinity	77' 5.26"	Infinity
64' 2.6"	226' 6.99"	61' 6.3"	268' 2.65"	58' 9.13"	337' 11.45"	55' 11.28"	477' 3.5"
52' 11.32"	128' 9.52"	51' 1.27"	141' 2.57"	49' 2.28"	158' 4.37"	47' 2.45"	183' 4.43"
39' 2.23"	69' 1.51"	38' 2.11"	72' 6.34"	37' 1.24"	76' 9.26"	35' 11.63"	82' 2.03"
32' 9.53"	51' 3.61"	32' 1.05"	53' 1.71"	31' 3.95"	55' 4.49"	30' 6.25"	58' 1.37"
29' 4.46"	43' 3.86"	28' 9.67"	44' 7.48"	28' 2.35"	46' 2.17"	27' 6.49"	48' 0.77"
25' 9.41"	35' 10.57"	25' 4.19"	36' 9.18"	24' 10.53"	37' 9.73"	24' 4.42"	39' 0.7"
22' 0.23"	28' 11.11"	21' 8.43"	29' 5.92"	21' 4.3"	30' 1.9"	20' 11.82"	30' 11.3"
18' 0.75"	22' 4.91"	17' 10.22"	22' 8.95"	17' 7.44"	23' 1.62"	17' 4.41"	23' 7.06"
16' 5.08"	19' 11"	16' 2.99"	20' 2.17"	16' 0.7"	20' 5.82"	15' 10.19"	20' 10.05"
14' 9"	17' 5.83"	14' 7.32"	17' 8.25"	14' 5.48"	17' 11.03"	14' 3.46"	18' 2.24"
13' 10.8"	16' 3.51"	13' 9.32"	16' 5.6"	13' 7.68"	16' 8"	13' 5.89"	16' 10.76"
13' 0.49"	15' 1.37"	12' 11.19"	15' 3.15"	12' 9.76"	15' 5.2"	12' 8.18"	15' 7.56"
12' 2.08"	13' 11.39"	12' 0.95"	14' 0.91"	11' 11.71"	14' 2.64"	11' 10.34"	14' 4.63"
11' 8.83"	13' 4.47"	11' 7.79"	13' 5.86"	11' 6.63"	13' 7.44"	11' 5.36"	13' 9.26"
11' 3.56"	12' 9.59"	11' 2.59"	12' 10.85"	11' 1.53"	13' 0.3"	11' 0.35"	13' 1.95"
10' 10.25"	12' 2.75"	10' 9.37"	12' 3.9"	10' 8.38"	12' 5.21"	10' 7.3"	12' 6.71"
10' 4.92"	11' 7.95"	10' 4.11"	11' 8.99"	10' 3.21"	11' 10.18"	10' 2.21"	11' 11.54"
9' 11.56"	11' 1.19"	9' 10.82"	11' 2.13"	9' 10"	11' 3.2"	9' 9.09"	11' 4.42"
9' 6.17"	10' 6.47"	9' 5.5"	10' 7.31"	9' 4.75"	10' 8.27"	9' 3.92"	10' 9.37"
9' 0.75"	9' 11.79"	9' 0.15"	10' 0.54"	8' 11.47"	10' 1.4"	8' 10.72"	10' 2.37"
8' 7.31"	9' 5.15"	8' 6.76"	9' 5.82"	8' 6.15"	9' 6.58"	8' 5.48"	9' 7.44"
8' 4.57"	9' 1.85"	8' 4.06"	9' 2.47"	8' 3.48"	9' 3.18"	8' 2.85"	9' 3.99"
8' 1.83"	8' 10.55"	8' 1.34"	8' 11.14"	8' 0.8"	8' 11.81"	8' 0.2"	9' 0.56"
7' 11.08"	8' 7.27"	7' 10.62"	8' 7.82"	7' 10.11"	8' 8.44"	7' 9.55"	8' 9.15"
7' 8.32"	8' 3.99"	7' 7.89"	8' 4.5"	7' 7.42"	8' 5.09"	7' 6.88"	8' 5.75"
7' 5.56"	8' 0.72"	7' 5.16"	8' 1.2"	7' 4.71"	8' 1.74"	7' 4.21"	8' 2.36"
7' 2.79"	7' 9.47"	7' 2.41"	7' 9.91"	7' 1.99"	7' 10.41"	7' 1.53"	7' 10.99"
7' 0.01"	7' 6.22"	6' 11.66"	7' 6.63"	6' 11.26"	7' 7.1"	6' 10.83"	7' 7.63"
6' 9.22"	7' 2.98"	6' 8.89"	7' 3.36"	6' 8.53"	7' 3.79"	6' 8.13"	7' 4.28"
6' 6.43"	6' 11.75"	6' 6.12"	7' 0.11"	6' 5.79"	7' 0.5"	6' 5.41"	7' 0.95"
6' 3.62"	6' 8.54"	6' 3.34"	6' 8.86"	6' 3.03"	6' 9.22"	6' 2.68"	6' 9.64"
6' 0.81"	6' 5.33"	6' 0.56"	6' 5.62"	6' 0.27"	6' 5.96"	5' 11.95"	6' 6.33"
5' 10"	6' 2.13"	5' 9.76"	6' 2.39"	5' 9.5"	6' 2.7"	5' 9.2"	6' 3.04"
5' 7.17"	5' 10.93"	5' 6.96"	5' 11.18"	5' 6.71"	5' 11.46"	5' 6.44"	5' 11.77"
5' 4.34"	5' 7.75"	5' 4.14"	5' 7.97"	5' 3.92"	5' 8.22"	5' 3.68"	5' 8.51"
5' 1.5"	5' 4.58"	5' 1.32"	5' 4.78"	5' 1.12"	5' 5"	5' 0.9"	5' 5.26"
5' 0.55"	5' 3.52"	5' 0.38"	5' 3.72"	5' 0.18"	5' 3.93"	4' 11.97"	5' 4.18"
4' 11.6"	5' 2.47"	4' 11.43"	5' 2.66"	4' 11.25"	5' 2.86"	4' 11.04"	5' 3.1"
4' 10.65"	5' 1.42"	4' 10.49"	5' 1.59"	4' 10.31"	5' 1.8"	4' 10.11"	5' 2.02"