



Focal Length 18 mm

Circle of Confusion 0.025 mm

T/No	1.5	1.6	1.8	2	2.2	2.5	2.8
Hyperfocal Distance (ft-inch)	30' 2.83"	28' 7.03"	25' 6.02"	22' 8.99"	20' 3.62"	18' 1.4"	16' 2.09"

T/No	1.5		1.6		1.8		2		2.2		2.5		2.8	
Focus Distance (ft-inch)	Short Focus (ft-inch)	Long Focus (ft-inch)	Short Focus (ft-inch)	Long Focus (ft-inch)	Short Focus (ft-inch)	Long Focus (ft-inch)	Short Focus (ft-inch)	Long Focus (ft-inch)	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	30' 2.09"	Infinity	28' 6.31"	Infinity	25' 5.27"	Infinity	22' 8.28"	Infinity	20' 2.88"	Infinity	18' 0.69"	Infinity	16' 1.36"	Infinity
120' 0"	24' 2.36"	Infinity	23' 1.56"	Infinity	21' 0.8"	Infinity	19' 1.83"	Infinity	17' 4.61"	Infinity	15' 9.07"	Infinity	14' 3.13"	Infinity
60' 0"	20' 2.35"	Infinity	19' 5.4"	Infinity	17' 11.71"	Infinity	16' 6.83"	Infinity	15' 2.81"	Infinity	13' 11.69"	Infinity	12' 9.48"	Infinity
40' 0"	17' 3.96"	Infinity	16' 9.36"	Infinity	15' 8.11"	Infinity	14' 7.2"	Infinity	13' 6.7"	Infinity	12' 6.66"	Infinity	11' 7.14"	Infinity
30' 0"	15' 2.12"	Infinity	14' 9.06"	Infinity	13' 10.78"	Infinity	13' 0.59"	Infinity	12' 2.56"	Infinity	11' 4.76"	Infinity	10' 7.24"	Infinity
25' 0"	13' 9.65"	141' 10.29"	13' 5.47"	195' 6.73"	12' 8.9"	1247' 8.53"	12' 0.32"	Infinity	11' 3.79"	Infinity	10' 7.37"	Infinity	9' 11.09"	Infinity
20' 0"	12' 1.86"	58' 0.59"	11' 10.63"	65' 4.24"	11' 3.94"	90' 9.65"	10' 9.15"	161' 7.1"	10' 2.31"	1315' 2.81"	9' 7.46"	Infinity	9' 0.66"	Infinity
15' 0"	10' 1.64"	29' 3"	9' 11.41"	30' 11.75"	9' 6.72"	35' 8.11"	9' 1.89"	43' 0.14"	8' 8.94"	55' 11.5"	8' 3.9"	84' 7.52"	7' 10.81"	199' 11.72"
12' 0"	8' 8.32"	19' 6.61"	8' 6.69"	20' 3.62"	8' 3.23"	22' 2.39"	7' 11.63"	24' 9.7"	7' 7.89"	28' 7.06"	7' 4.04"	34' 6.08"	7' 0.09"	44' 11.9"
11' 0"	8' 1.98"	16' 11.89"	8' 0.54"	17' 6.62"	7' 9.49"	18' 11.36"	7' 6.3"	20' 9.68"	7' 2.97"	23' 4.67"	6' 11.53"	27' 2.26"	6' 7.98"	33' 3.26"
10' 0"	7' 7.32"	14' 8.19"	7' 6.07"	15' 1.18"	7' 3.43"	16' 1.36"	7' 0.64"	17' 5.18"	6' 9.72"	19' 2.39"	6' 6.69"	21' 8.07"	6' 3.55"	25' 4.19"
9' 0"	7' 0.31"	12' 7.11"	6' 11.25"	12' 10.74"	6' 9"	13' 7.48"	6' 6.62"	14' 6.58"	6' 4.11"	15' 9.01"	6' 1.49"	17' 4.4"	5' 10.76"	19' 7.62"
8' 6"	6' 8.67"	11' 7.44"	6' 7.7"	11' 10.51"	6' 5.64"	12' 5.86"	6' 3.46"	13' 3.1"	6' 1.16"	14' 2.95"	5' 10.74"	15' 6.6"	5' 8.21"	17' 4.03"
8' 0"	6' 4.93"	10' 8.28"	6' 4.06"	10' 10.87"	6' 2.19"	11' 5.02"	6' 0.2"	12' 0.67"	5' 10.09"	12' 10.36"	5' 7.88"	13' 10.95"	5' 5.56"	15' 3.83"
7' 6"	6' 1.09"	9' 9.62"	6' 0.31"	9' 11.78"	5' 10.62"	10' 4.89"	5' 8.82"	10' 11.18"	5' 6.92"	11' 7.06"	5' 4.9"	12' 5.15"	5' 2.79"	13' 6.41"
7' 0"	5' 9.15"	8' 11.42"	5' 8.45"	9' 1.21"	5' 6.94"	9' 5.42"	5' 5.34"	9' 10.55"	5' 3.62"	10' 4.92"	5' 1.81"	11' 0.95"	4' 11.9"	11' 11.33"
6' 6"	5' 5.1"	8' 1.65"	5' 4.48"	8' 3.12"	5' 3.15"	8' 6.55"	5' 1.73"	8' 10.7"	5' 0.2"	9' 3.8"	4' 10.59"	9' 10.15"	4' 8.88"	10' 6.22"
6' 0"	5' 0.93"	7' 4.28"	5' 0.39"	7' 5.47"	4' 11.23"	7' 8.24"	4' 9.99"	7' 11.56"	4' 8.65"	8' 3.59"	4' 7.23"	8' 8.56"	4' 5.72"	9' 2.79"
5' 6"	4' 8.64"	6' 7.29"	4' 8.18"	6' 8.24"	4' 7.19"	6' 10.44"	4' 6.11"	7' 1.06"	4' 4.96"	7' 4.21"	4' 3.72"	7' 8.06"	4' 2.4"	8' 0.8"
5' 0"	4' 4.24"	5' 10.66"	4' 3.85"	5' 11.4"	4' 3.01"	6' 1.12"	4' 2.1"	6' 3.15"	4' 1.11"	6' 5.58"	4' 0.06"	6' 8.5"	3' 10.93"	7' 0.07"
4' 6"	3' 11.7"	5' 2.36"	3' 11.38"	5' 2.93"	3' 10.68"	5' 4.25"	1.167	5' 5.79"	3' 9.11"	5' 7.62"	3' 8.23"	5' 9.8"	3' 7.29"	6' 0.43"
4' 0"	3' 7.03"	4' 6.38"	3' 6.77"	4' 6.81"	3' 6.21"	4' 7.78"	3' 5.6"	4' 8.92"	3' 4.94"	4' 10.27"	3' 4.23"	4' 11.85"	3' 3.45"	5' 1.75"
3' 6"	3' 2.21"	3' 10.7"	3' 2.01"	3' 11"	3' 1.58"	3' 11.71"	3' 1.11"	4' 0.52"	3' 0.59"	4' 1.47"	3' 0.03"	4' 2.59"	2' 11.42"	4' 3.91"
3' 0"	2' 9.25"	3' 3.29"	2' 9.11"	3' 3.51"	2' 8.79"	3' 3.99"	2' 8.43"	3' 4.54"	2' 8.05"	3' 5.19"	2' 7.63"	3' 5.93"	2' 7.17"	3' 6.81"
2' 6"	2' 4.14"	2' 8.16"	2' 4.04"	2' 8.3"	2' 3.81"	2' 8.6"	2' 3.57"	2' 8.96"	2' 3.3"	2' 9.37"	2' 3.01"	2' 9.84"	2' 2.69"	2' 10.38"
2' 0"	1' 10.86"	2' 1.28"	1' 10.8"	2' 1.36"	1' 10.66"	2' 1.54"	1' 10.51"	2' 1.74"	1' 10.34"	2' 1.97"	1' 10.15"	2' 2.24"	1' 9.95"	2' 2.55"
1' 9"	1' 8.16"	1' 9.93"	1' 8.11"	1' 9.98"	1' 8.01"	1' 10.11"	1' 7.89"	1' 10.26"	1' 7.77"	1' 10.42"	1' 7.63"	1' 10.61"	1' 7.47"	1' 10.83"
1' 6"	1' 5.41"	1' 6.64"	1' 5.38"	1' 6.67"	1' 5.31"	1' 6.76"	1' 5.23"	1' 6.86"	1' 5.14"	1' 6.97"	1' 5.04"	1' 7.1"	1' 4.93"	1' 7.25"
1' 3"	1' 2.62"	1' 3.4"	1' 2.6"	1' 3.43"	1' 2.56"	1' 3.48"	1' 2.5"	1' 3.54"	1' 2.45"	1' 3.61"	1' 2.38"	1' 3.69"	1' 2.31"	1' 3.78"
1' 0"	0' 11.79"	1' 0.22"	0' 11.78"	1' 0.23"	0' 11.75"	1' 0.26"	0' 11.72"	1' 0.3"	0' 11.69"	1' 0.33"	0' 11.65"	1' 0.38"	0' 11.61"	1' 0.43"
0' 9"	0' 8.91"	0' 9.1"	0' 8.9"	0' 9.1"	0' 8.89"	0' 9.11"	0' 8.88"	0' 9.13"	0' 8.86"	0' 9.14"	0' 8.85"	0' 9.16"	0' 8.83"	0' 9.18"



3.2	3.5	4	4.5	5	5.6	6.3	7.1
14' 5.31"	12' 10.76"	11' 6.27"	10' 3.58"	9' 2.47"	8' 2.82"	7' 4.43"	6' 7.17"

3.2		3.5		4		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)	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' 4.57"	Infinity	12' 10.05"	Infinity	11' 5.55"	Infinity	10' 2.85"	Infinity	9' 1.76"	Infinity	8' 2.09"	Infinity	7' 3.69"	Infinity	6' 6.44"	Infinity
12' 10.71"	Infinity	11' 7.71"	Infinity	10' 6.06"	Infinity	9' 5.65"	Infinity	8' 6.4"	Infinity	7' 8.21"	Infinity	6' 11"	Infinity	6' 2.69"	Infinity
11' 8.19"	Infinity	10' 7.82"	Infinity	9' 8.34"	Infinity	8' 9.73"	Infinity	7' 11.96"	Infinity	7' 2.99"	Infinity	6' 6.78"	Infinity	5' 11.29"	Infinity
10' 8.17"	Infinity	9' 9.79"	Infinity	9' 0.01"	Infinity	8' 2.84"	Infinity	7' 6.29"	Infinity	6' 10.34"	Infinity	6' 2.97"	Infinity	5' 8.18"	Infinity
9' 10.04"	Infinity	9' 1.22"	Infinity	8' 4.79"	Infinity	7' 8.8"	Infinity	7' 1.25"	Infinity	6' 6.15"	Infinity	5' 11.51"	Infinity	5' 5.33"	Infinity
9' 3.03"	Infinity	8' 7.21"	Infinity	7' 11.68"	Infinity	7' 4.47"	Infinity	6' 9.6"	Infinity	6' 3.1"	Infinity	5' 8.97"	Infinity	5' 3.22"	Infinity
8' 5.94"	Infinity	7' 11.34"	Infinity	7' 4.91"	Infinity	6' 10.68"	Infinity	6' 4.68"	Infinity	5' 10.94"	Infinity	5' 5.47"	Infinity	5' 0.29"	Infinity
7' 5.7"	Infinity	7' 0.59"	Infinity	6' 7.53"	Infinity	6' 2.55"	Infinity	5' 9.68"	Infinity	5' 4.94"	Infinity	5' 0.37"	Infinity	4' 7.97"	Infinity
6' 8.08"	68' 4.82"	6' 4.02"	165' 3.86"	5' 11.94"	Infinity	5' 7.88"	Infinity	5' 3.85"	Infinity	4' 11.88"	Infinity	4' 8"	Infinity	4' 4.23"	Infinity
6' 4.36"	44' 5.8"	6' 0.67"	71' 8.49"	5' 8.95"	231' 2.99"	5' 5.22"	Infinity	5' 1.51"	Infinity	4' 9.83"	Infinity	4' 6.22"	Infinity	4' 2.69"	Infinity
6' 0.32"	31' 4.03"	5' 9.02"	42' 8.37"	5' 5.67"	72' 2.54"	5' 2.3"	327' 8.54"	4' 10.91"	Infinity	4' 7.55"	Infinity	4' 4.22"	Infinity	4' 0.95"	Infinity
5' 7.93"	23' 0.25"	5' 5.03"	28' 6.86"	5' 2.07"	39' 2.83"	4' 11.06"	67' 9.17"	4' 8.03"	377' 7.08"	4' 4.99"	Infinity	4' 1.97"	Infinity	3' 10.99"	Infinity
5' 5.59"	19' 10.95"	5' 2.89"	23' 11.01"	5' 0.13"	30' 11.15"	4' 9.31"	46' 2.48"	4' 6.46"	104' 4.92"	4' 3.6"	Infinity	4' 0.74"	Infinity	3' 9.9"	Infinity
5' 3.15"	17' 3.44"	5' 0.65"	20' 2.56"	4' 10.08"	24' 11.75"	4' 7.46"	34' 0.35"	4' 4.8"	57' 6.76"	4' 2.11"	262' 9.81"	3' 11.42"	Infinity	3' 8.74"	Infinity
5' 0.58"	15' 0.48"	4' 10.29"	17' 2.35"	4' 7.93"	20' 6.11"	4' 5.5"	26' 2.44"	4' 3.03"	38' 1.93"	4' 0.53"	78' 8.76"	3' 10.01"	Infinity	3' 7.5"	Infinity
4' 9.9"	13' 1.14"	4' 7.81"	14' 8.27"	4' 5.65"	17' 0.32"	4' 3.42"	20' 9.01"	4' 1.15"	27' 6.6"	3' 10.83"	43' 8.76"	3' 8.5"	130' 0.42"	3' 6.15"	Infinity
4' 7.08"	11' 4.73"	4' 5.2"	12' 6.9"	4' 3.24"	14' 2.85"	4' 1.22"	16' 8.8"	3' 11.14"	20' 10.3"	3' 9.02"	28' 10.87"	3' 6.87"	51' 2.97"	3' 4.7"	407' 4.12"
4' 4.12"	9' 10.75"	4' 2.44"	10' 9.2"	4' 0.69"	11' 11.45"	3' 10.88"	13' 7.81"	3' 9"	16' 3.05"	3' 7.08"	20' 8.58"	3' 5.12"	30' 0.32"	3' 3.13"	61' 1.02"
4' 1.01"	8' 6.77"	3' 11.54"	9' 2.44"	3' 9.99"	10' 0.59"	3' 8.38"	11' 2.52"	3' 6.71"	12' 10.69"	3' 4.98"	15' 6.23"	3' 3.22"	20' 1.95"	3' 1.42"	30' 5.73"
3' 9.73"	7' 4.49"	3' 8.46"	7' 10.06"	3' 7.12"	8' 5.23"	3' 5.71"	9' 2.77"	3' 4.24"	10' 3.94"	3' 2.73"	11' 11.15"	3' 1.16"	14' 5.56"	2' 11.56"	19' 0.43"
3' 6.27"	6' 3.64"	3' 5.2"	6' 7.62"	3' 4.06"	7' 0.64"	3' 2.85"	7' 7.11"	3' 1.59"	8' 3.71"	3' 0.28"	9' 3.61"	2' 10.92"	10' 9.01"	2' 9.52"	13' 0.61"
3' 2.62"	5' 4.03"	3' 1.74"	5' 6.81"	3' 0.79"	5' 10.24"	2' 11.79"	6' 2.57"	2' 10.73"	6' 8.14"	2' 9.63"	7' 3.52"	2' 8.47"	8' 1.68"	2' 7.27"	9' 4.44"
2' 10.76"	4' 5.47"	2' 10.06"	4' 7.36"	2' 9.3"	4' 9.65"	2' 8.49"	5' 0.47"	2' 7.64"	5' 4"	2' 6.73"	5' 8.51"	2' 5.78"	6' 2.45"	2' 4.79"	6' 10.53"
2' 6.68"	3' 7.84"	2' 6.14"	3' 9.06"	2' 5.56"	3' 10.53"	2' 4.94"	4' 0.29"	2' 4.28"	4' 2.45"	2' 3.57"	4' 5.14"	2' 2.82"	4' 8.54"	2' 2.04"	5' 0.94"
2' 2.34"	2' 11.02"	2' 1.95"	2' 11.76"	2' 1.54"	3' 0.64"	2' 1.09"	3' 1.68"	2' 0.61"	3' 2.93"	2' 0.09"	3' 4.45"	1' 11.54"	3' 6.3"	1' 10.96"	3' 8.62"
1' 9.72"	2' 2.9"	1' 9.48"	2' 3.31"	1' 9.21"	2' 3.79"	1' 8.92"	2' 4.35"	1' 8.6"	2' 5.01"	1' 8.26"	2' 5.79"	1' 7.89"	2' 6.72"	1' 7.49"	2' 7.85"
1' 7.31"	1' 11.08"	1' 7.12"	1' 11.37"	1' 6.92"	1' 11.7"	1' 6.69"	2' 0.09"	1' 6.45"	2' 0.54"	1' 6.19"	2' 1.08"	1' 5.9"	2' 1.7"	1' 5.59"	2' 2.45"
1' 4.81"	1' 7.41"	1' 4.68"	1' 7.6"	1' 4.53"	1' 7.82"	1' 4.37"	1' 8.08"	1' 4.19"	1' 8.37"	1' 4"	1' 8.71"	1' 3.79"	1' 9.11"	1' 3.56"	1' 9.59"
1' 2.23"	1' 3.88"	1' 2.14"	1' 4"	1' 2.05"	1' 4.13"	1' 1.94"	1' 4.28"	1' 1.82"	1' 4.46"	1' 1.69"	1' 4.66"	1' 1.55"	1' 4.9"	1' 1.4"	1' 5.17"
0' 11.56"	1' 0.48"	0' 11.51"	1' 0.54"	0' 11.46"	1' 0.61"	0' 11.4"	1' 0.7"	0' 11.33"	1' 0.79"	0' 11.25"	1' 0.89"	0' 11.17"	1' 1.01"	0' 11.08"	1' 1.15"
0' 8.81"	0' 9.2"	0' 8.79"	0' 9.23"	0' 8.76"	0' 9.26"	0' 8.73"	0' 9.29"	0' 8.7"	0' 9.33"	0' 8.67"	0' 9.37"	0' 8.63"	0' 9.42"	0' 8.58"	0' 9.48"



8	9	10	11	13	14	16	18
5' 10.91"	5' 3.58"	4' 9.01"	4' 3.18"	3' 9.98"	3' 5.34"	3' 1.24"	2' 9.54"

8		9		10		11		13		14		16		18	
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)	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' 10.19"	Infinity	5' 2.84"	Infinity	4' 8.29"	Infinity	4' 2.46"	Infinity	3' 9.26"	Infinity	3' 4.63"	Infinity	3' 0.5"	Infinity	2' 8.83"	Infinity
5' 7.2"	Infinity	5' 0.46"	Infinity	4' 6.4"	Infinity	4' 0.95"	Infinity	3' 8.06"	Infinity	3' 3.68"	Infinity	2' 11.75"	Infinity	2' 8.23"	Infinity
5' 4.46"	Infinity	4' 10.25"	Infinity	4' 4.63"	Infinity	3' 11.53"	Infinity	3' 6.93"	Infinity	3' 2.77"	Infinity	2' 11.02"	Infinity	2' 7.65"	Infinity
5' 1.93"	Infinity	4' 8.2"	Infinity	4' 2.97"	Infinity	3' 10.19"	Infinity	3' 5.85"	Infinity	3' 1.9"	Infinity	2' 10.33"	Infinity	2' 7.09"	Infinity
4' 11.59"	Infinity	4' 6.29"	Infinity	4' 1.41"	Infinity	3' 8.93"	Infinity	3' 4.82"	Infinity	3' 1.07"	Infinity	2' 9.66"	Infinity	2' 6.56"	Infinity
4' 9.85"	Infinity	4' 4.85"	Infinity	4' 0.23"	Infinity	3' 7.96"	Infinity	3' 4.04"	Infinity	3' 0.43"	Infinity	2' 9.14"	Infinity	2' 6.14"	Infinity
4' 7.41"	Infinity	4' 2.83"	Infinity	3' 10.56"	Infinity	3' 6.59"	Infinity	3' 2.91"	Infinity	2' 11.52"	Infinity	2' 8.39"	Infinity	2' 5.53"	Infinity
4' 3.77"	Infinity	3' 11.79"	Infinity	3' 8.02"	Infinity	3' 4.48"	Infinity	3' 1.17"	Infinity	2' 10.09"	Infinity	2' 7.22"	Infinity	2' 4.57"	Infinity
4' 0.59"	Infinity	3' 9.09"	Infinity	3' 5.75"	Infinity	3' 2.58"	Infinity	2' 11.58"	Infinity	2' 8.76"	Infinity	2' 6.13"	Infinity	2' 3.67"	Infinity
3' 11.26"	Infinity	3' 7.96"	Infinity	3' 4.79"	Infinity	3' 1.77"	Infinity	2' 10.9"	Infinity	2' 8.2"	Infinity	2' 5.66"	Infinity	2' 3.28"	Infinity
3' 9.77"	Infinity	3' 6.67"	Infinity	3' 3.69"	Infinity	3' 0.84"	Infinity	2' 10.12"	Infinity	2' 7.54"	Infinity	2' 5.11"	Infinity	2' 2.83"	Infinity
3' 8.06"	Infinity	3' 5.2"	Infinity	3' 2.43"	Infinity	2' 11.76"	Infinity	2' 9.21"	Infinity	2' 6.77"	Infinity	2' 4.47"	Infinity	2' 2.29"	Infinity
3' 7.11"	Infinity	3' 4.38"	Infinity	3' 1.73"	Infinity	2' 11.16"	Infinity	2' 8.7"	Infinity	2' 6.34"	Infinity	2' 4.1"	Infinity	2' 1.99"	Infinity
3' 6.1"	Infinity	3' 3.5"	Infinity	3' 0.96"	Infinity	2' 10.51"	Infinity	2' 8.14"	Infinity	2' 5.87"	Infinity	2' 3.7"	Infinity	2' 1.65"	Infinity
3' 5"	Infinity	3' 2.54"	Infinity	3' 0.14"	Infinity	2' 9.79"	Infinity	2' 7.53"	Infinity	2' 5.35"	Infinity	2' 3.26"	Infinity	2' 1.28"	Infinity
3' 3.82"	Infinity	3' 1.51"	Infinity	2' 11.23"	Infinity	2' 9.01"	Infinity	2' 6.86"	Infinity	2' 4.77"	Infinity	2' 2.78"	Infinity	2' 0.87"	Infinity
3' 2.53"	Infinity	3' 0.38"	Infinity	2' 10.24"	Infinity	2' 8.15"	Infinity	2' 6.12"	Infinity	2' 4.14"	Infinity	2' 2.24"	Infinity	2' 0.42"	Infinity
3' 1.13"	Infinity	2' 11.14"	Infinity	2' 9.16"	Infinity	2' 7.21"	Infinity	2' 5.3"	Infinity	2' 3.44"	Infinity	2' 1.64"	Infinity	1' 11.91"	Infinity
2' 11.61"	72' 4.9"	2' 9.78"	Infinity	2' 7.96"	Infinity	2' 6.16"	Infinity	2' 4.38"	Infinity	2' 2.65"	Infinity	2' 0.96"	Infinity	1' 11.33"	Infinity
2' 9.93"	29' 7.74"	2' 8.29"	80' 5.5"	2' 6.63"	Infinity	2' 4.99"	Infinity	2' 3.36"	Infinity	2' 1.76"	Infinity	2' 0.19"	Infinity	1' 10.67"	Infinity
2' 8.08"	17' 2.65"	2' 6.63"	26' 11.95"	2' 5.15"	75' 9.83"	2' 3.68"	Infinity	2' 2.2"	Infinity	2' 0.75"	Infinity	1' 11.31"	Infinity	1' 9.91"	Infinity
2' 6.04"	11' 3.64"	2' 4.78"	14' 9.02"	2' 3.49"	22' 6.71"	2' 2.19"	56' 6.79"	2' 0.89"	Infinity	1' 11.59"	Infinity	1' 10.3"	Infinity	1' 9.03"	Infinity
2' 3.76"	7' 10.1"	2' 2.7"	9' 3.86"	2' 1.61"	11' 10.31"	2' 0.5"	17' 2.03"	1' 11.38"	34' 11.86"	1' 10.25"	Infinity	1' 9.12"	Infinity	1' 7.99"	Infinity
2' 1.21"	5' 6.84"	2' 0.36"	6' 3.06"	1' 11.47"	7' 3.23"	1' 10.56"	8' 10.91"	1' 9.62"	11' 11.81"	1' 8.68"	19' 8.98"	1' 7.72"	75' 9.87"	1' 6.76"	Infinity
1' 10.34"	3' 11.57"	1' 9.69"	4' 3.42"	1' 9"	4' 8.61"	1' 8.3"	5' 3.94"	1' 7.56"	6' 2.97"	1' 6.81"	7' 9.3"	1' 6.05"	10' 9.4"	1' 5.27"	19' 4.08"
1' 7.07"	2' 9.23"	1' 6.62"	2' 10.95"	1' 6.14"	3' 1.12"	1' 5.64"	3' 3.93"	1' 5.11"	3' 7.7"	1' 4.57"	4' 0.95"	1' 4"	4' 8.73"	1' 3.42"	5' 9.32"
1' 5.26"	2' 3.36"	1' 4.91"	2' 4.45"	1' 4.53"	2' 5.81"	1' 4.13"	2' 7.51"	1' 3.7"	2' 9.7"	1' 3.26"	3' 0.58"	1' 2.8"	3' 4.54"	1' 2.32"	3' 10.26"
1' 3.32"	1' 10.14"	1' 3.05"	1' 10.81"	1' 2.77"	1' 11.62"	1' 2.47"	2' 0.61"	1' 2.14"	2' 1.84"	1' 1.8"	2' 3.39"	1' 1.44"	2' 5.4"	1' 1.07"	2' 8.1"
1' 1.23"	1' 5.49"	1' 1.05"	1' 5.87"	1' 0.85"	1' 6.32"	1' 0.64"	1' 6.85"	1' 0.41"	1' 7.5"	1' 0.17"	1' 8.29"	0' 11.91"	1' 9.27"	0' 11.64"	1' 10.51"
0' 10.98"	1' 1.32"	0' 10.87"	1' 1.5"	0' 10.75"	1' 1.72"	0' 10.62"	1' 1.98"	0' 10.48"	1' 2.28"	0' 10.32"	1' 2.64"	0' 10.16"	1' 3.07"	0' 9.98"	1' 3.6"
0' 8.54"	0' 9.54"	0' 8.49"	0' 9.62"	0' 8.43"	0' 9.7"	0' 8.37"	0' 9.8"	0' 8.3"	0' 9.91"	0' 8.22"	0' 10.04"	0' 8.14"	0' 10.19"	0' 8.05"	0' 10.37"



20	22
2' 6.28"	2' 3.36"

20		22	
Short Focus (ft-inch)	Long Focus (ft-inch)	Short Focus (ft-inch)	Long Focus (ft-inch)
2' 5.56"	Infinity	2' 2.64"	Infinity
2' 5.08"	Infinity	2' 2.26"	Infinity
2' 4.62"	Infinity	2' 1.9"	Infinity
2' 4.17"	Infinity	2' 1.54"	Infinity
2' 3.74"	Infinity	2' 1.19"	Infinity
2' 3.4"	Infinity	2' 0.92"	Infinity
2' 2.91"	Infinity	2' 0.53"	Infinity
2' 2.13"	Infinity	1' 11.89"	Infinity
2' 1.4"	Infinity	1' 11.29"	Infinity
2' 1.08"	Infinity	1' 11.03"	Infinity
2' 0.7"	Infinity	1' 10.72"	Infinity
2' 0.26"	Infinity	1' 10.35"	Infinity
2'	Infinity	1' 10.14"	Infinity
1' 11.72"	Infinity	1' 9.91"	Infinity
1' 11.41"	Infinity	1' 9.65"	Infinity
1' 11.07"	Infinity	1' 9.36"	Infinity
1' 10.68"	Infinity	1' 9.04"	Infinity
1' 10.25"	Infinity	1' 8.68"	Infinity
1' 9.76"	Infinity	1' 8.26"	Infinity
1' 9.2"	Infinity	1' 7.79"	Infinity
1' 8.55"	Infinity	1' 7.23"	Infinity
1' 7.79"	Infinity	1' 6.58"	Infinity
1' 6.89"	Infinity	1' 5.81"	Infinity
1' 5.81"	Infinity	1' 4.87"	Infinity
1' 4.48"	Infinity	1' 3.7"	Infinity
1' 2.82"	7' 8.93"	1' 2.22"	12' 8.64"
1' 1.82"	4' 7.17"	1' 1.31"	5' 10.82"
1' 0.67"	2' 11.86"	1' 0.27"	3' 5.42"
0' 11.35"	2' 0.12"	0' 11.05"	2' 2.28"
0' 9.8"	1' 4.24"	0' 9.6"	1' 5.05"
0' 7.95"	0' 10.58"	0' 7.85"	0' 10.83"



Focal Length 21 mm

Circle of Confusion 0.025 mm

T/No	1.5	1.6	1.8	2	2.2	2.5	2.8
Hyperfocal Distance (ft-inch)	40' 11.22"	38' 8.33"	34' 6.02"	30' 9.21"	27' 5.25"	24' 5.7"	21' 10.01"

T/No	1.5		1.6		1.8		2		2.2		2.5		2.8	
Focus Distance (ft-inch)	Short Focus (ft-inch)	Long Focus (ft-inch)	Short Focus (ft-inch)	Long Focus (ft-inch)	Short Focus (ft-inch)	Long Focus (ft-inch)	Short Focus (ft-inch)	Long Focus (ft-inch)	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	40' 10.35"	Infinity	38' 7.48"	Infinity	34' 5.17"	Infinity	30' 8.35"	Infinity	27' 4.42"	Infinity	24' 4.84"	Infinity	21' 9.14"	Infinity
120' 0"	30' 6.84"	Infinity	29' 3.64"	Infinity	26' 10.01"	Infinity	24' 6.21"	Infinity	22' 4.26"	Infinity	20' 4.12"	Infinity	18' 5.77"	Infinity
60' 0"	24' 5.02"	Infinity	23' 7.28"	Infinity	21' 11.8"	Infinity	20' 4.92"	Infinity	18' 10.72"	Infinity	17' 5.3"	Infinity	16' 0.71"	Infinity
40' 0"	20' 3.94"	1733' 4.54"	19' 9.18"	Infinity	18' 7.41"	Infinity	17' 5.77"	Infinity	16' 4.33"	Infinity	15' 3.17"	Infinity	14' 2.39"	Infinity
30' 0"	17' 4.94"	111' 0.7"	16' 11.98"	131' 11.2"	16' 1.75"	226' 10.37"	15' 3.44"	1185' 11.58"	14' 5.12"	Infinity	13' 6.84"	Infinity	12' 8.69"	Infinity
25' 0"	15' 7.42"	63' 6.09"	15' 3.43"	69' 9.65"	14' 7.15"	89' 6.89"	13' 10.7"	131' 4.82"	13' 2.16"	276' 6.99"	12' 5.56"	Infinity	11' 8.98"	Infinity
20' 0"	13' 6.35"	38' 8.06"	13' 3.36"	40' 10.9"	12' 9.09"	46' 11.44"	12' 2.63"	56' 3.65"	11' 8.01"	72' 6.54"	11' 1.26"	107' 4.36"	10' 6.44"	233' 3.12"
15' 0"	11' 0.75"	23' 4.95"	10' 10.76"	24' 2.49"	10' 6.54"	26' 2.25"	10' 2.13"	28' 10.05"	9' 9.53"	32' 6.47"	9' 4.78"	38' 0.34"	8' 11.88"	46' 11.16"
12' 0"	9' 4.27"	16' 9.46"	9' 2.86"	17' 2.28"	8' 11.84"	18' 1.89"	8' 8.64"	19' 4.59"	8' 5.27"	20' 11.69"	8' 1.75"	23' 1.28"	7' 10.08"	26' 1.08"
11' 0"	8' 8.92"	14' 10.5"	8' 7.69"	15' 2.26"	8' 5.05"	15' 11.23"	8' 2.24"	16' 10.43"	7' 11.28"	18' 0.68"	7' 8.16"	19' 7.31"	7' 4.91"	21' 8.5"
10' 0"	8' 1.27"	13' 1.03"	8' 0.22"	13' 3.92"	7' 9.95"	13' 10.75"	7' 7.53"	14' 7.16"	7' 4.96"	15' 5.69"	7' 2.25"	16' 7.15"	6' 11.4"	18' 0.81"
9' 0"	7' 5.32"	11' 4.91"	7' 4.43"	11' 7.09"	7' 2.52"	12' 0.2"	7' 0.47"	12' 6.41"	6' 10.29"	13' 2.06"	6' 7.98"	13' 11.65"	6' 5.54"	14' 11.93"
8' 6"	7' 1.22"	10' 7.31"	7' 0.41"	10' 9.18"	6' 10.67"	11' 1.57"	6' 8.81"	11' 6.86"	6' 6.82"	12' 1.34"	6' 4.7"	12' 9.39"	6' 2.46"	13' 7.56"
8' 0"	6' 9.03"	9' 10"	6' 8.3"	9' 11.61"	6' 6.74"	10' 3.34"	6' 5.05"	10' 7.83"	6' 3.24"	11' 1.28"	6' 1.32"	11' 7.98"	5' 11.27"	12' 4.38"
7' 6"	6' 4.76"	9' 0.97"	6' 4.11"	9' 2.33"	6' 2.7"	9' 5.49"	6' 1.19"	9' 9.26"	5' 11.57"	10' 1.81"	5' 9.83"	10' 7.37"	5' 7.98"	11' 2.26"
7' 0"	6' 0.4"	8' 4.21"	5' 11.82"	8' 5.36"	5' 10.57"	8' 8"	5' 9.23"	8' 11.15"	5' 7.78"	9' 2.91"	5' 6.22"	9' 7.48"	5' 4.56"	10' 1.09"
6' 6"	5' 7.94"	7' 7.7"	5' 7.44"	7' 8.66"	5' 6.34"	7' 10.85"	5' 5.16"	8' 1.44"	5' 3.88"	8' 4.53"	5' 2.5"	8' 8.25"	5' 1.03"	9' 0.77"
6' 0"	5' 3.39"	6' 11.44"	5' 2.95"	7' 0.22"	5' 2"	7' 2.02"	5' 0.97"	7' 4.13"	4' 11.86"	7' 6.64"	4' 10.66"	7' 9.63"	4' 9.36"	8' 1.24"
5' 6"	4' 10.74"	6' 3.41"	4' 10.37"	6' 4.04"	4' 9.56"	6' 5.49"	4' 8.67"	6' 7.19"	4' 7.71"	6' 9.19"	4' 6.68"	6' 11.57"	4' 5.56"	7' 2.41"
5' 0"	4' 5.99"	5' 7.6"	4' 5.67"	5' 8.11"	4' 4.99"	5' 9.26"	4' 4.25"	5' 10.6"	4' 3.44"	6' 0.17"	4' 2.56"	6' 2.02"	4' 1.62"	6' 4.22"
4' 6"	4' 1.13"	5' 0.01"	4' 0.87"	5' 0.4"	4' 0.31"	5' 1.29"	1.212	5' 2.33"	3' 11.03"	5' 3.54"	3' 10.31"	5' 4.96"	3' 9.52"	5' 6.63"
4' 0"	3' 8.16"	4' 4.62"	3' 7.95"	4' 4.92"	3' 7.51"	4' 5.59"	3' 7.02"	4' 6.37"	3' 6.48"	4' 7.28"	3' 5.9"	4' 8.33"	3' 5.26"	4' 9.57"
3' 6"	3' 3.08"	3' 9.43"	3' 2.92"	3' 9.65"	3' 2.57"	3' 10.14"	3' 2.2"	3' 10.71"	3' 1.78"	3' 11.36"	3' 1.32"	4' 0.12"	3' 0.83"	4' 1"
3' 0"	2' 9.88"	3' 2.43"	2' 9.76"	3' 2.58"	2' 9.51"	3' 2.92"	2' 9.23"	3' 3.32"	2' 8.92"	3' 3.77"	2' 8.58"	3' 4.29"	2' 8.21"	3' 4.89"
2' 6"	2' 4.56"	2' 7.61"	2' 4.48"	2' 7.71"	2' 4.3"	2' 7.93"	2' 4.11"	2' 8.19"	2' 3.9"	2' 8.48"	2' 3.66"	2' 8.81"	2' 3.4"	2' 9.2"
2' 0"	1' 11.11"	2' 0.97"	1' 11.06"	2' 1.02"	1' 10.95"	2' 1.16"	1' 10.83"	2' 1.31"	1' 10.7"	2' 1.48"	1' 10.55"	2' 1.67"	1' 10.39"	2' 1.9"
1' 9"	1' 8.34"	1' 9.71"	1' 8.31"	1' 9.75"	1' 8.22"	1' 9.85"	1' 8.13"	1' 9.96"	1' 8.03"	1' 10.08"	1' 7.92"	1' 10.22"	1' 7.8"	1' 10.38"
1' 6"	1' 5.54"	1' 6.49"	1' 5.51"	1' 6.52"	1' 5.45"	1' 6.59"	1' 5.39"	1' 6.66"	1' 5.32"	1' 6.75"	1' 5.24"	1' 6.84"	1' 5.15"	1' 6.95"
1' 3"	1' 2.7"	1' 3.31"	1' 2.68"	1' 3.33"	1' 2.65"	1' 3.38"	1' 2.6"	1' 3.42"	1' 2.56"	1' 3.48"	1' 2.5"	1' 3.54"	1' 2.45"	1' 3.61"
1' 0"	0' 11.83"	1' 0.18"	0' 11.82"	1' 0.19"	0' 11.8"	1' 0.21"	0' 11.77"	1' 0.24"	0' 11.75"	1' 0.27"	0' 11.71"	1' 0.3"	0' 11.68"	1' 0.34"



3.2	3.5	4	4.5	5	5.6	6.3	7.1
19' 5.74"	17' 4.58"	15' 6.18"	13' 10.22"	12' 4.43"	11' 0.6"	9' 10.46"	8' 9.91"

3.2		3.5		4		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)	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' 4.91"	Infinity	17' 3.75"	Infinity	15' 5.34"	Infinity	13' 9.37"	Infinity	12' 3.58"	Infinity	10' 11.74"	Infinity	9' 9.62"	Infinity	8' 9.04"	Infinity
16' 9.14"	Infinity	15' 2.16"	Infinity	13' 8.76"	Infinity	12' 4.84"	Infinity	11' 2.33"	Infinity	10' 1.11"	Infinity	9' 1.12"	Infinity	8' 2.24"	Infinity
14' 9"	Infinity	13' 6.18"	Infinity	12' 4.29"	Infinity	11' 3.32"	Infinity	10' 3.25"	Infinity	9' 4.08"	Infinity	8' 5.76"	Infinity	7' 8.27"	Infinity
13' 2.03"	Infinity	12' 2.15"	Infinity	11' 2.81"	Infinity	10' 4.04"	Infinity	9' 5.86"	Infinity	8' 8.29"	Infinity	7' 11.33"	Infinity	7' 2.99"	Infinity
11' 10.73"	Infinity	11' 1.01"	Infinity	10' 3.58"	Infinity	9' 6.5"	Infinity	8' 9.81"	Infinity	8' 1.52"	Infinity	7' 5.67"	Infinity	6' 10.27"	Infinity
11' 0.47"	Infinity	10' 4.08"	Infinity	9' 7.86"	Infinity	8' 11.87"	Infinity	8' 4.14"	Infinity	7' 8.7"	Infinity	7' 1.6"	Infinity	6' 6.85"	Infinity
9' 11.58"	Infinity	9' 4.73"	Infinity	8' 9.93"	Infinity	8' 3.24"	Infinity	7' 8.68"	Infinity	7' 2.31"	Infinity	6' 8.15"	Infinity	6' 2.23"	Infinity
8' 6.89"	63' 8.42"	8' 1.81"	106' 6.47"	7' 8.69"	438' 0.72"	7' 3.56"	Infinity	6' 10.46"	Infinity	6' 5.41"	Infinity	6' 0.45"	Infinity	5' 7.61"	Infinity
7' 6.28"	30' 6.28"	7' 2.38"	37' 8.83"	6' 10.39"	51' 4.9"	6' 6.34"	86' 9.82"	6' 2.26"	387' 0.44"	5' 10.17"	Infinity	5' 6.1"	Infinity	5' 2.08"	Infinity
7' 1.52"	24' 8.16"	6' 10.02"	29' 2.08"	6' 6.43"	36' 8.27"	6' 2.77"	51' 8.14"	5' 11.05"	95' 8.54"	5' 7.31"	Infinity	5' 3.57"	Infinity	4' 11.85"	Infinity
6' 8.43"	20' 0.84"	6' 5.34"	22' 11.16"	6' 2.15"	27' 3.69"	5' 10.88"	34' 9.41"	5' 7.55"	50' 3.48"	5' 4.17"	101' 0.3"	5' 0.78"	Infinity	4' 9.38"	Infinity
6' 2.97"	16' 4.08"	6' 0.3"	18' 2.11"	5' 9.52"	20' 9.67"	5' 6.65"	24' 10.26"	5' 3.71"	31' 9.96"	5' 0.71"	46' 6.55"	4' 9.68"	97' 2.31"	4' 6.63"	Infinity
6' 0.1"	14' 8.76"	5' 9.63"	16' 2.4"	5' 7.05"	18' 3"	5' 4.39"	21' 3.38"	5' 1.64"	26' 2.13"	4' 10.84"	35' 4.05"	4' 8"	58' 4.18"	4' 5.13"	219' 7.22"
5' 9.11"	13' 3.12"	5' 6.85"	14' 5.22"	5' 4.48"	16' 0.41"	5' 2.02"	18' 3.82"	4' 11.48"	21' 9.83"	4' 8.87"	27' 9.66"	4' 6.22"	40' 3.02"	4' 3.53"	81' 3.32"
5' 6.02"	11' 10.95"	5' 3.95"	12' 10.18"	5' 1.79"	14' 1.14"	4' 11.54"	15' 9.87"	4' 9.2"	18' 4.27"	4' 6.8"	22' 4.75"	4' 4.34"	29' 9.4"	4' 1.84"	47' 5.1"
5' 2.8"	10' 8.08"	5' 0.94"	11' 4.98"	4' 10.98"	12' 4.6"	4' 8.93"	13' 8.28"	4' 6.8"	15' 6.45"	4' 4.6"	18' 3.87"	4' 2.34"	22' 11.52"	4' 0.03"	32' 1.58"
4' 11.46"	9' 6.35"	4' 9.8"	10' 1.35"	4' 8.04"	10' 10.34"	4' 6.2"	11' 10.18"	4' 4.27"	13' 2.39"	4' 2.28"	15' 1.73"	4' 0.22"	18' 1.92"	3' 10.11"	23' 5.03"
4' 7.98"	8' 5.64"	4' 6.52"	8' 11.1"	4' 4.96"	9' 5.99"	4' 3.32"	10' 2.89"	4' 1.6"	11' 2.74"	3' 11.81"	12' 7.15"	3' 9.96"	14' 7.19"	3' 8.05"	17' 9.5"
4' 4.37"	7' 5.84"	4' 3.09"	7' 10.05"	4' 1.73"	8' 3.28"	4' 0.29"	8' 9.91"	3' 10.78"	9' 6.53"	3' 9.19"	10' 6.08"	3' 7.54"	11' 10.24"	3' 5.84"	13' 10.28"
4' 0.6"	6' 6.86"	3' 11.5"	6' 10.05"	3' 10.34"	7' 1.97"	3' 9.09"	7' 6.85"	3' 7.78"	8' 1.06"	3' 6.4"	8' 9.15"	3' 4.96"	9' 8.05"	3' 3.46"	10' 11.42"
3' 8.67"	5' 8.61"	3' 7.75"	5' 10.99"	3' 6.77"	6' 1.87"	3' 5.72"	6' 5.4"	3' 4.61"	6' 9.81"	3' 3.43"	7' 3.42"	3' 2.19"	7' 10.74"	3' 0.9"	8' 8.61"
3' 4.57"	4' 11.02"	3' 3.82"	5' 0.75"	3' 3.01"	5' 2.81"	3' 2.15"	5' 5.32"	3' 1.23"	5' 8.38"	3' 0.25"	6' 0.2"	2' 11.21"	6' 5.05"	2' 10.12"	6' 11.36"
3' 0.28"	4' 2.03"	2' 11.69"	4' 3.25"	2' 11.06"	4' 4.68"	2' 10.37"	4' 6.4"	2' 9.63"	4' 8.47"	2' 8.84"	4' 11"	2' 8.01"	5' 2.14"	2' 7.12"	5' 6.11"
2' 7.8"	3' 5.59"	2' 7.36"	3' 6.4"	2' 6.88"	3' 7.36"	2' 6.36"	3' 8.49"	2' 5.79"	3' 9.83"	2' 5.19"	3' 11.44"	2' 4.54"	4' 1.4"	2' 3.85"	4' 3.81"
2' 3.12"	2' 9.64"	2' 2.8"	2' 10.16"	2' 2.46"	2' 10.75"	2' 2.09"	2' 11.45"	2' 1.69"	3' 0.27"	2' 1.25"	3' 1.24"	2' 0.78"	3' 2.39"	2' 0.27"	3' 3.78"
1' 10.2"	2' 2.15"	1' 10.01"	2' 2.44"	1' 9.79"	2' 2.78"	1' 9.55"	2' 3.17"	1' 9.28"	2' 3.63"	1' 9"	2' 4.16"	1' 8.68"	2' 4.78"	1' 8.35"	2' 5.51"
1' 7.66"	1' 10.56"	1' 7.51"	1' 10.77"	1' 7.34"	1' 11.01"	1' 7.16"	1' 11.29"	1' 6.96"	1' 11.61"	1' 6.74"	1' 11.98"	1' 6.5"	2' 0.41"	1' 6.24"	2' 0.92"
1' 5.05"	1' 7.08"	1' 4.95"	1' 7.22"	1' 4.83"	1' 7.38"	1' 4.69"	1' 7.57"	1' 4.55"	1' 7.78"	1' 4.39"	1' 8.03"	1' 4.21"	1' 8.31"	1' 4.02"	1' 8.64"
1' 2.38"	1' 3.68"	1' 2.31"	1' 3.77"	1' 2.23"	1' 3.88"	1' 2.14"	1' 3.99"	1' 2.05"	1' 4.12"	1' 1.94"	1' 4.27"	1' 1.82"	1' 4.45"	1' 1.69"	1' 4.65"
0' 11.64"	1' 0.38"	0' 11.6"	1' 0.43"	0' 11.56"	1' 0.49"	0' 11.5"	1' 0.55"	0' 11.45"	1' 0.63"	0' 11.38"	1' 0.71"	0' 11.31"	1' 0.8"	0' 11.23"	1' 0.91"



8	9	10	11	13	14	16	18
7' 10.69"	7' 0.69"	6' 3.79"	5' 7.87"	5' 0.83"	4' 6.53"	4' 0.94"	3' 7.94"

8		9		10		11		13		14		16		18	
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)	Short Focus (ft-inch)	Long Focus (ft-inch)	Short Focus (ft-inch)	Long Focus (ft-inch)	Short Focus (ft-inch)	Long Focus (ft-inch)
7' 9.83"	Infinity	6' 11.85"	Infinity	6' 2.96"	Infinity	5' 7.03"	Infinity	4' 11.97"	Infinity	4' 5.68"	Infinity	4' 0.08"	Infinity	3' 7.09"	Infinity
7' 4.41"	Infinity	6' 7.52"	Infinity	5' 11.5"	Infinity	5' 4.28"	Infinity	4' 9.78"	Infinity	4' 3.94"	Infinity	3' 10.69"	Infinity	3' 5.99"	Infinity
6' 11.57"	Infinity	6' 3.61"	Infinity	5' 8.35"	Infinity	5' 1.75"	Infinity	4' 7.75"	Infinity	4' 2.31"	Infinity	3' 9.39"	Infinity	3' 4.94"	Infinity
6' 7.24"	Infinity	6' 0.07"	Infinity	5' 5.47"	Infinity	4' 11.4"	Infinity	4' 5.85"	Infinity	4' 0.77"	Infinity	3' 8.15"	Infinity	3' 3.95"	Infinity
6' 3.33"	Infinity	5' 8.85"	Infinity	5' 2.82"	Infinity	4' 9.23"	Infinity	4' 4.07"	Infinity	3' 11.33"	Infinity	3' 6.98"	Infinity	3' 3"	Infinity
6' 0.47"	Infinity	5' 6.47"	Infinity	5' 0.85"	Infinity	4' 7.6"	Infinity	4' 2.74"	Infinity	3' 10.23"	Infinity	3' 6.08"	Infinity	3' 2.27"	Infinity
5' 8.57"	Infinity	5' 3.19"	Infinity	4' 10.11"	Infinity	4' 5.33"	Infinity	4' 0.85"	Infinity	3' 8.68"	Infinity	3' 4.81"	Infinity	3' 1.23"	Infinity
5' 2.92"	Infinity	4' 10.39"	Infinity	4' 6.06"	Infinity	4' 1.93"	Infinity	3' 10.01"	Infinity	3' 6.32"	Infinity	3' 2.85"	Infinity	2' 11.61"	Infinity
4' 10.13"	Infinity	4' 6.27"	Infinity	4' 2.53"	Infinity	3' 10.93"	Infinity	3' 7.48"	Infinity	3' 4.19"	Infinity	3' 1.07"	Infinity	2' 10.13"	Infinity
4' 8.18"	Infinity	4' 4.58"	Infinity	4' 1.08"	Infinity	3' 9.68"	Infinity	3' 6.41"	Infinity	3' 3.29"	Infinity	3' 0.31"	Infinity	2' 9.5"	Infinity
4' 6.01"	Infinity	4' 2.69"	Infinity	3' 11.44"	Infinity	3' 8.27"	Infinity	3' 5.21"	Infinity	3' 2.26"	Infinity	2' 11.44"	Infinity	2' 8.76"	Infinity
4' 3.58"	Infinity	4' 0.56"	Infinity	3' 9.58"	Infinity	3' 6.66"	Infinity	3' 3.82"	Infinity	3' 1.08"	Infinity	2' 10.44"	Infinity	2' 7.91"	Infinity
4' 2.25"	Infinity	3' 11.38"	Infinity	3' 8.55"	Infinity	3' 5.77"	Infinity	3' 3.05"	Infinity	3' 0.41"	Infinity	2' 9.87"	Infinity	2' 7.43"	Infinity
4' 0.83"	Infinity	3' 10.13"	Infinity	3' 7.45"	Infinity	3' 4.8"	Infinity	3' 2.21"	Infinity	2' 11.69"	Infinity	2' 9.25"	Infinity	2' 6.91"	Infinity
3' 11.31"	142' 11.7"	3' 8.78"	Infinity	3' 6.26"	Infinity	3' 3.76"	Infinity	3' 1.31"	Infinity	2' 10.91"	Infinity	2' 8.58"	Infinity	2' 6.34"	Infinity
3' 9.7"	58' 5.94"	3' 7.34"	Infinity	3' 4.98"	Infinity	3' 2.64"	Infinity	3' 0.33"	Infinity	2' 10.06"	Infinity	2' 7.85"	Infinity	2' 5.71"	Infinity
3' 7.96"	34' 9.41"	3' 5.78"	76' 11.23"	3' 3.6"	Infinity	3' 1.42"	Infinity	2' 11.26"	Infinity	2' 9.13"	Infinity	2' 7.04"	Infinity	2' 5.01"	Infinity
3' 6.09"	23' 7.4"	3' 4.11"	37' 5.6"	3' 2.1"	111' 0.33"	3' 0.09"	Infinity	2' 10.08"	Infinity	2' 8.1"	Infinity	2' 6.15"	Infinity	2' 4.24"	Infinity
3' 4.08"	17' 1.46"	3' 2.29"	23' 3.92"	3' 0.47"	39' 5.98"	2' 10.63"	182' 8.82"	2' 8.8"	Infinity	2' 6.97"	Infinity	2' 5.16"	Infinity	2' 3.38"	Infinity
3' 1.91"	12' 10.49"	3' 0.31"	16' 0.68"	2' 10.68"	22' 3.35"	2' 9.03"	39' 7.84"	2' 7.37"	337' 5.42"	2' 5.71"	Infinity	2' 4.05"	Infinity	2' 2.42"	Infinity
2' 11.55"	9' 10.55"	2' 10.16"	11' 7.55"	2' 8.73"	14' 6.44"	2' 7.27"	20' 3.2"	2' 5.79"	36' 6.99"	2' 4.3"	Infinity	2' 2.81"	Infinity	2' 1.33"	Infinity
2' 8.98"	7' 7.85"	2' 7.8"	8' 7.78"	2' 6.57"	10' 1.63"	2' 5.31"	12' 6.97"	2' 4.02"	17' 3.67"	2' 2.71"	30' 1.4"	2' 1.4"	187' 6.99"	2' 0.08"	Infinity
2' 6.18"	5' 11.24"	2' 5.2"	6' 6.07"	2' 4.18"	7' 3.56"	2' 3.12"	8' 5.51"	2' 2.03"	10' 3.83"	2' 0.92"	13' 8.9"	1' 11.79"	22' 0.28"	1' 10.65"	69' 8.93"
2' 3.11"	4' 6.83"	2' 2.33"	4' 10.7"	2' 1.52"	5' 3.77"	2' 0.67"	5' 10.67"	1' 11.78"	6' 8.53"	1' 10.87"	7' 11.64"	1' 9.93"	10' 1.49"	1' 8.98"	14' 7.24"
1' 11.73"	3' 5.48"	1' 11.15"	3' 7.57"	1' 10.54"	3' 10.21"	1' 9.89"	4' 1.6"	1' 9.21"	4' 6.08"	1' 8.51"	5' 0.26"	1' 7.77"	5' 9.21"	1' 7.02"	6' 11.26"
1' 7.98"	2' 6.38"	1' 7.59"	2' 7.44"	1' 7.17"	2' 8.71"	1' 6.72"	2' 10.28"	1' 6.25"	3' 0.26"	1' 5.75"	3' 2.78"	1' 5.22"	3' 6.1"	1' 4.67"	3' 10.64"
1' 5.96"	2' 1.52"	1' 5.65"	2' 2.22"	1' 5.32"	2' 3.07"	1' 4.97"	2' 4.1"	1' 4.59"	2' 5.36"	1' 4.19"	2' 6.93"	1' 3.77"	2' 8.92"	1' 3.32"	2' 11.51"
1' 3.82"	1' 9.03"	1' 3.59"	1' 9.48"	1' 3.34"	1' 10.02"	1' 3.08"	1' 10.66"	1' 2.79"	1' 11.43"	1' 2.49"	2' 0.36"	1' 2.16"	2' 1.51"	1' 1.82"	2' 2.96"
1' 1.55"	1' 4.88"	1' 1.39"	1' 5.15"	1' 1.23"	1' 5.46"	1' 1.04"	1' 5.83"	1' 0.84"	1' 6.27"	1' 0.63"	1' 6.79"	1' 0.4"	1' 7.42"	1' 0.15"	1' 8.18"
0' 11.15"	1' 1.03"	0' 11.06"	1' 1.17"	0' 10.95"	1' 1.34"	0' 10.84"	1' 1.53"	0' 10.72"	1' 1.75"	0' 10.58"	1' 2.01"	0' 10.44"	1' 2.31"	0' 10.28"	1' 2.67"



20	22
3' 3.49"	2' 11.51"

20		22	
Short Focus (ft-inch)	Long Focus (ft-inch)	Short Focus (ft-inch)	Long Focus (ft-inch)
3' 2.64"	Infinity	2' 10.68"	Infinity
3' 1.77"	Infinity	2' 9.99"	Infinity
3' 0.93"	Infinity	2' 9.32"	Infinity
3' 0.13"	Infinity	2' 8.68"	Infinity
2' 11.37"	Infinity	2' 8.06"	Infinity
2' 10.78"	Infinity	2' 7.58"	Infinity
2' 9.93"	Infinity	2' 6.89"	Infinity
2' 8.6"	Infinity	2' 5.81"	Infinity
2' 7.37"	Infinity	2' 4.79"	Infinity
2' 6.84"	Infinity	2' 4.36"	Infinity
2' 6.23"	Infinity	2' 3.85"	Infinity
2' 5.52"	Infinity	2' 3.25"	Infinity
2' 5.11"	Infinity	2' 2.91"	Infinity
2' 4.67"	Infinity	2' 2.54"	Infinity
2' 4.18"	Infinity	2' 2.13"	Infinity
2' 3.65"	Infinity	2' 1.67"	Infinity
2' 3.05"	Infinity	2' 1.17"	Infinity
2' 2.39"	Infinity	2' 0.61"	Infinity
2' 1.65"	Infinity	1' 11.97"	Infinity
2' 0.81"	Infinity	1' 11.25"	Infinity
1' 11.86"	Infinity	1' 10.43"	Infinity
1' 10.77"	Infinity	1' 9.47"	Infinity
1' 9.5"	Infinity	1' 8.36"	Infinity
1' 8.01"	29' 4.65"	1' 7.04"	Infinity
1' 6.24"	9' 0.21"	1' 5.46"	13' 8.26"
1' 4.1"	4' 5.13"	1' 3.51"	5' 3.15"
1' 2.85"	3' 3"	1' 2.37"	3' 7.91"
1' 1.46"	2' 4.81"	1' 1.08"	2' 7.25"
0' 11.89"	1' 9.12"	0' 11.61"	1' 10.3"
0' 10.11"	1' 3.1"	0' 9.93"	1' 3.63"



Focal Length 24 mm

Circle of Confusion 0.025 mm

T/No	1.5	1.6	1.8	2	2.2	2.5	2.8
Hyperfocal Distance (ft-inch)	51' 10.44"	49' 0.35"	43' 8.49"	38' 11.64"	34' 8.97"	30' 11.81"	27' 7.57"

T/No	1.5		1.6		1.8		2		2.2		2.5		2.8	
Focus Distance (ft-inch)	Short Focus (ft-inch)	Long Focus (ft-inch)	Short Focus (ft-inch)	Long Focus (ft-inch)	Short Focus (ft-inch)	Long Focus (ft-inch)	Short Focus (ft-inch)	Long Focus (ft-inch)	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	51' 9.47"	Infinity	48' 11.38"	Infinity	43' 7.54"	Infinity	38' 10.66"	Infinity	34' 7.99"	Infinity	30' 10.85"	Infinity	27' 6.63"	Infinity
120' 0"	36' 3.26"	Infinity	34' 10.32"	Infinity	32' 1.01"	Infinity	29' 5.45"	Infinity	26' 11.69"	Infinity	24' 7.78"	Infinity	22' 5.71"	Infinity
60' 0"	27' 10.91"	Infinity	27' 0.82"	Infinity	25' 4.44"	Infinity	23' 8.44"	Infinity	22' 0.91"	Infinity	20' 5.99"	Infinity	18' 11.75"	Infinity
40' 0"	22' 8.16"	173' 3.39"	22' 1.48"	215' 2.73"	20' 11.76"	466' 7.42"	19' 9.97"	Infinity	18' 8.2"	Infinity	17' 6.54"	Infinity	16' 5.08"	Infinity
30' 0"	19' 1.21"	70' 6.45"	18' 8.48"	76' 7.08"	17' 10.62"	94' 8.06"	17' 0.55"	128' 10.2"	16' 2.33"	216' 9.59"	15' 4.02"	930' 10.92"	14' 5.69"	Infinity
25' 0"	16' 11.52"	47' 10.12"	16' 7.79"	50' 6.53"	15' 11.97"	57' 9.7"	15' 3.9"	68' 11.29"	14' 7.62"	87' 11.75"	13' 11.18"	127' 6.86"	13' 2.63"	258' 1.86"
20' 0"	14' 6.22"	32' 3.24"	14' 3.49"	33' 5.65"	13' 9.73"	36' 5.93"	13' 3.7"	40' 7.38"	12' 9.45"	46' 6.23"	12' 2.99"	55' 7.21"	11' 8.38"	71' 2.81"
15' 0"	11' 8.51"	20' 11.05"	11' 6.75"	21' 4.98"	11' 2.97"	22' 7.25"	10' 10.98"	24' 1.29"	10' 6.77"	26' 0.66"	10' 2.37"	28' 7.89"	9' 9.78"	32' 3.37"
12' 0"	9' 9.73"	15' 5.73"	9' 8.5"	15' 8.93"	9' 5.85"	16' 4.47"	9' 3.01"	17' 1.69"	9'	18' 1.15"	8' 8.81"	19' 3.64"	8' 5.45"	20' 10.43"
11' 0"	9' 1.65"	13' 10.09"	9' 0.58"	14' 0.63"	8' 10.29"	14' 6.59"	8' 7.82"	15' 1.81"	8' 5.19"	15' 10.67"	8' 2.39"	16' 9.71"	7' 11.44"	17' 11.76"
10' 0"	8' 5.31"	12' 3.38"	8' 4.4"	12' 5.38"	8' 2.44"	12' 10.01"	8' 0.33"	13' 3.58"	7' 10.07"	13' 10.33"	7' 7.66"	14' 6.64"	7' 5.1"	15' 5.03"
9' 0"	7' 8.69"	10' 9.55"	7' 7.93"	10' 11.08"	7' 6.29"	11' 2.62"	7' 4.52"	11' 6.83"	7' 2.62"	11' 11.89"	7' 0.58"	12' 6.03"	6' 10.41"	13' 1.59"
8' 6"	7' 4.27"	10' 0.95"	7' 3.58"	10' 2.27"	7' 2.1"	10' 5.34"	7' 0.49"	10' 8.97"	6' 10.76"	11' 1.31"	6' 8.91"	11' 6.54"	6' 6.92"	12' 0.95"
8' 0"	6' 11.78"	9' 4.53"	6' 11.16"	9' 5.68"	6' 9.83"	9' 8.31"	6' 8.38"	9' 11.42"	6' 6.82"	10' 3.12"	6' 5.14"	10' 7.56"	6' 3.34"	11' 0.95"
7' 6"	6' 7.21"	8' 8.31"	6' 6.66"	8' 9.29"	6' 5.47"	8' 11.54"	6' 4.18"	9' 2.18"	6' 2.78"	9' 5.31"	6' 1.27"	9' 9.04"	5' 11.65"	10' 1.54"
7' 0"	6' 2.56"	8' 0.27"	6' 2.08"	8' 1.1"	6' 1.02"	8' 3"	5' 11.88"	8' 5.23"	5' 10.64"	8' 7.85"	5' 9.29"	8' 10.96"	5' 7.85"	9' 2.69"
6' 6"	5' 9.83"	7' 4.41"	5' 9.41"	7' 5.11"	5' 8.49"	7' 6.7"	5' 7.49"	7' 8.55"	5' 6.4"	7' 10.73"	5' 5.21"	8' 1.3"	5' 3.94"	8' 4.36"
6' 0"	5' 5.02"	6' 8.72"	5' 4.66"	6' 9.3"	5' 3.86"	6' 10.61"	5' 2.99"	7' 0.14"	5' 2.05"	7' 1.92"	5' 1.02"	7' 4.02"	4' 11.91"	7' 6.5"
5' 6"	5' 0.13"	6' 1.2"	4' 11.82"	6' 1.67"	4' 11.14"	6' 2.74"	4' 10.4"	6' 3.98"	4' 9.59"	6' 5.42"	4' 8.71"	6' 7.1"	4' 7.76"	6' 9.09"
5' 0"	4' 7.14"	5' 5.84"	4' 6.89"	5' 6.21"	4' 6.32"	5' 7.07"	4' 5.7"	5' 8.05"	4' 5.02"	5' 9.2"	4' 4.28"	5' 10.53"	4' 3.48"	6' 0.09"
4' 6"	4' 2.07"	4' 10.63"	4' 1.86"	4' 10.92"	4' 1.4"	4' 11.59"	1.242	5' 0.36"	4' 0.34"	5' 1.25"	3' 11.73"	5' 2.28"	3' 11.06"	5' 3.48"
4' 0"	3' 8.91"	4' 3.57"	3' 8.74"	4' 3.8"	3' 8.38"	4' 4.31"	3' 7.97"	4' 4.89"	3' 7.53"	4' 5.56"	3' 7.04"	4' 6.34"	3' 6.5"	4' 7.23"
3' 6"	3' 3.65"	3' 8.66"	3' 3.53"	3' 8.83"	3' 3.24"	3' 9.2"	3' 2.93"	3' 9.63"	3' 2.59"	3' 10.12"	3' 2.21"	3' 10.68"	3' 1.8"	3' 11.33"
3' 0"	2' 10.3"	3' 1.89"	2' 10.21"	3' 2.01"	2' 10"	3' 2.27"	2' 9.77"	3' 2.57"	2' 9.52"	3' 2.91"	2' 9.24"	3' 3.3"	2' 8.93"	3' 3.75"
2' 6"	2' 4.85"	2' 7.26"	2' 4.78"	2' 7.33"	2' 4.64"	2' 7.51"	2' 4.48"	2' 7.7"	2' 4.31"	2' 7.93"	2' 4.12"	2' 8.18"	2' 3.9"	2' 8.47"
2' 0"	1' 11.29"	2' 0.76"	1' 11.25"	2' 0.8"	1' 11.16"	2' 0.91"	1' 11.07"	2' 1.02"	1' 10.96"	2' 1.15"	1' 10.84"	2' 1.3"	1' 10.7"	2' 1.47"
1' 9"	1' 8.47"	1' 9.56"	1' 8.45"	1' 9.59"	1' 8.38"	1' 9.66"	1' 8.31"	1' 9.75"	1' 8.22"	1' 9.85"	1' 8.13"	1' 9.95"	1' 8.03"	1' 10.08"
1' 6"	1' 5.63"	1' 6.39"	1' 5.61"	1' 6.41"	1' 5.56"	1' 6.46"	1' 5.51"	1' 6.52"	1' 5.45"	1' 6.59"	1' 5.39"	1' 6.66"	1' 5.32"	1' 6.75"
1' 3"	1' 2.76"	1' 3.25"	1' 2.75"	1' 3.26"	1' 2.72"	1' 3.3"	1' 2.68"	1' 3.33"	1' 2.65"	1' 3.38"	1' 2.6"	1' 3.42"	1' 2.56"	1' 3.48"
1' 0"	0' 11.86"	1' 0.14"	0' 11.85"	1' 0.15"	0' 11.84"	1' 0.17"	0' 11.82"	1' 0.19"	0' 11.8"	1' 0.21"	0' 11.77"	1' 0.24"	0' 11.74"	1' 0.27"



3.2	3.5	4	4.5	5	5.6	6.3	7.1
24' 7.75"	21' 11.86"	19' 7.39"	17' 6.08"	15' 7.48"	13' 11.4"	12' 5.49"	11' 1.5"

3.2		3.5		4		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)	Short Focus (ft-inch)	Long Focus (ft-inch)	Short Focus (ft-inch)	Long Focus (ft-inch)	Short Focus (ft-inch)	Long Focus (ft-inch)
24' 6.8"	Infinity	21' 10.88"	Infinity	19' 6.44"	Infinity	17' 5.11"	Infinity	15' 6.54"	Infinity	13' 10.43"	Infinity	12' 4.51"	Infinity	11' 0.55"	Infinity
20' 5.47"	Infinity	18' 7"	Infinity	16' 10.27"	Infinity	15' 3.19"	Infinity	13' 9.69"	Infinity	12' 5.69"	Infinity	11' 3.08"	Infinity	10' 1.79"	Infinity
17' 6.28"	Infinity	16' 1.63"	Infinity	14' 9.86"	Infinity	13' 6.99"	Infinity	12' 5.03"	Infinity	11' 4"	Infinity	10' 3.88"	Infinity	9' 4.65"	Infinity
15' 3.91"	Infinity	14' 3.09"	Infinity	13' 2.7"	Infinity	12' 2.8"	Infinity	11' 3.42"	Infinity	10' 4.61"	Infinity	9' 6.39"	Infinity	8' 8.78"	Infinity
13' 7.42"	Infinity	12' 9.25"	Infinity	11' 11.27"	Infinity	11' 1.53"	Infinity	10' 4.08"	Infinity	9' 6.98"	Infinity	8' 10.25"	Infinity	8' 1.94"	Infinity
12' 6.04"	Infinity	11' 9.45"	Infinity	11' 0.93"	Infinity	10' 4.53"	Infinity	9' 8.3"	Infinity	9' 0.28"	Infinity	8' 4.53"	Infinity	7' 9.08"	Infinity
11' 1.63"	104' 1.86"	10' 6.81"	216' 10.06"	9' 11.95"	Infinity	9' 5.09"	Infinity	8' 10.29"	Infinity	8' 3.58"	Infinity	7' 9.02"	Infinity	7' 2.63"	Infinity
9' 5.03"	37' 7.55"	9' 0.15"	46' 2.94"	8' 7.15"	62' 3.4"	8' 2.08"	102' 1.54"	7' 8.96"	364' 6.68"	7' 3.82"	Infinity	6' 10.71"	Infinity	6' 5.66"	Infinity
8' 1.93"	22' 11.56"	7' 10.27"	25' 10.6"	7' 6.48"	30' 2.43"	7' 2.58"	37' 2.2"	6' 10.59"	50' 3.03"	6' 6.55"	83' 1.76"	6' 2.46"	316' 1.99"	5' 10.37"	Infinity
7' 8.33"	19' 6.09"	7' 5.08"	21' 6.81"	7' 1.7"	24' 5.68"	6' 10.2"	28' 10.15"	6' 6.61"	36' 1.26"	6' 2.95"	50' 4.46"	5' 11.23"	90' 8.96"	5' 7.49"	933' 11.81"
7' 2.39"	16' 6.28"	6' 11.55"	17' 11.65"	6' 8.58"	19' 11.23"	6' 5.5"	22' 8.76"	6' 2.31"	26' 11.85"	5' 11.04"	34' 2.36"	5' 7.71"	48' 10.88"	5' 4.33"	94' 10.46"
6' 8.1"	13' 11.05"	6' 5.66"	14' 11.15"	6' 3.1"	16' 3.03"	6' 0.43"	18' 0.63"	5' 9.65"	20' 7.48"	5' 6.79"	24' 6.71"	5' 3.85"	31' 3.37"	5' 0.85"	45' 2.65"
6' 4.81"	12' 8.89"	6' 2.57"	13' 6.92"	6' 0.22"	14' 7.91"	5' 9.75"	16' 1.24"	5' 7.18"	18' 1.33"	5' 4.51"	21' 0.8"	5' 1.77"	25' 9.71"	4' 10.97"	34' 6.92"
6' 1.41"	11' 7.57"	5' 11.38"	12' 3.86"	5' 9.22"	13' 2.44"	5' 6.96"	14' 4.31"	5' 4.59"	15' 11.14"	5' 2.13"	18' 1.94"	4' 11.6"	21' 6.79"	4' 8.99"	27' 4.06"
5' 9.91"	10' 7.04"	5' 8.07"	11' 1.84"	5' 6.11"	11' 10.41"	5' 4.05"	12' 9.47"	5' 1.89"	14' 0.17"	4' 11.64"	15' 8.48"	4' 9.31"	18' 2.15"	4' 6.91"	22' 1.15"
5' 6.3"	9' 7.21"	5' 4.65"	10' 0.75"	5' 2.89"	10' 7.65"	5' 1.03"	11' 4.43"	4' 11.07"	12' 3.86"	4' 9.03"	13' 7.26"	4' 6.9"	15' 4.95"	4' 4.7"	18' 1.5"
5' 2.57"	8' 8.04"	5' 1.1"	9' 0.51"	4' 11.53"	9' 6.02"	4' 9.87"	10' 0.93"	4' 8.12"	10' 9.78"	4' 6.28"	11' 9.43"	4' 4.36"	13' 1.33"	4' 2.36"	15' 0.14"
4' 10.71"	7' 9.46"	4' 9.43"	8' 1.03"	4' 8.05"	8' 5.39"	4' 6.58"	8' 10.78"	4' 5.03"	9' 5.58"	4' 3.39"	10' 2.34"	4' 1.68"	11' 1.99"	3' 11.89"	12' 6.07"
4' 6.73"	6' 11.44"	4' 5.61"	7' 2.25"	4' 4.42"	7' 5.65"	4' 3.14"	7' 9.81"	4' 1.79"	8' 2.98"	4' 0.35"	8' 9.52"	3' 10.84"	9' 6"	3' 9.26"	10' 5.35"
4' 2.6"	6' 1.92"	4' 1.66"	6' 4.11"	4' 0.64"	6' 6.72"	3' 11.55"	6' 9.88"	3' 10.39"	7' 1.75"	3' 9.15"	7' 6.57"	3' 7.84"	8' 0.69"	3' 6.46"	8' 8.66"
3' 10.34"	5' 4.88"	3' 9.55"	5' 6.54"	3' 8.7"	5' 8.51"	3' 7.79"	5' 10.86"	3' 6.81"	6' 1.71"	3' 5.76"	6' 5.21"	3' 4.65"	6' 9.56"	3' 3.47"	7' 3.09"
3' 5.92"	4' 8.28"	3' 5.28"	4' 9.51"	3' 4.59"	4' 10.95"	3' 3.85"	5' 0.66"	3' 3.05"	5' 2.71"	3' 2.18"	5' 5.19"	3' 1.26"	5' 8.22"	3' 0.29"	6'
3' 1.34"	4' 0.09"	3' 0.84"	4' 0.96"	3' 0.3"	4' 1.98"	2' 11.72"	4' 3.19"	2' 11.08"	4' 4.61"	2' 10.39"	4' 6.32"	2' 9.66"	4' 8.37"	2' 8.87"	4' 10.87"
2' 8.59"	3' 4.27"	2' 8.22"	3' 4.87"	2' 7.82"	3' 5.56"	2' 7.38"	3' 6.37"	2' 6.89"	3' 7.32"	2' 6.37"	3' 8.44"	2' 5.81"	3' 9.77"	2' 5.21"	3' 11.37"
2' 3.67"	2' 8.8"	2' 3.41"	2' 9.19"	2' 3.12"	2' 9.63"	2' 2.81"	2' 10.14"	2' 2.47"	2' 10.73"	2' 2.1"	2' 11.42"	2' 1.7"	3' 0.24"	2' 1.26"	3' 1.2"
1' 10.55"	2' 1.67"	1' 10.39"	2' 1.89"	1' 10.21"	2' 2.14"	1' 10.01"	2' 2.44"	1' 9.79"	2' 2.77"	1' 9.55"	2' 3.16"	1' 9.29"	2' 3.61"	1' 9"	2' 4.14"
1' 7.92"	1' 10.22"	1' 7.8"	1' 10.38"	1' 7.66"	1' 10.56"	1' 7.51"	1' 10.77"	1' 7.34"	1' 11.01"	1' 7.16"	1' 11.29"	1' 6.96"	1' 11.6"	1' 6.74"	1' 11.97"
1' 5.24"	1' 6.84"	1' 5.15"	1' 6.95"	1' 5.05"	1' 7.08"	1' 4.95"	1' 7.22"	1' 4.83"	1' 7.38"	1' 4.69"	1' 7.57"	1' 4.55"	1' 7.78"	1' 4.39"	1' 8.02"
1' 2.5"	1' 3.54"	1' 2.45"	1' 3.61"	1' 2.38"	1' 3.69"	1' 2.31"	1' 3.77"	1' 2.23"	1' 3.88"	1' 2.14"	1' 3.99"	1' 2.04"	1' 4.12"	1' 1.94"	1' 4.27"
0' 11.71"	1' 0.3"	0' 11.68"	1' 0.34"	0' 11.64"	1' 0.39"	0' 11.6"	1' 0.44"	0' 11.55"	1' 0.49"	0' 11.5"	1' 0.56"	0' 11.44"	1' 0.63"	0' 11.38"	1' 0.71"



8	9	10	11	13	14	16	18
9' 11.29"	8' 10.61"	7' 11.35"	7' 1.28"	6' 4.34"	5' 8.35"	5' 1.22"	4' 6.88"

8		9		10		11		13		14		16		18	
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)	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' 10.33"	Infinity	8' 9.67"	Infinity	7' 10.38"	Infinity	7' 0.33"	Infinity	6' 3.37"	Infinity	5' 7.39"	Infinity	5' 0.28"	Infinity	4' 5.94"	Infinity
9' 1.72"	Infinity	8' 2.78"	Infinity	7' 4.88"	Infinity	6' 7.94"	Infinity	5' 11.87"	Infinity	5' 4.6"	Infinity	4' 10.06"	Infinity	4' 4.18"	Infinity
8' 6.28"	Infinity	7' 8.74"	Infinity	6' 11.99"	Infinity	6' 3.99"	Infinity	5' 8.68"	Infinity	5' 2.04"	Infinity	4' 8"	Infinity	4' 2.53"	Infinity
7' 11.78"	Infinity	7' 3.4"	Infinity	6' 7.61"	Infinity	6' 0.41"	Infinity	5' 5.77"	Infinity	4' 11.67"	Infinity	4' 6.08"	Infinity	4' 0.98"	Infinity
7' 6.06"	Infinity	6' 10.63"	Infinity	6' 3.66"	Infinity	5' 9.15"	Infinity	5' 3.09"	Infinity	4' 9.47"	Infinity	4' 4.29"	Infinity	3' 11.52"	Infinity
7' 1.95"	Infinity	6' 7.18"	Infinity	6' 0.77"	Infinity	5' 6.74"	Infinity	5' 1.1"	Infinity	4' 7.83"	Infinity	4' 2.94"	Infinity	3' 10.41"	Infinity
6' 8.45"	Infinity	6' 2.51"	Infinity	5' 8.83"	Infinity	5' 3.44"	Infinity	4' 10.33"	Infinity	4' 5.53"	Infinity	4' 1.04"	Infinity	3' 8.84"	Infinity
6' 0.69"	Infinity	5' 7.84"	Infinity	5' 3.13"	Infinity	4' 10.59"	Infinity	4' 6.24"	Infinity	4' 2.1"	Infinity	3' 10.17"	Infinity	3' 6.46"	Infinity
5' 6.29"	Infinity	5' 2.26"	Infinity	4' 10.3"	Infinity	4' 6.44"	Infinity	4' 2.69"	Infinity	3' 11.08"	Infinity	3' 7.61"	Infinity	3' 4.31"	Infinity
5' 3.74"	Infinity	5' 0.02"	Infinity	4' 8.35"	Infinity	4' 4.74"	Infinity	4' 1.22"	Infinity	3' 9.82"	Infinity	3' 6.54"	Infinity	3' 3.4"	Infinity
5' 0.93"	Infinity	4' 9.53"	Infinity	4' 6.16"	Infinity	4' 2.83"	Infinity	3' 11.57"	Infinity	3' 8.4"	Infinity	3' 5.32"	Infinity	3' 2.37"	Infinity
4' 9.81"	90' 10.05"	4' 6.76"	Infinity	4' 3.71"	Infinity	4' 0.68"	Infinity	3' 9.7"	Infinity	3' 6.77"	Infinity	3' 3.93"	Infinity	3' 1.17"	Infinity
4' 8.12"	56' 0.27"	4' 5.25"	186' 3.11"	4' 2.37"	Infinity	3' 11.5"	Infinity	3' 8.66"	Infinity	3' 5.87"	Infinity	3' 3.15"	Infinity	3' 0.5"	Infinity
4' 6.34"	39' 1.74"	4' 3.65"	76' 3.45"	4' 0.94"	Infinity	3' 10.24"	Infinity	3' 7.55"	Infinity	3' 4.9"	Infinity	3' 2.31"	Infinity	2' 11.78"	Infinity
4' 4.45"	29' 2.18"	4' 1.95"	45' 8.47"	3' 11.42"	126' 6.04"	3' 8.89"	Infinity	3' 6.36"	Infinity	3' 3.86"	Infinity	3' 1.4"	Infinity	2' 10.99"	Infinity
4' 2.44"	22' 7.28"	4' 0.13"	31' 4.16"	3' 9.79"	55' 7"	3' 7.43"	436' 7.02"	3' 5.07"	Infinity	3' 2.73"	Infinity	3' 0.41"	Infinity	2' 10.13"	Infinity
4' 0.31"	17' 11.31"	3' 10.19"	23' 0.09"	3' 8.05"	33' 9.04"	3' 5.87"	71' 4.58"	3' 3.68"	Infinity	3' 1.5"	Infinity	2' 11.33"	Infinity	2' 9.2"	Infinity
3' 10.03"	14' 5.55"	3' 8.12"	17' 6.7"	3' 6.17"	23' 1.78"	3' 4.18"	36' 1.55"	3' 2.17"	98' 6.42"	3' 0.16"	Infinity	2' 10.15"	Infinity	2' 8.16"	Infinity
3' 7.61"	11' 9.18"	3' 5.9"	13' 8.63"	3' 4.15"	16' 10.57"	3' 2.35"	22' 9.78"	3' 0.53"	37' 10.06"	2' 10.7"	147' 11.03"	2' 8.85"	Infinity	2' 7.02"	Infinity
3' 5.02"	9' 7.37"	3' 3.52"	10' 10.42"	3' 1.96"	12' 8.9"	3' 0.37"	15' 9.85"	2' 10.74"	21' 9.1"	2' 9.09"	37' 9.43"	2' 7.42"	226' 6.82"	2' 5.75"	Infinity
3' 2.24"	7' 10.3"	3' 0.94"	8' 8"	2' 11.6"	9' 9.66"	2' 10.2"	11' 6.12"	2' 8.77"	14' 3.87"	2' 7.31"	19' 9.44"	2' 5.83"	34' 9.71"	2' 4.34"	247' 11.11"
2' 11.25"	6' 4.78"	2' 10.16"	6' 11"	2' 9.02"	7' 7.34"	2' 7.83"	8' 7.03"	2' 6.61"	10' 0.44"	2' 5.35"	12' 4.85"	2' 4.06"	16' 11.03"	2' 2.75"	28' 9.32"
2' 8.03"	5' 1.98"	2' 7.15"	5' 5.9"	2' 6.21"	5' 10.95"	2' 5.23"	6' 5.68"	2' 4.21"	7' 2.99"	2' 3.15"	8' 4.61"	2' 2.06"	10' 2.28"	2' 0.95"	13' 5.7"
2' 4.56"	4' 1.31"	2' 3.86"	4' 3.7"	2' 3.13"	4' 6.68"	2' 2.35"	4' 10.49"	2' 1.54"	5' 3.49"	2' 0.69"	5' 10.27"	1' 11.8"	6' 7.93"	1' 10.89"	7' 10.65"
2' 0.79"	3' 2.34"	2' 0.28"	3' 3.72"	1' 11.74"	3' 5.4"	1' 11.16"	3' 7.48"	1' 10.55"	3' 10.08"	1' 9.9"	4' 1.43"	1' 9.22"	4' 5.85"	1' 8.51"	4' 11.92"
1' 8.69"	2' 4.76"	1' 8.35"	2' 5.49"	1' 7.99"	2' 6.36"	1' 7.59"	2' 7.4"	1' 7.17"	2' 8.67"	1' 6.73"	2' 10.22"	1' 6.25"	3' 0.18"	1' 5.75"	3' 2.67"
1' 6.5"	2' 0.4"	1' 6.24"	2' 0.91"	1' 5.96"	2' 1.5"	1' 5.65"	2' 2.21"	1' 5.32"	2' 3.05"	1' 4.97"	2' 4.07"	1' 4.59"	2' 5.32"	1' 4.19"	2' 6.87"
1' 4.21"	1' 8.31"	1' 4.02"	1' 8.64"	1' 3.81"	1' 9.02"	1' 3.59"	1' 9.48"	1' 3.34"	1' 10.01"	1' 3.08"	1' 10.64"	1' 2.79"	1' 11.41"	1' 2.49"	2' 0.34"
1' 1.82"	1' 4.45"	1' 1.69"	1' 4.65"	1' 1.55"	1' 4.88"	1' 1.39"	1' 5.15"	1' 1.22"	1' 5.46"	1' 1.04"	1' 5.83"	1' 0.84"	1' 6.27"	1' 0.62"	1' 6.79"
0' 11.31"	1' 0.8"	0' 11.23"	1' 0.91"	0' 11.15"	1' 1.03"	0' 11.05"	1' 1.18"	0' 10.95"	1' 1.34"	0' 10.83"	1' 1.53"	0' 10.71"	1' 1.75"	0' 10.58"	1' 2.01"



20	22
4' 1.25"	3' 8.21"

20		22	
Short Focus (ft-inch)	Long Focus (ft-inch)	Short Focus (ft-inch)	Long Focus (ft-inch)
4' 0.3"	Infinity	3' 7.27"	Infinity
3' 10.9"	Infinity	3' 6.16"	Infinity
3' 9.58"	Infinity	3' 5.1"	Infinity
3' 8.33"	Infinity	3' 4.1"	Infinity
3' 7.14"	Infinity	3' 3.14"	Infinity
3' 6.24"	Infinity	3' 2.4"	Infinity
3' 4.95"	Infinity	3' 1.35"	Infinity
3' 2.97"	Infinity	2' 11.72"	Infinity
3' 1.18"	Infinity	2' 10.22"	Infinity
3' 0.41"	Infinity	2' 9.59"	Infinity
2' 11.54"	Infinity	2' 8.85"	Infinity
2' 10.52"	Infinity	2' 7.99"	Infinity
2' 9.95"	Infinity	2' 7.51"	Infinity
2' 9.33"	Infinity	2' 6.98"	Infinity
2' 8.66"	Infinity	2' 6.4"	Infinity
2' 7.92"	Infinity	2' 5.77"	Infinity
2' 7.1"	Infinity	2' 5.07"	Infinity
2' 6.21"	Infinity	2' 4.29"	Infinity
2' 5.21"	Infinity	2' 3.43"	Infinity
2' 4.1"	Infinity	2' 2.46"	Infinity
2' 2.84"	Infinity	2' 1.36"	Infinity
2' 1.43"	139' 11.08"	2' 0.11"	Infinity
1' 11.81"	21' 2.76"	1' 10.67"	61' 2.24"
1' 9.95"	9' 11.62"	1' 8.99"	14' 2.69"
1' 7.78"	5' 8.69"	1' 7.02"	6' 10.35"
1' 5.22"	3' 5.95"	1' 4.67"	3' 10.41"
1' 3.76"	2' 8.84"	1' 3.32"	2' 11.4"
1' 2.16"	2' 1.48"	1' 1.81"	2' 2.91"
1' 0.39"	1' 7.41"	1' 0.14"	1' 8.17"
0' 10.43"	1' 2.31"	0' 10.27"	1' 2.68"



Focal Length 28 mm

Circle of Confusion 0.025 mm

T/No	1.5	1.6	1.8	2	2.2	2.5	2.8
Hyperfocal Distance (ft-inch)	70' 2.83"	66' 4.61"	59' 2.04"	52' 8.91"	47' 0.17"	41' 10.95"	37' 4.43"

T/No	1.5		1.6		1.8		2		2.2		2.5		2.8	
Focus Distance (ft-inch)	Short Focus (ft-inch)	Long Focus (ft-inch)	Short Focus (ft-inch)	Long Focus (ft-inch)	Short Focus (ft-inch)	Long Focus (ft-inch)	Short Focus (ft-inch)	Long Focus (ft-inch)	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	70' 1.71"	Infinity	66' 3.48"	Infinity	59' 0.91"	Infinity	52' 7.78"	Infinity	46' 11.07"	Infinity	41' 9.85"	Infinity	37' 3.31"	Infinity
120' 0"	44' 4.39"	Infinity	42' 9.58"	Infinity	39' 8.16"	Infinity	36' 8.19"	Infinity	33' 9.81"	Infinity	31' 1.12"	Infinity	28' 6.21"	Infinity
60' 0"	32' 5.31"	409' 2.49"	31' 7.19"	619' 11.7"	29' 10.47"	Infinity	28' 1.76"	Infinity	26' 5.21"	Infinity	24' 8.95"	Infinity	23' 1.1"	Infinity
40' 0"	25' 6.85"	92' 4.33"	25' 0.55"	100' 0.09"	23' 11.42"	122' 7.11"	22' 10"	164' 3.06"	21' 8.37"	265' 8.07"	20' 6.6"	867' 1.44"	19' 4.8"	Infinity
30' 0"	21' 1.21"	52' 0.66"	20' 8.92"	54' 4.69"	19' 11.88"	60' 5.08"	19' 2.49"	69' 0.27"	18' 4.8"	82' 1.85"	17' 6.85"	104' 5.83"	16' 8.71"	150' 5.09"
25' 0"	18' 6.15"	38' 7.02"	18' 2.85"	39' 10.2"	17' 7.85"	42' 11.82"	17' 0.51"	47' 1.82"	16' 4.86"	52' 10.96"	15' 8.94"	61' 3.99"	15' 0.78"	74' 8.19"
20' 0"	15' 7.62"	27' 9.55"	15' 5.27"	28' 5.32"	15' 0.25"	29' 11.98"	14' 6.93"	31' 11.54"	14' 1.33"	34' 5.96"	13' 7.46"	37' 10.46"	13' 1.34"	42' 6.57"
15' 0"	12' 5.02"	18' 11.52"	12' 3.54"	19' 3.08"	12' 0.36"	19' 11.43"	11' 8.96"	20' 9.55"	11' 5.32"	21' 9.99"	11' 1.46"	23' 1.53"	10' 9.38"	24' 9.34"
12' 0"	10' 3.59"	14' 4.64"	10' 2.58"	14' 6.67"	10' 0.39"	14' 11.36"	9' 10.03"	15' 4.94"	9' 7.49"	15' 11.64"	9' 4.76"	16' 7.76"	9' 1.86"	17' 5.75"
11' 0"	9' 6.69"	12' 11.58"	9' 5.83"	13' 1.22"	9' 3.94"	13' 5"	9' 1.91"	13' 9.47"	8' 11.7"	14' 2.79"	8' 9.34"	14' 9.19"	8' 6.81"	15' 4.98"
10' 0"	8' 9.57"	11' 7.09"	8' 8.84"	11' 8.4"	8' 7.25"	11' 11.39"	8' 5.52"	12' 2.91"	8' 3.65"	12' 7.07"	8' 1.63"	13' 0.04"	7' 11.46"	13' 6.02"
9' 0"	8' 0.22"	10' 3.14"	7' 11.62"	10' 4.16"	7' 10.3"	10' 6.48"	7' 8.86"	10' 9.2"	7' 7.3"	11' 0.39"	7' 5.61"	11' 4.17"	7' 3.78"	11' 8.68"
8' 6"	7' 7.46"	9' 7.36"	7' 6.91"	9' 8.25"	7' 5.72"	9' 10.28"	7' 4.42"	10' 0.64"	7' 3.01"	10' 3.41"	7' 1.47"	10' 6.68"	6' 11.82"	10' 10.56"
8' 0"	7' 2.63"	8' 11.7"	7' 2.14"	9' 0.47"	7' 1.08"	9' 2.23"	6' 11.91"	9' 4.27"	6' 10.64"	9' 6.66"	6' 9.26"	9' 9.47"	6' 7.77"	10' 0.79"
7' 6"	6' 9.74"	8' 4.16"	6' 9.31"	8' 4.83"	6' 8.36"	8' 6.34"	6' 7.32"	8' 8.1"	6' 6.19"	8' 10.14"	6' 4.96"	9' 0.53"	6' 3.62"	9' 3.35"
7' 0"	6' 4.79"	7' 8.75"	6' 4.41"	7' 9.32"	6' 3.57"	7' 10.6"	6' 2.66"	8' 0.09"	6' 1.66"	8' 1.82"	6' 0.57"	8' 3.84"	5' 11.39"	8' 6.22"
6' 6"	5' 11.77"	7' 1.45"	5' 11.44"	7' 1.93"	5' 10.71"	7' 3.01"	5' 9.92"	7' 4.27"	5' 9.04"	7' 5.72"	5' 8.09"	7' 7.41"	5' 7.05"	7' 9.38"
6' 0"	5' 6.69"	6' 6.26"	5' 6.4"	6' 6.66"	5' 5.78"	6' 7.57"	5' 5.09"	6' 8.61"	5' 4.34"	6' 9.81"	5' 3.51"	6' 11.2"	5' 2.61"	7' 0.82"
5' 6"	5' 1.54"	5' 11.19"	5' 1.3"	5' 11.51"	5' 0.77"	6' 0.26"	5' 0.18"	6' 1.11"	4' 11.54"	6' 2.09"	4' 10.84"	6' 3.22"	4' 10.07"	6' 4.54"
5' 0"	4' 8.32"	5' 4.22"	4' 8.12"	5' 4.48"	4' 7.68"	5' 5.08"	4' 7.19"	5' 5.77"	4' 6.65"	5' 6.55"	4' 6.07"	5' 7.46"	4' 5.42"	5' 8.5"
4' 6"	4' 3.03"	4' 9.36"	4' 2.86"	4' 9.57"	4' 2.5"	4' 10.04"	1.273	4' 10.58"	4' 1.67"	4' 11.19"	4' 1.19"	4' 11.9"	4' 0.66"	5' 0.72"
4' 0"	3' 9.66"	4' 2.6"	3' 9.53"	4' 2.76"	3' 9.25"	4' 3.12"	3' 8.94"	4' 3.54"	3' 8.59"	4' 4.01"	3' 8.2"	4' 4.55"	3' 7.78"	4' 5.16"
3' 6"	3' 4.23"	3' 7.95"	3' 4.13"	3' 8.07"	3' 3.91"	3' 8.33"	3' 3.67"	3' 8.64"	3' 3.4"	3' 8.98"	3' 3.11"	3' 9.38"	3' 2.78"	3' 9.83"
3' 0"	2' 10.72"	3' 1.39"	2' 10.64"	3' 1.47"	2' 10.49"	3' 1.66"	2' 10.31"	3' 1.88"	2' 10.11"	3' 2.12"	2' 9.9"	3' 2.4"	2' 9.66"	3' 2.72"
2' 6"	2' 5.13"	2' 6.93"	2' 5.08"	2' 6.98"	2' 4.97"	2' 7.11"	2' 4.85"	2' 7.25"	2' 4.72"	2' 7.41"	2' 4.57"	2' 7.6"	2' 4.4"	2' 7.8"
2' 0"	1' 11.46"	2' 0.56"	1' 11.43"	2' 0.6"	1' 11.37"	2' 0.67"	1' 11.29"	2' 0.76"	1' 11.21"	2' 0.85"	1' 11.11"	2' 0.96"	1' 11.01"	2' 1.09"
1' 9"	1' 8.6"	1' 9.42"	1' 8.58"	1' 9.44"	1' 8.53"	1' 9.5"	1' 8.47"	1' 9.56"	1' 8.41"	1' 9.63"	1' 8.34"	1' 9.71"	1' 8.26"	1' 9.8"
1' 6"	1' 5.72"	1' 6.29"	1' 5.7"	1' 6.31"	1' 5.67"	1' 6.35"	1' 5.63"	1' 6.39"	1' 5.58"	1' 6.44"	1' 5.54"	1' 6.49"	1' 5.48"	1' 6.56"
1' 3"	1' 2.82"	1' 3.19"	1' 2.81"	1' 3.2"	1' 2.78"	1' 3.22"	1' 2.76"	1' 3.25"	1' 2.73"	1' 3.28"	1' 2.7"	1' 3.32"	1' 2.66"	1' 3.36"
1' 2"	1' 1.85"	1' 2.16"	1' 1.84"	1' 2.17"	1' 1.82"	1' 2.19"	1' 1.79"	1' 2.21"	1' 1.77"	1' 2.24"	1' 1.74"	1' 2.27"	1' 1.71"	1' 2.3"



3.2	3.5	4	4.5	5	5.6	6.3	7.1
33' 3.84"	29' 8.54"	26' 5.99"	23' 7.62"	21' 1.03"	18' 9.75"	16' 9.46"	14' 11.8"

3.2		3.5		4		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)	Short Focus (ft-inch)	Long Focus (ft-inch)	Short Focus (ft-inch)	Long Focus (ft-inch)	Short Focus (ft-inch)	Long Focus (ft-inch)
33' 2.72"	Infinity	29' 7.44"	Infinity	26' 4.87"	Infinity	23' 6.52"	Infinity	20' 11.91"	Infinity	18' 8.64"	Infinity	16' 8.35"	Infinity	14' 10.7"	Infinity
26' 1.12"	Infinity	23' 9.87"	Infinity	21' 8.47"	Infinity	19' 8.87"	Infinity	17' 11.04"	Infinity	16' 2.91"	Infinity	14' 8.42"	Infinity	13' 3.47"	Infinity
21' 5.77"	Infinity	19' 11.08"	Infinity	18' 5.11"	Infinity	16' 11.92"	Infinity	15' 7.58"	Infinity	14' 4.13"	Infinity	13' 1.59"	Infinity	11' 11.97"	Infinity
18' 3.05"	Infinity	17' 1.45"	Infinity	16' 0.08"	Infinity	14' 11.02"	Infinity	13' 10.35"	Infinity	12' 10.12"	Infinity	11' 10.4"	Infinity	10' 11.22"	Infinity
15' 10.45"	297' 3.41"	15' 0.11"	Infinity	14' 1.79"	Infinity	13' 3.54"	Infinity	12' 5.43"	Infinity	11' 7.52"	Infinity	10' 9.87"	Infinity	10' 0.54"	Infinity
14' 4.43"	98' 10.33"	13' 7.94"	155' 4.74"	12' 11.36"	434' 11.02"	12' 2.76"	Infinity	11' 6.18"	Infinity	10' 9.69"	Infinity	10' 1.34"	Infinity	9' 5.17"	Infinity
12' 7"	49' 4.82"	12' 0.48"	60' 3.86"	11' 5.8"	80' 3.12"	10' 11.02"	127' 8.52"	10' 4.17"	380' 10.22"	9' 9.29"	Infinity	9' 2.44"	Infinity	8' 7.67"	Infinity
10' 5.09"	26' 11.28"	10' 0.61"	29' 10.41"	9' 7.96"	34' 0.27"	9' 3.15"	40' 3.94"	8' 10.21"	50' 11.35"	8' 5.17"	72' 4.43"	8' 0.07"	137' 3.77"	7' 6.94"	Infinity
8' 10.77"	18' 6.24"	8' 7.51"	19' 10.17"	8' 4.09"	21' 7.04"	8' 0.51"	23' 11.35"	7' 8.79"	27' 3.59"	7' 4.95"	32' 4.83"	7' 1.01"	41' 0.35"	6' 8.99"	58' 6.85"
8' 4.11"	16' 2.59"	8' 1.25"	17' 2.66"	7' 10.23"	18' 6.14"	7' 7.06"	20' 2.56"	7' 3.75"	22' 6.52"	7' 0.32"	25' 10.81"	6' 8.78"	31' 1.35"	6' 5.15"	40' 2.6"
7' 9.13"	14' 1.32"	7' 6.66"	14' 10.34"	7' 4.04"	15' 9.71"	7' 1.28"	17' 0.34"	6' 10.38"	18' 7.75"	6' 7.36"	20' 10.5"	6' 4.23"	24' 1.42"	6' 1"	29' 2.72"
7' 1.82"	12' 2.12"	6' 11.73"	12' 8.76"	6' 9.5"	13' 4.98"	6' 7.14"	14' 3.35"	6' 4.65"	15' 4.71"	6' 2.04"	16' 10.48"	5' 11.32"	18' 11.04"	5' 8.5"	21' 10.92"
6' 10.04"	11' 3.22"	6' 8.13"	11' 8.87"	6' 6.09"	12' 3.82"	6' 3.92"	13' 0.48"	6' 1.63"	13' 11.52"	5' 11.23"	15' 1.96"	5' 8.72"	16' 9.49"	5' 6.1"	19' 1.17"
6' 6.16"	10' 4.76"	6' 4.43"	10' 9.54"	6' 2.57"	11' 3.36"	6' 0.6"	11' 10.57"	5' 10.51"	12' 7.65"	5' 8.31"	13' 7.34"	5' 6"	14' 10.86"	5' 3.6"	16' 8.25"
6' 2.18"	9' 6.7"	6' 0.62"	9' 10.71"	5' 10.96"	10' 3.56"	5' 9.18"	10' 9.52"	5' 7.28"	11' 4.94"	5' 5.28"	12' 2.37"	5' 3.18"	13' 2.65"	5' 0.98"	14' 7.2"
5' 10.1"	8' 9.02"	5' 8.72"	9' 0.36"	5' 7.23"	9' 4.37"	5' 5.64"	9' 9.25"	5' 3.94"	10' 3.28"	5' 2.13"	10' 10.83"	5' 0.23"	11' 8.52"	4' 10.24"	12' 9.28"
5' 5.92"	7' 11.7"	5' 4.7"	8' 2.45"	5' 3.39"	8' 5.74"	5' 1.97"	8' 9.7"	5' 0.46"	9' 2.55"	4' 10.86"	9' 8.56"	4' 9.16"	10' 4.14"	4' 7.36"	11' 1.95"
5' 1.63"	7' 2.72"	5' 0.57"	7' 4.96"	4' 11.42"	7' 7.62"	4' 10.19"	7' 10.81"	4' 8.86"	8' 2.67"	4' 7.45"	8' 7.39"	4' 5.94"	9' 1.29"	4' 4.35"	9' 8.77"
4' 9.23"	6' 6.07"	4' 8.32"	6' 7.87"	4' 7.34"	6' 9.99"	4' 6.27"	7' 0.51"	4' 5.12"	7' 3.54"	4' 3.89"	7' 7.22"	4' 2.58"	7' 11.75"	4' 1.19"	8' 5.4"
4' 4.72"	5' 9.72"	4' 3.95"	5' 11.14"	4' 3.12"	6' 0.8"	4' 2.21"	6' 2.77"	4' 1.23"	6' 5.11"	4' 0.18"	6' 7.93"	3' 11.06"	6' 11.35"	3' 9.86"	7' 3.57"
4' 0.08"	5' 1.66"	3' 11.45"	5' 2.76"	3' 10.76"	5' 4.04"	3' 10.01"	5' 5.54"	3' 9.19"	5' 7.31"	3' 8.32"	5' 9.43"	3' 7.37"	5' 11.97"	3' 6.36"	6' 3.06"
3' 7.32"	4' 5.88"	3' 6.81"	4' 6.7"	3' 6.25"	4' 7.66"	3' 5.65"	4' 8.78"	3' 4.99"	4' 10.09"	3' 4.27"	4' 11.63"	3' 3.5"	5' 1.48"	3' 2.67"	5' 3.69"
3' 2.42"	3' 10.35"	3' 2.03"	3' 10.95"	3' 1.6"	3' 11.65"	3' 1.12"	4' 0.45"	3' 0.61"	4' 1.38"	3' 0.04"	4' 2.48"	2' 11.43"	4' 3.77"	2' 10.77"	4' 5.31"
2' 9.39"	3' 3.08"	2' 9.1"	3' 3.5"	2' 8.78"	3' 3.97"	2' 8.43"	3' 4.52"	2' 8.04"	3' 5.16"	2' 7.62"	3' 5.91"	2' 7.16"	3' 6.77"	2' 6.66"	3' 7.79"
2' 4.22"	2' 8.04"	2' 4.02"	2' 8.31"	2' 3.79"	2' 8.62"	2' 3.55"	2' 8.98"	2' 3.27"	2' 9.38"	2' 2.98"	2' 9.86"	2' 2.65"	2' 10.4"	2' 2.29"	2' 11.04"
1' 10.9"	2' 1.23"	1' 10.77"	2' 1.39"	1' 10.63"	2' 1.57"	1' 10.47"	2' 1.78"	1' 10.3"	2' 2.01"	1' 10.11"	2' 2.29"	1' 9.9"	2' 2.6"	1' 9.67"	2' 2.96"
1' 8.18"	1' 9.9"	1' 8.08"	1' 10.02"	1' 7.97"	1' 10.15"	1' 7.86"	1' 10.3"	1' 7.73"	1' 10.47"	1' 7.58"	1' 10.67"	1' 7.42"	1' 10.89"	1' 7.25"	1' 11.15"
1' 5.42"	1' 6.63"	1' 5.35"	1' 6.71"	1' 5.27"	1' 6.8"	1' 5.19"	1' 6.9"	1' 5.1"	1' 7.02"	1' 4.99"	1' 7.15"	1' 4.88"	1' 7.3"	1' 4.75"	1' 7.48"
1' 2.62"	1' 3.4"	1' 2.57"	1' 3.46"	1' 2.52"	1' 3.51"	1' 2.47"	1' 3.58"	1' 2.41"	1' 3.65"	1' 2.34"	1' 3.74"	1' 2.26"	1' 3.83"	1' 2.18"	1' 3.94"
1' 1.68"	1' 2.34"	1' 1.64"	1' 2.38"	1' 1.6"	1' 2.43"	1' 1.55"	1' 2.49"	1' 1.5"	1' 2.55"	1' 1.44"	1' 2.62"	1' 1.37"	1' 2.7"	1' 1.3"	1' 2.79"



8	9	10	11	13	14	16	18
13' 4.55"	11' 11.35"	10' 8.03"	9' 6.41"	8' 6.28"	7' 7.46"	6' 9.81"	6' 1.23"

8		9		10		11		13		14		16		18	
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)	Short Focus (ft-inch)	Long Focus (ft-inch)	Short Focus (ft-inch)	Long Focus (ft-inch)	Short Focus (ft-inch)	Long Focus (ft-inch)
13' 3.42"	Infinity	11' 10.24"	Infinity	10' 6.94"	Infinity	9' 5.3"	Infinity	8' 5.16"	Infinity	7' 6.33"	Infinity	6' 8.69"	Infinity	6' 0.1"	Infinity
11' 11.98"	Infinity	10' 9.86"	Infinity	9' 9.03"	Infinity	8' 9.38"	Infinity	7' 10.82"	Infinity	7' 1.28"	Infinity	6' 4.66"	Infinity	5' 8.89"	Infinity
10' 11.27"	Infinity	9' 11.47"	Infinity	9' 0.55"	Infinity	8' 2.49"	Infinity	7' 5.24"	Infinity	6' 8.76"	Infinity	6' 1.01"	Infinity	5' 5.95"	Infinity
10' 0.62"	Infinity	9' 2.61"	Infinity	8' 5.22"	Infinity	7' 8.44"	Infinity	7' 0.27"	Infinity	6' 4.69"	Infinity	5' 9.7"	Infinity	5' 3.25"	Infinity
9' 3.56"	Infinity	8' 6.98"	Infinity	7' 10.82"	Infinity	7' 3.09"	Infinity	6' 7.83"	Infinity	6' 1.02"	Infinity	5' 6.67"	Infinity	5' 0.77"	Infinity
8' 9.24"	Infinity	8' 1.59"	Infinity	7' 6.25"	Infinity	6' 11.24"	Infinity	6' 4.6"	Infinity	5' 10.32"	Infinity	5' 4.43"	Infinity	4' 10.91"	Infinity
8' 1"	Infinity	7' 6.49"	Infinity	7' 0.16"	Infinity	6' 6.06"	Infinity	6' 0.21"	Infinity	5' 6.63"	Infinity	5' 1.33"	Infinity	4' 8.34"	Infinity
7' 1.8"	Infinity	6' 8.7"	Infinity	6' 3.66"	Infinity	5' 10.73"	Infinity	5' 5.92"	Infinity	5' 1.27"	Infinity	4' 8.79"	Infinity	4' 4.51"	Infinity
6' 4.92"	112' 10.6"	6' 0.82"	Infinity	5' 8.72"	Infinity	5' 4.65"	Infinity	5' 0.64"	Infinity	4' 8.71"	Infinity	4' 4.87"	Infinity	4' 1.16"	Infinity
6' 1.46"	59' 11.53"	5' 9.72"	134' 0.37"	5' 5.97"	Infinity	5' 2.22"	Infinity	4' 10.51"	Infinity	4' 6.85"	Infinity	4' 3.27"	Infinity	3' 11.78"	Infinity
5' 9.7"	38' 4.48"	5' 6.34"	59' 2.92"	5' 2.95"	152' 10.24"	4' 11.54"	Infinity	4' 8.14"	Infinity	4' 4.77"	Infinity	4' 1.46"	Infinity	3' 10.22"	Infinity
5' 5.6"	26' 7.78"	5' 2.63"	35' 2.68"	4' 11.61"	55' 2.87"	4' 8.56"	153' 6"	4' 5.49"	Infinity	4' 2.44"	Infinity	3' 11.42"	Infinity	3' 8.45"	Infinity
5' 3.4"	22' 7.06"	5' 0.63"	28' 5.29"	4' 9.8"	40' 1.86"	4' 6.94"	74' 11.01"	4' 4.05"	Infinity	4' 1.16"	Infinity	3' 10.3"	Infinity	3' 7.47"	Infinity
5' 1.1"	19' 3.4"	4' 10.53"	23' 4.52"	4' 7.9"	30' 8.63"	4' 5.22"	47' 6.48"	4' 2.52"	124' 1.86"	3' 11.8"	Infinity	3' 9.09"	Infinity	3' 6.41"	Infinity
4' 10.69"	16' 6.49"	4' 8.32"	19' 5.42"	4' 5.89"	24' 3.11"	4' 3.4"	33' 7.41"	4' 0.88"	59' 5.71"	3' 10.35"	448' 2.2"	3' 7.8"	Infinity	3' 5.28"	Infinity
4' 8.15"	14' 2.74"	4' 5.99"	16' 3.84"	4' 3.76"	19' 6.7"	4' 1.47"	25' 2.26"	3' 11.14"	37' 3.38"	3' 8.79"	81' 3.43"	3' 6.42"	Infinity	3' 4.05"	Infinity
4' 5.48"	12' 3.02"	4' 3.53"	13' 9.17"	4' 1.5"	15' 11.82"	3' 11.42"	19' 6.44"	3' 9.28"	26' 0.73"	3' 7.11"	41' 9.64"	3' 4.92"	131' 2.85"	3' 2.73"	Infinity
4' 2.68"	10' 6.52"	4' 0.93"	11' 7.65"	3' 11.11"	13' 2.12"	3' 9.22"	15' 5.8"	3' 7.29"	19' 3.47"	3' 5.31"	26' 8.21"	3' 3.31"	47' 0.26"	3' 1.29"	336' 7.92"
3' 11.72"	9' 0.62"	3' 10.17"	9' 10.09"	3' 8.56"	10' 10.93"	3' 6.88"	12' 5.22"	3' 5.15"	14' 9.09"	3' 3.37"	18' 8.34"	3' 1.55"	26' 8.92"	2' 11.72"	52' 0.34"
3' 8.59"	7' 8.86"	3' 7.25"	8' 3.63"	3' 5.84"	9' 0.54"	3' 4.37"	10' 0.71"	3' 2.84"	11' 6.15"	3' 1.26"	13' 9.05"	2' 11.65"	17' 7.5"	2' 10"	25' 9.95"
3' 5.28"	6' 6.87"	3' 4.14"	6' 11.65"	3' 2.94"	7' 5.78"	3' 1.67"	8' 1.86"	3' 0.35"	9' 0.9"	2' 10.98"	10' 4.76"	2' 9.56"	12' 5.3"	2' 8.11"	15' 11.89"
3' 1.78"	5' 6.38"	3' 0.83"	5' 9.69"	2' 11.83"	6' 1.83"	2' 10.77"	6' 7.14"	2' 9.65"	7' 2.11"	2' 8.48"	7' 11.6"	2' 7.28"	9' 1.17"	2' 6.03"	10' 10.01"
2' 10.06"	4' 7.15"	2' 9.3"	4' 9.37"	2' 8.49"	5' 0.11"	2' 7.63"	5' 3.52"	2' 6.72"	5' 7.86"	2' 5.76"	6' 1.51"	2' 4.75"	6' 9.15"	2' 3.71"	7' 7.92"
2' 6.11"	3' 9"	2' 5.53"	3' 10.44"	2' 4.9"	4' 0.17"	2' 4.23"	4' 2.29"	2' 3.52"	4' 4.91"	2' 2.76"	4' 8.21"	2' 1.96"	5' 0.46"	2' 1.13"	5' 6.11"
2' 1.91"	2' 11.78"	2' 1.49"	3' 0.66"	2' 1.03"	3' 1.7"	2' 0.54"	3' 2.94"	2' 0.02"	3' 4.44"	1' 11.45"	3' 6.28"	1' 10.86"	3' 8.57"	1' 10.22"	3' 11.47"
1' 9.42"	2' 3.38"	1' 9.14"	2' 3.86"	1' 8.84"	2' 4.43"	1' 8.51"	2' 5.1"	1' 8.16"	2' 5.89"	1' 7.78"	2' 6.84"	1' 7.37"	2' 7.98"	1' 6.94"	2' 9.37"
1' 7.05"	1' 11.45"	1' 6.84"	1' 11.79"	1' 6.61"	2' 0.19"	1' 6.36"	2' 0.65"	1' 6.09"	2' 1.2"	1' 5.79"	2' 1.84"	1' 5.47"	2' 2.61"	1' 5.13"	2' 3.53"
1' 4.61"	1' 7.68"	1' 4.46"	1' 7.91"	1' 4.29"	1' 8.17"	1' 4.1"	1' 8.48"	1' 3.9"	1' 8.84"	1' 3.68"	1' 9.26"	1' 3.44"	1' 9.75"	1' 3.19"	1' 10.33"
1' 2.08"	1' 4.07"	1' 1.98"	1' 4.21"	1' 1.86"	1' 4.37"	1' 1.74"	1' 4.56"	1' 1.6"	1' 4.78"	1' 1.45"	1' 5.03"	1' 1.29"	1' 5.33"	1' 1.11"	1' 5.67"
1' 1.22"	1' 2.9"	1' 1.13"	1' 3.02"	1' 1.03"	1' 3.15"	1' 0.92"	1' 3.31"	1' 0.81"	1' 3.49"	1' 0.68"	1' 3.7"	1' 0.53"	1' 3.94"	1' 0.38"	1' 4.22"



20	22
5' 5.55"	4' 10.74"

20		22	
Short Focus (ft-inch)	Long Focus (ft-inch)	Short Focus (ft-inch)	Long Focus (ft-inch)
5' 4.45"	Infinity	4' 9.63"	Infinity
5' 1.89"	Infinity	4' 7.6"	Infinity
4' 11.53"	Infinity	4' 5.7"	Infinity
4' 9.34"	Infinity	4' 3.93"	Infinity
4' 7.31"	Infinity	4' 2.27"	Infinity
4' 5.78"	Infinity	4' 1.02"	Infinity
4' 3.64"	Infinity	3' 11.25"	Infinity
4' 0.43"	Infinity	3' 8.58"	Infinity
3' 9.6"	Infinity	3' 6.18"	Infinity
3' 8.42"	Infinity	3' 5.18"	Infinity
3' 7.08"	Infinity	3' 4.04"	Infinity
3' 5.54"	Infinity	3' 2.72"	Infinity
3' 4.69"	Infinity	3' 1.99"	Infinity
3' 3.77"	Infinity	3' 1.19"	Infinity
3' 2.78"	Infinity	3' 0.33"	Infinity
3' 1.71"	Infinity	2' 11.4"	Infinity
3' 0.54"	Infinity	2' 10.38"	Infinity
2' 11.27"	Infinity	2' 9.26"	Infinity
2' 9.87"	Infinity	2' 8.02"	Infinity
2' 8.33"	54' 5.7"	2' 6.66"	Infinity
2' 6.64"	23' 7.13"	2' 5.14"	51' 0.21"
2' 4.75"	13' 9.74"	2' 3.44"	20' 0.43"
2' 2.63"	9' 0.13"	2' 1.53"	11' 3.05"
2' 0.26"	6' 1.9"	1' 11.35"	7' 1.26"
1' 9.56"	4' 3.22"	1' 8.86"	4' 8.26"
1' 6.47"	2' 11.09"	1' 5.98"	3' 1.27"
1' 4.76"	2' 4.66"	1' 4.36"	2' 6.04"
1' 2.91"	1' 11.03"	1' 2.61"	1' 11.87"
1' 0.91"	1' 6.07"	1' 0.7"	1' 6.55"
1' 0.21"	1' 4.55"	1' 0.03"	1' 4.94"



Focal Length 35 mm

Circle of Confusion 0.025 mm

T/No	1.5	1.6	1.8	2	2.2	2.5	2.8
Hyperfocal Distance (ft-inch)	110' 8.35"	104' 7.39"	93' 2.78"	83' 1.05"	74' 0.62"	66' 0.05"	58' 9.98"

T/No	1.5		1.6		1.8		2		2.2		2.5		2.8	
Focus Distance (ft-inch)	Short Focus (ft-inch)	Long Focus (ft-inch)	Short Focus (ft-inch)	Long Focus (ft-inch)	Short Focus (ft-inch)	Long Focus (ft-inch)	Short Focus (ft-inch)	Long Focus (ft-inch)	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	110' 6.9"	Infinity	104' 5.95"	Infinity	93' 1.34"	Infinity	82' 11.64"	Infinity	73' 11.22"	Infinity	65' 10.62"	Infinity	58' 8.56"	Infinity
120' 0"	57' 7.84"	Infinity	55' 11.54"	Infinity	52' 6.41"	Infinity	49' 1.87"	Infinity	45' 10.18"	Infinity	42' 7.55"	Infinity	39' 6.21"	Infinity
60' 0"	38' 11.89"	130' 6.19"	38' 2.55"	140' 1.5"	36' 7.06"	167' 6.9"	34' 11.07"	214' 9.96"	33' 2.71"	314' 4.59"	31' 6.09"	655' 6.12"	29' 9.36"	Infinity
40' 0"	29' 5.48"	62' 4.74"	29' 0.14"	64' 6.03"	28' 0.82"	69' 8.91"	27' 0.97"	76' 8.92"	26' 0.63"	86' 5.92"	24' 11.86"	100' 10.64"	23' 10.72"	124' 0.9"
30' 0"	23' 8.02"	40' 11.97"	23' 4.58"	41' 10.72"	22' 9.21"	44' 0.42"	22' 1.38"	46' 8.59"	21' 5.13"	50' 1.74"	20' 8.45"	54' 7.79"	19' 11.39"	60' 9.36"
25' 0"	20' 5.44"	32' 2.05"	20' 2.87"	32' 8.63"	19' 9.34"	34' 0.08"	19' 3.43"	35' 6.95"	18' 9.15"	37' 6.34"	18' 2.48"	39' 11.85"	17' 7.47"	43' 1.98"
20' 0"	16' 11.89"	24' 3.82"	16' 10.12"	24' 7.54"	16' 6.3"	25' 4.18"	16' 2.17"	26' 2.49"	15' 9.75"	27' 2.94"	15' 5.01"	28' 6.16"	14' 11.97"	30' 1.03"
15' 0"	13' 3.03"	17' 3.43"	13' 1.96"	17' 5.29"	12' 11.63"	17' 9.55"	12' 9.09"	18' 2.55"	12' 6.35"	18' 8.45"	12' 3.38"	19' 3.46"	12' 0.19"	19' 11.89"
12' 0"	10' 10.35"	13' 4.9"	10' 9.63"	13' 6.01"	10' 8.07"	13' 8.53"	10' 6.36"	13' 11.46"	10' 4.5"	14' 2.88"	10' 2.47"	14' 6.89"	10' 0.27"	14' 11.62"
11' 0"	10' 0.47"	12' 2.01"	9' 11.86"	12' 2.92"	9' 10.53"	12' 4.99"	9' 9.07"	12' 7.38"	9' 7.47"	12' 10.16"	9' 5.73"	13' 1.4"	9' 3.84"	13' 5.21"
10' 0"	9' 2.43"	10' 11.42"	9' 1.92"	11' 0.16"	9' 0.8"	11' 1.82"	8' 11.57"	11' 3.74"	8' 10.23"	11' 5.95"	8' 8.76"	11' 8.54"	8' 7.16"	11' 11.55"
9' 0"	8' 4.22"	9' 9.12"	8' 3.8"	9' 9.7"	8' 2.88"	9' 11.01"	8' 1.87"	10' 0.51"	8' 0.76"	10' 2.25"	7' 11.55"	10' 4.26"	7' 10.22"	10' 6.6"
8' 6"	7' 11.05"	9' 2.07"	7' 10.68"	9' 2.58"	7' 9.85"	9' 3.73"	7' 8.94"	9' 5.06"	7' 7.95"	9' 6.58"	7' 6.85"	9' 8.34"	7' 5.65"	9' 10.38"
8' 0"	7' 5.84"	8' 7.09"	7' 5.5"	8' 7.54"	7' 4.77"	8' 8.54"	7' 3.96"	8' 9.7"	7' 3.07"	8' 11.02"	7' 2.09"	9' 0.55"	7' 1.02"	9' 2.32"
7' 6"	7' 0.58"	8' 0.18"	7' 0.29"	8' 0.57"	6' 11.64"	8' 1.44"	6' 10.92"	8' 2.44"	6' 10.13"	8' 3.58"	6' 9.26"	8' 4.9"	6' 8.31"	8' 6.42"
7' 0"	6' 7.28"	7' 5.33"	6' 7.02"	7' 5.67"	6' 6.45"	7' 6.42"	6' 5.82"	7' 7.27"	6' 5.13"	7' 8.25"	6' 4.37"	7' 9.38"	6' 3.53"	7' 10.67"
6' 6"	6' 1.93"	6' 10.56"	6' 1.71"	6' 10.84"	6' 1.21"	6' 11.47"	6' 0.67"	7' 0.2"	6' 0.07"	7' 1.03"	5' 11.4"	7' 1.98"	5' 10.67"	7' 3.07"
6' 0"	5' 8.54"	6' 3.84"	5' 8.35"	6' 4.08"	5' 7.92"	6' 4.61"	5' 7.46"	6' 5.22"	5' 6.94"	6' 5.91"	5' 6.37"	6' 6.7"	5' 5.74"	6' 7.61"
5' 6"	5' 3.1"	5' 9.19"	5' 2.94"	5' 9.39"	5' 2.58"	5' 9.83"	5' 2.19"	5' 10.33"	5' 1.75"	5' 10.9"	5' 1.27"	5' 11.55"	5' 0.74"	6' 0.3"
5' 0"	4' 9.61"	5' 2.6"	4' 9.48"	5' 2.76"	4' 9.18"	5' 3.12"	4' 8.86"	5' 3.53"	4' 8.49"	5' 3.99"	4' 8.09"	5' 4.51"	4' 7.65"	5' 5.11"
4' 6"	4' 4.07"	4' 8.08"	4' 3.97"	4' 8.21"	4' 3.73"	4' 8.49"	1.307	4' 8.81"	4' 3.17"	4' 9.17"	4' 2.84"	4' 9.59"	4' 2.48"	4' 10.06"
4' 0"	3' 10.49"	4' 1.62"	3' 10.41"	4' 1.71"	3' 10.22"	4' 1.93"	3' 10.01"	4' 2.18"	3' 9.78"	4' 2.46"	3' 9.52"	4' 2.78"	3' 9.23"	4' 3.14"
3' 6"	3' 4.86"	3' 7.21"	3' 4.79"	3' 7.28"	3' 4.65"	3' 7.45"	3' 4.49"	3' 7.63"	3' 4.31"	3' 7.84"	3' 4.12"	3' 8.08"	3' 3.9"	3' 8.35"
3' 0"	2' 11.17"	3' 0.87"	2' 11.13"	3' 0.92"	2' 11.02"	3' 1.03"	2' 10.91"	3' 1.17"	2' 10.78"	3' 1.31"	2' 10.64"	3' 1.48"	2' 10.48"	3' 1.67"
2' 6"	2' 5.44"	2' 6.58"	2' 5.41"	2' 6.62"	2' 5.34"	2' 6.69"	2' 5.26"	2' 6.78"	2' 5.17"	2' 6.88"	2' 5.07"	2' 6.99"	2' 4.97"	2' 7.12"
2' 0"	1' 11.66"	2' 0.35"	1' 11.64"	2' 0.37"	1' 11.59"	2' 0.42"	1' 11.55"	2' 0.47"	1' 11.49"	2' 0.53"	1' 11.43"	2' 0.6"	1' 11.36"	2' 0.68"
1' 9"	1' 8.75"	1' 9.26"	1' 8.73"	1' 9.28"	1' 8.7"	1' 9.31"	1' 8.66"	1' 9.35"	1' 8.62"	1' 9.39"	1' 8.58"	1' 9.44"	1' 8.53"	1' 9.5"
1' 6"	1' 5.82"	1' 6.18"	1' 5.81"	1' 6.19"	1' 5.79"	1' 6.22"	1' 5.76"	1' 6.24"	1' 5.73"	1' 6.27"	1' 5.7"	1' 6.31"	1' 5.67"	1' 6.35"
1' 3"	1' 2.88"	1' 3.12"	1' 2.88"	1' 3.13"	1' 2.86"	1' 3.14"	1' 2.85"	1' 3.16"	1' 2.83"	1' 3.18"	1' 2.81"	1' 3.2"	1' 2.78"	1' 3.22"
1' 2"	1' 1.9"	1' 2.1"	1' 1.9"	1' 2.11"	1' 1.88"	1' 2.12"	1' 1.87"	1' 2.13"	1' 1.85"	1' 2.15"	1' 1.84"	1' 2.17"	1' 1.82"	1' 2.19"



3.2	3.5	4	4.5	5	5.6	6.3	7.1
52' 5.29"	46' 8.98"	41' 8.16"	37' 1.94"	33' 1.64"	29' 6.61"	26' 4.26"	23' 6.13"

3.2		3.5		4		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)	Short Focus (ft-inch)	Long Focus (ft-inch)	Short Focus (ft-inch)	Long Focus (ft-inch)	Short Focus (ft-inch)	Long Focus (ft-inch)
52' 3.89"	Infinity	46' 7.59"	Infinity	41' 6.74"	Infinity	37' 0.52"	Infinity	33' 0.23"	Infinity	29' 5.2"	Infinity	26' 2.86"	Infinity	23' 4.71"	Infinity
36' 6.31"	Infinity	33' 8.01"	Infinity	30' 11.4"	Infinity	28' 4.58"	Infinity	25' 11.58"	Infinity	23' 8.43"	Infinity	21' 7.11"	Infinity	19' 7.6"	Infinity
28' 0.66"	Infinity	26' 4.11"	Infinity	24' 7.86"	Infinity	23' 0.03"	Infinity	21' 4.73"	Infinity	19' 10.07"	Infinity	18' 4.13"	Infinity	16' 10.99"	Infinity
22' 9.28"	167' 2.99"	21' 7.63"	274' 6.73"	20' 5.86"	983' 2.32"	19' 4.05"	Infinity	18' 2.3"	Infinity	17' 0.71"	Infinity	15' 11.35"	Infinity	14' 10.3"	Infinity
19' 1.98"	69' 6.52"	18' 4.27"	82' 11.78"	17' 6.31"	105' 11.86"	16' 8.16"	153' 11.18"	15' 9.88"	313' 0.12"	14' 11.54"	Infinity	14' 1.22"	Infinity	13' 2.97"	Infinity
17' 0.11"	47' 4.73"	16' 4.45"	53' 3.06"	15' 8.51"	61' 10.15"	15' 0.33"	75' 6.41"	14' 3.97"	100' 6.43"	13' 7.47"	160' 0.81"	12' 10.89"	478' 5.61"	12' 2.28"	Infinity
14' 6.64"	32' 0.86"	14' 1.02"	34' 7.69"	13' 7.14"	38' 0.79"	13' 1"	42' 9.86"	12' 6.65"	49' 9.78"	12' 0.11"	61' 0.12"	11' 5.43"	81' 7.49"	10' 10.64"	131' 7.27"
11' 8.77"	20' 10.1"	11' 5.12"	21' 10.67"	11' 1.25"	23' 2.39"	10' 9.15"	24' 10.45"	10' 4.85"	27' 0.73"	10' 0.36"	30' 0.4"	9' 7.69"	34' 3.16"	9' 2.87"	40' 8.47"
9' 9.9"	15' 5.24"	9' 7.35"	16'	9' 4.61"	16' 8.2"	9' 1.7"	17' 6.29"	8' 10.6"	18' 6.92"	8' 7.33"	19' 11.04"	8' 3.9"	21' 8.19"	8' 0.31"	24' 0.93"
9' 1.79"	13' 9.71"	8' 11.58"	14' 3.08"	8' 9.21"	14' 9.54"	8' 6.67"	15' 5.4"	8' 3.96"	16' 3.11"	8' 1.09"	17' 3.31"	7' 10.06"	18' 6.98"	7' 6.88"	20' 3.68"
8' 5.42"	12' 3.1"	8' 3.54"	12' 7.29"	8' 1.51"	13' 0.3"	7' 11.33"	13' 6.34"	7' 9"	14' 1.71"	7' 6.52"	14' 10.83"	7' 3.89"	15' 10.32"	7' 1.12"	17' 1.13"
7' 8.78"	10' 9.34"	7' 7.21"	11' 0.56"	7' 5.51"	11' 4.37"	7' 3.68"	11' 8.92"	7' 1.71"	12' 2.41"	6' 11.61"	12' 9.11"	6' 9.37"	13' 5.42"	6' 7"	14' 3.9"
7' 4.35"	10' 0.77"	7' 2.93"	10' 3.56"	7' 1.39"	10' 6.85"	6' 11.73"	10' 10.77"	6' 9.94"	11' 3.47"	6' 8.02"	11' 9.17"	6' 5.97"	12' 4.18"	6' 3.8"	13' 0.94"
6' 11.85"	9' 4.38"	6' 10.57"	9' 6.79"	6' 9.18"	9' 9.62"	6' 7.68"	10' 0.97"	6' 6.06"	10' 4.97"	6' 4.33"	10' 9.79"	6' 2.47"	11' 3.67"	6' 0.49"	11' 10.95"
6' 7.27"	8' 8.19"	6' 6.13"	8' 10.25"	6' 4.89"	9' 0.66"	6' 3.55"	9' 3.5"	6' 2.1"	9' 6.87"	6' 0.54"	9' 10.92"	5' 10.86"	10' 3.82"	5' 9.07"	10' 9.83"
6' 2.61"	8' 0.17"	6' 1.6"	8' 1.92"	6' 0.51"	8' 3.95"	5' 11.32"	8' 6.34"	5' 10.03"	8' 9.17"	5' 8.64"	9' 0.53"	5' 7.14"	9' 4.58"	5' 5.54"	9' 9.51"
5' 9.87"	7' 4.33"	5' 8.99"	7' 5.79"	5' 8.04"	7' 7.49"	5' 6.99"	7' 9.48"	5' 5.86"	7' 11.82"	5' 4.63"	8' 2.59"	5' 3.31"	8' 5.91"	5' 1.89"	8' 9.91"
5' 5.05"	6' 8.66"	5' 4.3"	6' 9.87"	5' 3.47"	6' 11.27"	5' 2.56"	7' 0.91"	5' 1.58"	7' 2.82"	5' 0.51"	7' 5.08"	4' 11.36"	7' 7.76"	4' 10.12"	7' 10.97"
5' 0.15"	6' 1.15"	4' 11.51"	6' 2.14"	4' 10.8"	6' 3.28"	4' 10.03"	6' 4.6"	4' 9.19"	6' 6.15"	4' 8.27"	6' 7.96"	4' 7.28"	6' 10.1"	4' 6.21"	7' 0.64"
4' 7.16"	5' 5.8"	4' 6.62"	5' 6.59"	4' 6.03"	5' 7.5"	4' 5.39"	5' 8.56"	4' 4.68"	5' 9.78"	4' 3.91"	5' 11.21"	4' 3.07"	6' 0.89"	4' 2.16"	6' 2.87"
4' 2.09"	4' 10.61"	4' 1.65"	4' 11.23"	4' 1.16"	4' 11.94"	4' 0.63"	5' 0.76"	4' 0.05"	5' 1.71"	3' 11.41"	5' 2.81"	3' 10.72"	5' 4.1"	3' 9.96"	5' 5.62"
3' 8.92"	4' 3.56"	3' 8.57"	4' 4.03"	3' 8.18"	4' 4.57"	3' 7.76"	4' 5.2"	3' 7.29"	4' 5.91"	3' 6.78"	4' 6.74"	3' 6.22"	4' 7.71"	3' 5.61"	4' 8.83"
3' 3.66"	3' 8.65"	3' 3.39"	3' 9"	3' 3.09"	3' 9.4"	3' 2.76"	3' 9.86"	3' 2.4"	3' 10.38"	3' 2.01"	3' 10.98"	3' 1.57"	3' 11.68"	3' 1.1"	4' 0.49"
2' 10.3"	3' 1.89"	2' 10.1"	3' 2.13"	2' 9.89"	3' 2.41"	2' 9.64"	3' 2.73"	2' 9.38"	3' 3.1"	2' 9.08"	3' 3.52"	2' 8.76"	3' 4"	2' 8.41"	3' 4.55"
2' 4.84"	2' 7.26"	2' 4.71"	2' 7.42"	2' 4.56"	2' 7.6"	2' 4.39"	2' 7.81"	2' 4.21"	2' 8.05"	2' 4"	2' 8.32"	2' 3.78"	2' 8.64"	2' 3.53"	2' 8.99"
1' 11.29"	2' 0.76"	1' 11.2"	2' 0.86"	1' 11.11"	2' 0.97"	1' 11.01"	2' 1.09"	1' 10.89"	2' 1.23"	1' 10.76"	2' 1.39"	1' 10.62"	2' 1.58"	1' 10.46"	2' 1.79"
1' 8.47"	1' 9.56"	1' 8.41"	1' 9.63"	1' 8.34"	1' 9.71"	1' 8.26"	1' 9.8"	1' 8.17"	1' 9.91"	1' 8.08"	1' 10.02"	1' 7.97"	1' 10.15"	1' 7.85"	1' 10.31"
1' 5.63"	1' 6.39"	1' 5.58"	1' 6.44"	1' 5.53"	1' 6.5"	1' 5.48"	1' 6.56"	1' 5.42"	1' 6.63"	1' 5.35"	1' 6.71"	1' 5.27"	1' 6.8"	1' 5.19"	1' 6.91"
1' 2.76"	1' 3.25"	1' 2.73"	1' 3.28"	1' 2.69"	1' 3.32"	1' 2.66"	1' 3.36"	1' 2.62"	1' 3.41"	1' 2.57"	1' 3.46"	1' 2.52"	1' 3.52"	1' 2.47"	1' 3.58"
1' 1.79"	1' 2.21"	1' 1.77"	1' 2.24"	1' 1.74"	1' 2.27"	1' 1.71"	1' 2.3"	1' 1.68"	1' 2.34"	1' 1.64"	1' 2.39"	1' 1.59"	1' 2.43"	1' 1.55"	1' 2.49"



8	9	10	11	13	14	16	18
20' 11.69"	18' 8.57"	16' 8.43"	14' 10.9"	13' 3.72"	11' 10.68"	10' 7.44"	9' 5.9"

8		9		10		11		13		14		16		18	
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)	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' 10.28"	Infinity	18' 7.17"	Infinity	16' 7.02"	Infinity	14' 9.51"	Infinity	13' 2.34"	Infinity	11' 9.27"	Infinity	10' 6.05"	Infinity	9' 4.5"	Infinity
17' 9.86"	Infinity	16' 1.81"	Infinity	14' 7.39"	Infinity	13' 2.52"	Infinity	11' 11.1"	Infinity	10' 9.05"	Infinity	9' 8.28"	Infinity	8' 8.68"	Infinity
15' 6.69"	Infinity	14' 3.28"	Infinity	13' 0.78"	Infinity	11' 11.2"	Infinity	10' 10.54"	Infinity	9' 10.78"	Infinity	8' 11.91"	Infinity	8' 1.88"	Infinity
13' 9.64"	Infinity	12' 9.44"	Infinity	11' 9.73"	Infinity	10' 10.58"	Infinity	10'	Infinity	9' 2.03"	Infinity	8' 4.66"	Infinity	7' 7.91"	Infinity
12' 4.86"	Infinity	11' 6.96"	Infinity	10' 9.32"	Infinity	10'	Infinity	9' 3.04"	Infinity	8' 6.47"	Infinity	7' 10.33"	Infinity	7' 2.63"	Infinity
11' 5.7"	Infinity	10' 9.21"	Infinity	10' 0.86"	Infinity	9' 4.7"	Infinity	8' 8.78"	Infinity	8' 1.14"	Infinity	7' 5.81"	Infinity	6' 10.82"	Infinity
10' 3.78"	422' 3.55"	9' 8.9"	Infinity	9' 2.05"	Infinity	8' 7.27"	Infinity	8' 0.61"	Infinity	7' 6.1"	Infinity	6' 11.78"	Infinity	6' 5.69"	Infinity
8' 9.93"	51' 7.41"	8' 4.89"	73' 10.64"	7' 11.78"	143' 6.16"	7' 6.64"	Infinity	7' 1.5"	Infinity	6' 8.39"	Infinity	6' 3.36"	Infinity	5' 10.42"	Infinity
7' 8.58"	27' 5.88"	7' 4.73"	32' 8.41"	7' 0.78"	41' 6.73"	6' 8.75"	59' 9.36"	6' 4.68"	117' 11.51"	6' 0.57"	Infinity	5' 8.47"	Infinity	5' 4.4"	Infinity
7' 3.56"	22' 8.07"	7' 0.12"	26' 1.09"	6' 8.57"	31' 5"	6' 4.94"	40' 9.37"	6' 1.24"	61' 4.3"	5' 9.5"	141' 11.88"	5' 5.74"	Infinity	5' 1.99"	Infinity
6' 10.21"	18' 8.8"	6' 7.19"	20' 11.97"	6' 4.05"	24' 3.6"	6' 0.81"	29' 6.27"	5' 9.5"	38' 11.26"	5' 6.14"	60' 8.9"	5' 2.74"	164' 4.07"	4' 11.33"	Infinity
6' 4.51"	15' 5.43"	6' 1.89"	16' 11.43"	5' 11.16"	19' 0.37"	5' 8.33"	22' 0.89"	5' 5.42"	26' 11.01"	5' 2.45"	35' 8.93"	4' 11.42"	56' 7.95"	4' 8.36"	166' 2.33"
6' 1.5"	14' 0.11"	5' 11.09"	15' 2.73"	5' 8.57"	16' 10.54"	5' 5.95"	19' 2.66"	5' 3.24"	22' 9.37"	5' 0.46"	28' 9.34"	4' 9.63"	40' 10.8"	4' 6.76"	77' 9.7"
5' 10.39"	12' 8.13"	5' 8.18"	13' 7.96"	5' 5.87"	14' 11.67"	5' 3.45"	16' 9.39"	5' 0.95"	19' 5.08"	4' 10.37"	23' 7.24"	4' 7.74"	31' 1.82"	4' 5.05"	48' 8.2"
5' 7.17"	11' 5.33"	5' 5.17"	12' 2.86"	5' 3.05"	13' 3.3"	5' 0.85"	14' 8.06"	4' 10.55"	16' 7.72"	4' 8.18"	19' 7.3"	4' 5.74"	24' 6.32"	4' 3.25"	34' 2.2"
5' 3.84"	10' 3.59"	5' 2.03"	10' 11.22"	5' 0.12"	11' 9.02"	4' 10.12"	12' 9.94"	4' 8.03"	14' 3.64"	4' 5.86"	16' 5.15"	4' 3.62"	19' 8.77"	4' 1.33"	25' 6.03"
5' 0.38"	9' 2.8"	4' 10.76"	9' 8.86"	4' 9.06"	10' 4.53"	4' 7.26"	11' 2.45"	4' 5.37"	12' 3.69"	4' 3.41"	13' 10.09"	4' 1.38"	16' 1.19"	3' 11.28"	19' 8.69"
4' 8.79"	8' 2.86"	4' 7.36"	8' 7.64"	4' 5.85"	9' 1.58"	4' 4.26"	9' 9.15"	4' 2.58"	10' 7.01"	4' 0.82"	11' 8.3"	3' 10.99"	13' 3.04"	3' 9.1"	15' 7.2"
4' 5.05"	7' 3.7"	4' 3.82"	7' 7.41"	4' 2.5"	7' 11.97"	4' 1.1"	8' 5.68"	3' 11.63"	9' 0.98"	3' 10.08"	9' 10.55"	3' 8.46"	10' 11.56"	3' 6.77"	12' 6.12"
4' 1.18"	6' 5.23"	4' 0.12"	6' 8.07"	3' 10.99"	6' 11.52"	3' 9.79"	7' 3.78"	3' 8.51"	7' 9.12"	3' 7.17"	8' 3.96"	3' 5.75"	9' 0.97"	3' 4.27"	10' 1.29"
3' 9.15"	5' 7.4"	3' 8.26"	5' 9.53"	3' 7.32"	6' 0.09"	3' 6.3"	6' 3.21"	3' 5.22"	6' 7.06"	3' 4.07"	6' 11.88"	3' 2.86"	7' 6.07"	3' 1.59"	8' 2.23"
3' 4.95"	4' 10.15"	3' 4.23"	4' 11.71"	3' 3.45"	5' 1.57"	3' 2.62"	5' 3.8"	3' 1.73"	5' 6.51"	3' 0.78"	5' 9.84"	2' 11.77"	6' 2.03"	2' 10.7"	6' 7.38"
3' 0.58"	4' 1.43"	3' 0.01"	4' 2.53"	2' 11.4"	4' 3.83"	2' 10.74"	4' 5.38"	2' 10.02"	4' 7.23"	2' 9.26"	4' 9.48"	2' 8.44"	5' 0.23"	2' 7.58"	5' 3.67"
2' 8.02"	3' 5.19"	2' 7.59"	3' 5.94"	2' 7.13"	3' 6.81"	2' 6.63"	3' 7.84"	2' 6.08"	3' 9.05"	2' 5.49"	3' 10.5"	2' 4.86"	4' 0.25"	2' 4.19"	4' 2.38"
2' 3.26"	2' 9.4"	2' 2.96"	2' 9.88"	2' 2.63"	2' 10.43"	2' 2.27"	2' 11.07"	2' 1.88"	2' 11.82"	2' 1.46"	3' 0.7"	2' 1"	3' 1.74"	2' 0.51"	3' 2.99"
1' 10.29"	2' 2.02"	1' 10.1"	2' 2.3"	1' 9.89"	2' 2.61"	1' 9.65"	2' 2.97"	1' 9.4"	2' 3.39"	1' 9.12"	2' 3.88"	1' 8.82"	2' 4.45"	1' 8.49"	2' 5.13"
1' 7.72"	1' 10.48"	1' 7.57"	1' 10.67"	1' 7.41"	1' 10.9"	1' 7.24"	1' 11.16"	1' 7.04"	1' 11.46"	1' 6.83"	1' 11.8"	1' 6.6"	2' 0.2"	1' 6.35"	2' 0.67"
1' 5.09"	1' 7.02"	1' 4.99"	1' 7.16"	1' 4.87"	1' 7.31"	1' 4.74"	1' 7.49"	1' 4.6"	1' 7.69"	1' 4.45"	1' 7.92"	1' 4.28"	1' 8.18"	1' 4.09"	1' 8.49"
1' 2.4"	1' 3.66"	1' 2.33"	1' 3.74"	1' 2.26"	1' 3.84"	1' 2.17"	1' 3.95"	1' 2.08"	1' 4.07"	1' 1.97"	1' 4.22"	1' 1.86"	1' 4.38"	1' 1.73"	1' 4.57"
1' 1.49"	1' 2.55"	1' 1.43"	1' 2.62"	1' 1.37"	1' 2.7"	1' 1.3"	1' 2.8"	1' 1.22"	1' 2.9"	1' 1.13"	1' 3.02"	1' 1.03"	1' 3.16"	1' 0.92"	1' 3.31"



20	22
8' 5.81"	7' 7.06"

20		22	
Short Focus (ft-inch)	Long Focus (ft-inch)	Short Focus (ft-inch)	Long Focus (ft-inch)
8' 4.42"	Infinity	7' 5.67"	Infinity
7' 10.18"	Infinity	7' 0.69"	Infinity
7' 4.67"	Infinity	6' 8.23"	Infinity
6' 11.77"	Infinity	6' 4.22"	Infinity
6' 7.38"	Infinity	6' 0.59"	Infinity
6' 4.18"	Infinity	5' 9.92"	Infinity
5' 11.85"	Infinity	5' 6.27"	Infinity
5' 5.62"	Infinity	5' 0.97"	Infinity
5' 0.39"	Infinity	4' 8.45"	Infinity
4' 10.27"	Infinity	4' 6.61"	Infinity
4' 7.92"	Infinity	4' 4.56"	Infinity
4' 5.3"	Infinity	4' 2.24"	Infinity
4' 3.87"	Infinity	4' 0.98"	Infinity
4' 2.34"	133' 0.6"	3' 11.62"	Infinity
4' 0.72"	61' 5.22"	3' 10.18"	606' 1.41"
3' 10.99"	38' 0.46"	3' 8.63"	85' 3.56"
3' 9.14"	26' 5.12"	3' 6.97"	42' 10"
3' 7.16"	19' 5.85"	3' 5.18"	27' 1.17"
3' 5.03"	14' 10.47"	3' 3.25"	18' 10.74"
3' 2.74"	11' 6.98"	3' 1.16"	13' 10.33"
3' 0.26"	9' 1.4"	2' 10.89"	10' 5.48"
2' 9.58"	7' 2.42"	2' 8.41"	8' 0.02"
2' 6.66"	5' 8.04"	2' 5.7"	6' 1.75"
2' 3.47"	4' 5.02"	2' 2.71"	4' 8.35"
1' 11.98"	3' 4.51"	1' 11.42"	3' 6.36"
1' 8.14"	2' 5.92"	1' 7.76"	2' 6.87"
1' 6.07"	2' 1.22"	1' 5.77"	2' 1.87"
1' 3.89"	1' 8.85"	1' 3.67"	1' 9.27"
1' 1.59"	1' 4.79"	1' 1.44"	1' 5.04"
1' 0.8"	1' 3.49"	1' 0.67"	1' 3.7"



Focal Length 50 mm

Circle of Confusion 0.025 mm

T/No	1.5	1.6	1.8	2	2.2	2.5	2.8
Hyperfocal Distance (ft-inch)	231' 10.52"	219' 1.53"	195' 3.11"	173' 11.95"	155' 0.63"	138' 2.07"	123' 1.64"

T/No	1.5		1.6		1.8		2		2.2		2.5		2.8	
Focus Distance (ft-inch)	Short Focus (ft-inch)	Long Focus (ft-inch)	Short Focus (ft-inch)	Long Focus (ft-inch)	Short Focus (ft-inch)	Long Focus (ft-inch)	Short Focus (ft-inch)	Long Focus (ft-inch)	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	231' 8.28"	Infinity	218' 11.34"	Infinity	195' 0.96"	Infinity	173' 9.81"	Infinity	154' 10.51"	Infinity	138'	Infinity	122' 11.58"	Infinity
120' 0"	79' 2.15"	248' 1.57"	77' 7.7"	264' 7.29"	74' 5.13"	310' 5.63"	71' 1.48"	385' 5.74"	67' 8.98"	528' 11.53"	64' 3.87"	908' 8.9"	60' 10.43"	4687' 11.83"
60' 0"	47' 8.97"	80' 9.07"	47' 2.24"	82' 5.02"	45' 11.82"	86' 4.49"	44' 8.49"	91' 3.53"	43' 4.28"	97' 6.37"	41' 11.2"	105' 7.61"	40' 5.34"	116' 6.02"
40' 0"	34' 2.15"	48' 2.71"	33' 10.71"	48' 9.73"	33' 3.25"	50' 1.98"	32' 7.2"	51' 9.34"	31' 10.54"	53' 8.62"	31' 1.28"	56' 0.92"	30' 3.4"	58' 11.81"
30' 0"	26' 7.39"	34' 4.53"	26' 5.31"	34' 8.07"	26' 0.77"	35' 4.17"	25' 7.83"	36' 1.65"	25' 2.47"	37' 0.8"	24' 8.67"	38' 2.03"	24' 2.43"	39' 5.86"
25' 0"	22' 7.36"	27' 11.47"	22' 5.86"	28' 1.8"	22' 2.58"	28' 7.1"	21' 11"	29' 1.25"	21' 7.09"	29' 8.42"	21' 2.84"	30' 4.83"	20' 10.23"	31' 2.77"
20' 0"	18' 5.41"	21' 10.04"	18' 4.41"	21' 11.45"	18' 2.23"	22' 2.65"	17' 11.84"	22' 6.33"	17' 9.21"	22' 10.58"	17' 6.34"	23' 3.52"	17' 3.21"	23' 9.28"
15' 0"	14' 1.43"	16'	14' 0.85"	16' 0.75"	13' 11.58"	16' 2.44"	13' 10.18"	16' 4.37"	13' 8.63"	16' 6.58"	13' 6.93"	16' 9.13"	13' 5.06"	17' 0.07"
12' 0"	11' 5.21"	12' 7.51"	11' 4.84"	12' 7.97"	11' 4.01"	12' 9.01"	11' 3.09"	12' 10.19"	11' 2.08"	12' 11.54"	11' 0.96"	13' 1.08"	10' 11.72"	13' 2.85"
11' 0"	10' 6.3"	11' 6.25"	10' 5.98"	11' 6.63"	10' 5.28"	11' 7.49"	10' 4.51"	11' 8.47"	10' 3.65"	11' 9.59"	10' 2.7"	11' 10.86"	10' 1.65"	12' 0.31"
10' 0"	9' 7.29"	10' 5.12"	9' 7.03"	10' 5.43"	9' 6.45"	10' 6.13"	9' 5.8"	10' 6.92"	9' 5.09"	10' 7.83"	9' 4.3"	10' 8.86"	9' 3.43"	10' 10.04"
9' 0"	8' 8.19"	9' 4.1"	8' 7.98"	9' 4.35"	8' 7.51"	9' 4.91"	8' 6.99"	9' 5.54"	8' 6.4"	9' 6.26"	8' 5.76"	9' 7.08"	8' 5.05"	9' 8.01"
8' 6"	8' 2.61"	8' 9.64"	8' 2.42"	8' 9.86"	8' 2"	8' 10.35"	8' 1.53"	8' 10.91"	8' 1.01"	8' 11.54"	8' 0.44"	9' 0.26"	7' 11.8"	9' 1.09"
8' 0"	7' 9"	8' 3.2"	7' 8.84"	8' 3.39"	7' 8.46"	8' 3.83"	7' 8.05"	8' 4.32"	7' 7.59"	8' 4.87"	7' 7.07"	8' 5.5"	7' 6.51"	8' 6.22"
7' 6"	7' 3.37"	7' 8.79"	7' 3.23"	7' 8.96"	7' 2.9"	7' 9.34"	7' 2.53"	7' 9.76"	7' 2.13"	7' 10.25"	7' 1.68"	7' 10.8"	7' 1.18"	7' 11.42"
7' 0"	6' 9.72"	7' 2.41"	6' 9.59"	7' 2.56"	6' 9.31"	7' 2.88"	6' 8.99"	7' 3.25"	6' 8.63"	7' 3.67"	6' 8.24"	7' 4.14"	6' 7.8"	7' 4.68"
6' 6"	6' 4.04"	6' 8.06"	6' 3.93"	6' 8.19"	6' 3.69"	6' 8.47"	6' 3.41"	6' 8.78"	6' 3.11"	6' 9.13"	6' 2.77"	6' 9.53"	6' 2.39"	6' 9.99"
6' 0"	5' 10.34"	6' 1.74"	5' 10.25"	6' 1.85"	5' 10.04"	6' 2.08"	5' 9.8"	6' 2.34"	5' 9.55"	6' 2.64"	5' 9.26"	6' 2.98"	5' 8.94"	6' 3.36"
5' 6"	5' 4.61"	5' 7.45"	5' 4.54"	5' 7.53"	5' 4.36"	5' 7.73"	5' 4.17"	5' 7.95"	5' 3.95"	5' 8.19"	5' 3.71"	5' 8.47"	5' 3.44"	5' 8.79"
5' 0"	4' 10.86"	5' 1.18"	4' 10.8"	5' 1.25"	4' 10.66"	5' 1.41"	4' 10.5"	5' 1.59"	4' 10.32"	5' 1.79"	4' 10.12"	5' 2.01"	4' 9.9"	5' 2.27"
4' 6"	4' 5.09"	4' 6.94"	4' 5.04"	4' 7"	4' 4.92"	4' 7.12"	1.341	4' 7.26"	4' 4.65"	4' 7.42"	4' 4.49"	4' 7.6"	4' 4.31"	4' 7.81"
4' 0"	3' 11.29"	4' 0.73"	3' 11.25"	4' 0.77"	3' 11.16"	4' 0.87"	3' 11.06"	4' 0.98"	3' 10.95"	4' 1.1"	3' 10.82"	4' 1.24"	3' 10.68"	4' 1.4"
3' 6"	3' 5.47"	3' 6.55"	3' 5.44"	3' 6.58"	3' 5.37"	3' 6.65"	3' 5.29"	3' 6.73"	3' 5.21"	3' 6.82"	3' 5.11"	3' 6.93"	3' 5.01"	3' 7.04"
3' 0"	2' 11.62"	3' 0.39"	2' 11.6"	3' 0.41"	2' 11.55"	3' 0.46"	2' 11.49"	3' 0.52"	2' 11.43"	3' 0.59"	2' 11.36"	3' 0.66"	2' 11.29"	3' 0.74"
2' 6"	2' 5.75"	2' 6.26"	2' 5.73"	2' 6.27"	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' 5.52"	2' 6.49"
2' 0"	1' 11.85"	2' 0.16"	1' 11.84"	2' 0.16"	1' 11.82"	2' 0.18"	1' 11.8"	2' 0.21"	1' 11.77"	2' 0.23"	1' 11.74"	2' 0.26"	1' 11.71"	2' 0.29"
1' 9"	1' 8.89"	1' 9.11"	1' 8.88"	1' 9.12"	1' 8.87"	1' 9.13"	1' 8.85"	1' 9.15"	1' 8.83"	1' 9.17"	1' 8.81"	1' 9.19"	1' 8.79"	1' 9.22"
1' 8"	1' 7.9"	1' 8.1"	1' 7.89"	1' 8.11"	1' 7.88"	1' 8.12"	1' 7.87"	1' 8.13"	1' 7.85"	1' 8.15"	1' 7.83"	1' 8.17"	1' 7.81"	1' 8.19"



3.2	3.5	4	4.5	5	5.6	6.3	7.1
109' 8.93"	97' 9.7"	87' 2.1"	77' 8.44"	69' 3.18"	61' 8.98"	55' 0.59"	49' 0.98"

3.2		3.5		4		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)	Short Focus (ft-inch)	Long Focus (ft-inch)	Short Focus (ft-inch)	Long Focus (ft-inch)	Short Focus (ft-inch)	Long Focus (ft-inch)
109' 6.84"	Infinity	97' 7.64"	Infinity	87' 0.06"	Infinity	77' 6.4"	Infinity	69' 1.14"	Infinity	61' 6.93"	Infinity	54' 10.56"	Infinity	48' 10.96"	Infinity
57' 4.93"	Infinity	53' 11.64"	Infinity	50' 6.84"	Infinity	47' 2.78"	Infinity	43' 11.7"	Infinity	40' 9.81"	Infinity	37' 9.31"	Infinity	34' 10.34"	Infinity
38' 10.74"	131' 8.6"	37' 3.5"	154' 4.25"	35' 7.72"	191' 3.22"	33' 11.51"	261' 6"	32' 2.99"	445' 0.25"	30' 6.31"	2101' 6.29"	28' 9.59"	Infinity	27' 0.97"	Infinity
29' 4.92"	62' 7.56"	28' 5.85"	67' 3.62"	27' 6.24"	73' 5.46"	26' 6.11"	81' 10.31"	25' 5.53"	93' 11.16"	24' 4.54"	112' 6.88"	23' 3.24"	144' 10.46"	22' 1.68"	213' 9.24"
23' 7.72"	41' 0.99"	23' 0.56"	43' 0.39"	22' 4.94"	45' 5.47"	21' 8.88"	48' 6.3"	21' 0.39"	52' 6.08"	20' 3.51"	57' 10.03"	19' 6.26"	65' 3.35"	18' 8.68"	76' 3.73"
20' 5.26"	32' 2.58"	19' 11.9"	33' 4.78"	19' 6.17"	34' 10.01"	19' 0.06"	36' 7.22"	18' 5.57"	38' 9.76"	17' 10.72"	41' 7.67"	17' 3.52"	45' 4.18"	16' 7.99"	50' 4.68"
16' 11.81"	24' 4.04"	16' 8.12"	25' 0.02"	16' 4.13"	25' 9.52"	15' 11.85"	26' 8.93"	15' 7.26"	27' 10.79"	15' 2.37"	29' 3.86"	14' 9.18"	31' 1.24"	14' 3.69"	33' 4.58"
13' 3.01"	17' 3.47"	13' 0.78"	17' 7.43"	12' 10.35"	18' 0.06"	12' 7.71"	18' 5.51"	12' 4.85"	18' 11.96"	12' 1.77"	19' 7.68"	11' 10.46"	20' 4.99"	11' 6.93"	21' 4.37"
10' 10.36"	13' 4.88"	10' 8.87"	13' 7.23"	10' 7.24"	13' 9.95"	10' 5.45"	14' 1.12"	10' 3.51"	14' 4.82"	10' 1.4"	14' 9.17"	9' 11.12"	15' 2.34"	9' 8.66"	15' 8.51"
10' 0.5"	12' 1.98"	9' 11.23"	12' 3.91"	9' 9.83"	12' 6.13"	9' 8.31"	12' 8.7"	9' 6.64"	12' 11.7"	9' 4.83"	13' 3.21"	9' 2.86"	13' 7.35"	9' 0.74"	14' 0.26"
9' 2.46"	10' 11.38"	9' 1.4"	11' 0.93"	9' 0.23"	11' 2.71"	8' 10.95"	11' 4.77"	8' 9.55"	11' 7.16"	8' 8.02"	11' 9.94"	8' 6.35"	12' 1.2"	8' 4.55"	12' 5.05"
8' 4.26"	9' 9.07"	8' 3.39"	9' 10.29"	8' 2.43"	9' 11.69"	8' 1.37"	10' 1.3"	8' 0.21"	10' 3.17"	7' 10.95"	10' 5.33"	7' 9.57"	10' 7.85"	7' 8.07"	10' 10.8"
7' 11.09"	9' 2.02"	7' 10.31"	9' 3.09"	7' 9.45"	9' 4.32"	7' 8.5"	9' 5.74"	7' 7.46"	9' 7.37"	7' 6.32"	9' 9.25"	7' 5.07"	9' 11.45"	7' 3.72"	10' 2.01"
7' 5.88"	8' 7.04"	7' 5.18"	8' 7.98"	7' 4.41"	8' 9.05"	7' 3.57"	8' 10.28"	7' 2.64"	8' 11.7"	7' 1.62"	9' 1.33"	7' 0.51"	9' 3.23"	6' 11.29"	9' 5.44"
7' 0.62"	8' 0.13"	7' 0.01"	8' 0.94"	6' 11.33"	8' 1.87"	6' 10.58"	8' 2.93"	6' 9.76"	8' 4.15"	6' 8.85"	8' 5.55"	6' 7.86"	8' 7.18"	6' 6.78"	8' 9.07"
6' 7.32"	7' 5.29"	6' 6.78"	7' 5.98"	6' 6.19"	7' 6.77"	6' 5.53"	7' 7.68"	6' 4.81"	7' 8.72"	6' 4.02"	7' 9.92"	6' 3.15"	7' 11.3"	6' 2.19"	8' 0.9"
6' 1.97"	6' 10.51"	6' 1.51"	6' 11.1"	6' 0.99"	6' 11.77"	6' 0.43"	7' 0.53"	5' 11.8"	7' 1.41"	5' 11.11"	7' 2.42"	5' 10.35"	7' 3.58"	5' 9.52"	7' 4.93"
5' 8.58"	6' 3.79"	5' 8.18"	6' 4.29"	5' 7.74"	6' 4.85"	5' 7.26"	6' 5.49"	5' 6.72"	6' 6.22"	5' 6.13"	6' 7.06"	5' 5.48"	6' 8.02"	5' 4.76"	6' 9.14"
5' 3.14"	5' 9.15"	5' 2.8"	5' 9.55"	5' 2.43"	5' 10.01"	5' 2.03"	5' 10.54"	5' 1.57"	5' 11.14"	5' 1.07"	5' 11.83"	5' 0.52"	6' 0.62"	4' 11.91"	6' 1.52"
4' 9.65"	5' 2.56"	4' 9.37"	5' 2.89"	4' 9.07"	5' 3.26"	4' 8.73"	5' 3.69"	4' 8.35"	5' 4.17"	4' 7.94"	5' 4.72"	4' 7.48"	5' 5.36"	4' 6.98"	5' 6.08"
4' 4.11"	4' 8.04"	4' 3.89"	4' 8.3"	4' 3.64"	4' 8.59"	4' 3.37"	4' 8.93"	4' 3.07"	4' 9.31"	4' 2.73"	4' 9.74"	4' 2.36"	4' 10.24"	4' 1.94"	4' 10.81"
3' 10.53"	4' 1.58"	3' 10.35"	4' 1.78"	3' 10.16"	4' 2"	3' 9.94"	4' 2.26"	3' 9.7"	4' 2.55"	3' 9.44"	4' 2.89"	3' 9.14"	4' 3.26"	3' 8.82"	4' 3.7"
3' 4.89"	3' 7.18"	3' 4.76"	3' 7.32"	3' 4.61"	3' 7.49"	3' 4.45"	3' 7.68"	3' 4.27"	3' 7.9"	3' 4.06"	3' 8.14"	3' 3.84"	3' 8.42"	3' 3.59"	3' 8.74"
2' 11.2"	3' 0.84"	2' 11.11"	3' 0.94"	2' 11"	3' 1.06"	2' 10.88"	3' 1.19"	2' 10.75"	3' 1.35"	2' 10.61"	3' 1.52"	2' 10.44"	3' 1.71"	2' 10.26"	3' 1.94"
2' 5.47"	2' 6.55"	2' 5.4"	2' 6.62"	2' 5.33"	2' 6.7"	2' 5.25"	2' 6.79"	2' 5.16"	2' 6.89"	2' 5.06"	2' 7"	2' 4.95"	2' 7.13"	2' 4.83"	2' 7.28"
1' 11.68"	2' 0.33"	1' 11.64"	2' 0.37"	1' 11.6"	2' 0.42"	1' 11.55"	2' 0.47"	1' 11.49"	2' 0.53"	1' 11.43"	2' 0.6"	1' 11.37"	2' 0.67"	1' 11.29"	2' 0.76"
1' 8.76"	1' 9.24"	1' 8.74"	1' 9.27"	1' 8.7"	1' 9.31"	1' 8.67"	1' 9.34"	1' 8.63"	1' 9.39"	1' 8.58"	1' 9.44"	1' 8.53"	1' 9.49"	1' 8.48"	1' 9.55"
1' 7.79"	1' 8.22"	1' 7.76"	1' 8.24"	1' 7.74"	1' 8.27"	1' 7.7"	1' 8.31"	1' 7.67"	1' 8.34"	1' 7.63"	1' 8.39"	1' 7.58"	1' 8.44"	1' 7.54"	1' 8.49"



8	9	10	11	13	14	16	18
43' 9.2"	39' 0.35"	34' 9.72"	31' 0.64"	27' 8.44"	24' 8.65"	22' 0.72"	19' 8.34"

8		9		10		11		13		14		16		18	
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)	Short Focus (ft-inch)	Long Focus (ft-inch)	Short Focus (ft-inch)	Long Focus (ft-inch)	Short Focus (ft-inch)	Long Focus (ft-inch)
43' 7.17"	Infinity	38' 10.33"	Infinity	34' 7.7"	Infinity	30' 10.6"	Infinity	27' 6.41"	Infinity	24' 6.61"	Infinity	21' 10.71"	Infinity	19' 6.3"	Infinity
32' 1.03"	Infinity	29' 5.47"	Infinity	26' 11.72"	Infinity	24' 7.81"	Infinity	22' 5.74"	Infinity	20' 5.49"	Infinity	18' 7.03"	Infinity	16' 10.29"	Infinity
25' 4.6"	Infinity	23' 8.59"	Infinity	22' 1.06"	Infinity	20' 6.13"	Infinity	18' 11.89"	Infinity	17' 6.41"	Infinity	16' 1.76"	Infinity	14' 9.98"	Infinity
20' 11.96"	459' 0.36"	19' 10.17"	Infinity	18' 8.4"	Infinity	17' 6.74"	Infinity	16' 5.28"	Infinity	15' 4.1"	Infinity	14' 3.28"	Infinity	13' 2.89"	Infinity
17' 10.84"	94' 2.33"	17' 0.77"	127' 10.33"	16' 2.55"	213' 8.22"	15' 4.25"	869' 11.77"	14' 5.92"	Infinity	13' 7.64"	Infinity	12' 9.47"	Infinity	11' 11.49"	Infinity
16' 0.18"	57' 6.98"	15' 4.12"	68' 6.96"	14' 7.84"	87' 3.87"	13' 11.41"	126' 0.38"	13' 2.87"	251' 2.36"	12' 6.28"	Infinity	11' 9.69"	Infinity	11' 1.17"	Infinity
13' 9.93"	36' 4.5"	13' 3.92"	40' 5.4"	12' 9.67"	46' 3.31"	12' 3.23"	55' 2.55"	11' 8.61"	70' 6.25"	11' 1.88"	102' 5.5"	10' 7.05"	208' 9.24"	10' 0.19"	Infinity
11' 3.17"	22' 6.48"	10' 11.18"	24' 0.31"	10' 6.99"	25' 11.38"	10' 2.59"	28' 6.14"	9' 10.01"	32' 0.89"	9' 5.27"	37' 3.78"	9' 0.39"	45' 8.58"	8' 7.4"	61' 2.53"
9' 6.02"	16' 3.95"	9' 3.2"	17' 1.06"	9' 0.2"	18' 0.35"	8' 9.02"	19' 2.62"	8' 5.67"	20' 9.1"	8' 2.16"	22' 9.75"	7' 10.51"	25' 8.03"	7' 6.73"	29' 10.51"
8' 10.45"	14' 6.14"	8' 8"	15' 1.26"	8' 5.38"	15' 9.99"	8' 2.6"	16' 8.87"	7' 11.65"	17' 10.67"	7' 8.55"	19' 4.65"	7' 5.31"	21' 4.84"	7' 1.94"	24' 2.84"
8' 2.6"	12' 9.63"	8' 0.5"	13' 3.11"	7' 10.25"	13' 9.76"	7' 7.85"	14' 5.93"	7' 5.3"	15' 4.14"	7' 2.61"	16' 5.14"	6' 11.78"	17' 10.14"	6' 8.82"	19' 9.13"
7' 6.44"	11' 2.29"	7' 4.68"	11' 6.43"	7' 2.79"	11' 11.41"	7' 0.77"	12' 5.45"	6' 10.6"	13' 0.87"	6' 8.31"	13' 10.14"	6' 5.88"	14' 9.97"	6' 3.33"	16' 1.47"
7' 2.24"	10' 5.03"	7' 0.65"	10' 8.6"	6' 10.93"	11' 0.87"	6' 9.09"	11' 6.02"	6' 7.11"	12' 0.3"	6' 5.01"	12' 8.08"	6' 2.79"	13' 5.89"	6' 0.44"	14' 6.56"
6' 9.97"	9' 8.03"	6' 8.53"	9' 11.09"	6' 6.98"	10' 2.72"	6' 5.31"	10' 7.08"	6' 3.52"	11' 0.37"	6' 1.61"	11' 6.85"	5' 11.59"	12' 2.96"	5' 9.44"	13' 1.27"
6' 5.6"	8' 11.28"	6' 4.32"	9' 1.88"	6' 2.93"	9' 4.95"	6' 1.44"	9' 8.61"	5' 11.83"	10' 1.02"	5' 10.11"	10' 6.4"	5' 8.27"	11' 1.04"	5' 6.33"	11' 9.4"
6' 1.15"	8' 2.77"	6' 0.02"	8' 4.95"	5' 10.79"	8' 7.53"	5' 9.46"	8' 10.58"	5' 8.02"	9' 2.23"	5' 6.49"	9' 6.65"	5' 4.84"	10' 0.06"	5' 3.1"	10' 6.78"
5' 8.61"	7' 6.49"	5' 7.62"	7' 8.3"	5' 6.54"	7' 10.44"	5' 5.37"	8' 0.95"	5' 4.11"	8' 3.95"	5' 2.75"	8' 7.54"	5' 1.29"	8' 11.9"	4' 11.74"	9' 5.27"
5' 3.98"	6' 10.42"	5' 3.12"	6' 11.92"	5' 2.18"	7' 1.66"	5' 1.17"	7' 3.71"	5' 0.07"	7' 6.13"	4' 10.88"	7' 9.03"	4' 9.61"	8' 0.5"	4' 8.24"	8' 4.74"
4' 11.25"	6' 2.57"	4' 10.52"	6' 3.78"	4' 9.72"	6' 5.19"	4' 8.85"	6' 6.83"	4' 7.91"	6' 8.77"	4' 6.89"	6' 11.06"	4' 5.79"	7' 1.8"	4' 4.61"	7' 5.1"
4' 6.42"	5' 6.92"	4' 5.81"	5' 7.88"	4' 5.14"	5' 8.99"	4' 4.41"	5' 10.29"	4' 3.62"	5' 11.81"	4' 2.76"	6' 1.6"	4' 1.82"	6' 3.71"	4' 0.82"	6' 6.25"
4' 1.49"	4' 11.46"	4' 0.99"	5' 0.21"	4' 0.45"	5' 1.07"	3' 11.85"	5' 2.07"	3' 11.19"	5' 3.24"	3' 10.48"	5' 4.6"	3' 9.71"	5' 6.21"	3' 8.87"	5' 8.11"
3' 8.46"	4' 4.19"	3' 8.06"	4' 4.76"	3' 7.63"	4' 5.41"	3' 7.15"	4' 6.16"	3' 6.62"	4' 7.03"	3' 6.05"	4' 8.04"	3' 5.43"	4' 9.23"	3' 4.75"	4' 10.62"
3' 3.32"	3' 9.1"	3' 3.01"	3' 9.52"	3' 2.68"	3' 9.99"	3' 2.31"	3' 10.53"	3' 1.9"	3' 11.16"	3' 1.46"	3' 11.89"	3' 0.97"	4' 0.73"	3' 0.44"	4' 1.71"
2' 10.06"	3' 2.19"	2' 9.84"	3' 2.48"	2' 9.6"	3' 2.8"	2' 9.32"	3' 3.18"	2' 9.03"	3' 3.61"	2' 8.7"	3' 4.11"	2' 8.34"	3' 4.68"	2' 7.94"	3' 5.34"
2' 4.69"	2' 7.44"	2' 4.54"	2' 7.63"	2' 4.38"	2' 7.84"	2' 4.19"	2' 8.08"	2' 3.98"	2' 8.36"	2' 3.76"	2' 8.68"	2' 3.51"	2' 9.04"	2' 3.23"	2' 9.46"
1' 11.21"	2' 0.86"	1' 11.11"	2' 0.96"	1' 11.01"	2' 1.09"	1' 10.9"	2' 1.23"	1' 10.77"	2' 1.39"	1' 10.63"	2' 1.57"	1' 10.47"	2' 1.78"	1' 10.3"	2' 2.02"
1' 8.42"	1' 9.62"	1' 8.35"	1' 9.7"	1' 8.27"	1' 9.79"	1' 8.19"	1' 9.89"	1' 8.09"	1' 10.01"	1' 7.99"	1' 10.14"	1' 7.87"	1' 10.29"	1' 7.74"	1' 10.46"
1' 7.48"	1' 8.55"	1' 7.42"	1' 8.62"	1' 7.35"	1' 8.7"	1' 7.27"	1' 8.79"	1' 7.19"	1' 8.89"	1' 7.09"	1' 9.01"	1' 6.99"	1' 9.14"	1' 6.87"	1' 9.29"



20	22
17' 7.02"	15' 8.46"

20		22	
Short Focus (ft-inch)	Long Focus (ft-inch)	Short Focus (ft-inch)	Long Focus (ft-inch)
17' 4.98"	Infinity	15' 6.43"	Infinity
15' 3.22"	Infinity	13' 9.72"	Infinity
13' 7.11"	Infinity	12' 5.15"	Infinity
12' 2.97"	Infinity	11' 3.59"	Infinity
11' 1.74"	Infinity	10' 4.29"	Infinity
10' 4.76"	Infinity	9' 8.52"	Infinity
9' 5.34"	Infinity	8' 10.53"	Infinity
8' 2.33"	98' 11.29"	7' 9.22"	322' 10.93"
7' 2.84"	36' 7.56"	6' 10.85"	49' 1.51"
6' 10.45"	28' 5.74"	6' 6.87"	35' 5.53"
6' 5.74"	22' 5.72"	6' 2.57"	26' 7.05"
6' 0.67"	17' 10.48"	5' 9.9"	20' 4.32"
5' 9.98"	15' 11.42"	5' 7.42"	17' 10.74"
5' 7.19"	14' 2.76"	5' 4.84"	15' 9"
5' 4.28"	12' 8.16"	5' 2.13"	13' 10.4"
5' 1.25"	11' 3.31"	4' 11.31"	12' 2.39"
4' 10.09"	9' 11.98"	4' 8.35"	10' 8.55"
4' 6.79"	8' 9.98"	4' 5.25"	9' 4.56"
4' 3.34"	7' 9.13"	4' 2"	8' 2.13"
3' 11.74"	6' 9.31"	3' 10.59"	7' 1.05"
3' 7.97"	5' 10.39"	3' 7"	6' 1.13"
3' 4.01"	5' 0.27"	3' 3.22"	5' 2.24"
2' 11.87"	4' 2.87"	2' 11.24"	4' 4.24"
2' 7.51"	3' 6.12"	2' 7.04"	3' 7.02"
2' 2.93"	2' 9.94"	2' 2.6"	2' 10.5"
1' 10.11"	2' 2.29"	1' 9.9"	2' 2.61"
1' 7.6"	1' 10.65"	1' 7.44"	1' 10.87"
1' 6.75"	1' 9.46"	1' 6.6"	1' 9.66"



Focal Length 75 mm

Circle of Confusion 0.025 mm

T/No	1.5	1.6	1.8	2	2.2	2.5	2.8
Hyperfocal Distance (ft-inch)	500' 9.49"	473' 2.94"	421' 8.04"	375' 8.62"	334' 9.4"	298' 3.76"	265' 9.84"

T/No	1.5		1.6		1.8		2		2.2		2.5		2.8	
Focus Distance (ft-inch)	Short Focus (ft-inch)	Long Focus (ft-inch)	Short Focus (ft-inch)	Long Focus (ft-inch)	Short Focus (ft-inch)	Long Focus (ft-inch)	Short Focus (ft-inch)	Long Focus (ft-inch)	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	500' 5.59"	Infinity	472' 11.15"	Infinity	421' 4.39"	Infinity	375' 5.13"	Infinity	334' 6"	Infinity	298' 0.44"	Infinity	265' 6.61"	Infinity
120' 0"	96' 10.95"	157' 6.93"	95' 10.07"	160' 6.09"	93' 6.41"	167' 5.2"	91' 0.91"	175' 11.47"	88' 5.6"	186' 7.45"	85' 8.53"	200' 2.97"	82' 9.79"	218' 1.53"
60' 0"	53' 7.8"	68' 0.77"	53' 3.86"	68' 7.22"	52' 7.26"	69' 9.94"	51' 9.88"	71' 3.1"	50' 11.68"	72' 11.23"	50' 0.62"	74' 10.99"	49' 0.68"	77' 3.24"
40' 0"	37' 1.1"	43' 4.88"	36' 11.23"	43' 7.48"	36' 7.11"	44' 1.35"	36' 2.58"	44' 8.11"	35' 9.6"	45' 3.9"	35' 4.15"	46' 0.92"	34' 10.2"	46' 11.42"
30' 0"	28' 4.13"	31' 10.36"	28' 3.04"	31' 11.75"	28' 0.64"	32' 2.88"	27' 9.99"	32' 6.45"	27' 7.06"	32' 10.54"	27' 3.83"	33' 3.24"	27' 0.29"	33' 8.65"
25' 0"	23' 10.14"	26' 3.29"	23' 9.37"	26' 4.23"	23' 7.68"	26' 6.34"	23' 5.8"	26' 8.74"	23' 3.73"	26' 11.48"	23' 1.43"	27' 2.61"	22' 10.9"	27' 6.2"
20' 0"	19' 3.11"	20' 9.61"	19' 2.62"	20' 10.19"	19' 1.52"	20' 11.5"	19' 0.3"	21' 0.99"	18' 10.94"	21' 2.67"	18' 9.44"	21' 4.6"	18' 7.78"	21' 6.79"
15' 0"	14' 7.02"	15' 5.28"	14' 6.74"	15' 5.6"	14' 6.11"	15' 6.31"	14' 5.42"	15' 7.11"	14' 4.65"	15' 8.02"	14' 3.79"	15' 9.05"	14' 2.83"	15' 10.23"
12' 0"	11' 8.83"	12' 3.31"	11' 8.65"	12' 3.51"	11' 8.26"	12' 3.95"	11' 7.81"	12' 4.45"	11' 7.31"	12' 5.02"	11' 6.76"	12' 5.66"	11' 6.15"	12' 6.38"
11' 0"	10' 9.35"	11' 2.76"	10' 9.2"	11' 2.93"	10' 8.86"	11' 3.3"	10' 8.49"	11' 3.71"	10' 8.07"	11' 4.18"	10' 7.61"	11' 4.71"	10' 7.09"	11' 5.31"
10' 0"	9' 9.82"	10' 2.26"	9' 9.7"	10' 2.4"	9' 9.42"	10' 2.7"	9' 9.11"	10' 3.04"	9' 8.77"	10' 3.42"	9' 8.39"	10' 3.85"	9' 7.96"	10' 4.34"
9' 0"	8' 10.25"	9' 1.81"	8' 10.15"	9' 1.92"	8' 9.92"	9' 2.16"	8' 9.68"	9' 2.43"	8' 9.4"	9' 2.74"	8' 9.09"	9' 3.08"	8' 8.74"	9' 3.47"
8' 6"	8' 4.44"	8' 7.61"	8' 4.35"	8' 7.7"	8' 4.16"	8' 7.91"	8' 3.94"	8' 8.15"	8' 3.69"	8' 8.42"	8' 3.41"	8' 8.73"	8' 3.11"	8' 9.07"
8' 0"	7' 10.63"	8' 1.41"	7' 10.55"	8' 1.5"	7' 10.37"	8' 1.68"	7' 10.18"	8' 1.89"	7' 9.96"	8' 2.13"	7' 9.72"	8' 2.4"	7' 9.45"	8' 2.7"
7' 6"	7' 4.8"	7' 7.23"	7' 4.73"	7' 7.31"	7' 4.58"	7' 7.47"	7' 4.41"	7' 7.65"	7' 4.22"	7' 7.86"	7' 4"	7' 8.09"	7' 3.77"	7' 8.35"
7' 0"	6' 10.96"	7' 1.06"	6' 10.9"	7' 1.13"	6' 10.77"	7' 1.27"	6' 10.62"	7' 1.43"	6' 10.46"	7' 1.6"	6' 10.27"	7' 1.8"	6' 10.07"	7' 2.03"
6' 6"	6' 5.11"	6' 6.91"	6' 5.06"	6' 6.96"	6' 4.95"	6' 7.08"	6' 4.82"	6' 7.22"	6' 4.68"	6' 7.37"	6' 4.52"	6' 7.54"	6' 4.34"	6' 7.73"
6' 0"	5' 11.25"	6' 0.77"	5' 11.21"	6' 0.81"	5' 11.11"	6' 0.91"	5' 11"	6' 1.02"	5' 10.88"	6' 1.15"	5' 10.75"	6' 1.3"	5' 10.6"	6' 1.46"
5' 6"	5' 5.38"	5' 6.63"	5' 5.34"	5' 6.67"	5' 5.26"	5' 6.76"	5' 5.17"	5' 6.85"	5' 5.07"	5' 6.95"	5' 4.96"	5' 7.07"	5' 4.84"	5' 7.21"
5' 0"	4' 11.49"	5' 0.52"	4' 11.46"	5' 0.55"	4' 11.4"	5' 0.61"	4' 11.33"	5' 0.69"	4' 11.24"	5' 0.78"	4' 11.15"	5' 0.87"	4' 11.05"	5' 0.98"
4' 6"	4' 5.6"	4' 6.41"	4' 5.57"	4' 6.43"	4' 5.52"	4' 6.49"	1.358	4' 6.55"	4' 5.4"	4' 6.62"	4' 5.33"	4' 6.69"	4' 5.24"	4' 6.78"
4' 0"	3' 11.69"	4' 0.32"	3' 11.67"	4' 0.33"	3' 11.63"	4' 0.38"	3' 11.59"	4' 0.42"	3' 11.53"	4' 0.47"	3' 11.48"	4' 0.53"	3' 11.42"	4' 0.6"
3' 9"	3' 8.73"	3' 9.27"	3' 8.71"	3' 9.29"	3' 8.68"	3' 9.33"	3' 8.64"	3' 9.37"	3' 8.6"	3' 9.41"	3' 8.55"	3' 9.46"	3' 8.49"	3' 9.52"
3' 6"	3' 5.77"	3' 6.23"	3' 5.75"	3' 6.25"	3' 5.72"	3' 6.28"	3' 5.69"	3' 6.31"	3' 5.65"	3' 6.35"	3' 5.61"	3' 6.4"	3' 5.57"	3' 6.44"
3' 3"	3' 2.8"	3' 3.2"	3' 2.79"	3' 3.21"	3' 2.77"	3' 3.24"	3' 2.74"	3' 3.26"	3' 2.71"	3' 3.3"	3' 2.67"	3' 3.33"	3' 2.63"	3' 3.38"
3' 0"	2' 11.84"	3' 0.17"	2' 11.83"	3' 0.17"	2' 11.81"	3' 0.2"	2' 11.78"	3' 0.22"	2' 11.76"	3' 0.25"	2' 11.73"	3' 0.28"	2' 11.69"	3' 0.31"
2' 9"	2' 8.87"	2' 9.14"	2' 8.86"	2' 9.14"	2' 8.84"	2' 9.16"	2' 8.82"	2' 9.18"	2' 8.8"	2' 9.2"	2' 8.78"	2' 9.23"	2' 8.75"	2' 9.26"
2' 6"	2' 5.89"	2' 6.11"	2' 5.89"	2' 6.11"	2' 5.87"	2' 6.13"	2' 5.86"	2' 6.14"	2' 5.84"	2' 6.16"	2' 5.82"	2' 6.18"	2' 5.8"	2' 6.2"



3.2	3.5	4	4.5	5	5.6	6.3	7.1
236' 10.48"	211' 1.03"	188' 1.32"	167' 7.73"	149' 4.91"	133' 1.95"	118' 8.25"	105' 9.53"

3.2		3.5		4		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)	Short Focus (ft-inch)	Long Focus (ft-inch)	Short Focus (ft-inch)	Long Focus (ft-inch)	Short Focus (ft-inch)	Long Focus (ft-inch)
236' 7.31"	Infinity	210' 9.89"	Infinity	187' 10.23"	Infinity	167' 4.64"	Infinity	149' 1.84"	Infinity	132' 10.9"	Infinity	118' 5.24"	Infinity	105' 6.52"	Infinity
79' 9.49"	242' 5.17"	76' 7.8"	277' 1.12"	73' 4.88"	330' 1"	70' 0.95"	420' 4.07"	66' 8.25"	606' 6.86"	63' 3.04"	1207' 1.57"	59' 9.57"	Infinity	56' 4.13"	Infinity
47' 11.83"	80' 1.16"	46' 10.06"	83' 6.32"	45' 7.38"	87' 8.95"	44' 3.79"	93' 0.26"	42' 11.32"	99' 9.08"	41' 6.02"	108' 7.02"	39' 11.94"	120' 6.8"	38' 5.15"	137' 7.44"
34' 3.72"	47' 11.68"	33' 8.68"	49' 2.1"	33' 1.05"	50' 7.18"	32' 4.84"	52' 3.58"	31' 8.02"	54' 4.17"	30' 10.58"	56' 10.2"	30' 0.54"	59' 11.39"	29' 1.9"	63' 10.3"
26' 8.4"	34' 2.89"	26' 4.15"	34' 10.14"	25' 11.51"	35' 6.59"	25' 6.46"	36' 4.49"	25' 0.99"	37' 4.17"	24' 7.07"	38' 6.06"	24' 0.71"	39' 10.71"	23' 5.89"	41' 6.9"
22' 8.12"	27' 10.33"	22' 5.06"	28' 3.09"	22' 1.71"	28' 8.59"	21' 10.04"	29' 2.99"	21' 6.05"	29' 10.47"	21' 1.72"	30' 7.25"	20' 9.02"	31' 5.64"	20' 3.96"	32' 6.03"
18' 5.95"	21' 9.3"	18' 3.92"	22' 0.17"	18' 1.7"	22' 3.48"	17' 11.25"	22' 7.29"	17' 8.57"	22' 11.7"	17' 5.64"	23' 4.82"	17' 2.45"	23' 10.81"	16' 10.98"	24' 5.84"
14' 1.78"	15' 11.56"	14' 0.6"	16' 1.08"	13' 11.31"	16' 2.82"	13' 9.88"	16' 4.8"	13' 8.3"	16' 7.08"	13' 6.57"	16' 9.71"	13' 4.67"	17' 0.74"	13' 2.59"	17' 4.25"
11' 5.46"	12' 7.21"	11' 4.7"	12' 8.14"	11' 3.86"	12' 9.2"	11' 2.93"	12' 10.41"	11' 1.9"	12' 11.79"	11' 0.76"	13' 1.37"	10' 11.51"	13' 3.19"	10' 10.13"	13' 5.27"
10' 6.52"	11' 5.99"	10' 5.88"	11' 6.76"	10' 5.17"	11' 7.64"	10' 4.38"	11' 8.64"	10' 3.51"	11' 9.78"	10' 2.55"	11' 11.08"	10' 1.48"	12' 0.57"	10' 0.31"	12' 2.28"
9' 7.48"	10' 4.89"	9' 6.95"	10' 5.52"	9' 6.37"	10' 6.23"	9' 5.71"	10' 7.04"	9' 4.99"	10' 7.97"	9' 4.19"	10' 9.02"	9' 3.3"	10' 10.22"	9' 2.33"	10' 11.59"
8' 8.36"	9' 3.91"	8' 7.93"	9' 4.41"	8' 7.45"	9' 4.98"	8' 6.92"	9' 5.62"	8' 6.34"	9' 6.35"	8' 5.68"	9' 7.18"	8' 4.96"	9' 8.13"	8' 4.16"	9' 9.21"
8' 2.76"	8' 9.46"	8' 2.38"	8' 9.91"	8' 1.96"	8' 10.4"	8' 1.48"	8' 10.97"	8' 0.96"	8' 11.61"	8' 0.38"	9' 0.35"	7' 11.73"	9' 1.18"	7' 11.02"	9' 2.13"
7' 9.14"	8' 3.04"	7' 8.81"	8' 3.43"	7' 8.43"	8' 3.87"	7' 8.01"	8' 4.36"	7' 7.55"	8' 4.93"	7' 7.03"	8' 5.57"	7' 6.46"	8' 6.29"	7' 5.82"	8' 7.12"
7' 3.5"	7' 8.65"	7' 3.2"	7' 8.99"	7' 2.87"	7' 9.37"	7' 2.51"	7' 9.8"	7' 2.1"	7' 10.29"	7' 1.64"	7' 10.84"	7' 1.14"	7' 11.47"	7' 0.58"	8' 0.19"
6' 9.84"	7' 2.29"	6' 9.58"	7' 2.58"	6' 9.29"	7' 2.9"	6' 8.97"	7' 3.27"	6' 8.62"	7' 3.69"	6' 8.22"	7' 4.17"	6' 7.78"	7' 4.71"	6' 7.3"	7' 5.32"
6' 4.15"	6' 7.95"	6' 3.93"	6' 8.2"	6' 3.68"	6' 8.47"	6' 3.4"	6' 8.79"	6' 3.1"	6' 9.14"	6' 2.76"	6' 9.55"	6' 2.38"	6' 10.01"	6' 1.96"	6' 10.53"
5' 10.43"	6' 1.64"	5' 10.25"	6' 1.85"	5' 10.04"	6' 2.08"	5' 9.81"	6' 2.34"	5' 9.55"	6' 2.64"	5' 9.26"	6' 2.98"	5' 8.94"	6' 3.36"	5' 8.58"	6' 3.8"
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' 3.96"	5' 8.19"	5' 3.72"	5' 8.46"	5' 3.45"	5' 8.78"	5' 3.15"	5' 9.14"
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' 10.13"	5' 2"	4' 9.91"	5' 2.25"	4' 9.67"	5' 2.54"
4' 5.15"	4' 6.88"	4' 5.05"	4' 6.99"	4' 4.94"	4' 7.11"	4' 4.81"	4' 7.25"	4' 4.67"	4' 7.4"	4' 4.51"	4' 7.58"	4' 4.33"	4' 7.78"	4' 4.14"	4' 8.01"
3' 11.35"	4' 0.67"	3' 11.27"	4' 0.76"	3' 11.18"	4' 0.85"	3' 11.08"	4' 0.96"	3' 10.97"	4' 1.08"	3' 10.85"	4' 1.22"	3' 10.71"	4' 1.37"	3' 10.56"	4' 1.54"
3' 8.43"	3' 9.58"	3' 8.36"	3' 9.66"	3' 8.29"	3' 9.74"	3' 8.2"	3' 9.83"	3' 8.11"	3' 9.93"	3' 8"	3' 10.05"	3' 7.88"	3' 10.18"	3' 7.75"	3' 10.33"
3' 5.51"	3' 6.5"	3' 5.45"	3' 6.56"	3' 5.39"	3' 6.63"	3' 5.31"	3' 6.71"	3' 5.23"	3' 6.8"	3' 5.14"	3' 6.9"	3' 5.04"	3' 7.01"	3' 4.92"	3' 7.14"
3' 2.59"	3' 3.42"	3' 2.54"	3' 3.47"	3' 2.48"	3' 3.53"	3' 2.42"	3' 3.6"	3' 2.35"	3' 3.68"	3' 2.27"	3' 3.76"	3' 2.18"	3' 3.85"	3' 2.09"	3' 3.96"
2' 11.66"	3' 0.35"	2' 11.61"	3' 0.4"	2' 11.57"	3' 0.44"	2' 11.52"	3' 0.5"	2' 11.46"	3' 0.56"	2' 11.39"	3' 0.63"	2' 11.32"	3' 0.71"	2' 11.24"	3' 0.8"
2' 8.72"	2' 9.29"	2' 8.68"	2' 9.32"	2' 8.65"	2' 9.36"	2' 8.6"	2' 9.41"	2' 8.56"	2' 9.46"	2' 8.5"	2' 9.52"	2' 8.44"	2' 9.58"	2' 8.37"	2' 9.65"
2' 5.77"	2' 6.23"	2' 5.75"	2' 6.26"	2' 5.72"	2' 6.29"	2' 5.68"	2' 6.33"	2' 5.64"	2' 6.37"	2' 5.6"	2' 6.41"	2' 5.55"	2' 6.46"	2' 5.5"	2' 6.52"



8	9	10	11	13	14	16	18
94' 3.69"	84' 0.9"	74' 11.49"	66' 10.01"	59' 7.16"	53' 1.8"	47' 4.86"	42' 3.48"

8		9		10		11		13		14		16		18	
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)	Short Focus (ft-inch)	Long Focus (ft-inch)	Short Focus (ft-inch)	Long Focus (ft-inch)	Short Focus (ft-inch)	Long Focus (ft-inch)
94' 0.68"	Infinity	83' 9.88"	Infinity	74' 8.47"	Infinity	66' 7"	Infinity	59' 4.17"	Infinity	52' 10.8"	Infinity	47' 1.88"	Infinity	42' 0.48"	Infinity
52' 10.99"	Infinity	49' 6.42"	Infinity	46' 2.67"	Infinity	42' 11.97"	Infinity	39' 10.53"	Infinity	36' 10.52"	Infinity	34' 0.09"	Infinity	31' 3.35"	Infinity
36' 9.76"	163' 7.32"	35' 1.85"	207' 7.88"	33' 5.56"	297' 8.08"	31' 9"	580' 2.58"	30' 0.31"	Infinity	28' 3.63"	Infinity	26' 7.1"	Infinity	24' 10.85"	Infinity
28' 2.69"	68' 10.86"	27' 2.93"	75' 7.41"	26' 2.69"	84' 10.89"	25' 2"	98' 6.02"	24' 0.93"	120' 1.26"	22' 11.56"	159' 4.57"	21' 9.97"	251' 11.67"	20' 8.25"	725' 11.39"
22' 10.61"	43' 7.72"	22' 2.88"	46' 2.7"	21' 6.72"	49' 6.19"	20' 10.13"	53' 9.84"	20' 1.16"	59' 7.73"	19' 3.83"	67' 10.8"	18' 6.19"	80' 4.88"	17' 8.3"	101' 4.76"
19' 10.51"	33' 8.95"	19' 4.69"	35' 3.13"	18' 10.49"	37' 1.6"	18' 3.91"	39' 5.88"	17' 8.98"	42' 6.25"	17' 1.71"	46' 6.4"	16' 6.12"	52' 0.64"	15' 10.26"	60' 0.73"
16' 7.23"	25' 2.17"	16' 3.18"	26' 0.09"	15' 10.83"	27' 0.06"	15' 6.18"	28' 2.63"	15' 1.22"	29' 8.66"	14' 7.97"	31' 7.35"	14' 2.43"	34' 0.56"	13' 8.62"	37' 3.25"
13' 0.32"	17' 8.34"	12' 9.85"	18' 1.13"	12' 7.16"	18' 6.78"	12' 4.27"	19' 1.48"	12' 1.15"	19' 9.51"	11' 9.8"	20' 7.23"	11' 6.23"	21' 7.15"	11' 2.43"	22' 9.99"
10' 8.61"	13' 7.69"	10' 6.96"	13' 10.48"	10' 5.15"	14' 1.74"	10' 3.18"	14' 5.55"	10' 1.05"	14' 10.04"	9' 10.74"	15' 3.37"	9' 8.26"	15' 9.76"	9' 5.59"	16' 5.49"
9' 11.02"	12' 4.25"	9' 9.61"	12' 6.52"	9' 8.07"	12' 9.16"	9' 6.38"	13' 0.24"	9' 4.55"	13' 3.85"	9' 2.57"	13' 8.11"	9' 0.42"	14' 1.17"	8' 10.11"	14' 7.25"
9' 1.25"	11' 1.17"	9' 0.07"	11' 2.99"	8' 10.77"	11' 5.1"	8' 9.36"	11' 7.54"	8' 7.81"	11' 10.39"	8' 6.13"	12' 1.74"	8' 4.31"	12' 5.69"	8' 2.35"	12' 10.39"
8' 3.28"	9' 10.45"	8' 2.32"	9' 11.88"	8' 1.25"	10' 1.52"	8' 0.08"	10' 3.42"	7' 10.81"	10' 5.62"	7' 9.42"	10' 8.19"	7' 7.91"	10' 11.21"	7' 6.27"	11' 2.78"
7' 10.23"	9' 3.22"	7' 9.36"	9' 4.47"	7' 8.4"	9' 5.9"	7' 7.36"	9' 7.56"	7' 6.21"	9' 9.48"	7' 4.95"	9' 11.72"	7' 3.59"	10' 2.33"	7' 2.11"	10' 5.41"
7' 5.12"	8' 8.07"	7' 4.35"	8' 9.16"	7' 3.5"	8' 10.4"	7' 2.56"	8' 11.84"	7' 1.54"	9' 1.5"	7' 0.42"	9' 3.43"	6' 11.19"	9' 5.68"	6' 9.86"	9' 8.32"
6' 11.97"	8' 1.01"	6' 11.28"	8' 1.94"	6' 10.53"	8' 3.02"	6' 9.71"	8' 4.25"	6' 8.8"	8' 5.67"	6' 7.8"	8' 7.32"	6' 6.72"	8' 9.24"	6' 5.53"	8' 11.48"
6' 6.76"	7' 6.02"	6' 6.16"	7' 6.82"	6' 5.5"	7' 7.74"	6' 4.78"	7' 8.79"	6' 3.98"	7' 10"	6' 3.11"	7' 11.39"	6' 2.15"	8' 1.01"	6' 1.11"	8' 2.9"
6' 1.5"	6' 11.12"	6' 0.98"	6' 11.79"	6' 0.41"	7' 0.56"	5' 11.79"	7' 1.45"	5' 11.1"	7' 2.46"	5' 10.34"	7' 3.63"	5' 9.51"	7' 4.98"	5' 8.6"	7' 6.56"
5' 8.18"	6' 4.29"	5' 7.75"	6' 4.85"	5' 7.26"	6' 5.49"	5' 6.72"	6' 6.23"	5' 6.13"	6' 7.07"	5' 5.48"	6' 8.04"	5' 4.77"	6' 9.15"	5' 3.99"	6' 10.44"
5' 2.82"	5' 9.54"	5' 2.45"	5' 10"	5' 2.04"	5' 10.53"	5' 1.59"	5' 11.13"	5' 1.09"	5' 11.81"	5' 0.54"	6' 0.6"	4' 11.94"	6' 1.5"	4' 11.28"	6' 2.55"
4' 9.4"	5' 2.87"	4' 9.09"	5' 3.24"	4' 8.76"	5' 3.66"	4' 8.39"	5' 4.14"	4' 7.97"	5' 4.69"	4' 7.52"	5' 5.32"	4' 7.02"	5' 6.04"	4' 6.47"	5' 6.87"
4' 3.92"	4' 8.27"	4' 3.68"	4' 8.56"	4' 3.41"	4' 8.89"	4' 3.11"	4' 9.27"	4' 2.77"	4' 9.69"	4' 2.41"	4' 10.18"	4' 2"	4' 10.74"	4' 1.55"	4' 11.39"
3' 10.39"	4' 1.74"	3' 10.2"	4' 1.96"	3' 9.98"	4' 2.21"	3' 9.75"	4' 2.5"	3' 9.49"	4' 2.83"	3' 9.2"	4' 3.2"	3' 8.88"	4' 3.62"	3' 8.53"	4' 4.1"
3' 7.6"	3' 10.5"	3' 7.43"	3' 10.69"	3' 7.25"	3' 10.91"	3' 7.04"	3' 11.16"	3' 6.82"	3' 11.44"	3' 6.56"	3' 11.76"	3' 6.29"	4' 0.12"	3' 5.98"	4' 0.53"
3' 4.79"	3' 7.28"	3' 4.65"	3' 7.45"	3' 4.49"	3' 7.63"	3' 4.32"	3' 7.84"	3' 4.12"	3' 8.08"	3' 3.9"	3' 8.35"	3' 3.66"	3' 8.66"	3' 3.39"	3' 9.01"
3' 1.98"	3' 4.08"	3' 1.86"	3' 4.22"	3' 1.72"	3' 4.38"	3' 1.57"	3' 4.55"	3' 1.4"	3' 4.75"	3' 1.22"	3' 4.98"	3' 1.01"	3' 5.24"	3' 0.78"	3' 5.53"
2' 11.15"	3' 0.9"	2' 11.04"	3' 1.01"	2' 10.93"	3' 1.14"	2' 10.81"	3' 1.29"	2' 10.67"	3' 1.45"	2' 10.51"	3' 1.64"	2' 10.34"	3' 1.85"	2' 10.14"	3' 2.09"
2' 8.3"	2' 9.73"	2' 8.22"	2' 9.83"	2' 8.12"	2' 9.93"	2' 8.02"	2' 10.05"	2' 7.9"	2' 10.18"	2' 7.78"	2' 10.33"	2' 7.63"	2' 10.51"	2' 7.47"	2' 10.7"
2' 5.44"	2' 6.59"	2' 5.37"	2' 6.66"	2' 5.3"	2' 6.74"	2' 5.21"	2' 6.84"	2' 5.12"	2' 6.94"	2' 5.02"	2' 7.06"	2' 4.9"	2' 7.2"	2' 4.77"	2' 7.35"



20	22
37' 8.76"	33' 8.02"

20		22	
Short Focus (ft-inch)	Long Focus (ft-inch)	Short Focus (ft-inch)	Long Focus (ft-inch)
37' 5.77"	Infinity	33' 5.04"	Infinity
28' 8.38"	Infinity	26' 3.23"	Infinity
23' 3"	Infinity	21' 7.67"	Infinity
19' 6.48"	Infinity	18' 4.75"	Infinity
16' 10.21"	143' 6.06"	15' 11.98"	269' 2.09"
15' 2.15"	72' 7.41"	14' 5.85"	94' 11.13"
13' 2.56"	41' 8.54"	12' 8.28"	48' 1.96"
10' 10.41"	24' 4.84"	10' 6.18"	26' 5.39"
9' 2.75"	17' 2.97"	8' 11.72"	18' 2.77"
8' 7.64"	15' 2.63"	8' 5"	15' 11.7"
8' 0.23"	13' 4.05"	7' 9.97"	13' 10.92"
7' 4.5"	11' 7.03"	7' 2.6"	12' 0.14"
7' 0.51"	10' 9.07"	6' 10.78"	11' 1.43"
6' 8.42"	9' 11.43"	6' 6.87"	10' 3.14"
6' 4.25"	9' 2.12"	6' 2.86"	9' 5.24"
5' 11.97"	8' 5.11"	5' 10.74"	8' 7.72"
5' 7.6"	7' 8.39"	5' 6.53"	7' 10.54"
5' 3.13"	6' 11.94"	5' 2.2"	7' 1.69"
4' 10.55"	6' 3.76"	4' 9.76"	6' 5.16"
4' 5.86"	5' 7.82"	4' 5.2"	5' 8.93"
4' 1.06"	5' 0.13"	4' 0.52"	5' 0.98"
3' 8.14"	4' 4.66"	3' 7.71"	4' 5.3"
3' 5.64"	4' 1.01"	3' 5.26"	4' 1.55"
3' 3.1"	3' 9.41"	3' 2.77"	3' 9.87"
3' 0.53"	3' 5.86"	3' 0.25"	3' 6.24"
2' 9.93"	3' 2.37"	2' 9.69"	3' 2.68"
2' 7.3"	2' 10.92"	2' 7.1"	2' 11.17"
2' 4.63"	2' 7.53"	2' 4.47"	2' 7.73"



Focal Length 90 mm

Circle of Confusion 0.025 mm

T/No	1.5	1.6	1.8	2	2.2	2.5	2.8
Hyperfocal Distance (ft-inch)	701' 8.51"	663' 1.28"	590' 9.96"	526' 5.24"	469' 0.82"	417' 11.51"	372' 5.13"

T/No	1.5		1.6		1.8		2		2.2		2.5		2.8	
Focus Distance (ft-inch)	Short Focus (ft-inch)	Long Focus (ft-inch)	Short Focus (ft-inch)	Long Focus (ft-inch)	Short Focus (ft-inch)	Long Focus (ft-inch)	Short Focus (ft-inch)	Long Focus (ft-inch)	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	701' 3.2"	Infinity	662' 8.17"	Infinity	590' 5.16"	Infinity	526' 0.7"	Infinity	468' 8.5"	Infinity	417' 7.35"	Infinity	372' 1.09"	Infinity
120' 0"	102' 7.03"	144' 6.74"	101' 8.71"	146' 3.69"	99' 10.38"	150' 4.16"	97' 10.26"	155' 1.85"	95' 8.33"	160' 11.18"	93' 4.56"	167' 11.43"	90' 10.94"	176' 7.23"
60' 0"	55' 4.08"	65' 6.27"	55' 1.09"	65' 10.52"	54' 6.53"	66' 8.12"	53' 11.33"	67' 7.18"	53' 3.43"	68' 7.97"	52' 6.79"	69' 10.81"	51' 9.37"	71' 4.13"
40' 0"	37' 10.67"	42' 4.34"	37' 9.28"	42' 6.1"	37' 6.21"	42' 10.05"	37' 2.82"	43' 2.55"	36' 11.07"	43' 7.71"	36' 6.94"	44' 1.62"	36' 2.39"	44' 8.41"
30' 0"	28' 9.67"	31' 3.58"	28' 8.87"	31' 4.53"	28' 7.11"	31' 6.66"	28' 5.15"	31' 9.08"	28' 2.98"	31' 11.84"	28' 0.57"	32' 2.98"	27' 9.91"	32' 6.56"
25' 0"	24' 2.05"	25' 10.67"	24' 1.49"	25' 11.32"	24' 0.25"	26' 0.76"	23' 10.87"	26' 2.4"	23' 9.35"	26' 4.26"	23' 7.65"	26' 6.38"	23' 5.77"	26' 8.79"
20' 0"	19' 5.65"	20' 6.72"	19' 5.29"	20' 7.12"	19' 4.49"	20' 8.02"	19' 3.6"	20' 9.04"	19' 2.62"	20' 10.19"	19' 1.52"	20' 11.5"	19' 0.3"	21' 0.99"
15' 0"	14' 8.46"	15' 3.69"	14' 8.26"	15' 3.91"	14' 7.81"	15' 4.4"	14' 7.31"	15' 4.95"	14' 6.75"	15' 5.58"	14' 6.13"	15' 6.29"	14' 5.44"	15' 7.09"
12' 0"	11' 9.76"	12' 2.31"	11' 9.63"	12' 2.45"	11' 9.35"	12' 2.76"	11' 9.03"	12' 3.1"	11' 8.67"	12' 3.49"	11' 8.28"	12' 3.93"	11' 7.84"	12' 4.43"
11' 0"	10' 10.13"	11' 1.93"	10' 10.02"	11' 2.04"	10' 9.78"	11' 2.3"	10' 9.52"	11' 2.58"	10' 9.22"	11' 2.91"	10' 8.89"	11' 3.27"	10' 8.52"	11' 3.68"
10' 0"	9' 10.47"	10' 1.58"	9' 10.38"	10' 1.67"	9' 10.18"	10' 1.88"	9' 9.96"	10' 2.11"	9' 9.72"	10' 2.37"	9' 9.45"	10' 2.67"	9' 9.14"	10' 3.01"
9' 0"	8' 10.77"	9' 1.26"	8' 10.7"	9' 1.34"	8' 10.54"	9' 1.5"	8' 10.37"	9' 1.69"	8' 10.17"	9' 1.9"	8' 9.95"	9' 2.14"	8' 9.7"	9' 2.4"
8' 6"	8' 4.91"	8' 7.12"	8' 4.85"	8' 7.18"	8' 4.71"	8' 7.33"	8' 4.55"	8' 7.49"	8' 4.38"	8' 7.68"	8' 4.18"	8' 7.89"	8' 3.96"	8' 8.13"
8' 0"	7' 11.04"	8' 0.98"	7' 10.98"	8' 1.04"	7' 10.86"	8' 1.17"	7' 10.72"	8' 1.31"	7' 10.57"	8' 1.48"	7' 10.4"	8' 1.66"	7' 10.21"	8' 1.87"
7' 6"	7' 5.16"	7' 6.85"	7' 5.11"	7' 6.9"	7' 5.01"	7' 7.02"	7' 4.89"	7' 7.14"	7' 4.75"	7' 7.29"	7' 4.6"	7' 7.45"	7' 4.43"	7' 7.63"
7' 0"	6' 11.28"	7' 0.74"	6' 11.23"	7' 0.78"	6' 11.14"	7' 0.88"	6' 11.04"	7' 0.99"	6' 10.92"	7' 1.11"	6' 10.79"	7' 1.25"	6' 10.65"	7' 1.4"
6' 6"	6' 5.38"	6' 6.63"	6' 5.35"	6' 6.66"	6' 5.27"	6' 6.75"	6' 5.18"	6' 6.84"	6' 5.08"	6' 6.94"	6' 4.97"	6' 7.06"	6' 4.84"	6' 7.19"
6' 0"	5' 11.48"	6' 0.53"	5' 11.45"	6' 0.56"	5' 11.38"	6' 0.63"	5' 11.31"	6' 0.71"	5' 11.23"	6' 0.79"	5' 11.13"	6' 0.89"	5' 11.03"	6' 1"
5' 6"	5' 5.57"	5' 6.44"	5' 5.55"	5' 6.46"	5' 5.49"	5' 6.52"	5' 5.43"	5' 6.58"	5' 5.36"	5' 6.66"	5' 5.28"	5' 6.74"	5' 5.19"	5' 6.83"
5' 0"	4' 11.65"	5' 0.35"	4' 11.63"	5' 0.37"	4' 11.59"	5' 0.42"	4' 11.54"	5' 0.47"	4' 11.48"	5' 0.53"	4' 11.42"	5' 0.6"	4' 11.35"	5' 0.67"
4' 6"	4' 5.72"	4' 6.28"	4' 5.71"	4' 6.3"	4' 5.67"	4' 6.33"	1.362	4' 6.37"	4' 5.59"	4' 6.42"	4' 5.54"	4' 6.47"	4' 5.48"	4' 6.53"
4' 0"	3' 11.79"	4' 0.21"	3' 11.78"	4' 0.23"	3' 11.75"	4' 0.25"	3' 11.72"	4' 0.29"	3' 11.68"	4' 0.32"	3' 11.64"	4' 0.36"	3' 11.6"	4' 0.41"
3' 9"	3' 8.82"	3' 9.18"	3' 8.81"	3' 9.2"	3' 8.78"	3' 9.22"	3' 8.76"	3' 9.25"	3' 8.73"	3' 9.28"	3' 8.69"	3' 9.31"	3' 8.66"	3' 9.35"
3' 6"	3' 5.84"	3' 6.16"	3' 5.83"	3' 6.17"	3' 5.81"	3' 6.19"	3' 5.79"	3' 6.21"	3' 5.77"	3' 6.24"	3' 5.74"	3' 6.27"	3' 5.71"	3' 6.3"
3' 3"	3' 2.87"	3' 3.13"	3' 2.86"	3' 3.14"	3' 2.84"	3' 3.16"	3' 2.82"	3' 3.18"	3' 2.8"	3' 3.2"	3' 2.78"	3' 3.22"	3' 2.75"	3' 3.25"
3' 0"	2' 11.89"	3' 0.11"	2' 11.88"	3' 0.12"	2' 11.87"	3' 0.13"	2' 11.85"	3' 0.15"	2' 11.84"	3' 0.16"	2' 11.82"	3' 0.18"	2' 11.8"	3' 0.21"
2' 10"	2' 9.9"	2' 10.1"	2' 9.9"	2' 10.1"	2' 9.89"	2' 10.11"	2' 9.87"	2' 10.13"	2' 9.86"	2' 10.14"	2' 9.84"	2' 10.16"	2' 9.82"	2' 10.18"



3.2	3.5	4	4.5	5	5.6	6.3	7.1
331' 10.32"	295' 8.66"	263' 6.32"	234' 10.11"	209' 3.46"	186' 6.23"	166' 2.84"	148' 2.03"

3.2		3.5		4		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)	Short Focus (ft-inch)	Long Focus (ft-inch)	Short Focus (ft-inch)	Long Focus (ft-inch)	Short Focus (ft-inch)	Long Focus (ft-inch)
331' 6.41"	Infinity	295' 4.82"	Infinity	263' 2.53"	Infinity	234' 6.37"	Infinity	208' 11.76"	Infinity	186' 2.6"	Infinity	165' 11.23"	Infinity	147' 10.41"	Infinity
88' 3.52"	187' 5.28"	85' 6.35"	201' 3.72"	82' 7.51"	219' 6.6"	79' 7.13"	244' 4.98"	76' 5.36"	280' 0.28"	73' 2.39"	334' 9.49"	69' 10.42"	429' 0.12"	66' 5.7"	627' 2.86"
50' 11.13"	73' 0.44"	50' 0.03"	75' 0.42"	49' 0.04"	77' 4.96"	47' 11.15"	80' 3.24"	46' 9.34"	83' 8.88"	45' 6.62"	88' 0.14"	44' 2.99"	93' 4.32"	42' 10.49"	100' 2.36"
35' 9.4"	45' 4.25"	35' 3.93"	46' 1.34"	34' 9.96"	46' 11.9"	34' 3.46"	48' 0.25"	33' 8.4"	49' 2.78"	33' 0.76"	50' 7.99"	32' 4.52"	52' 4.56"	31' 7.68"	54' 5.37"
27' 6.98"	32' 10.67"	27' 3.75"	33' 3.39"	27' 0.19"	33' 8.82"	26' 8.3"	34' 3.09"	26' 4.04"	34' 10.37"	25' 11.39"	35' 6.86"	25' 6.33"	36' 4.82"	25' 0.85"	37' 4.57"
23' 3.69"	26' 11.53"	23' 1.4"	27' 2.68"	22' 10.86"	27' 6.28"	22' 8.07"	27' 10.42"	22' 5.01"	28' 3.19"	22' 1.66"	28' 8.71"	21' 9.99"	29' 3.13"	21' 6"	29' 10.63"
18' 10.94"	21' 2.68"	18' 9.44"	21' 4.6"	18' 7.78"	21' 6.8"	18' 5.95"	21' 9.31"	18' 3.93"	22' 0.19"	18' 1.7"	22' 3.49"	17' 11.26"	22' 7.3"	17' 8.58"	22' 11.72"
14' 4.67"	15' 8"	14' 3.81"	15' 9.03"	14' 2.86"	15' 10.2"	14' 1.81"	15' 11.53"	14' 0.64"	16' 1.04"	13' 11.35"	16' 2.77"	13' 9.92"	16' 4.76"	13' 8.35"	16' 7.03"
11' 7.34"	12' 4.99"	11' 6.79"	12' 5.62"	11' 6.18"	12' 6.34"	11' 5.5"	12' 7.16"	11' 4.75"	12' 8.09"	11' 3.91"	12' 9.14"	11' 2.99"	12' 10.35"	11' 1.96"	12' 11.72"
10' 8.1"	11' 4.15"	10' 7.64"	11' 4.67"	10' 7.13"	11' 5.27"	10' 6.56"	11' 5.95"	10' 5.92"	11' 6.71"	10' 5.22"	11' 7.58"	10' 4.44"	11' 8.57"	10' 3.57"	11' 9.7"
9' 8.8"	10' 3.39"	9' 8.42"	10' 3.82"	9' 8"	10' 4.3"	9' 7.53"	10' 4.85"	9' 7"	10' 5.47"	9' 6.42"	10' 6.18"	9' 5.77"	10' 6.98"	9' 5.05"	10' 7.89"
8' 9.43"	9' 2.71"	8' 9.12"	9' 3.05"	8' 8.78"	9' 3.43"	8' 8.4"	9' 3.87"	8' 7.98"	9' 4.36"	8' 7.5"	9' 4.92"	8' 6.98"	9' 5.55"	8' 6.4"	9' 6.28"
8' 3.72"	8' 8.39"	8' 3.45"	8' 8.69"	8' 3.14"	8' 9.03"	8' 2.8"	8' 9.42"	8' 2.43"	8' 9.85"	8' 2.01"	8' 10.35"	8' 1.54"	8' 10.91"	8' 1.02"	8' 11.54"
7' 9.99"	8' 2.1"	7' 9.75"	8' 2.37"	7' 9.48"	8' 2.66"	7' 9.18"	8' 3"	7' 8.85"	8' 3.38"	7' 8.48"	8' 3.81"	7' 8.07"	8' 4.3"	7' 7.61"	8' 4.86"
7' 4.25"	7' 7.83"	7' 4.04"	7' 8.06"	7' 3.8"	7' 8.32"	7' 3.54"	7' 8.61"	7' 3.25"	7' 8.94"	7' 2.92"	7' 9.31"	7' 2.56"	7' 9.74"	7' 2.16"	7' 10.22"
6' 10.48"	7' 1.58"	6' 10.3"	7' 1.77"	6' 10.1"	7' 2"	6' 9.87"	7' 2.25"	6' 9.62"	7' 2.53"	6' 9.34"	7' 2.85"	6' 9.02"	7' 3.21"	6' 8.68"	7' 3.63"
6' 4.71"	6' 7.34"	6' 4.55"	6' 7.51"	6' 4.38"	6' 7.7"	6' 4.18"	6' 7.91"	6' 3.97"	6' 8.15"	6' 3.72"	6' 8.42"	6' 3.46"	6' 8.73"	6' 3.16"	6' 9.08"
5' 10.91"	6' 1.13"	5' 10.78"	6' 1.27"	5' 10.63"	6' 1.43"	5' 10.47"	6' 1.6"	5' 10.29"	6' 1.81"	5' 10.08"	6' 2.03"	5' 9.85"	6' 2.29"	5' 9.6"	6' 2.58"
5' 5.1"	5' 6.93"	5' 4.99"	5' 7.05"	5' 4.87"	5' 7.18"	5' 4.73"	5' 7.32"	5' 4.58"	5' 7.49"	5' 4.41"	5' 7.68"	5' 4.22"	5' 7.89"	5' 4.01"	5' 8.13"
4' 11.27"	5' 0.75"	4' 11.18"	5' 0.85"	4' 11.08"	5' 0.95"	4' 10.97"	5' 1.07"	4' 10.84"	5' 1.21"	4' 10.71"	5' 1.36"	4' 10.55"	5' 1.53"	4' 10.38"	5' 1.72"
4' 5.42"	4' 6.6"	4' 5.35"	4' 6.67"	4' 5.27"	4' 6.75"	4' 5.18"	4' 6.85"	4' 5.08"	4' 6.95"	4' 4.97"	4' 7.07"	4' 4.85"	4' 7.2"	4' 4.71"	4' 7.36"
3' 11.55"	4' 0.46"	3' 11.5"	4' 0.51"	3' 11.44"	4' 0.58"	3' 11.37"	4' 0.65"	3' 11.3"	4' 0.73"	3' 11.21"	4' 0.82"	3' 11.12"	4' 0.92"	3' 11.01"	4' 1.04"
3' 8.61"	3' 9.39"	3' 8.57"	3' 9.44"	3' 8.51"	3' 9.5"	3' 8.46"	3' 9.56"	3' 8.39"	3' 9.63"	3' 8.32"	3' 9.71"	3' 8.24"	3' 9.79"	3' 8.14"	3' 9.89"
3' 5.67"	3' 6.34"	3' 5.63"	3' 6.38"	3' 5.59"	3' 6.42"	3' 5.54"	3' 6.48"	3' 5.48"	3' 6.53"	3' 5.42"	3' 6.6"	3' 5.35"	3' 6.68"	3' 5.27"	3' 6.76"
3' 2.72"	3' 3.28"	3' 2.69"	3' 3.32"	3' 2.65"	3' 3.36"	3' 2.61"	3' 3.4"	3' 2.56"	3' 3.45"	3' 2.51"	3' 3.51"	3' 2.45"	3' 3.57"	3' 2.38"	3' 3.64"
2' 11.77"	3' 0.23"	2' 11.74"	3' 0.26"	2' 11.71"	3' 0.29"	2' 11.68"	3' 0.33"	2' 11.64"	3' 0.37"	2' 11.59"	3' 0.42"	2' 11.54"	3' 0.47"	2' 11.49"	3' 0.53"
2' 9.8"	2' 10.2"	2' 9.77"	2' 10.23"	2' 9.75"	2' 10.26"	2' 9.72"	2' 10.29"	2' 9.68"	2' 10.32"	2' 9.64"	2' 10.36"	2' 9.6"	2' 10.41"	2' 9.55"	2' 10.46"



8	9	10	11	13	14	16	18
132' 0.84"	117' 8.72"	104' 11.41"	93' 6.8"	83' 5.1"	74' 4.68"	66' 4.1"	59' 2.04"

8		9		10		11		13		14		16		18	
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)	Short Focus (ft-inch)	Long Focus (ft-inch)	Short Focus (ft-inch)	Long Focus (ft-inch)	Short Focus (ft-inch)	Long Focus (ft-inch)
131' 9.25"	Infinity	117' 5.16"	Infinity	104' 7.84"	Infinity	93' 3.25"	Infinity	83' 1.56"	Infinity	74' 1.15"	Infinity	66' 0.57"	Infinity	58' 10.52"	Infinity
63' 0.48"	1303' 9.27"	59' 7.03"	Infinity	56' 1.62"	Infinity	52' 8.54"	Infinity	49' 4.04"	Infinity	46' 0.38"	Infinity	42' 9.78"	Infinity	39' 8.45"	Infinity
41' 5.15"	109' 2.11"	39' 11.04"	121' 4.72"	38' 4.24"	138' 10.13"	36' 8.83"	165' 6.97"	35' 0.92"	211' 3.45"	33' 4.62"	306' 3.2"	31' 8.08"	618' 9.8"	29' 11.41"	Infinity
30' 10.23"	56' 11.69"	30' 0.17"	60' 1.27"	29' 1.52"	64' 0.73"	28' 2.29"	69' 2.09"	27' 2.53"	75' 11.85"	26' 2.28"	85' 5.3"	25' 1.59"	99' 3.92"	24' 0.52"	121' 6.22"
24' 6.93"	38' 6.53"	24' 0.56"	39' 11.3"	23' 5.74"	41' 7.63"	22' 10.45"	43' 8.64"	22' 2.72"	46' 3.89"	21' 6.55"	49' 7.76"	20' 9.97"	53' 11.98"	20' 0.99"	59' 10.77"
21' 1.66"	30' 7.45"	20' 8.96"	31' 5.88"	20' 3.9"	32' 6.33"	19' 10.45"	33' 9.32"	19' 4.63"	35' 3.61"	18' 10.43"	37' 2.22"	18' 3.86"	39' 6.68"	17' 8.93"	42' 7.34"
17' 5.65"	23' 4.85"	17' 2.46"	23' 10.84"	16' 11"	24' 5.89"	16' 7.25"	25' 2.23"	16' 3.2"	26' 0.18"	15' 10.86"	27' 0.17"	15' 6.21"	28' 2.79"	15' 1.27"	29' 8.87"
13' 6.62"	16' 9.65"	13' 4.73"	17' 0.67"	13' 2.66"	17' 4.17"	13' 0.39"	17' 8.25"	12' 9.93"	18' 1.03"	12' 7.26"	18' 6.67"	12' 4.37"	19' 1.36"	12' 1.26"	19' 9.37"
11' 0.83"	13' 1.29"	10' 11.58"	13' 3.09"	10' 10.21"	13' 5.17"	10' 8.71"	13' 7.56"	10' 7.06"	13' 10.34"	10' 5.26"	14' 1.58"	10' 3.31"	14' 5.36"	10' 1.19"	14' 9.83"
10' 2.62"	11' 10.99"	10' 1.56"	12' 0.47"	10' 0.4"	12' 2.17"	9' 11.12"	12' 4.12"	9' 9.72"	12' 6.38"	9' 8.19"	12' 9"	9' 6.51"	13' 0.05"	9' 4.7"	13' 3.63"
9' 4.26"	10' 8.93"	9' 3.38"	10' 10.12"	9' 2.41"	10' 11.48"	9' 1.35"	11' 1.05"	9' 0.18"	11' 2.85"	8' 10.89"	11' 4.93"	8' 9.49"	11' 7.35"	8' 7.95"	11' 10.17"
8' 5.75"	9' 7.1"	8' 5.04"	9' 8.03"	8' 4.25"	9' 9.1"	8' 3.38"	9' 10.33"	8' 2.42"	9' 11.73"	8' 1.37"	10' 1.36"	8' 0.22"	10' 3.23"	7' 10.95"	10' 5.41"
8' 0.45"	9' 0.26"	7' 11.81"	9' 1.09"	7' 11.1"	9' 2.02"	7' 10.32"	9' 3.1"	7' 9.47"	9' 4.33"	7' 8.52"	9' 5.75"	7' 7.49"	9' 7.38"	7' 6.35"	9' 9.27"
7' 7.1"	8' 5.49"	7' 6.53"	8' 6.2"	7' 5.91"	8' 7.02"	7' 5.22"	8' 7.95"	7' 4.45"	8' 9.02"	7' 3.61"	8' 10.25"	7' 2.69"	8' 11.67"	7' 1.68"	9' 1.3"
7' 1.71"	7' 10.76"	7' 1.22"	7' 11.38"	7' 0.67"	8' 0.09"	7' 0.06"	8' 0.89"	6' 11.39"	8' 1.81"	6' 10.65"	8' 2.87"	6' 9.83"	8' 4.08"	6' 8.94"	8' 5.48"
6' 8.29"	7' 4.09"	6' 7.86"	7' 4.62"	6' 7.38"	7' 5.23"	6' 6.85"	7' 5.91"	6' 6.26"	7' 6.7"	6' 5.62"	7' 7.59"	6' 4.9"	7' 8.62"	6' 4.12"	7' 9.81"
6' 2.82"	6' 9.48"	6' 2.45"	6' 9.92"	6' 2.04"	6' 10.43"	6' 1.58"	6' 11.01"	6' 1.08"	6' 11.67"	6' 0.52"	7' 0.43"	5' 11.91"	7' 1.29"	5' 11.23"	7' 2.29"
5' 9.32"	6' 2.91"	5' 9"	6' 3.29"	5' 8.65"	6' 3.71"	5' 8.27"	6' 4.19"	5' 7.84"	6' 4.74"	5' 7.36"	6' 5.37"	5' 6.84"	6' 6.08"	5' 6.26"	6' 6.9"
5' 3.77"	5' 8.4"	5' 3.51"	5' 8.71"	5' 3.22"	5' 9.05"	5' 2.9"	5' 9.45"	5' 2.54"	5' 9.9"	5' 2.14"	5' 10.41"	5' 1.7"	5' 10.99"	5' 1.21"	5' 11.66"
4' 10.19"	5' 1.94"	4' 9.97"	5' 2.18"	4' 9.73"	5' 2.46"	4' 9.47"	5' 2.78"	4' 9.18"	5' 3.14"	4' 8.85"	5' 3.55"	4' 8.49"	5' 4.01"	4' 8.09"	5' 4.55"
4' 4.56"	4' 7.53"	4' 4.39"	4' 7.72"	4' 4.2"	4' 7.94"	4' 3.99"	4' 8.19"	4' 3.75"	4' 8.47"	4' 3.49"	4' 8.79"	4' 3.2"	4' 9.15"	4' 2.88"	4' 9.56"
3' 10.89"	4' 1.17"	3' 10.76"	4' 1.31"	3' 10.61"	4' 1.48"	3' 10.45"	4' 1.67"	3' 10.27"	4' 1.88"	3' 10.06"	4' 2.12"	3' 9.84"	4' 2.4"	3' 9.59"	4' 2.71"
3' 8.04"	3' 10.01"	3' 7.93"	3' 10.13"	3' 7.8"	3' 10.28"	3' 7.66"	3' 10.44"	3' 7.5"	3' 10.62"	3' 7.32"	3' 10.83"	3' 7.13"	3' 11.06"	3' 6.91"	3' 11.33"
3' 5.18"	3' 6.86"	3' 5.08"	3' 6.96"	3' 4.97"	3' 7.09"	3' 4.85"	3' 7.22"	3' 4.72"	3' 7.38"	3' 4.56"	3' 7.55"	3' 4.4"	3' 7.75"	3' 4.21"	3' 7.98"
3' 2.31"	3' 3.72"	3' 2.23"	3' 3.81"	3' 2.13"	3' 3.91"	3' 2.03"	3' 4.03"	3' 1.92"	3' 4.16"	3' 1.79"	3' 4.3"	3' 1.64"	3' 4.47"	3' 1.49"	3' 4.66"
2' 11.43"	3' 0.59"	2' 11.36"	3' 0.67"	2' 11.28"	3' 0.75"	2' 11.2"	3' 0.85"	2' 11.1"	3' 0.95"	2' 10.99"	3' 1.07"	2' 10.87"	3' 1.21"	2' 10.74"	3' 1.37"
2' 9.5"	2' 10.52"	2' 9.44"	2' 10.58"	2' 9.37"	2' 10.66"	2' 9.3"	2' 10.74"	2' 9.21"	2' 10.83"	2' 9.12"	2' 10.93"	2' 9.02"	2' 11.05"	2' 8.9"	2' 11.19"



20	22
52' 9.39"	47' 1.08"

20		22	
Short Focus (ft-inch)	Long Focus (ft-inch)	Short Focus (ft-inch)	Long Focus (ft-inch)
52' 5.86"	Infinity	46' 9.56"	Infinity
36' 8.57"	Infinity	33' 10.28"	Infinity
28' 2.76"	Infinity	26' 6.26"	Infinity
22' 11.16"	162' 3.12"	21' 9.59"	260' 4.72"
19' 3.67"	68' 3.37"	18' 6.04"	81' 0.36"
17' 1.66"	46' 7.94"	16' 6.09"	52' 2.91"
14' 8.02"	31' 7.65"	14' 2.49"	34' 0.98"
11' 9.92"	20' 7.07"	11' 6.36"	21' 6.96"
9' 10.89"	15' 3.13"	9' 8.42"	15' 9.47"
9' 2.72"	13' 7.85"	9' 0.59"	14' 0.88"
8' 6.29"	12' 1.48"	8' 4.48"	12' 5.39"
7' 9.58"	10' 7.95"	7' 8.08"	10' 10.93"
7' 5.11"	9' 11.48"	7' 3.76"	10' 2.06"
7' 0.57"	9' 3.2"	6' 11.36"	9' 5.41"
6' 7.95"	8' 7.1"	6' 6.88"	8' 8.98"
6' 3.26"	7' 11.18"	6' 2.32"	8' 0.77"
5' 10.48"	7' 3.43"	5' 9.67"	7' 4.75"
5' 5.62"	6' 7.85"	5' 4.92"	6' 8.93"
5' 0.68"	6' 0.42"	5' 0.09"	6' 1.3"
4' 7.65"	5' 5.15"	4' 7.16"	5' 5.85"
4' 2.52"	4' 10.04"	4' 2.13"	4' 10.58"
3' 9.31"	4' 3.06"	3' 9"	4' 3.47"
3' 6.67"	3' 11.63"	3' 6.4"	3' 11.98"
3' 4"	3' 8.23"	3' 3.77"	3' 8.53"
3' 1.31"	3' 4.87"	3' 1.11"	3' 5.11"
2' 10.59"	3' 1.54"	2' 10.43"	3' 1.74"
2' 8.77"	2' 11.34"	2' 8.63"	2' 11.51"



Focal Length 135 mm

Circle of Confusion 0.025 mm

T/No	1.9	2	2.2	2.5	2.8	3.2	3.5
Hyperfocal Distance (ft-inch)	1232' 1.59"	1170' 6.93"	1042' 11.75"	929' 3.61"	828' 0.3"	737' 9.58"	657' 5.02"

T/No	1.9		2		2.2		2.5		2.8		3.2		3.5	
Focus Distance (ft-inch)	Short Focus (ft-inch)	Long Focus (ft-inch)	Short Focus (ft-inch)	Long Focus (ft-inch)	Short Focus (ft-inch)	Long Focus (ft-inch)	Short Focus (ft-inch)	Long Focus (ft-inch)	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	1231' 2.81"	Infinity	1169' 8.69"	Infinity	1042' 2.53"	Infinity	928' 7.22"	Infinity	827' 4.56"	Infinity	737' 2.36"	Infinity	656' 10.18"	Infinity
120' 0"	109' 5.73"	132' 9.28"	108' 11.7"	133' 6.26"	107' 9.16"	135' 4.69"	106' 5.22"	137' 6.64"	104' 11.79"	140' 0.76"	103' 4.79"	142' 11.93"	101' 8.14"	146' 5.2"
60' 0"	57' 3.41"	62' 11.86"	57' 1.78"	63' 1.85"	56' 9.82"	63' 6.77"	56' 5.42"	64' 0.36"	56' 0.55"	64' 6.73"	55' 7.17"	65' 2.02"	55' 1.24"	65' 10.37"
40' 0"	38' 9.49"	41' 3.46"	38' 8.75"	41' 4.3"	38' 6.95"	41' 6.37"	38' 4.95"	41' 8.72"	38' 2.72"	41' 11.38"	38' 0.25"	42' 2.41"	37' 9.5"	42' 5.85"
30' 0"	29' 3.89"	30' 8.5"	29' 3.47"	30' 8.96"	29' 2.45"	30' 10.09"	29' 1.32"	30' 11.37"	29' 0.06"	31' 0.81"	28' 10.65"	31' 2.44"	28' 9.08"	31' 4.29"
25' 0"	24' 6.41"	25' 5.82"	24' 6.12"	25' 6.13"	24' 5.41"	25' 6.9"	24' 4.63"	25' 7.76"	24' 3.75"	25' 8.74"	24' 2.77"	25' 9.85"	24' 1.68"	25' 11.1"
20' 0"	19' 8.47"	20' 3.64"	19' 8.28"	20' 3.84"	19' 7.84"	20' 4.32"	19' 7.34"	20' 4.86"	19' 6.78"	20' 5.47"	19' 6.15"	20' 6.15"	19' 5.46"	20' 6.93"
15' 0"	14' 10.06"	15' 1.98"	14' 9.96"	15' 2.09"	14' 9.71"	15' 2.35"	14' 9.44"	15' 2.64"	14' 9.13"	15' 2.97"	14' 8.78"	15' 3.34"	14' 8.4"	15' 3.76"
12' 0"	11' 10.79"	12' 1.23"	11' 10.73"	12' 1.3"	11' 10.57"	12' 1.46"	11' 10.4"	12' 1.64"	11' 10.21"	12' 1.84"	11' 9.99"	12' 2.07"	11' 9.75"	12' 2.33"
11' 0"	10' 11"	11' 1.02"	10' 10.94"	11' 1.07"	10' 10.82"	11' 1.21"	10' 10.67"	11' 1.36"	10' 10.51"	11' 1.52"	10' 10.33"	11' 1.71"	10' 10.13"	11' 1.93"
10' 0"	9' 11.18"	10' 0.83"	9' 11.14"	10' 0.87"	9' 11.04"	10' 0.98"	9' 10.92"	10' 1.1"	9' 10.79"	10' 1.24"	9' 10.64"	10' 1.39"	9' 10.48"	10' 1.56"
9' 0"	8' 11.35"	9' 0.66"	8' 11.32"	9' 0.69"	8' 11.23"	9' 0.78"	8' 11.14"	9' 0.87"	8' 11.04"	9' 0.98"	8' 10.92"	9' 1.1"	8' 10.79"	9' 1.24"
8' 6"	8' 5.43"	8' 6.58"	8' 5.4"	8' 6.61"	8' 5.32"	8' 6.69"	8' 5.24"	8' 6.77"	8' 5.15"	8' 6.86"	8' 5.05"	8' 6.97"	8' 4.93"	8' 7.09"
8' 0"	7' 11.5"	8' 0.51"	7' 11.47"	8' 0.53"	7' 11.41"	8' 0.6"	7' 11.34"	8' 0.67"	7' 11.26"	8' 0.76"	7' 11.17"	8' 0.85"	7' 11.07"	8' 0.95"
7' 6"	7' 5.57"	7' 6.44"	7' 5.54"	7' 6.46"	7' 5.49"	7' 6.52"	7' 5.43"	7' 6.58"	7' 5.36"	7' 6.65"	7' 5.28"	7' 6.73"	7' 5.19"	7' 6.82"
7' 0"	6' 11.63"	7' 0.37"	6' 11.61"	7' 0.39"	6' 11.56"	7' 0.44"	6' 11.51"	7' 0.5"	6' 11.45"	7' 0.56"	6' 11.38"	7' 0.63"	6' 11.31"	7' 0.71"
6' 6"	6' 5.69"	6' 6.32"	6' 5.67"	6' 6.33"	6' 5.63"	6' 6.37"	6' 5.58"	6' 6.42"	6' 5.53"	6' 6.47"	6' 5.48"	6' 6.53"	6' 5.41"	6' 6.6"
6' 0"	5' 11.74"	6' 0.26"	5' 11.73"	6' 0.28"	5' 11.69"	6' 0.31"	5' 11.65"	6' 0.35"	5' 11.61"	6' 0.39"	5' 11.57"	6' 0.44"	5' 11.51"	6' 0.49"
5' 6"	5' 5.79"	5' 6.21"	5' 5.78"	5' 6.23"	5' 5.75"	5' 6.25"	5' 5.72"	5' 6.28"	5' 5.68"	5' 6.32"	5' 5.65"	5' 6.36"	5' 5.6"	5' 6.4"
5' 0"	4' 11.83"	5' 0.17"	4' 11.82"	5' 0.18"	4' 11.8"	5' 0.2"	4' 11.77"	5' 0.23"	4' 11.75"	5' 0.25"	4' 11.72"	5' 0.29"	4' 11.68"	5' 0.32"
4' 6"	4' 5.87"	4' 6.13"	4' 5.86"	4' 6.14"	4' 5.84"	4' 6.16"	1.367	4' 6.18"	4' 5.8"	4' 6.2"	4' 5.78"	4' 6.22"	4' 5.75"	4' 6.25"
4' 0"	3' 11.9"	4' 0.1"	3' 11.9"	4' 0.1"	3' 11.88"	4' 0.12"	3' 11.87"	4' 0.13"	3' 11.85"	4' 0.15"	3' 11.84"	4' 0.17"	3' 11.82"	4' 0.19"
3' 9"	3' 8.92"	3' 9.08"	3' 8.91"	3' 9.09"	3' 8.9"	3' 9.1"	3' 8.89"	3' 9.11"	3' 8.88"	3' 9.12"	3' 8.86"	3' 9.14"	3' 8.84"	3' 9.16"
3' 6"	3' 5.93"	3' 6.07"	3' 5.93"	3' 6.07"	3' 5.92"	3' 6.08"	3' 5.91"	3' 6.09"	3' 5.9"	3' 6.1"	3' 5.88"	3' 6.12"	3' 5.87"	3' 6.13"
3' 3"	3' 2.94"	3' 3.06"	3' 2.94"	3' 3.06"	3' 2.93"	3' 3.07"	3' 2.92"	3' 3.08"	3' 2.91"	3' 3.09"	3' 2.9"	3' 3.1"	3' 2.89"	3' 3.11"



4	4.5	5	5.6	6.3	7.1	8	9
585' 9.65"	522' 0.06"	465' 2.01"	414' 6.33"	369' 4.99"	329' 2.71"	293' 5.02"	261' 6.23"

4		4.5		5		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)	Short Focus (ft-inch)	Long Focus (ft-inch)	Short Focus (ft-inch)	Long Focus (ft-inch)	Short Focus (ft-inch)	Long Focus (ft-inch)
585' 3.16"	Infinity	521' 5.82"	Infinity	464' 7.96"	Infinity	414' 0.47"	Infinity	368' 11.24"	Infinity	328' 9.04"	Infinity	292' 11.45"	Infinity	261' 0.72"	Infinity
99' 9.77"	150' 5.96"	97' 9.62"	155' 4.04"	95' 7.65"	161' 1.87"	93' 3.85"	168' 2.78"	90' 10.22"	176' 11.47"	88' 2.78"	187' 10.76"	85' 5.59"	201' 10.99"	82' 6.76"	220' 4.56"
54' 6.7"	66' 7.95"	53' 11.51"	67' 6.99"	53' 3.64"	68' 7.75"	52' 7.03"	69' 10.57"	51' 9.63"	71' 3.86"	50' 11.42"	73' 0.14"	50' 0.36"	75' 0.1"	49' 0.41"	77' 4.6"
37' 6.46"	42' 9.76"	37' 3.09"	43' 2.23"	36' 11.37"	43' 7.34"	36' 7.27"	44' 1.2"	36' 2.76"	44' 7.94"	35' 9.81"	45' 3.71"	35' 4.39"	46' 0.72"	34' 10.46"	46' 11.19"
28' 7.34"	31' 6.39"	28' 5.41"	31' 8.78"	28' 3.27"	31' 11.49"	28' 0.9"	32' 2.58"	27' 10.27"	32' 6.12"	27' 7.38"	32' 10.16"	27' 4.19"	33' 2.81"	27' 0.68"	33' 8.15"
24' 0.47"	26' 0.52"	23' 11.12"	26' 2.12"	23' 9.62"	26' 3.95"	23' 7.95"	26' 6.02"	23' 6.11"	26' 8.38"	23' 4.07"	26' 11.07"	23' 1.81"	27' 2.15"	22' 11.32"	27' 5.68"
19' 4.68"	20' 7.81"	19' 3.82"	20' 8.8"	19' 2.86"	20' 9.92"	19' 1.79"	20' 11.2"	19' 0.6"	21' 0.64"	18' 11.28"	21' 2.29"	18' 9.81"	21' 4.16"	18' 8.19"	21' 6.29"
14' 7.97"	15' 4.23"	14' 7.49"	15' 4.76"	14' 6.95"	15' 5.36"	14' 6.35"	15' 6.04"	14' 5.68"	15' 6.81"	14' 4.94"	15' 7.69"	14' 4.12"	15' 8.67"	14' 3.2"	15' 9.8"
11' 9.48"	12' 2.62"	11' 9.18"	12' 2.94"	11' 8.84"	12' 3.31"	11' 8.46"	12' 3.73"	11' 8.04"	12' 4.2"	11' 7.57"	12' 4.73"	11' 7.05"	12' 5.34"	11' 6.47"	12' 6.02"
10' 9.91"	11' 2.17"	10' 9.66"	11' 2.44"	10' 9.37"	11' 2.74"	10' 9.06"	11' 3.09"	10' 8.71"	11' 3.47"	10' 8.32"	11' 3.91"	10' 7.88"	11' 4.41"	10' 7.4"	11' 4.97"
9' 10.29"	10' 1.76"	9' 10.09"	10' 1.98"	9' 9.86"	10' 2.22"	9' 9.6"	10' 2.5"	9' 9.32"	10' 2.82"	9' 9"	10' 3.17"	9' 8.64"	10' 3.57"	9' 8.24"	10' 4.03"
8' 10.64"	9' 1.39"	8' 10.48"	9' 1.57"	8' 10.3"	9' 1.76"	8' 10.09"	9' 1.98"	8' 9.86"	9' 2.23"	8' 9.61"	9' 2.51"	8' 9.32"	9' 2.83"	8' 9.01"	9' 3.18"
8' 4.8"	8' 7.23"	8' 4.66"	8' 7.38"	8' 4.5"	8' 7.55"	8' 4.32"	8' 7.75"	8' 4.11"	8' 7.96"	8' 3.89"	8' 8.21"	8' 3.64"	8' 8.49"	8' 3.36"	8' 8.8"
7' 10.95"	8' 1.07"	7' 10.83"	8' 1.21"	7' 10.69"	8' 1.35"	7' 10.53"	8' 1.52"	7' 10.35"	8' 1.71"	7' 10.15"	8' 1.93"	7' 9.93"	8' 2.17"	7' 9.68"	8' 2.44"
7' 5.09"	7' 6.93"	7' 4.98"	7' 7.04"	7' 4.86"	7' 7.17"	7' 4.72"	7' 7.32"	7' 4.57"	7' 7.48"	7' 4.4"	7' 7.67"	7' 4.21"	7' 7.88"	7' 3.99"	7' 8.11"
6' 11.22"	7' 0.79"	6' 11.13"	7' 0.89"	6' 11.02"	7' 1"	6' 10.91"	7' 1.13"	6' 10.77"	7' 1.27"	6' 10.63"	7' 1.42"	6' 10.46"	7' 1.6"	6' 10.28"	7' 1.8"
6' 5.34"	6' 6.67"	6' 5.26"	6' 6.75"	6' 5.17"	6' 6.85"	6' 5.07"	6' 6.95"	6' 4.96"	6' 7.07"	6' 4.84"	6' 7.2"	6' 4.7"	6' 7.35"	6' 4.54"	6' 7.52"
5' 11.45"	6' 0.56"	5' 11.39"	6' 0.62"	5' 11.31"	6' 0.7"	5' 11.23"	6' 0.79"	5' 11.14"	6' 0.89"	5' 11.03"	6' 1"	5' 10.92"	6' 1.12"	5' 10.79"	6' 1.26"
5' 5.55"	5' 6.45"	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' 5.11"	5' 6.91"	5' 5.01"	5' 7.03"
4' 11.64"	5' 0.36"	4' 11.6"	5' 0.41"	4' 11.55"	5' 0.46"	4' 11.5"	5' 0.51"	4' 11.44"	5' 0.58"	4' 11.37"	5' 0.65"	4' 11.29"	5' 0.73"	4' 11.21"	5' 0.82"
4' 5.72"	4' 6.28"	4' 5.69"	4' 6.31"	4' 5.65"	4' 6.35"	4' 5.61"	4' 6.4"	4' 5.56"	4' 6.45"	4' 5.51"	4' 6.5"	4' 5.45"	4' 6.56"	4' 5.38"	4' 6.63"
3' 11.79"	4' 0.21"	3' 11.77"	4' 0.23"	3' 11.74"	4' 0.26"	3' 11.71"	4' 0.3"	3' 11.67"	4' 0.33"	3' 11.63"	4' 0.37"	3' 11.59"	4' 0.42"	3' 11.54"	4' 0.47"
3' 8.82"	3' 9.18"	3' 8.8"	3' 9.2"	3' 8.78"	3' 9.22"	3' 8.75"	3' 9.25"	3' 8.72"	3' 9.28"	3' 8.69"	3' 9.32"	3' 8.65"	3' 9.36"	3' 8.61"	3' 9.4"
3' 5.85"	3' 6.15"	3' 5.84"	3' 6.17"	3' 5.82"	3' 6.19"	3' 5.79"	3' 6.21"	3' 5.77"	3' 6.24"	3' 5.74"	3' 6.26"	3' 5.71"	3' 6.3"	3' 5.67"	3' 6.33"
3' 2.88"	3' 3.12"	3' 2.86"	3' 3.14"	3' 2.85"	3' 3.15"	3' 2.83"	3' 3.17"	3' 2.81"	3' 3.19"	3' 2.79"	3' 3.22"	3' 2.76"	3' 3.24"	3' 2.73"	3' 3.27"



10	11	13	14	16	18	20	22
233' 1.2"	207' 9.35"	185' 2.68"	165' 1.54"	147' 2.69"	131' 3.31"	117' 0.76"	104' 4.87"

10		11		13		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)	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' 7.73"	Infinity	207' 3.95"	Infinity	184' 9.3"	Infinity	164' 8.18"	Infinity	146' 9.36"	Infinity	130' 9.98"	Infinity	116' 7.48"	Infinity	103' 11.57"	Infinity
79' 6.39"	245' 7.25"	76' 4.64"	281' 9.99"	73' 1.7"	337' 9.6"	69' 9.78"	434' 9.44"	66' 5.12"	641' 9.5"	62' 11.97"	1379' 11.27"	59' 6.61"	Infinity	56' 1.31"	Infinity
47' 11.56"	80' 2.85"	46' 9.8"	83' 8.46"	45' 7.12"	87' 11.7"	44' 3.55"	93' 3.87"	42' 11.1"	100' 1.95"	41' 5.83"	109' 1.8"	39' 11.79"	121' 4.66"	38' 5.06"	138' 10.67"
34' 4.01"	47' 11.43"	33' 9.01"	49' 1.83"	33' 1.42"	50' 6.89"	32' 5.25"	52' 3.27"	31' 8.48"	54' 3.86"	30' 11.1"	56' 9.89"	30' 1.11"	59' 11.12"	29' 2.54"	63' 10.12"
26' 8.84"	34' 2.33"	26' 4.63"	34' 9.5"	26' 0.04"	35' 5.86"	25' 7.05"	36' 3.65"	25' 1.64"	37' 3.2"	24' 7.79"	38' 4.94"	24' 1.5"	39' 9.41"	23' 6.76"	41' 5.39"
22' 8.58"	27' 9.73"	22' 5.57"	28' 2.41"	22' 2.28"	28' 7.81"	21' 10.67"	29' 2.1"	21' 6.75"	29' 9.43"	21' 2.48"	30' 6.05"	20' 9.86"	31' 4.25"	20' 4.87"	32' 4.41"
18' 6.4"	21' 8.73"	18' 4.43"	21' 11.52"	18' 2.26"	22' 2.74"	17' 11.87"	22' 6.44"	17' 9.25"	22' 10.72"	17' 6.39"	23' 3.7"	17' 3.28"	23' 9.51"	16' 11.89"	24' 4.34"
14' 2.18"	15' 11.07"	14' 1.06"	16' 0.53"	13' 11.81"	16' 2.19"	13' 10.44"	16' 4.09"	13' 8.92"	16' 6.26"	13' 7.25"	16' 8.77"	13' 5.42"	16' 11.66"	13' 3.42"	17' 3.01"
11' 5.82"	12' 6.79"	11' 5.1"	12' 7.67"	11' 4.31"	12' 8.67"	11' 3.42"	12' 9.8"	11' 2.45"	12' 11.1"	11' 1.37"	13' 0.59"	11' 0.18"	13' 2.29"	10' 10.87"	13' 4.25"
10' 6.86"	11' 5.61"	10' 6.26"	11' 6.33"	10' 5.59"	11' 7.15"	10' 4.85"	11' 8.08"	10' 4.03"	11' 9.14"	10' 3.12"	11' 10.35"	10' 2.12"	11' 11.74"	10' 1.02"	12' 1.33"
9' 7.8"	10' 4.54"	9' 7.31"	10' 5.12"	9' 6.76"	10' 5.78"	9' 6.15"	10' 6.53"	9' 5.48"	10' 7.38"	9' 4.73"	10' 8.35"	9' 3.9"	10' 9.46"	9' 2.99"	10' 10.72"
8' 8.65"	9' 3.59"	8' 8.26"	9' 4.04"	8' 7.82"	9' 4.56"	8' 7.33"	9' 5.15"	8' 6.79"	9' 5.82"	8' 6.18"	9' 6.57"	8' 5.52"	9' 7.44"	8' 4.78"	9' 8.43"
8' 3.04"	8' 9.16"	8' 2.69"	8' 9.56"	8' 2.3"	8' 10.01"	8' 1.87"	8' 10.52"	8' 1.39"	8' 11.11"	8' 0.85"	8' 11.77"	8' 0.26"	9' 0.53"	7' 11.61"	9' 1.39"
7' 9.41"	8' 2.75"	7' 9.1"	8' 3.1"	7' 8.76"	8' 3.49"	7' 8.38"	8' 3.94"	7' 7.96"	8' 4.45"	7' 7.49"	8' 5.02"	7' 6.96"	8' 5.68"	7' 6.39"	8' 6.42"
7' 3.75"	7' 8.38"	7' 3.49"	7' 8.68"	7' 3.19"	7' 9.02"	7' 2.86"	7' 9.4"	7' 2.49"	7' 9.84"	7' 2.08"	7' 10.33"	7' 1.62"	7' 10.89"	7' 1.12"	7' 11.53"
6' 10.07"	7' 2.03"	6' 9.84"	7' 2.29"	6' 9.59"	7' 2.57"	6' 9.3"	7' 2.9"	6' 8.98"	7' 3.27"	6' 8.63"	7' 3.69"	6' 8.24"	7' 4.17"	6' 7.8"	7' 4.71"
6' 4.37"	6' 7.71"	6' 4.17"	6' 7.93"	6' 3.96"	6' 8.17"	6' 3.71"	6' 8.44"	6' 3.44"	6' 8.75"	6' 3.14"	6' 9.11"	6' 2.81"	6' 9.51"	6' 2.44"	6' 9.96"
5' 10.64"	6' 1.42"	5' 10.48"	6' 1.6"	5' 10.3"	6' 1.8"	5' 10.09"	6' 2.03"	5' 9.87"	6' 2.28"	5' 9.62"	6' 2.57"	5' 9.34"	6' 2.9"	5' 9.02"	6' 3.28"
5' 4.89"	5' 7.16"	5' 4.75"	5' 7.3"	5' 4.61"	5' 7.46"	5' 4.44"	5' 7.65"	5' 4.25"	5' 7.86"	5' 4.05"	5' 8.09"	5' 3.82"	5' 8.36"	5' 3.56"	5' 8.66"
4' 11.11"	5' 0.92"	4' 11"	5' 1.03"	4' 10.88"	5' 1.16"	4' 10.75"	5' 1.31"	4' 10.6"	5' 1.48"	4' 10.44"	5' 1.66"	4' 10.25"	5' 1.87"	4' 10.04"	5' 2.11"
4' 5.31"	4' 6.71"	4' 5.23"	4' 6.8"	4' 5.13"	4' 6.9"	4' 5.03"	4' 7.01"	4' 4.91"	4' 7.14"	4' 4.78"	4' 7.28"	4' 4.64"	4' 7.44"	4' 4.48"	4' 7.63"
3' 11.48"	4' 0.53"	3' 11.42"	4' 0.6"	3' 11.35"	4' 0.67"	3' 11.27"	4' 0.75"	3' 11.19"	4' 0.85"	3' 11.09"	4' 0.95"	3' 10.98"	4' 1.07"	3' 10.86"	4' 1.21"
3' 8.56"	3' 9.45"	3' 8.51"	3' 9.5"	3' 8.45"	3' 9.57"	3' 8.38"	3' 9.64"	3' 8.31"	3' 9.72"	3' 8.23"	3' 9.81"	3' 8.13"	3' 9.91"	3' 8.03"	3' 10.02"
3' 5.63"	3' 6.38"	3' 5.59"	3' 6.42"	3' 5.54"	3' 6.47"	3' 5.48"	3' 6.53"	3' 5.42"	3' 6.6"	3' 5.35"	3' 6.67"	3' 5.27"	3' 6.76"	3' 5.19"	3' 6.85"
3' 2.7"	3' 3.31"	3' 2.66"	3' 3.35"	3' 2.62"	3' 3.39"	3' 2.57"	3' 3.44"	3' 2.52"	3' 3.49"	3' 2.47"	3' 3.55"	3' 2.4"	3' 3.62"	3' 2.33"	3' 3.7"



Focal Length 66 mm

Circle of Confusion 0.025 mm

T/No	2.1	2.2	2.5	2.8	3.2	3.5	4
Hyperfocal Distance (ft-inch)	271' 11.07"	254' 4.72"	226' 8.12"	201' 11.86"	179' 11.88"	160' 4.72"	142' 11.2"

T/No	2.1		2.2		2.5		2.8		3.2		3.5		4	
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)	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	271' 8.2"	Infinity	254' 1.87"	Infinity	226' 5.34"	Infinity	201' 9.1"	Infinity	179' 9.16"	Infinity	160' 2.02"	Infinity	142' 8.54"	Infinity
120' 0"	83' 4.18"	214' 4.5"	81' 7.54"	226' 8.23"	78' 6.65"	254' 4.83"	75' 4.43"	294' 10.54"	72' 1.06"	359' 0.02"	68' 8.77"	474' 11.47"	65' 3.81"	745' 2.09"
60' 0"	49' 2.69"	76' 10.09"	48' 7.46"	78' 4.31"	47' 6.23"	81' 4.94"	46' 4.07"	85' 1.62"	45' 1"	89' 8.92"	43' 9.03"	95' 6.59"	42' 4.2"	103' 0.39"
40' 0"	34' 11.1"	46' 9.71"	34' 7.46"	47' 4.4"	34' 0.74"	48' 5.52"	33' 5.45"	49' 8.99"	32' 9.57"	51' 3.38"	32' 1.08"	53' 1.41"	31' 3.99"	55' 4.11"
30' 0"	27' 0.76"	33' 7.87"	26' 10.58"	33' 11.3"	26' 6.53"	34' 5.96"	26' 2.1"	35' 1.71"	25' 9.28"	35' 10.76"	25' 4.04"	36' 9.4"	24' 10.36"	37' 9.98"
25' 0"	22' 11.2"	27' 5.75"	22' 9.64"	27' 8.02"	22' 6.73"	28' 0.42"	22' 3.54"	28' 5.5"	22' 0.04"	28' 11.39"	21' 8.23"	29' 6.25"	21' 4.07"	30' 2.28"
20' 0"	18' 7.94"	21' 6.56"	18' 6.91"	21' 7.95"	18' 4.99"	21' 10.62"	18' 2.87"	22' 1.69"	18' 0.53"	22' 5.23"	17' 9.97"	22' 9.31"	17' 7.17"	23' 2.04"
15' 0"	14' 2.89"	15' 10.15"	14' 2.3"	15' 10.89"	14' 1.18"	16' 0.32"	13' 11.94"	16' 1.94"	13' 10.58"	16' 3.8"	13' 9.07"	16' 5.93"	13' 7.42"	16' 8.38"
12' 0"	11' 6.16"	12' 6.36"	11' 5.77"	12' 6.82"	11' 5.05"	12' 7.7"	11' 4.24"	12' 8.7"	11' 3.35"	12' 9.84"	11' 2.37"	12' 11.14"	11' 1.27"	13' 0.63"
11' 0"	10' 7.1"	11' 5.3"	10' 6.77"	11' 5.69"	10' 6.16"	11' 6.42"	10' 5.48"	11' 7.25"	10' 4.73"	11' 8.19"	10' 3.89"	11' 9.26"	10' 2.97"	11' 10.49"
10' 0"	9' 7.95"	10' 4.35"	9' 7.68"	10' 4.66"	9' 7.18"	10' 5.25"	9' 6.61"	10' 5.93"	9' 5.99"	10' 6.7"	9' 5.29"	10' 7.57"	9' 4.52"	10' 8.56"
9' 0"	8' 8.73"	9' 3.49"	8' 8.51"	9' 3.73"	8' 8.1"	9' 4.21"	8' 7.64"	9' 4.75"	8' 7.13"	9' 5.36"	8' 6.57"	9' 6.05"	8' 5.94"	9' 6.84"
8' 6"	8' 3.09"	8' 9.09"	8' 2.89"	8' 9.31"	8' 2.53"	8' 9.73"	8' 2.12"	8' 10.21"	8' 1.66"	8' 10.75"	8' 1.16"	8' 11.36"	8' 0.59"	9' 0.06"
8' 0"	7' 9.43"	8' 2.72"	7' 9.25"	8' 2.92"	7' 8.93"	8' 3.29"	7' 8.57"	8' 3.71"	7' 8.16"	8' 4.18"	7' 7.71"	8' 4.72"	7' 7.21"	8' 5.33"
7' 6"	7' 3.74"	7' 8.38"	7' 3.59"	7' 8.55"	7' 3.31"	7' 8.87"	7' 2.99"	7' 9.23"	7' 2.63"	7' 9.65"	7' 2.24"	7' 10.11"	7' 1.8"	7' 10.64"
7' 0"	6' 10.04"	7' 2.06"	6' 9.91"	7' 2.2"	6' 9.66"	7' 2.48"	6' 9.38"	7' 2.8"	6' 9.07"	7' 3.15"	6' 8.73"	7' 3.55"	6' 8.35"	7' 4.01"
6' 6"	6' 4.32"	6' 7.76"	6' 4.2"	6' 7.88"	6' 3.99"	6' 8.12"	6' 3.75"	6' 8.39"	6' 3.49"	6' 8.69"	6' 3.19"	6' 9.04"	6' 2.86"	6' 9.42"
6' 0"	5' 10.57"	6' 1.49"	5' 10.48"	6' 1.59"	5' 10.3"	6' 1.79"	5' 10.09"	6' 2.02"	5' 9.87"	6' 2.27"	5' 9.61"	6' 2.56"	5' 9.33"	6' 2.89"
5' 6"	5' 4.81"	5' 7.24"	5' 4.73"	5' 7.32"	5' 4.58"	5' 7.49"	5' 4.41"	5' 7.68"	5' 4.22"	5' 7.89"	5' 4.01"	5' 8.13"	5' 3.77"	5' 8.4"
5' 0"	4' 11.02"	5' 1.01"	4' 10.96"	5' 1.08"	4' 10.83"	5' 1.22"	4' 10.69"	5' 1.37"	4' 10.54"	5' 1.54"	4' 10.36"	5' 1.73"	4' 10.17"	5' 1.95"
4' 6"	4' 5.22"	4' 6.81"	4' 5.16"	4' 6.86"	4' 5.06"	4' 6.97"	1.345	4' 7.09"	4' 4.83"	4' 7.23"	4' 4.69"	4' 7.38"	4' 4.53"	4' 7.56"
4' 0"	3' 11.39"	4' 0.63"	3' 11.35"	4' 0.67"	3' 11.27"	4' 0.75"	3' 11.18"	4' 0.85"	3' 11.08"	4' 0.95"	3' 10.98"	4' 1.07"	3' 10.85"	4' 1.21"
3' 6"	3' 5.54"	3' 6.47"	3' 5.51"	3' 6.5"	3' 5.45"	3' 6.56"	3' 5.39"	3' 6.63"	3' 5.31"	3' 6.71"	3' 5.23"	3' 6.8"	3' 5.14"	3' 6.9"
3' 0"	2' 11.67"	3' 0.33"	2' 11.65"	3' 0.36"	2' 11.61"	3' 0.4"	2' 11.56"	3' 0.45"	2' 11.51"	3' 0.51"	2' 11.45"	3' 0.57"	2' 11.38"	3' 0.64"
2' 9"	2' 8.73"	2' 9.28"	2' 8.71"	2' 9.3"	2' 8.68"	2' 9.33"	2' 8.64"	2' 9.37"	2' 8.59"	2' 9.42"	2' 8.54"	2' 9.47"	2' 8.49"	2' 9.53"
2' 6"	2' 5.78"	2' 6.22"	2' 5.77"	2' 6.24"	2' 5.74"	2' 6.27"	2' 5.71"	2' 6.3"	2' 5.67"	2' 6.34"	2' 5.63"	2' 6.38"	2' 5.58"	2' 6.43"
2' 3"	2' 2.83"	2' 3.18"	2' 2.81"	2' 3.19"	2' 2.79"	2' 3.21"	2' 2.77"	2' 3.24"	2' 2.74"	2' 3.27"	2' 2.71"	2' 3.3"	2' 2.67"	2' 3.34"
2' 0"	1' 11.87"	2' 0.13"	1' 11.86"	2' 0.14"	1' 11.84"	2' 0.16"	1' 11.82"	2' 0.18"	1' 11.8"	2' 0.2"	1' 11.78"	2' 0.23"	1' 11.75"	2' 0.26"



4.5	5	5.6	6.3	7.1	8	9	10
127' 4.54"	113' 6.28"	101' 2.13"	90' 2.17"	80' 4.57"	71' 7.8"	63' 10.5"	56' 11.35"

4.5		5		5.6		6.3		7.1		8		9		10	
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)	Short Focus (ft-inch)	Long Focus (ft-inch)	Short Focus (ft-inch)	Long Focus (ft-inch)	Short Focus (ft-inch)	Long Focus (ft-inch)
127' 1.9"	Infinity	113' 3.63"	Infinity	100' 11.5"	Infinity	89' 11.52"	Infinity	80' 1.95"	Infinity	71' 5.2"	Infinity	63' 7.88"	Infinity	56' 8.74"	Infinity
61' 10.43"	2062' 9.97"	58' 4.9"	Infinity	54' 11.51"	Infinity	51' 6.52"	Infinity	48' 2.21"	Infinity	44' 10.8"	Infinity	41' 8.53"	Infinity	38' 7.59"	Infinity
40' 10.54"	112' 11.6"	39' 4.14"	126' 8.15"	37' 9.07"	146' 8.05"	36' 1.43"	178' 3.08"	34' 5.32"	235' 1.35"	32' 8.87"	366' 3.78"	31' 0.21"	981' 3.05"	29' 3.47"	Infinity
30' 6.28"	58' 0.88"	29' 7.96"	61' 5.76"	28' 9.06"	65' 9.77"	27' 9.59"	71' 5.67"	26' 9.6"	79' 1.32"	25' 9.14"	89' 10.75"	24' 8.25"	106' 1.8"	23' 7.02"	133' 2.37"
24' 4.24"	39' 0.99"	23' 9.67"	40' 7.07"	23' 2.63"	42' 5.11"	22' 7.14"	44' 8.37"	21' 11.2"	47' 6.67"	21' 2.83"	51' 2.82"	20' 6.04"	56' 1.32"	19' 8.89"	62' 9.89"
20' 11.57"	30' 11.74"	20' 6.69"	31' 10.97"	20' 1.45"	33' 0.42"	19' 7.82"	34' 4.69"	19' 1.81"	36' 0.62"	18' 7.42"	38' 1.44"	18' 0.67"	40' 8.94"	17' 5.56"	44' 1.92"
17' 4.11"	23' 7.55"	17' 0.79"	24' 2"	16' 9.18"	24' 9.6"	16' 5.28"	25' 6.63"	16' 1.07"	26' 5.44"	15' 8.57"	27' 6.53"	15' 3.76"	28' 10.58"	14' 10.64"	30' 6.56"
13' 5.59"	16' 11.2"	13' 3.6"	17' 2.46"	13' 1.42"	17' 6.25"	12' 11.04"	17' 10.68"	12' 8.45"	18' 3.88"	12' 5.65"	18' 10.02"	12' 2.63"	19' 5.34"	11' 11.39"	20' 2.15"
11' 0.07"	13' 2.33"	10' 10.75"	13' 4.29"	10' 9.29"	13' 6.55"	10' 7.7"	13' 9.15"	10' 5.95"	14' 0.19"	10' 4.05"	14' 3.72"	10' 1.99"	14' 7.88"	9' 11.75"	15' 0.8"
10' 1.94"	11' 11.89"	10' 0.82"	12' 1.5"	9' 11.58"	12' 3.35"	9' 10.22"	12' 5.48"	9' 8.73"	12' 7.95"	9' 7.1"	12' 10.82"	9' 5.33"	13' 2.18"	9' 3.41"	13' 6.12"
9' 3.67"	10' 9.7"	9' 2.73"	10' 11"	9' 1.69"	11' 0.48"	9' 0.55"	11' 2.2"	8' 11.3"	11' 4.17"	8' 9.93"	11' 6.46"	8' 8.44"	11' 9.13"	8' 6.81"	12' 0.25"
8' 5.24"	9' 7.74"	8' 4.47"	9' 8.77"	8' 3.63"	9' 9.94"	8' 2.69"	9' 11.29"	8' 1.66"	10' 0.84"	8' 0.53"	10' 2.63"	7' 11.29"	10' 4.7"	7' 9.94"	10' 7.12"
7' 11.97"	9' 0.85"	7' 11.28"	9' 1.76"	7' 10.52"	9' 2.79"	7' 9.68"	9' 3.97"	7' 8.76"	9' 5.33"	7' 7.74"	9' 6.9"	7' 6.63"	9' 8.71"	7' 5.41"	9' 10.82"
7' 6.66"	8' 6.02"	7' 6.05"	8' 6.81"	7' 5.37"	8' 7.71"	7' 4.62"	8' 8.75"	7' 3.8"	8' 9.93"	7' 2.89"	8' 11.29"	7' 1.9"	9' 0.86"	7' 0.81"	9' 2.69"
7' 1.31"	7' 11.25"	7' 0.77"	7' 11.93"	7' 0.17"	8' 0.71"	6' 11.51"	8' 1.61"	6' 10.78"	8' 2.63"	6' 9.98"	8' 3.8"	6' 9.1"	8' 5.16"	6' 8.13"	8' 6.72"
6' 7.92"	7' 4.53"	6' 7.45"	7' 5.12"	6' 6.93"	7' 5.79"	6' 6.35"	7' 6.55"	6' 5.71"	7' 7.43"	6' 5.01"	7' 8.43"	6' 4.23"	7' 9.58"	6' 3.38"	7' 10.91"
6' 2.49"	6' 9.86"	6' 2.08"	6' 10.36"	6' 1.63"	6' 10.93"	6' 1.13"	6' 11.58"	6' 0.58"	7' 0.32"	5' 11.97"	7' 1.17"	5' 11.29"	7' 2.14"	5' 10.55"	7' 3.26"
5' 9.02"	6' 3.26"	5' 8.67"	6' 3.68"	5' 8.29"	6' 4.15"	5' 7.86"	6' 4.7"	5' 7.39"	6' 5.31"	5' 6.86"	6' 6.02"	5' 6.28"	6' 6.83"	5' 5.65"	6' 7.76"
5' 3.51"	5' 8.7"	5' 3.22"	5' 9.05"	5' 2.89"	5' 9.44"	5' 2.53"	5' 9.89"	5' 2.13"	5' 10.4"	5' 1.69"	5' 10.98"	5' 1.2"	5' 11.64"	5' 0.66"	6' 0.4"
4' 9.95"	5' 2.2"	4' 9.71"	5' 2.48"	4' 9.44"	5' 2.8"	4' 9.15"	5' 3.16"	4' 8.82"	5' 3.57"	4' 8.45"	5' 4.04"	4' 8.05"	5' 4.58"	4' 7.6"	5' 5.19"
4' 4.36"	4' 7.75"	4' 4.16"	4' 7.98"	4' 3.95"	4' 8.23"	4' 3.71"	4' 8.52"	4' 3.44"	4' 8.84"	4' 3.14"	4' 9.21"	4' 2.81"	4' 9.63"	4' 2.45"	4' 10.11"
3' 10.72"	4' 1.36"	3' 10.56"	4' 1.53"	3' 10.39"	4' 1.73"	3' 10.21"	4' 1.95"	3' 9.99"	4' 2.2"	3' 9.76"	4' 2.48"	3' 9.5"	4' 2.8"	3' 9.21"	4' 3.17"
3' 5.03"	3' 7.02"	3' 4.92"	3' 7.14"	3' 4.79"	3' 7.29"	3' 4.65"	3' 7.45"	3' 4.49"	3' 7.64"	3' 4.31"	3' 7.85"	3' 4.11"	3' 8.08"	3' 3.89"	3' 8.35"
2' 11.31"	3' 0.72"	2' 11.22"	3' 0.81"	2' 11.13"	3' 0.92"	2' 11.03"	3' 1.03"	2' 10.91"	3' 1.16"	2' 10.78"	3' 1.31"	2' 10.64"	3' 1.48"	2' 10.48"	3' 1.67"
2' 8.43"	2' 9.6"	2' 8.36"	2' 9.67"	2' 8.28"	2' 9.75"	2' 8.19"	2' 9.85"	2' 8.1"	2' 9.96"	2' 7.99"	2' 10.08"	2' 7.87"	2' 10.21"	2' 7.74"	2' 10.37"
2' 5.53"	2' 6.48"	2' 5.48"	2' 6.54"	2' 5.42"	2' 6.61"	2' 5.35"	2' 6.69"	2' 5.27"	2' 6.77"	2' 5.18"	2' 6.87"	2' 5.08"	2' 6.98"	2' 4.98"	2' 7.1"
2' 2.63"	2' 3.38"	2' 2.59"	2' 3.43"	2' 2.54"	2' 3.48"	2' 2.48"	2' 3.54"	2' 2.42"	2' 3.61"	2' 2.35"	2' 3.68"	2' 2.28"	2' 3.77"	2' 2.19"	2' 3.87"
1' 11.72"	2' 0.29"	1' 11.68"	2' 0.32"	1' 11.65"	2' 0.36"	1' 11.6"	2' 0.41"	1' 11.56"	2' 0.46"	1' 11.5"	2' 0.52"	1' 11.44"	2' 0.58"	1' 11.38"	2' 0.66"



11	13	14	16	18	20	22
50' 9.29"	45' 3.27"	40' 4.49"	36' 0.13"	32' 1.43"	28' 7.9"	25' 6.85"

11		13		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)	Short Focus (ft-inch)	Long Focus (ft-inch)	Short Focus (ft-inch)	Long Focus (ft-inch)
50' 6.67"	Infinity	45' 0.68"	Infinity	40' 1.89"	Infinity	35' 9.51"	Infinity	31' 10.85"	Infinity	28' 5.28"	Infinity	25' 4.25"	Infinity
35' 8.15"	Infinity	32' 10.33"	Infinity	30' 2.24"	Infinity	27' 7.94"	Infinity	25' 3.48"	Infinity	23' 0.86"	Infinity	21' 0.08"	Infinity
27' 6.8"	Infinity	25' 10.32"	Infinity	24' 2.18"	Infinity	22' 6.49"	Infinity	20' 11.36"	Infinity	19' 4.9"	Infinity	17' 11.18"	Infinity
22' 5.52"	186' 7.18"	21' 3.83"	339' 5.67"	20' 2.03"	Infinity	19' 0.24"	Infinity	17' 10.52"	Infinity	16' 8.98"	Infinity	15' 7.7"	Infinity
18' 11.39"	72' 6.94"	18' 1.61"	87' 10.9"	17' 3.59"	115' 3.06"	16' 5.4"	177' 2.12"	15' 7.1"	447' 0.04"	14' 8.76"	Infinity	13' 10.44"	Infinity
16' 10.12"	48' 8.98"	16' 2.38"	55' 2.28"	15' 6.37"	64' 9.73"	14' 10.14"	80' 7.12"	14' 1.74"	110' 11.42"	13' 5.21"	192' 4.56"	12' 8.62"	1098' 0.94"
14' 5.24"	32' 7.95"	13' 11.55"	35' 5.01"	13' 5.6"	39' 1.5"	12' 11.4"	44' 4.07"	12' 5"	52' 1.77"	11' 10.42"	65' 0.15"	11' 3.71"	89' 11.42"
11' 7.91"	21' 0.88"	11' 4.21"	22' 2.12"	11' 0.28"	23' 6.75"	10' 8.14"	25' 4.09"	10' 3.79"	27' 8.27"	9' 11.26"	30' 10.9"	9' 6.55"	35' 6.64"
9' 9.34"	15' 6.65"	9' 6.75"	16' 1.7"	9' 3.97"	16' 10.29"	9' 1.02"	17' 8.88"	8' 9.88"	18' 10.19"	8' 6.57"	20' 3.29"	8' 3.1"	22' 1.87"
9' 1.32"	13' 10.8"	8' 11.08"	14' 4.38"	8' 8.67"	14' 11.12"	8' 6.09"	15' 7.34"	8' 3.35"	16' 5.53"	8' 0.44"	17' 6.39"	7' 9.38"	18' 10.99"
8' 5.04"	12' 3.92"	8' 3.13"	12' 8.27"	8' 1.07"	13' 1.48"	7' 10.86"	13' 7.76"	7' 8.5"	14' 3.46"	7' 5.98"	15' 1.01"	7' 3.32"	16' 1.11"
7' 8.48"	10' 9.94"	7' 6.88"	11' 1.27"	7' 5.16"	11' 5.21"	7' 3.3"	11' 9.93"	7' 1.31"	12' 3.64"	6' 11.18"	12' 10.63"	6' 8.91"	13' 7.31"
7' 4.08"	10' 1.27"	7' 2.64"	10' 4.15"	7' 1.08"	10' 7.56"	6' 11.39"	10' 11.61"	6' 9.58"	11' 4.49"	6' 7.63"	11' 10.42"	6' 5.56"	12' 5.72"
6' 11.62"	9' 4.8"	6' 10.32"	9' 7.28"	6' 8.91"	9' 10.2"	6' 7.39"	10' 1.66"	6' 5.75"	10' 5.8"	6' 3.99"	10' 10.8"	6' 2.11"	11' 4.91"
6' 7.07"	8' 8.53"	6' 5.91"	8' 10.65"	6' 4.66"	9' 1.13"	6' 3.3"	9' 4.06"	6' 1.83"	9' 7.54"	6' 0.25"	9' 11.73"	5' 10.55"	10' 4.8"
6' 2.44"	8' 0.45"	6' 1.43"	8' 2.24"	6' 0.31"	8' 4.33"	5' 11.11"	8' 6.79"	5' 9.8"	8' 9.7"	5' 8.39"	9' 1.17"	5' 6.88"	9' 5.35"
5' 9.74"	7' 4.55"	5' 8.85"	7' 6.05"	5' 7.88"	7' 7.79"	5' 6.82"	7' 9.83"	5' 5.67"	8' 0.23"	5' 4.43"	8' 3.08"	5' 3.09"	8' 6.49"
5' 4.95"	6' 8.83"	5' 4.18"	6' 10.06"	5' 3.34"	6' 11.5"	5' 2.42"	7' 1.17"	5' 1.43"	7' 3.13"	5' 0.35"	7' 5.44"	4' 11.18"	7' 8.2"
5' 0.07"	6' 1.28"	4' 11.42"	6' 2.28"	4' 10.7"	6' 3.44"	4' 9.92"	6' 4.8"	4' 9.07"	6' 6.37"	4' 8.14"	6' 8.22"	4' 7.14"	6' 10.41"
4' 7.1"	5' 5.89"	4' 6.56"	5' 6.69"	4' 5.96"	5' 7.62"	4' 5.31"	5' 8.69"	4' 4.59"	5' 9.94"	4' 3.81"	5' 11.39"	4' 2.97"	6' 1.1"
4' 2.05"	4' 10.66"	4' 1.6"	4' 11.29"	4' 1.12"	5' 0.01"	4' 0.58"	5' 0.84"	3' 11.99"	5' 1.81"	3' 11.35"	5' 2.93"	3' 10.65"	5' 4.23"
3' 8.9"	4' 3.59"	3' 8.54"	4' 4.06"	3' 8.16"	4' 4.61"	3' 7.73"	4' 5.24"	3' 7.26"	4' 5.96"	3' 6.75"	4' 6.8"	3' 6.18"	4' 7.78"
3' 3.65"	3' 8.66"	3' 3.38"	3' 9.01"	3' 3.08"	3' 9.41"	3' 2.75"	3' 9.87"	3' 2.39"	3' 10.4"	3' 2"	3' 11"	3' 1.56"	3' 11.7"
2' 10.3"	3' 1.88"	2' 10.11"	3' 2.13"	2' 9.89"	3' 2.41"	2' 9.65"	3' 2.73"	2' 9.38"	3' 3.09"	2' 9.09"	3' 3.51"	2' 8.77"	3' 3.99"
2' 7.59"	2' 10.55"	2' 7.43"	2' 10.75"	2' 7.25"	2' 10.97"	2' 7.05"	2' 11.23"	2' 6.82"	2' 11.53"	2' 6.58"	2' 11.87"	2' 6.31"	3' 0.25"
2' 4.86"	2' 7.24"	2' 4.72"	2' 7.4"	2' 4.57"	2' 7.59"	2' 4.41"	2' 7.79"	2' 4.23"	2' 8.03"	2' 4.03"	2' 8.3"	2' 3.8"	2' 8.6"
2' 2.09"	2' 3.98"	2' 1.99"	2' 4.1"	2' 1.87"	2' 4.24"	2' 1.74"	2' 4.4"	2' 1.59"	2' 4.59"	2' 1.43"	2' 4.79"	2' 1.25"	2' 5.03"
1' 11.3"	2' 0.74"	1' 11.22"	2' 0.84"	1' 11.13"	2' 0.94"	1' 11.03"	2' 1.06"	1' 10.92"	2' 1.2"	1' 10.79"	2' 1.36"	1' 10.65"	2' 1.54"



Focal Length 75 mm

Circle of Confusion 0.025 mm

T/No	2.1	2.2	2.5	2.8	3.2	3.5	4
Hyperfocal Distance (ft-inch)	351' 10.52"	329' 2.31"	293' 3.96"	261' 4.57"	232' 11.04"	207' 6.75"	184' 11.65"

T/No	2.1		2.2		2.5		2.8		3.2		3.5		4	
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)	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' 7.1"	Infinity	328' 10.95"	Infinity	293' 0.7"	Infinity	261' 1.39"	Infinity	232' 7.88"	Infinity	207' 3.64"	Infinity	184' 8.58"	Infinity
120' 0"	89' 7.32"	181' 8.58"	88' 0.86"	188' 4.88"	85' 3.54"	202' 6.71"	82' 4.56"	221' 2.59"	79' 4.05"	246' 8.74"	76' 2.16"	283' 5.14"	72' 11.08"	340' 3.04"
60' 0"	51' 4.17"	72' 2.16"	50' 10.1"	73' 2.48"	49' 10.92"	75' 2.84"	48' 10.84"	77' 7.84"	47' 9.86"	80' 6.71"	46' 7.96"	84' 1.11"	45' 5.14"	88' 5.37"
40' 0"	35' 11.8"	45' 0.41"	35' 8.83"	45' 5.15"	35' 3.31"	46' 2.37"	34' 9.28"	47' 1.11"	34' 2.71"	48' 1.66"	33' 7.58"	49' 4.44"	32' 11.88"	50' 9.97"
30' 0"	27' 8.35"	32' 8.72"	27' 6.6"	32' 11.2"	27' 3.33"	33' 3.99"	26' 11.73"	33' 9.52"	26' 7.79"	34' 3.9"	26' 3.48"	34' 11.31"	25' 10.78"	35' 7.96"
25' 0"	23' 4.64"	26' 10.26"	23' 3.4"	26' 11.92"	23' 1.07"	27' 3.12"	22' 10.5"	27' 6.78"	22' 7.68"	27' 11"	22' 4.58"	28' 3.86"	22' 1.18"	28' 9.49"
20' 0"	18' 11.54"	21' 1.93"	18' 10.73"	21' 2.95"	18' 9.2"	21' 4.91"	18' 7.52"	21' 7.15"	18' 5.66"	21' 9.71"	18' 3.6"	22' 0.64"	18' 1.34"	22' 4.01"
15' 0"	14' 4.99"	15' 7.62"	14' 4.52"	15' 8.17"	14' 3.65"	15' 9.22"	14' 2.68"	15' 10.42"	14' 1.61"	15' 11.78"	14' 0.42"	16' 1.33"	13' 11.1"	16' 3.1"
12' 0"	11' 7.53"	12' 4.77"	11' 7.23"	12' 5.11"	11' 6.67"	12' 5.76"	11' 6.05"	12' 6.5"	11' 5.35"	12' 7.34"	11' 4.58"	12' 8.29"	11' 3.73"	12' 9.37"
11' 0"	10' 8.26"	11' 3.97"	10' 8.01"	11' 4.26"	10' 7.53"	11' 4.8"	10' 7.01"	11' 5.41"	10' 6.42"	11' 6.1"	10' 5.77"	11' 6.89"	10' 5.05"	11' 7.79"
10' 0"	9' 8.92"	10' 3.25"	9' 8.71"	10' 3.48"	9' 8.32"	10' 3.92"	9' 7.89"	10' 4.42"	9' 7.41"	10' 4.99"	9' 6.87"	10' 5.63"	9' 6.27"	10' 6.35"
9' 0"	8' 9.52"	9' 2.6"	8' 9.35"	9' 2.79"	8' 9.04"	9' 3.14"	8' 8.69"	9' 3.54"	8' 8.3"	9' 3.99"	8' 7.86"	9' 4.49"	8' 7.38"	9' 5.07"
8' 6"	8' 3.8"	8' 8.31"	8' 3.65"	8' 8.47"	8' 3.37"	8' 8.78"	8' 3.05"	8' 9.13"	8' 2.71"	8' 9.53"	8' 2.32"	8' 9.98"	8' 1.89"	8' 10.49"
8' 0"	7' 10.06"	8' 2.03"	7' 9.93"	8' 2.17"	7' 9.68"	8' 2.44"	7' 9.4"	8' 2.75"	7' 9.09"	8' 3.1"	7' 8.75"	8' 3.5"	7' 8.37"	8' 3.94"
7' 6"	7' 4.3"	7' 7.77"	7' 4.19"	7' 7.89"	7' 3.97"	7' 8.13"	7' 3.73"	7' 8.4"	7' 3.46"	7' 8.7"	7' 3.16"	7' 9.04"	7' 2.82"	7' 9.43"
7' 0"	6' 10.53"	7' 1.53"	6' 10.43"	7' 1.63"	6' 10.24"	7' 1.84"	6' 10.03"	7' 2.07"	6' 9.8"	7' 2.33"	6' 9.53"	7' 2.63"	6' 9.24"	7' 2.96"
6' 6"	6' 4.74"	6' 7.3"	6' 4.66"	6' 7.39"	6' 4.49"	6' 7.57"	6' 4.31"	6' 7.77"	6' 4.11"	6' 7.99"	6' 3.89"	6' 8.24"	6' 3.64"	6' 8.52"
6' 0"	5' 10.94"	6' 1.1"	5' 10.86"	6' 1.17"	5' 10.73"	6' 1.32"	5' 10.58"	6' 1.49"	5' 10.41"	6' 1.67"	5' 10.21"	6' 1.88"	5' 10"	6' 2.12"
5' 6"	5' 5.12"	5' 6.91"	5' 5.06"	5' 6.97"	5' 4.94"	5' 7.09"	5' 4.82"	5' 7.23"	5' 4.67"	5' 7.39"	5' 4.51"	5' 7.56"	5' 4.34"	5' 7.76"
5' 0"	4' 11.28"	5' 0.74"	4' 11.23"	5' 0.79"	4' 11.14"	5' 0.89"	4' 11.03"	5' 1"	4' 10.92"	5' 1.13"	4' 10.79"	5' 1.27"	4' 10.64"	5' 1.43"
4' 6"	4' 5.43"	4' 6.59"	4' 5.39"	4' 6.63"	4' 5.31"	4' 6.71"	1.352	4' 6.79"	4' 5.14"	4' 6.89"	4' 5.03"	4' 7"	4' 4.92"	4' 7.13"
4' 0"	3' 11.56"	4' 0.45"	3' 11.53"	4' 0.48"	3' 11.47"	4' 0.54"	3' 11.4"	4' 0.61"	3' 11.33"	4' 0.69"	3' 11.25"	4' 0.77"	3' 11.16"	4' 0.87"
3' 9"	3' 8.62"	3' 9.39"	3' 8.59"	3' 9.42"	3' 8.54"	3' 9.47"	3' 8.48"	3' 9.53"	3' 8.42"	3' 9.6"	3' 8.35"	3' 9.67"	3' 8.27"	3' 9.75"
3' 6"	3' 5.67"	3' 6.34"	3' 5.65"	3' 6.36"	3' 5.6"	3' 6.4"	3' 5.56"	3' 6.45"	3' 5.5"	3' 6.51"	3' 5.44"	3' 6.57"	3' 5.38"	3' 6.64"
3' 3"	3' 2.72"	3' 3.28"	3' 2.7"	3' 3.3"	3' 2.67"	3' 3.34"	3' 2.62"	3' 3.38"	3' 2.58"	3' 3.43"	3' 2.53"	3' 3.48"	3' 2.47"	3' 3.54"
3' 0"	2' 11.77"	3' 0.24"	2' 11.75"	3' 0.25"	2' 11.72"	3' 0.28"	2' 11.69"	3' 0.32"	2' 11.65"	3' 0.36"	2' 11.61"	3' 0.4"	2' 11.56"	3' 0.45"
2' 9"	2' 8.81"	2' 9.19"	2' 8.8"	2' 9.21"	2' 8.77"	2' 9.23"	2' 8.74"	2' 9.26"	2' 8.71"	2' 9.29"	2' 8.68"	2' 9.33"	2' 8.64"	2' 9.37"
2' 6"	2' 5.85"	2' 6.15"	2' 5.84"	2' 6.17"	2' 5.82"	2' 6.19"	2' 5.79"	2' 6.21"	2' 5.77"	2' 6.23"	2' 5.74"	2' 6.26"	2' 5.71"	2' 6.3"



4.5	5	5.6	6.3	7.1	8	9	10
164' 10.15"	146' 10.99"	130' 11.3"	116' 8.51"	104' 0.35"	92' 8.83"	82' 8.05"	73' 8.49"

4.5		5		5.6		6.3		7.1		8		9		10	
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)	Short Focus (ft-inch)	Long Focus (ft-inch)	Short Focus (ft-inch)	Long Focus (ft-inch)	Short Focus (ft-inch)	Long Focus (ft-inch)
164' 7.09"	Infinity	146' 7.94"	Infinity	130' 8.27"	Infinity	116' 5.5"	Infinity	103' 9.37"	Infinity	92' 5.83"	Infinity	82' 5.08"	Infinity	73' 5.5"	Infinity
69' 7.03"	439' 1.22"	66' 2.23"	651' 8.26"	62' 8.96"	1428' 0.28"	59' 3.48"	Infinity	55' 10.07"	Infinity	52' 4.99"	Infinity	49' 0.53"	Infinity	45' 8.91"	Infinity
44' 1.42"	93' 10.9"	42' 8.82"	100' 10.84"	41' 3.4"	110' 1.37"	39' 9.21"	122' 8.29"	38' 2.33"	140' 8.91"	36' 6.85"	168' 7.25"	34' 10.88"	216' 9.71"	33' 2.54"	319' 4.53"
32' 3.57"	52' 6.92"	31' 6.66"	54' 8.23"	30' 9.13"	57' 3.18"	29' 11"	60' 5.62"	29' 0.27"	64' 6.26"	28' 0.98"	69' 9.29"	27' 1.15"	76' 9.54"	26' 0.83"	86' 6.99"
25' 5.67"	36' 6.1"	25' 0.13"	37' 6.08"	24' 6.16"	38' 8.33"	23' 11.72"	40' 1.46"	23' 4.84"	41' 10.26"	22' 9.49"	43' 11.87"	22' 1.7"	46' 7.94"	21' 5.46"	50' 0.96"
21' 9.47"	29' 4.03"	21' 5.43"	29' 11.68"	21' 1.04"	30' 8.68"	20' 8.29"	31' 7.34"	20' 3.17"	32' 8.07"	19' 9.67"	33' 11.43"	19' 3.79"	35' 6.17"	18' 9.53"	37' 5.39"
17' 10.86"	22' 7.91"	17' 8.15"	23' 0.41"	17' 5.18"	23' 5.66"	17' 1.95"	23' 11.79"	16' 10.44"	24' 7"	16' 6.64"	25' 3.54"	16' 2.55"	26' 1.74"	15' 10.15"	27' 2.05"
13' 9.65"	16' 5.13"	13' 8.05"	16' 7.46"	13' 6.29"	16' 10.14"	13' 4.37"	17' 1.23"	13' 2.26"	17' 4.83"	12' 11.96"	17' 9.02"	12' 9.45"	18' 1.93"	12' 6.74"	18' 7.72"
11' 2.78"	12' 10.61"	11' 1.73"	13' 0.02"	11' 0.58"	13' 1.63"	10' 11.3"	13' 3.49"	10' 9.9"	13' 5.62"	10' 8.37"	13' 8.08"	10' 6.69"	13' 10.94"	10' 4.86"	14' 2.28"
10' 4.25"	11' 8.8"	10' 3.37"	11' 9.97"	10' 2.39"	11' 11.29"	10' 1.31"	12' 0.81"	10' 0.12"	12' 2.56"	9' 10.82"	12' 4.57"	9' 9.38"	12' 6.9"	9' 7.82"	12' 9.6"
9' 5.61"	10' 7.18"	9' 4.87"	10' 8.12"	9' 4.06"	10' 9.19"	9' 3.16"	10' 10.42"	9' 2.17"	10' 11.82"	9' 1.08"	11' 1.43"	8' 11.88"	11' 3.29"	8' 10.56"	11' 5.45"
8' 6.84"	9' 5.73"	8' 6.24"	9' 6.47"	8' 5.58"	9' 7.32"	8' 4.84"	9' 8.29"	8' 4.03"	9' 9.39"	8' 3.14"	9' 10.66"	8' 2.16"	10' 0.11"	8' 1.08"	10' 1.79"
8' 1.4"	8' 11.07"	8' 0.87"	8' 11.72"	8' 0.28"	9' 0.47"	7' 11.62"	9' 1.32"	7' 10.9"	9' 2.29"	7' 10.1"	9' 3.4"	7' 9.22"	9' 4.68"	7' 8.25"	9' 6.15"
7' 7.94"	8' 4.45"	7' 7.47"	8' 5.02"	7' 6.94"	8' 5.67"	7' 6.36"	8' 6.42"	7' 5.72"	8' 7.26"	7' 5.01"	8' 8.23"	7' 4.22"	8' 9.34"	7' 3.36"	8' 10.62"
7' 2.45"	7' 9.87"	7' 2.03"	7' 10.37"	7' 1.57"	7' 10.93"	7' 1.06"	7' 11.58"	7' 0.49"	8' 0.31"	6' 11.86"	8' 1.14"	6' 11.17"	8' 2.1"	6' 10.41"	8' 3.2"
6' 8.92"	7' 3.34"	6' 8.56"	7' 3.76"	6' 8.16"	7' 4.25"	6' 7.71"	7' 4.8"	6' 7.22"	7' 5.43"	6' 6.67"	7' 6.14"	6' 6.06"	7' 6.96"	6' 5.4"	7' 7.89"
6' 3.36"	6' 8.84"	6' 3.05"	6' 9.2"	6' 2.7"	6' 9.62"	6' 2.32"	6' 10.08"	6' 1.89"	6' 10.61"	6' 1.42"	6' 11.22"	6' 0.9"	6' 11.91"	6' 0.32"	7' 0.7"
5' 9.77"	6' 2.39"	5' 9.5"	6' 2.69"	5' 9.21"	6' 3.04"	5' 8.88"	6' 3.43"	5' 8.52"	6' 3.87"	5' 8.12"	6' 4.38"	5' 7.67"	6' 4.95"	5' 7.18"	6' 5.6"
5' 4.14"	5' 7.98"	5' 3.92"	5' 8.23"	5' 3.67"	5' 8.51"	5' 3.4"	5' 8.83"	5' 3.1"	5' 9.2"	5' 2.76"	5' 9.61"	5' 2.39"	5' 10.08"	5' 1.97"	5' 10.62"
4' 10.48"	5' 1.6"	4' 10.3"	5' 1.81"	4' 10.1"	5' 2.04"	4' 9.88"	5' 2.3"	4' 9.63"	5' 2.59"	4' 9.35"	5' 2.92"	4' 9.04"	5' 3.3"	4' 8.7"	5' 3.73"
4' 4.79"	4' 7.27"	4' 4.64"	4' 7.43"	4' 4.48"	4' 7.61"	4' 4.3"	4' 7.82"	4' 4.1"	4' 8.05"	4' 3.88"	4' 8.31"	4' 3.63"	4' 8.61"	4' 3.36"	4' 8.95"
3' 11.06"	4' 0.98"	3' 10.95"	4' 1.1"	3' 10.82"	4' 1.24"	3' 10.68"	4' 1.4"	3' 10.53"	4' 1.57"	3' 10.35"	4' 1.77"	3' 10.16"	4' 2"	3' 9.95"	4' 2.26"
3' 8.19"	3' 9.85"	3' 8.09"	3' 9.95"	3' 7.98"	3' 10.07"	3' 7.86"	3' 10.21"	3' 7.72"	3' 10.36"	3' 7.57"	3' 10.53"	3' 7.4"	3' 10.73"	3' 7.21"	3' 10.95"
3' 5.3"	3' 6.73"	3' 5.22"	3' 6.82"	3' 5.12"	3' 6.92"	3' 5.02"	3' 7.03"	3' 4.9"	3' 7.16"	3' 4.77"	3' 7.31"	3' 4.63"	3' 7.48"	3' 4.46"	3' 7.67"
3' 2.41"	3' 3.61"	3' 2.34"	3' 3.69"	3' 2.26"	3' 3.78"	3' 2.17"	3' 3.87"	3' 2.07"	3' 3.98"	3' 1.96"	3' 4.11"	3' 1.83"	3' 4.25"	3' 1.7"	3' 4.41"
2' 11.51"	3' 0.51"	2' 11.45"	3' 0.57"	2' 11.38"	3' 0.64"	2' 11.31"	3' 0.73"	2' 11.22"	3' 0.82"	2' 11.13"	3' 0.92"	2' 11.03"	3' 1.04"	2' 10.91"	3' 1.17"
2' 8.59"	2' 9.42"	2' 8.55"	2' 9.47"	2' 8.49"	2' 9.53"	2' 8.43"	2' 9.59"	2' 8.36"	2' 9.67"	2' 8.29"	2' 9.75"	2' 8.2"	2' 9.84"	2' 8.11"	2' 9.95"
2' 5.68"	2' 6.33"	2' 5.64"	2' 6.37"	2' 5.59"	2' 6.42"	2' 5.54"	2' 6.47"	2' 5.49"	2' 6.53"	2' 5.43"	2' 6.6"	2' 5.36"	2' 6.67"	2' 5.28"	2' 6.76"



11	13	14	16	18	20	22
65' 8.62"	58' 7.23"	52' 3.17"	46' 7.41"	41' 7.02"	37' 1.24"	33' 1.32"

11		13		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)	Short Focus (ft-inch)	Long Focus (ft-inch)	Short Focus (ft-inch)	Long Focus (ft-inch)
65' 5.66"	Infinity	58' 4.28"	Infinity	52' 0.21"	Infinity	46' 4.44"	Infinity	41' 4.06"	Infinity	36' 10.27"	Infinity	32' 10.35"	Infinity
42' 6.39"	Infinity	39' 5.14"	Infinity	36' 5.35"	Infinity	33' 7.16"	Infinity	30' 10.68"	Infinity	28' 3.97"	Infinity	25' 11.09"	Infinity
31' 5.95"	681' 7.31"	29' 9.26"	Infinity	28' 0.59"	Infinity	26' 4.09"	Infinity	24' 7.88"	Infinity	23' 0.1"	Infinity	21' 4.86"	Infinity
25' 0.08"	101' 0.58"	23' 10.97"	124' 4.79"	22' 9.56"	168' 0.3"	21' 7.94"	277' 3.67"	20' 6.2"	1030' 8.45"	19' 4.43"	Infinity	18' 2.72"	Infinity
20' 8.82"	54' 6.84"	19' 11.79"	60' 8.19"	19' 2.41"	69' 5.02"	18' 4.73"	82' 9.79"	17' 6.81"	105' 9.07"	16' 8.69"	153' 6.83"	15' 10.45"	312' 3.73"
18' 2.9"	39' 10.7"	17' 7.92"	43' 0.54"	17' 0.59"	47' 2.89"	16' 4.96"	53' 0.62"	15' 9.06"	61' 6.74"	15' 0.92"	75' 1.25"	14' 4.59"	99' 9.36"
15' 5.45"	28' 5.08"	15' 0.45"	29' 11.72"	14' 7.15"	31' 11.24"	14' 1.57"	34' 5.63"	13' 7.72"	37' 10.11"	13' 1.63"	42' 6.22"	12' 7.32"	49' 4.55"
12' 3.81"	19' 2.6"	12' 0.65"	19' 10.86"	11' 9.27"	20' 8.87"	11' 5.66"	21' 9.17"	11' 1.83"	23' 0.54"	10' 9.78"	24' 8.12"	10' 5.52"	26' 9.72"
10' 2.87"	14' 6.18"	10' 0.71"	14' 10.79"	9' 10.37"	15' 4.27"	9' 7.86"	15' 10.84"	9' 5.17"	16' 6.81"	9' 2.29"	17' 4.59"	8' 11.24"	18' 4.81"
9' 6.11"	13' 0.75"	9' 4.26"	13' 4.45"	9' 2.25"	13' 8.82"	9' 0.08"	14' 2.03"	8' 9.74"	14' 8.29"	8' 7.25"	15' 3.89"	8' 4.58"	16' 1.26"
8' 9.13"	11' 7.95"	8' 7.56"	11' 10.87"	8' 5.86"	12' 2.3"	8' 4.02"	12' 6.35"	8' 2.03"	12' 11.19"	7' 11.89"	13' 5.01"	7' 9.61"	14' 0.1"
7' 11.89"	10' 3.73"	7' 10.6"	10' 5.99"	7' 9.19"	10' 8.63"	7' 7.66"	10' 11.73"	7' 6"	11' 3.39"	7' 4.21"	11' 7.76"	7' 2.29"	12' 1.02"
7' 7.18"	9' 7.84"	7' 6.02"	9' 9.81"	7' 4.75"	10' 0.1"	7' 3.37"	10' 2.78"	7' 1.87"	10' 5.94"	7' 0.25"	10' 9.69"	6' 10.5"	11' 2.18"
7' 2.41"	9' 0.08"	7' 1.37"	9' 1.78"	7' 0.23"	9' 3.76"	6' 10.99"	9' 6.06"	6' 9.65"	9' 8.77"	6' 8.19"	9' 11.97"	6' 6.61"	10' 3.78"
6' 9.57"	8' 4.46"	6' 8.65"	8' 5.92"	6' 7.64"	8' 7.6"	6' 6.54"	8' 9.57"	6' 5.34"	8' 11.87"	6' 4.03"	9' 2.57"	6' 2.63"	9' 5.78"
6' 4.66"	7' 8.97"	6' 3.85"	7' 10.2"	6' 2.96"	7' 11.63"	6' 1.99"	8' 1.29"	6' 0.94"	8' 3.22"	5' 11.79"	8' 5.49"	5' 10.54"	8' 8.16"
5' 11.68"	7' 1.6"	5' 10.98"	7' 2.64"	5' 10.21"	7' 3.83"	5' 9.37"	7' 5.22"	5' 8.44"	7' 6.83"	5' 7.44"	7' 8.7"	5' 6.35"	7' 10.91"
5' 6.63"	6' 6.35"	5' 6.03"	6' 7.21"	5' 5.37"	6' 8.2"	5' 4.65"	6' 9.34"	5' 3.85"	6' 10.66"	5' 2.99"	7' 0.2"	5' 2.04"	7' 2"
5' 1.51"	5' 11.23"	5' 1.01"	5' 11.93"	5' 0.45"	6' 0.74"	4' 11.84"	6' 1.66"	4' 11.17"	6' 2.73"	4' 10.43"	6' 3.97"	4' 9.63"	6' 5.41"
4' 8.32"	5' 4.22"	4' 7.9"	5' 4.78"	4' 7.44"	5' 5.43"	4' 6.93"	5' 6.16"	4' 6.37"	5' 7.01"	4' 5.76"	5' 7.99"	4' 5.09"	5' 9.12"
4' 3.05"	4' 9.33"	4' 2.72"	4' 9.77"	4' 2.34"	4' 10.27"	4' 1.93"	4' 10.84"	4' 1.48"	4' 11.5"	4' 0.98"	5' 0.26"	4' 0.43"	5' 1.13"
3' 9.71"	4' 2.55"	3' 9.44"	4' 2.88"	3' 9.15"	4' 3.26"	3' 8.83"	4' 3.7"	3' 8.47"	4' 4.19"	3' 8.07"	4' 4.76"	3' 7.64"	4' 5.41"
3' 7.01"	3' 11.2"	3' 6.78"	3' 11.49"	3' 6.52"	3' 11.81"	3' 6.24"	4' 0.18"	3' 5.92"	4' 0.61"	3' 5.58"	4' 1.09"	3' 5.19"	4' 1.65"
3' 4.29"	3' 7.88"	3' 4.09"	3' 8.12"	3' 3.86"	3' 8.4"	3' 3.62"	3' 8.71"	3' 3.35"	3' 9.07"	3' 3.05"	3' 9.48"	3' 2.71"	3' 9.95"
3' 1.54"	3' 4.58"	3' 1.37"	3' 4.79"	3' 1.18"	3' 5.02"	3' 0.97"	3' 5.28"	3' 0.74"	3' 5.58"	3' 0.48"	3' 5.92"	3' 0.2"	3' 6.32"
2' 10.78"	3' 1.32"	2' 10.64"	3' 1.48"	2' 10.48"	3' 1.67"	2' 10.3"	3' 1.89"	2' 10.11"	3' 2.14"	2' 9.89"	3' 2.42"	2' 9.65"	3' 2.74"
2' 8"	2' 10.07"	2' 7.88"	2' 10.21"	2' 7.75"	2' 10.36"	2' 7.6"	2' 10.54"	2' 7.44"	2' 10.74"	2' 7.26"	2' 10.96"	2' 7.06"	2' 11.22"
2' 5.2"	2' 6.85"	2' 5.1"	2' 6.96"	2' 5"	2' 7.09"	2' 4.88"	2' 7.22"	2' 4.75"	2' 7.38"	2' 4.6"	2' 7.56"	2' 4.44"	2' 7.76"



Focal Length 90 mm

Circle of Confusion 0.025 mm

T/No	2.1	2.2	2.5	2.8	3.2	3.5	4
Hyperfocal Distance (ft-inch)	516' 11.74"	483' 7.62"	430' 11.1"	383' 11.6"	342' 1.59"	304' 10.35"	271' 7.88"

T/No	2.1		2.2		2.5		2.8		3.2		3.5		4	
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)	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	516' 7.17"	Infinity	483' 3.2"	Infinity	430' 6.86"	Infinity	383' 7.5"	Infinity	341' 9.58"	Infinity	304' 6.41"	Infinity	271' 4.02"	Infinity
120' 0"	97' 5.92"	156' 0.67"	96' 2.98"	159' 4.34"	93' 11.66"	166' 0.41"	91' 6.49"	174' 2.69"	88' 11.51"	184' 5.23"	86' 2.75"	197' 5.13"	83' 4.3"	214' 4.57"
60' 0"	53' 9.9"	67' 9.4"	53' 5.34"	68' 4.75"	52' 8.88"	69' 7.07"	51' 11.64"	70' 11.74"	51' 1.59"	72' 7.28"	50' 2.69"	74' 6.31"	49' 2.91"	76' 9.65"
40' 0"	37' 2.09"	43' 3.53"	36' 11.92"	43' 6.5"	36' 7.88"	44' 0.23"	36' 3.42"	44' 6.81"	35' 10.53"	45' 2.4"	35' 5.17"	45' 11.19"	34' 11.3"	46' 9.39"
30' 0"	28' 4.69"	31' 9.65"	28' 3.44"	31' 11.24"	28' 1.08"	32' 2.29"	27' 10.47"	32' 5.78"	27' 7.6"	32' 9.77"	27' 4.42"	33' 2.35"	27' 0.94"	33' 7.62"
25' 0"	23' 10.53"	26' 2.81"	23' 9.65"	26' 3.88"	23' 7.99"	26' 5.95"	23' 6.14"	26' 8.29"	23' 4.1"	26' 10.97"	23' 1.85"	27' 2.03"	22' 11.36"	27' 5.53"
20' 0"	19' 3.37"	20' 9.31"	19' 2.79"	20' 9.98"	19' 1.71"	20' 11.26"	19' 0.52"	21' 0.71"	18' 11.18"	21' 2.37"	18' 9.71"	21' 4.25"	18' 8.08"	21' 6.39"
15' 0"	14' 7.16"	15' 5.12"	14' 6.83"	15' 5.49"	14' 6.22"	15' 6.18"	14' 5.54"	15' 6.97"	14' 4.78"	15' 7.86"	14' 3.94"	15' 8.87"	14' 3"	15' 10.02"
12' 0"	11' 8.92"	12' 3.22"	11' 8.71"	12' 3.45"	11' 8.32"	12' 3.88"	11' 7.89"	12' 4.37"	11' 7.4"	12' 4.92"	11' 6.85"	12' 5.55"	11' 6.25"	12' 6.26"
11' 0"	10' 9.42"	11' 2.68"	10' 9.25"	11' 2.87"	10' 8.92"	11' 3.23"	10' 8.55"	11' 3.64"	10' 8.14"	11' 4.1"	10' 7.69"	11' 4.62"	10' 7.18"	11' 5.21"
10' 0"	9' 9.88"	10' 2.2"	9' 9.74"	10' 2.35"	9' 9.47"	10' 2.65"	9' 9.16"	10' 2.98"	9' 8.83"	10' 3.36"	9' 8.45"	10' 3.78"	9' 8.03"	10' 4.26"
9' 0"	8' 10.29"	9' 1.76"	8' 10.18"	9' 1.89"	8' 9.96"	9' 2.12"	8' 9.72"	9' 2.39"	8' 9.44"	9' 2.69"	8' 9.14"	9' 3.03"	8' 8.8"	9' 3.41"
8' 6"	8' 4.49"	8' 7.56"	8' 4.38"	8' 7.67"	8' 4.19"	8' 7.88"	8' 3.97"	8' 8.12"	8' 3.73"	8' 8.38"	8' 3.46"	8' 8.68"	8' 3.15"	8' 9.02"
8' 0"	7' 10.66"	8' 1.38"	7' 10.57"	8' 1.47"	7' 10.4"	8' 1.65"	7' 10.21"	8' 1.86"	7' 10"	8' 2.09"	7' 9.76"	8' 2.36"	7' 9.49"	8' 2.65"
7' 6"	7' 4.83"	7' 7.2"	7' 4.75"	7' 7.28"	7' 4.6"	7' 7.44"	7' 4.43"	7' 7.62"	7' 4.25"	7' 7.83"	7' 4.04"	7' 8.06"	7' 3.8"	7' 8.31"
7' 0"	6' 10.99"	7' 1.04"	6' 10.92"	7' 1.11"	6' 10.79"	7' 1.25"	6' 10.64"	7' 1.4"	6' 10.48"	7' 1.58"	6' 10.3"	7' 1.77"	6' 10.1"	7' 2"
6' 6"	6' 5.14"	6' 6.89"	6' 5.08"	6' 6.95"	6' 4.96"	6' 7.06"	6' 4.84"	6' 7.2"	6' 4.7"	6' 7.35"	6' 4.54"	6' 7.51"	6' 4.37"	6' 7.7"
6' 0"	5' 11.27"	6' 0.75"	5' 11.22"	6' 0.8"	5' 11.13"	6' 0.9"	5' 11.02"	6' 1.01"	5' 10.9"	6' 1.13"	5' 10.77"	6' 1.28"	5' 10.62"	6' 1.44"
5' 6"	5' 5.39"	5' 6.62"	5' 5.35"	5' 6.66"	5' 5.27"	5' 6.74"	5' 5.19"	5' 6.84"	5' 5.09"	5' 6.94"	5' 4.98"	5' 7.06"	5' 4.85"	5' 7.19"
5' 0"	4' 11.5"	5' 0.5"	4' 11.47"	5' 0.54"	4' 11.41"	5' 0.61"	4' 11.34"	5' 0.68"	4' 11.25"	5' 0.77"	4' 11.16"	5' 0.86"	4' 11.06"	5' 0.97"
4' 6"	4' 5.61"	4' 6.4"	4' 5.58"	4' 6.43"	4' 5.53"	4' 6.48"	1.358	4' 6.54"	4' 5.41"	4' 6.61"	4' 5.33"	4' 6.68"	4' 5.25"	4' 6.77"
4' 0"	3' 11.69"	4' 0.31"	3' 11.67"	4' 0.33"	3' 11.63"	4' 0.37"	3' 11.59"	4' 0.42"	3' 11.54"	4' 0.47"	3' 11.48"	4' 0.53"	3' 11.42"	4' 0.59"
3' 9"	3' 8.74"	3' 9.27"	3' 8.72"	3' 9.29"	3' 8.68"	3' 9.32"	3' 8.64"	3' 9.36"	3' 8.6"	3' 9.41"	3' 8.55"	3' 9.46"	3' 8.5"	3' 9.51"
3' 6"	3' 5.77"	3' 6.23"	3' 5.76"	3' 6.25"	3' 5.73"	3' 6.28"	3' 5.69"	3' 6.31"	3' 5.66"	3' 6.35"	3' 5.62"	3' 6.39"	3' 5.57"	3' 6.44"
3' 3"	3' 2.81"	3' 3.19"	3' 2.79"	3' 3.21"	3' 2.77"	3' 3.23"	3' 2.74"	3' 3.26"	3' 2.71"	3' 3.29"	3' 2.67"	3' 3.33"	3' 2.64"	3' 3.37"
3' 0"	2' 11.84"	3' 0.16"	2' 11.83"	3' 0.17"	2' 11.81"	3' 0.19"	2' 11.78"	3' 0.22"	2' 11.76"	3' 0.25"	2' 11.73"	3' 0.28"	2' 11.7"	3' 0.31"
2' 10"	2' 9.86"	2' 10.14"	2' 9.85"	2' 10.15"	2' 9.83"	2' 10.17"	2' 9.81"	2' 10.19"	2' 9.79"	2' 10.22"	2' 9.76"	2' 10.24"	2' 9.73"	2' 10.27"



4.5	5	5.6	6.3	7.1	8	9	10
242' 0.88"	215' 8.62"	192' 2.85"	171' 3.87"	152' 8.24"	136' 0.99"	121' 3.51"	108' 1.36"

4.5		5		5.6		6.3		7.1		8		9		10	
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)	Short Focus (ft-inch)	Long Focus (ft-inch)	Short Focus (ft-inch)	Long Focus (ft-inch)	Short Focus (ft-inch)	Long Focus (ft-inch)
241' 9.09"	Infinity	215' 4.88"	Infinity	191' 11.16"	Infinity	171' 0.17"	Infinity	152' 4.56"	Infinity	135' 9.35"	Infinity	120' 11.87"	Infinity	107' 9.75"	Infinity
80' 4.28"	237' 3.02"	77' 2.82"	269' 6.43"	74' 0.1"	318' 1.66"	70' 8.34"	398' 10.76"	67' 3.75"	557' 10.91"	63' 10.59"	1009' 11.49"	60' 5.14"	11198' 1.5"	56' 11.66"	Infinity
48' 2.23"	79' 6.41"	47' 0.63"	82' 10.09"	45' 10.1"	86' 10.75"	44' 6.67"	91' 11.4"	43' 2.36"	98' 4.49"	41' 9.19"	106' 8.97"	40' 3.24"	118' 0.35"	38' 8.57"	133' 11.06"
34' 4.92"	47' 9.3"	33' 9.97"	48' 11.3"	33' 2.46"	50' 3.85"	32' 6.35"	51' 11.57"	31' 9.63"	53' 11.32"	31' 0.3"	56' 4.23"	30' 2.36"	59' 3.93"	29' 3.82"	63' 0.8"
26' 9.11"	34' 1.7"	26' 4.92"	34' 8.76"	26' 0.35"	35' 4.97"	25' 7.37"	36' 2.59"	25' 1.98"	37' 1.92"	24' 8.14"	38' 3.37"	24' 1.85"	39' 7.46"	23' 7.11"	41' 2.94"
22' 8.62"	27' 9.56"	22' 5.61"	28' 2.19"	22' 2.31"	28' 7.56"	21' 10.7"	29' 1.78"	21' 6.77"	29' 9.05"	21' 2.49"	30' 5.58"	20' 9.86"	31' 3.65"	20' 4.85"	32' 3.64"
18' 6.27"	21' 8.84"	18' 4.28"	21' 11.65"	18' 2.09"	22' 2.87"	17' 11.68"	22' 6.58"	17' 9.04"	22' 10.88"	17' 6.16"	23' 3.87"	17' 3.01"	23' 9.69"	16' 11.59"	24' 4.52"
14' 1.96"	15' 11.32"	14' 0.81"	16' 0.81"	13' 11.53"	16' 2.51"	13' 10.12"	16' 4.45"	13' 8.57"	16' 6.67"	13' 6.87"	16' 9.23"	13' 4.99"	17' 0.19"	13' 2.94"	17' 3.61"
11' 5.58"	12' 7.06"	11' 4.83"	12' 7.98"	11' 4"	12' 9.02"	11' 3.09"	12' 10.2"	11' 2.07"	12' 11.55"	11' 0.95"	13' 1.1"	10' 11.71"	13' 2.87"	10' 10.35"	13' 4.91"
10' 6.61"	11' 5.88"	10' 5.98"	11' 6.63"	10' 5.29"	11' 7.49"	10' 4.51"	11' 8.47"	10' 3.65"	11' 9.58"	10' 2.7"	11' 10.86"	10' 1.66"	12' 0.31"	10' 0.5"	12' 1.98"
9' 7.56"	10' 4.8"	9' 7.04"	10' 5.42"	9' 6.46"	10' 6.12"	9' 5.82"	10' 6.91"	9' 5.11"	10' 7.81"	9' 4.32"	10' 8.84"	9' 3.44"	10' 10.01"	9' 2.48"	10' 11.36"
8' 8.42"	9' 3.84"	8' 8"	9' 4.33"	8' 7.53"	9' 4.89"	8' 7.01"	9' 5.52"	8' 6.43"	9' 6.23"	8' 5.79"	9' 7.04"	8' 5.07"	9' 7.97"	8' 4.29"	9' 9.03"
8' 2.82"	8' 9.4"	8' 2.44"	8' 9.83"	8' 2.02"	8' 10.32"	8' 1.56"	8' 10.88"	8' 1.04"	8' 11.51"	8' 0.47"	9' 0.23"	7' 11.83"	9' 1.04"	7' 11.13"	9' 1.98"
7' 9.19"	8' 2.99"	7' 8.86"	8' 3.37"	7' 8.49"	8' 3.8"	7' 8.07"	8' 4.29"	7' 7.62"	8' 4.84"	7' 7.11"	8' 5.46"	7' 6.54"	8' 6.18"	7' 5.92"	8' 6.99"
7' 3.54"	7' 8.61"	7' 3.25"	7' 8.94"	7' 2.92"	7' 9.31"	7' 2.56"	7' 9.73"	7' 2.16"	7' 10.21"	7' 1.71"	7' 10.75"	7' 1.22"	7' 11.37"	7' 0.67"	8' 0.07"
6' 9.87"	7' 2.25"	6' 9.62"	7' 2.53"	6' 9.33"	7' 2.85"	6' 9.02"	7' 3.22"	6' 8.67"	7' 3.63"	6' 8.28"	7' 4.09"	6' 7.85"	7' 4.62"	6' 7.37"	7' 5.23"
6' 4.17"	6' 7.92"	6' 3.96"	6' 8.16"	6' 3.71"	6' 8.43"	6' 3.44"	6' 8.74"	6' 3.14"	6' 9.09"	6' 2.81"	6' 9.49"	6' 2.44"	6' 9.94"	6' 2.02"	6' 10.45"
5' 10.46"	6' 1.61"	5' 10.27"	6' 1.82"	5' 10.07"	6' 2.05"	5' 9.84"	6' 2.31"	5' 9.58"	6' 2.6"	5' 9.3"	6' 2.93"	5' 8.98"	6' 3.31"	5' 8.63"	6' 3.73"
5' 4.72"	5' 7.34"	5' 4.56"	5' 7.51"	5' 4.39"	5' 7.7"	5' 4.2"	5' 7.91"	5' 3.99"	5' 8.15"	5' 3.75"	5' 8.42"	5' 3.48"	5' 8.73"	5' 3.19"	5' 9.09"
4' 10.95"	5' 1.09"	4' 10.83"	5' 1.22"	4' 10.69"	5' 1.38"	4' 10.53"	5' 1.55"	4' 10.35"	5' 1.75"	4' 10.16"	5' 1.97"	4' 9.94"	5' 2.22"	4' 9.7"	5' 2.5"
4' 5.16"	4' 6.86"	4' 5.06"	4' 6.97"	4' 4.95"	4' 7.09"	4' 4.83"	4' 7.23"	4' 4.69"	4' 7.39"	4' 4.53"	4' 7.56"	4' 4.35"	4' 7.76"	4' 4.16"	4' 7.98"
3' 11.35"	4' 0.67"	3' 11.27"	4' 0.75"	3' 11.19"	4' 0.84"	3' 11.09"	4' 0.95"	3' 10.98"	4' 1.07"	3' 10.86"	4' 1.2"	3' 10.72"	4' 1.35"	3' 10.57"	4' 1.52"
3' 8.44"	3' 9.58"	3' 8.37"	3' 9.65"	3' 8.29"	3' 9.73"	3' 8.21"	3' 9.82"	3' 8.12"	3' 9.92"	3' 8.01"	3' 10.04"	3' 7.89"	3' 10.17"	3' 7.76"	3' 10.32"
3' 5.52"	3' 6.49"	3' 5.46"	3' 6.56"	3' 5.39"	3' 6.62"	3' 5.32"	3' 6.7"	3' 5.24"	3' 6.79"	3' 5.15"	3' 6.89"	3' 5.05"	3' 7"	3' 4.93"	3' 7.13"
3' 2.59"	3' 3.42"	3' 2.54"	3' 3.47"	3' 2.49"	3' 3.53"	3' 2.42"	3' 3.59"	3' 2.36"	3' 3.67"	3' 2.28"	3' 3.75"	3' 2.19"	3' 3.85"	3' 2.1"	3' 3.95"
2' 11.66"	3' 0.35"	2' 11.62"	3' 0.39"	2' 11.57"	3' 0.44"	2' 11.52"	3' 0.49"	2' 11.46"	3' 0.56"	2' 11.4"	3' 0.63"	2' 11.32"	3' 0.7"	2' 11.24"	3' 0.79"
2' 9.7"	2' 10.31"	2' 9.66"	2' 10.34"	2' 9.62"	2' 10.39"	2' 9.58"	2' 10.43"	2' 9.53"	2' 10.49"	2' 9.47"	2' 10.55"	2' 9.41"	2' 10.62"	2' 9.34"	2' 10.69"



11	13	14	16	18	20	22
96' 4.5"	85' 10.98"	76' 7.17"	68' 3.57"	60' 10.83"	54' 3.73"	48' 5.3"

11		13		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)	Short Focus (ft-inch)	Long Focus (ft-inch)	Short Focus (ft-inch)	Long Focus (ft-inch)
96' 0.89"	Infinity	85' 7.39"	Infinity	76' 3.58"	Infinity	67' 11.97"	Infinity	60' 7.22"	Infinity	54' 0.16"	Infinity	48' 1.73"	Infinity
53' 6.43"	Infinity	50' 1.72"	Infinity	46' 9.78"	Infinity	43' 6.85"	Infinity	40' 5.14"	Infinity	37' 4.84"	Infinity	34' 6.09"	Infinity
37' 1.27"	157' 9.36"	35' 5.44"	197' 2.89"	33' 9.19"	274' 3.41"	32' 0.66"	488' 8.17"	30' 3.97"	4006' 0.27"	28' 7.27"	Infinity	26' 10.68"	Infinity
28' 4.7"	67' 10.44"	27' 5.04"	74' 2.62"	26' 4.87"	82' 11.17"	25' 4.24"	95' 6.3"	24' 3.23"	115' 2.06"	23' 1.9"	149' 9.31"	22' 0.33"	226' 1.18"
22' 11.91"	43' 2.81"	22' 4.26"	45' 8.52"	21' 8.16"	48' 10.21"	20' 11.64"	52' 11.24"	20' 2.72"	58' 5.12"	19' 5.44"	66' 1.56"	18' 7.85"	77' 7.55"
19' 11.48"	33' 6.06"	19' 5.71"	34' 11.58"	18' 11.57"	36' 9.18"	18' 5.06"	39' 0.24"	17' 10.18"	41' 10.9"	17' 2.96"	45' 8.51"	16' 7.42"	50' 10.73"
16' 7.88"	25' 0.59"	16' 3.88"	25' 10.21"	15' 11.58"	26' 9.77"	15' 6.98"	27' 11.82"	15' 2.07"	29' 5.14"	14' 8.86"	31' 2.87"	14' 3.36"	33' 6.7"
13' 0.7"	17' 7.6"	12' 10.26"	18' 0.26"	12' 7.61"	18' 5.74"	12' 4.75"	19' 0.24"	12' 1.66"	19' 8.01"	11' 10.35"	20' 5.4"	11' 6.81"	21' 4.88"
10' 8.86"	13' 7.26"	10' 7.23"	13' 9.99"	10' 5.44"	14' 1.16"	10' 3.5"	14' 4.87"	10' 1.39"	14' 9.23"	9' 11.11"	15' 2.41"	9' 8.65"	15' 8.6"
9' 11.23"	12' 3.9"	9' 9.84"	12' 6.13"	9' 8.32"	12' 8.7"	9' 6.65"	12' 11.7"	9' 4.84"	13' 3.21"	9' 2.88"	13' 7.35"	9' 0.76"	14' 0.26"
9' 1.42"	11' 0.9"	9' 0.26"	11' 2.68"	8' 10.98"	11' 4.74"	8' 9.58"	11' 7.12"	8' 8.05"	11' 9.9"	8' 6.39"	12' 1.15"	8' 4.59"	12' 4.99"
8' 3.42"	9' 10.25"	8' 2.47"	9' 11.64"	8' 1.42"	10' 1.24"	8' 0.26"	10' 3.1"	7' 11"	10' 5.25"	7' 9.63"	10' 7.76"	7' 8.13"	10' 10.7"
7' 10.35"	9' 3.04"	7' 9.49"	9' 4.26"	7' 8.55"	9' 5.67"	7' 7.51"	9' 7.29"	7' 6.38"	9' 9.16"	7' 5.14"	9' 11.34"	7' 3.79"	10' 1.89"
7' 5.23"	8' 7.92"	7' 4.47"	8' 8.98"	7' 3.63"	8' 10.2"	7' 2.7"	8' 11.61"	7' 1.69"	9' 1.23"	7' 0.58"	9' 3.11"	6' 11.37"	9' 5.31"
7' 0.06"	8' 0.88"	6' 11.38"	8' 1.79"	6' 10.64"	8' 2.85"	6' 9.83"	8' 4.05"	6' 8.93"	8' 5.45"	6' 7.95"	8' 7.06"	6' 6.87"	8' 8.93"
6' 6.84"	7' 5.91"	6' 6.25"	7' 6.7"	6' 5.6"	7' 7.59"	6' 4.88"	7' 8.62"	6' 4.1"	7' 9.81"	6' 3.23"	7' 11.17"	6' 2.29"	8' 0.75"
6' 1.56"	6' 11.03"	6' 1.06"	6' 11.69"	6' 0.49"	7' 0.45"	5' 11.87"	7' 1.31"	5' 11.19"	7' 2.31"	5' 10.44"	7' 3.45"	5' 9.62"	7' 4.77"
5' 8.24"	6' 4.22"	5' 7.81"	6' 4.77"	5' 7.33"	6' 5.4"	5' 6.8"	6' 6.12"	5' 6.21"	6' 6.94"	5' 5.57"	6' 7.89"	5' 4.86"	6' 8.98"
5' 2.86"	5' 9.48"	5' 2.5"	5' 9.94"	5' 2.1"	5' 10.45"	5' 1.65"	5' 11.04"	5' 1.16"	5' 11.71"	5' 0.62"	6' 0.49"	5' 0.02"	6' 1.37"
4' 9.43"	5' 2.82"	4' 9.13"	5' 3.19"	4' 8.8"	5' 3.6"	4' 8.43"	5' 4.07"	4' 8.02"	5' 4.61"	4' 7.58"	5' 5.23"	4' 7.08"	5' 5.94"
4' 3.94"	4' 8.23"	4' 3.7"	4' 8.52"	4' 3.44"	4' 8.85"	4' 3.14"	4' 9.22"	4' 2.81"	4' 9.64"	4' 2.45"	4' 10.12"	4' 2.05"	4' 10.67"
3' 10.4"	4' 1.72"	3' 10.22"	4' 1.94"	3' 10.01"	4' 2.18"	3' 9.77"	4' 2.47"	3' 9.52"	4' 2.79"	3' 9.23"	4' 3.15"	3' 8.92"	4' 3.57"
3' 7.61"	3' 10.48"	3' 7.45"	3' 10.67"	3' 7.27"	3' 10.89"	3' 7.06"	3' 11.13"	3' 6.84"	3' 11.41"	3' 6.59"	3' 11.72"	3' 6.31"	4' 0.08"
3' 4.81"	3' 7.27"	3' 4.67"	3' 7.43"	3' 4.51"	3' 7.61"	3' 4.33"	3' 7.82"	3' 4.14"	3' 8.05"	3' 3.92"	3' 8.32"	3' 3.68"	3' 8.62"
3' 1.99"	3' 4.07"	3' 1.87"	3' 4.21"	3' 1.73"	3' 4.36"	3' 1.58"	3' 4.54"	3' 1.42"	3' 4.73"	3' 1.23"	3' 4.96"	3' 1.03"	3' 5.21"
2' 11.15"	3' 0.89"	2' 11.05"	3' 1"	2' 10.94"	3' 1.13"	2' 10.82"	3' 1.28"	2' 10.68"	3' 1.44"	2' 10.52"	3' 1.62"	2' 10.35"	3' 1.83"
2' 9.26"	2' 10.78"	2' 9.17"	2' 10.88"	2' 9.07"	2' 10.99"	2' 8.96"	2' 11.12"	2' 8.84"	2' 11.26"	2' 8.7"	2' 11.42"	2' 8.55"	2' 11.6"



Focal Length 50 mm

Circle of Confusion 0.025 mm

T/No	1	1.1	1.2	1.4	1.6	1.8	2
Hyperfocal Distance (ft-inch)	363' 7.31"	323' 11.68"	288' 7.98"	257' 2.46"	229' 2.16"	204' 2.55"	181' 11.62"

T/No	1		1.1		1.2		1.4		1.6		1.8		2	
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)	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	363' 4.76"	Infinity	323' 9.24"	Infinity	288' 5.59"	Infinity	257' 0.16"	Infinity	228' 11.9"	Infinity	204' 0.32"	Infinity	181' 9.42"	Infinity
120' 0"	90' 3.63"	178' 10.51"	87' 7.77"	190' 3.79"	84' 10.17"	205' 0.44"	81' 10.93"	224' 6.4"	78' 10.18"	251' 4.4"	75' 8.07"	290' 3.8"	72' 4.8"	351' 5.45"
60' 0"	51' 6.68"	71' 9.16"	50' 8.2"	73' 6.35"	49' 8.86"	75' 7.42"	48' 8.62"	78' 1.32"	47' 7.47"	81' 1.32"	46' 5.4"	84' 9.17"	45' 2.41"	89' 3.37"
40' 0"	36' 0.92"	44' 10.62"	35' 7.79"	45' 6.8"	35' 2.16"	46' 4.29"	34' 8.03"	47' 3.34"	34' 1.35"	48' 4.28"	33' 6.11"	49' 7.53"	32' 10.28"	51' 1.63"
30' 0"	27' 8.95"	32' 7.86"	27' 5.92"	33' 0.15"	27' 2.58"	33' 5.09"	26' 10.91"	33' 10.78"	26' 6.89"	34' 5.36"	26' 2.49"	35' 1.01"	25' 9.7"	35' 9.94"
25' 0"	23' 5.04"	26' 9.73"	23' 2.88"	27' 0.61"	23' 0.5"	27' 3.9"	22' 9.87"	27' 7.68"	22' 6.98"	28' 0.03"	22' 3.81"	28' 5.05"	22' 0.34"	28' 10.87"
20' 0"	18' 11.76"	21' 1.64"	18' 10.35"	21' 3.41"	18' 8.79"	21' 5.44"	18' 7.06"	21' 7.75"	18' 5.15"	21' 10.4"	18' 3.04"	22' 1.44"	18' 0.72"	22' 4.93"
15' 0"	14' 5.08"	15' 7.5"	14' 4.27"	15' 8.46"	14' 3.37"	15' 9.55"	14' 2.37"	15' 10.79"	14' 1.26"	16' 0.21"	14' 0.04"	16' 1.82"	13' 10.68"	16' 3.66"
12' 0"	11' 7.57"	12' 4.72"	11' 7.05"	12' 5.32"	11' 6.47"	12' 6"	11' 5.82"	12' 6.77"	11' 5.1"	12' 7.64"	11' 4.3"	12' 8.63"	11' 3.41"	12' 9.76"
11' 0"	10' 8.28"	11' 3.94"	10' 7.84"	11' 4.44"	10' 7.35"	11' 5"	10' 6.81"	11' 5.64"	10' 6.2"	11' 6.37"	10' 5.52"	11' 7.19"	10' 4.78"	11' 8.13"
10' 0"	9' 8.93"	10' 3.23"	9' 8.57"	10' 3.64"	9' 8.16"	10' 4.1"	9' 7.71"	10' 4.62"	9' 7.21"	10' 5.22"	9' 6.65"	10' 5.89"	9' 6.02"	10' 6.65"
9' 0"	8' 9.52"	9' 2.6"	8' 9.23"	9' 2.92"	8' 8.9"	9' 3.29"	8' 8.53"	9' 3.71"	8' 8.12"	9' 4.18"	8' 7.67"	9' 4.72"	8' 7.16"	9' 5.32"
8' 6"	8' 3.8"	8' 8.31"	8' 3.53"	8' 8.6"	8' 3.24"	8' 8.92"	8' 2.91"	8' 9.29"	8' 2.55"	8' 9.71"	8' 2.14"	8' 10.18"	8' 1.69"	8' 10.72"
8' 0"	7' 10.05"	8' 2.03"	7' 9.82"	8' 2.29"	7' 9.56"	8' 2.57"	7' 9.27"	8' 2.9"	7' 8.94"	8' 3.27"	7' 8.58"	8' 3.68"	7' 8.18"	8' 4.15"
7' 6"	7' 4.29"	7' 7.78"	7' 4.09"	7' 8"	7' 3.86"	7' 8.25"	7' 3.6"	7' 8.53"	7' 3.32"	7' 8.85"	7' 3"	7' 9.22"	7' 2.65"	7' 9.63"
7' 0"	6' 10.52"	7' 1.54"	6' 10.34"	7' 1.73"	6' 10.14"	7' 1.95"	6' 9.92"	7' 2.19"	6' 9.67"	7' 2.47"	6' 9.4"	7' 2.78"	6' 9.09"	7' 3.13"
6' 6"	6' 4.73"	6' 7.32"	6' 4.57"	6' 7.48"	6' 4.4"	6' 7.67"	6' 4.21"	6' 7.88"	6' 4"	6' 8.11"	6' 3.76"	6' 8.38"	6' 3.5"	6' 8.68"
6' 0"	5' 10.92"	6' 1.11"	5' 10.79"	6' 1.25"	5' 10.65"	6' 1.41"	5' 10.48"	6' 1.58"	5' 10.3"	6' 1.78"	5' 10.1"	6' 2.01"	5' 9.87"	6' 2.26"
5' 6"	5' 5.1"	5' 6.93"	5' 4.99"	5' 7.04"	5' 4.87"	5' 7.17"	5' 4.73"	5' 7.32"	5' 4.58"	5' 7.48"	5' 4.41"	5' 7.67"	5' 4.22"	5' 7.88"
5' 0"	4' 11.26"	5' 0.76"	4' 11.17"	5' 0.85"	4' 11.07"	5' 0.96"	4' 10.96"	5' 1.08"	4' 10.84"	5' 1.21"	4' 10.7"	5' 1.36"	4' 10.54"	5' 1.54"
4' 6"	4' 5.41"	4' 6.61"	4' 5.34"	4' 6.68"	4' 5.26"	4' 6.77"	1.35	4' 6.86"	4' 5.07"	4' 6.97"	4' 4.95"	4' 7.09"	4' 4.83"	4' 7.23"
4' 0"	3' 11.54"	4' 0.47"	3' 11.48"	4' 0.53"	3' 11.42"	4' 0.6"	3' 11.35"	4' 0.67"	3' 11.27"	4' 0.75"	3' 11.18"	4' 0.85"	3' 11.08"	4' 0.95"
3' 6"	3' 5.65"	3' 6.35"	3' 5.61"	3' 6.4"	3' 5.56"	3' 6.45"	3' 5.51"	3' 6.5"	3' 5.45"	3' 6.56"	3' 5.38"	3' 6.64"	3' 5.31"	3' 6.71"
3' 0"	2' 11.75"	3' 0.25"	2' 11.72"	3' 0.28"	2' 11.69"	3' 0.32"	2' 11.65"	3' 0.36"	2' 11.61"	3' 0.4"	2' 11.56"	3' 0.45"	2' 11.5"	3' 0.51"
2' 9"	2' 8.79"	2' 9.21"	2' 8.77"	2' 9.24"	2' 8.74"	2' 9.26"	2' 8.71"	2' 9.3"	2' 8.67"	2' 9.33"	2' 8.63"	2' 9.38"	2' 8.59"	2' 9.42"
2' 6"	2' 5.83"	2' 6.17"	2' 5.81"	2' 6.19"	2' 5.79"	2' 6.21"	2' 5.76"	2' 6.24"	2' 5.73"	2' 6.27"	2' 5.7"	2' 6.3"	2' 5.67"	2' 6.34"
2' 3"	2' 2.87"	2' 3.13"	2' 2.85"	2' 3.15"	2' 2.83"	2' 3.17"	2' 2.81"	2' 3.19"	2' 2.79"	2' 3.21"	2' 2.76"	2' 3.24"	2' 2.74"	2' 3.27"
2' 0"	1' 11.9"	2' 0.1"	1' 11.89"	2' 0.12"	1' 11.87"	2' 0.13"	1' 11.86"	2' 0.15"	1' 11.84"	2' 0.16"	1' 11.82"	2' 0.18"	1' 11.8"	2' 0.21"
1' 9"	1' 8.93"	1' 9.08"	1' 8.92"	1' 9.08"	1' 8.91"	1' 9.1"	1' 8.89"	1' 9.11"	1' 8.88"	1' 9.12"	1' 8.87"	1' 9.13"	1' 8.85"	1' 9.15"
1' 8"	1' 7.93"	1' 8.07"	1' 7.93"	1' 8.08"	1' 7.92"	1' 8.08"	1' 7.91"	1' 8.1"	1' 7.89"	1' 8.11"	1' 7.88"	1' 8.12"	1' 7.87"	1' 8.14"



2.2	2.5	2.8	3.2	3.5	4	4.5	5
162' 1.79"	144' 5.94"	128' 9.2"	114' 9.05"	102' 3.2"	91' 1.74"	81' 2.84"	72' 4.94"

2.2		2.5		2.8		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)	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' 11.63"	Infinity	144' 3.79"	Infinity	128' 7.06"	Infinity	114' 6.91"	Infinity	102' 1.11"	Infinity	90' 11.66"	Infinity	81' 0.76"	Infinity	72' 2.83"	Infinity
69' 0.59"	460' 3.3"	65' 7.68"	705' 6.44"	62' 2.32"	1756' 2.45"	58' 8.8"	Infinity	55' 3.38"	Infinity	51' 10.35"	Infinity	48' 5.96"	Infinity	45' 2.46"	Infinity
43' 10.52"	94' 11.54"	42' 5.76"	102' 3.2"	41' 0.18"	111' 11.22"	39' 5.84"	125' 2.72"	37' 10.83"	144' 5.9"	36' 3.23"	174' 7.95"	34' 7.16"	228' 1.91"	32' 10.74"	347' 9.29"
32' 1.85"	52' 11.31"	31' 4.81"	55' 1.55"	30' 7.15"	57' 9.72"	29' 8.89"	61' 1.78"	28' 10.04"	65' 4.66"	27' 10.62"	70' 10.91"	26' 10.68"	78' 4.04"	25' 10.25"	88' 9.34"
25' 4.5"	36' 8.43"	24' 10.86"	37' 8.83"	24' 4.78"	38' 11.61"	23' 10.24"	40' 5.4"	23' 3.25"	42' 3.07"	22' 7.79"	44' 5.82"	21' 11.89"	47' 3.43"	21' 3.55"	50' 10.61"
21' 8.55"	29' 5.64"	21' 4.43"	30' 1.57"	20' 11.95"	30' 10.9"	20' 7.11"	31' 9.97"	20' 1.9"	32' 11.21"	19' 8.3"	34' 3.22"	19' 2.32"	35' 10.82"	18' 7.97"	37' 11.18"
17' 10.18"	22' 8.96"	17' 7.4"	23' 1.64"	17' 4.36"	23' 7.08"	17' 1.06"	24' 1.45"	16' 9.47"	24' 8.96"	16' 5.59"	25' 5.86"	16' 1.42"	26' 4.52"	15' 8.93"	27' 5.41"
13' 9.19"	16' 5.77"	13' 7.54"	16' 8.19"	13' 5.73"	16' 10.98"	13' 3.75"	17' 2.21"	13' 1.58"	17' 5.96"	12' 11.22"	17' 10.33"	12' 8.65"	18' 3.47"	12' 5.87"	18' 9.54"
11' 2.43"	12' 11.05"	11' 1.35"	13' 0.53"	11' 0.15"	13' 2.21"	10' 10.84"	13' 4.15"	10' 9.39"	13' 6.39"	10' 7.81"	13' 8.97"	10' 6.07"	13' 11.97"	10' 4.18"	14' 3.47"
10' 3.95"	11' 9.19"	10' 3.03"	11' 10.41"	10' 2.01"	11' 11.8"	10' 0.89"	12' 1.39"	9' 11.66"	12' 3.22"	9' 10.31"	12' 5.34"	9' 8.83"	12' 7.78"	9' 7.21"	12' 10.63"
9' 5.33"	10' 7.51"	9' 4.57"	10' 8.5"	9' 3.72"	10' 9.63"	9' 2.79"	10' 10.91"	9' 1.76"	11' 0.39"	9' 0.62"	11' 2.09"	8' 11.38"	11' 4.05"	8' 10.02"	11' 6.32"
8' 6.6"	9' 6.01"	8' 5.97"	9' 6.8"	8' 5.28"	9' 7.69"	8' 4.52"	9' 8.71"	8' 3.67"	9' 9.87"	8' 2.74"	9' 11.21"	8' 1.72"	10' 0.75"	8' 0.6"	10' 2.52"
8' 1.18"	8' 11.33"	8' 0.63"	9' 0.02"	8' 0.01"	9' 0.81"	7' 11.32"	9' 1.71"	7' 10.56"	9' 2.73"	7' 9.73"	9' 3.91"	7' 8.81"	9' 5.26"	7' 7.8"	9' 6.81"
7' 7.74"	8' 4.69"	7' 7.24"	8' 5.29"	7' 6.69"	8' 5.98"	7' 6.08"	8' 6.77"	7' 5.41"	8' 7.67"	7' 4.66"	8' 8.69"	7' 3.84"	8' 9.87"	7' 2.94"	8' 11.22"
7' 2.26"	7' 10.09"	7' 1.82"	7' 10.62"	7' 1.34"	7' 11.22"	7' 0.8"	7' 11.9"	7' 0.2"	8' 0.67"	6' 11.55"	8' 1.56"	6' 10.82"	8' 2.58"	6' 10.02"	8' 3.74"
6' 8.75"	7' 3.53"	6' 8.36"	7' 3.99"	6' 7.94"	7' 4.5"	6' 7.47"	7' 5.09"	6' 6.95"	7' 5.76"	6' 6.38"	7' 6.52"	6' 5.74"	7' 7.39"	6' 5.04"	7' 8.38"
6' 3.2"	6' 9.02"	6' 2.87"	6' 9.41"	6' 2.51"	6' 9.85"	6' 2.1"	6' 10.34"	6' 1.65"	6' 10.91"	6' 1.15"	6' 11.56"	6' 0.6"	7' 0.29"	5' 11.99"	7' 1.14"
5' 9.62"	6' 2.55"	5' 9.34"	6' 2.87"	5' 9.03"	6' 3.24"	5' 8.68"	6' 3.66"	5' 8.3"	6' 4.14"	5' 7.87"	6' 4.68"	5' 7.4"	6' 5.29"	5' 6.88"	6' 6"
5' 4.01"	5' 8.12"	5' 3.78"	5' 8.39"	5' 3.52"	5' 8.69"	5' 3.22"	5' 9.04"	5' 2.9"	5' 9.43"	5' 2.54"	5' 9.88"	5' 2.14"	5' 10.38"	5' 1.7"	5' 10.96"
4' 10.37"	5' 1.73"	4' 10.17"	5' 1.95"	4' 9.96"	5' 2.2"	4' 9.72"	5' 2.48"	4' 9.45"	5' 2.8"	4' 9.15"	5' 3.16"	4' 8.82"	5' 3.57"	4' 8.46"	5' 4.03"
4' 4.69"	4' 7.38"	4' 4.53"	4' 7.56"	4' 4.36"	4' 7.75"	4' 4.16"	4' 7.98"	4' 3.95"	4' 8.23"	4' 3.71"	4' 8.51"	4' 3.44"	4' 8.84"	4' 3.14"	4' 9.21"
3' 10.98"	4' 1.07"	3' 10.85"	4' 1.21"	3' 10.72"	4' 1.36"	3' 10.56"	4' 1.53"	3' 10.39"	4' 1.73"	3' 10.2"	4' 1.95"	3' 9.99"	4' 2.2"	3' 9.76"	4' 2.48"
3' 5.23"	3' 6.8"	3' 5.13"	3' 6.9"	3' 5.03"	3' 7.02"	3' 4.92"	3' 7.15"	3' 4.79"	3' 7.29"	3' 4.64"	3' 7.45"	3' 4.48"	3' 7.64"	3' 4.31"	3' 7.85"
2' 11.44"	3' 0.57"	2' 11.38"	3' 0.65"	2' 11.3"	3' 0.73"	2' 11.22"	3' 0.82"	2' 11.13"	3' 0.92"	2' 11.02"	3' 1.04"	2' 10.91"	3' 1.17"	2' 10.78"	3' 1.32"
2' 8.54"	2' 9.47"	2' 8.48"	2' 9.53"	2' 8.42"	2' 9.6"	2' 8.35"	2' 9.67"	2' 8.28"	2' 9.76"	2' 8.19"	2' 9.85"	2' 8.09"	2' 9.96"	2' 7.99"	2' 10.08"
2' 5.63"	2' 6.38"	2' 5.58"	2' 6.43"	2' 5.53"	2' 6.49"	2' 5.47"	2' 6.55"	2' 5.41"	2' 6.61"	2' 5.34"	2' 6.69"	2' 5.26"	2' 6.78"	2' 5.18"	2' 6.88"
2' 2.7"	2' 3.3"	2' 2.67"	2' 3.34"	2' 2.63"	2' 3.38"	2' 2.58"	2' 3.43"	2' 2.53"	2' 3.48"	2' 2.48"	2' 3.54"	2' 2.42"	2' 3.61"	2' 2.35"	2' 3.69"
1' 11.77"	2' 0.23"	1' 11.75"	2' 0.26"	1' 11.71"	2' 0.29"	1' 11.68"	2' 0.33"	1' 11.64"	2' 0.37"	1' 11.6"	2' 0.42"	1' 11.55"	2' 0.47"	1' 11.5"	2' 0.53"
1' 8.83"	1' 9.17"	1' 8.81"	1' 9.19"	1' 8.79"	1' 9.21"	1' 8.76"	1' 9.24"	1' 8.74"	1' 9.27"	1' 8.7"	1' 9.31"	1' 8.67"	1' 9.34"	1' 8.63"	1' 9.39"
1' 7.85"	1' 8.15"	1' 7.83"	1' 8.17"	1' 7.81"	1' 8.19"	1' 7.79"	1' 8.22"	1' 7.76"	1' 8.24"	1' 7.74"	1' 8.27"	1' 7.7"	1' 8.31"	1' 7.67"	1' 8.34"



5.6	6.3	7.1	8	9	10	11	13
64' 6.57"	57' 6.47"	51' 3.55"	45' 8.82"	40' 9.37"	36' 4.42"	32' 5.21"	28' 11.2"

5.6		6.3		7.1		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)	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' 4.46"	Infinity	57' 4.39"	Infinity	51' 1.48"	Infinity	45' 6.75"	Infinity	40' 7.3"	Infinity	36' 2.34"	Infinity	32' 3.15"	Infinity	28' 9.11"	Infinity
42' 0.07"	Infinity	38' 11"	Infinity	35' 11.41"	Infinity	33' 1.44"	Infinity	30' 5.18"	Infinity	27' 10.71"	Infinity	25' 6.08"	Infinity	23' 3.29"	Infinity
31' 2.09"	845' 7.85"	29' 5.36"	Infinity	27' 8.67"	Infinity	26' 0.18"	Infinity	24' 4"	Infinity	22' 8.26"	Infinity	21' 1.08"	Infinity	19' 6.55"	Infinity
24' 9.4"	104' 4.88"	23' 8.2"	130' 1.63"	22' 6.71"	179' 11.27"	21' 5.04"	315' 7.31"	20' 3.25"	2062' 4.42"	19' 1.45"	Infinity	17' 11.72"	Infinity	16' 10.17"	Infinity
20' 6.81"	55' 7.66"	19' 9.68"	62' 1.93"	19' 0.21"	71' 7.05"	18' 2.45"	86' 3.41"	17' 4.45"	112' 1.77"	16' 6.27"	169' 1.05"	15' 7.98"	393' 7.68"	14' 9.64"	Infinity
18' 1.24"	40' 6.04"	17' 6.16"	43' 10.1"	16' 10.74"	48' 3.77"	16' 3.03"	54' 6.79"	15' 7.04"	63' 10.17"	14' 10.83"	78' 11.18"	14' 2.44"	107' 5.43"	13' 5.92"	180' 10.88"
15' 4.15"	28' 9.19"	14' 11.06"	30' 4.82"	14' 5.67"	32' 5.72"	14'	35' 2.07"	13' 6.07"	38' 9.47"	12' 11.9"	43' 10.28"	12' 5.51"	51' 4.8"	11' 10.95"	63' 8.58"
12' 2.86"	19' 4.77"	11' 11.63"	20' 1.46"	11' 8.17"	21' 0.03"	11' 4.49"	22' 1.06"	11' 0.58"	23' 5.41"	10' 8.45"	25' 2.35"	10' 4.12"	27' 5.95"	9' 11.59"	30' 7.65"
10' 2.13"	14' 7.59"	9' 11.91"	15' 0.45"	9' 9.51"	15' 6.23"	9' 6.93"	16' 1.2"	9' 4.16"	16' 9.66"	9' 1.22"	17' 8.11"	8' 10.09"	18' 9.22"	8' 6.8"	20' 2.02"
9' 5.45"	13' 1.95"	9' 3.53"	13' 5.86"	9' 1.46"	13' 10.48"	8' 11.23"	14' 4"	8' 8.83"	14' 10.65"	8' 6.26"	15' 6.77"	8' 3.52"	16' 4.82"	8' 0.63"	17' 5.48"
8' 8.53"	11' 8.96"	8' 6.91"	12' 0.05"	8' 5.15"	12' 3.68"	8' 3.25"	12' 7.99"	8' 1.2"	13' 1.14"	7' 10.99"	13' 7.35"	7' 8.64"	14' 2.95"	7' 6.14"	15' 0.38"
7' 11.37"	10' 4.58"	7' 10.02"	10' 6.97"	7' 8.56"	10' 9.77"	7' 6.97"	11' 1.07"	7' 5.26"	11' 4.98"	7' 3.41"	11' 9.65"	7' 1.42"	12' 3.3"	6' 11.3"	12' 10.2"
7' 6.69"	9' 8.61"	7' 5.48"	9' 10.7"	7' 4.16"	10' 1.13"	7' 2.72"	10' 3.99"	7' 1.16"	10' 7.36"	6' 11.48"	10' 11.38"	6' 9.67"	11' 4.21"	6' 7.74"	11' 10.07"
7' 1.95"	9' 0.78"	7' 0.86"	9' 2.59"	6' 11.68"	9' 4.69"	6' 10.39"	9' 7.15"	6' 8.99"	9' 10.04"	6' 7.47"	10' 1.47"	6' 5.84"	10' 5.57"	6' 4.08"	10' 10.52"
6' 9.14"	8' 5.09"	6' 8.18"	8' 6.64"	6' 7.12"	8' 8.44"	6' 5.97"	8' 10.54"	6' 4.72"	9' 1.01"	6' 3.36"	9' 3.91"	6' 1.9"	9' 7.37"	6' 0.32"	9' 11.51"
6' 4.26"	7' 9.53"	6' 3.42"	7' 10.85"	6' 2.49"	8' 0.38"	6' 1.47"	8' 2.16"	6' 0.36"	8' 4.23"	5' 11.16"	8' 6.67"	5' 9.86"	8' 9.56"	5' 8.46"	9' 1"
5' 11.32"	7' 2.1"	5' 10.58"	7' 3.21"	5' 9.77"	7' 4.5"	5' 8.88"	7' 5.99"	5' 7.91"	7' 7.72"	5' 6.86"	7' 9.75"	5' 5.72"	8' 0.13"	5' 4.48"	8' 2.96"
5' 6.3"	6' 6.8"	5' 5.67"	6' 7.73"	5' 4.97"	6' 8.79"	5' 4.21"	6' 10.02"	5' 3.37"	6' 11.45"	5' 2.46"	7' 1.11"	5' 1.46"	7' 3.06"	5' 0.39"	7' 5.36"
5' 1.22"	5' 11.62"	5' 0.68"	6' 0.38"	5' 0.09"	6' 1.25"	4' 11.44"	6' 2.25"	4' 10.72"	6' 3.41"	4' 9.94"	6' 4.76"	4' 9.1"	6' 6.33"	4' 8.17"	6' 8.17"
4' 8.05"	5' 4.57"	4' 7.61"	5' 5.17"	4' 7.11"	5' 5.87"	4' 6.57"	5' 6.67"	4' 5.98"	5' 7.6"	4' 5.32"	5' 8.67"	4' 4.61"	5' 9.91"	4' 3.83"	5' 11.36"
4' 2.82"	4' 9.63"	4' 2.45"	4' 10.11"	4' 2.05"	4' 10.65"	4' 1.61"	4' 11.28"	4' 1.12"	5'	4' 0.59"	5' 0.83"	4'	5' 1.79"	3' 11.36"	5' 2.91"
3' 9.5"	4' 2.8"	3' 9.21"	4' 3.17"	3' 8.9"	4' 3.59"	3' 8.54"	4' 4.06"	3' 8.16"	4' 4.61"	3' 7.73"	4' 5.24"	3' 7.26"	4' 5.97"	3' 6.75"	4' 6.8"
3' 4.11"	3' 8.09"	3' 3.89"	3' 8.36"	3' 3.65"	3' 8.67"	3' 3.38"	3' 9.02"	3' 3.08"	3' 9.42"	3' 2.75"	3' 9.88"	3' 2.39"	3' 10.41"	3' 1.99"	3' 11.01"
2' 10.63"	3' 1.48"	2' 10.47"	3' 1.68"	2' 10.3"	3' 1.89"	2' 10.1"	3' 2.14"	2' 9.88"	3' 2.42"	2' 9.64"	3' 2.74"	2' 9.37"	3' 3.1"	2' 9.08"	3' 3.52"
2' 7.87"	2' 10.22"	2' 7.73"	2' 10.38"	2' 7.58"	2' 10.56"	2' 7.42"	2' 10.76"	2' 7.24"	2' 10.99"	2' 7.04"	2' 11.25"	2' 6.81"	2' 11.55"	2' 6.57"	2' 11.89"
2' 5.08"	2' 6.99"	2' 4.97"	2' 7.11"	2' 4.85"	2' 7.26"	2' 4.71"	2' 7.42"	2' 4.56"	2' 7.6"	2' 4.4"	2' 7.81"	2' 4.21"	2' 8.05"	2' 4.01"	2' 8.32"
2' 2.27"	2' 3.78"	2' 2.18"	2' 3.88"	2' 2.08"	2' 3.99"	2' 1.98"	2' 4.11"	2' 1.86"	2' 4.26"	2' 1.72"	2' 4.42"	2' 1.58"	2' 4.6"	2' 1.41"	2' 4.81"
1' 11.44"	2' 0.59"	1' 11.37"	2' 0.67"	1' 11.3"	2' 0.75"	1' 11.21"	2' 0.85"	1' 11.12"	2' 0.96"	1' 11.02"	2' 1.08"	1' 10.9"	2' 1.22"	1' 10.77"	2' 1.38"
1' 8.58"	1' 9.43"	1' 8.53"	1' 9.49"	1' 8.48"	1' 9.55"	1' 8.42"	1' 9.62"	1' 8.35"	1' 9.7"	1' 8.27"	1' 9.79"	1' 8.19"	1' 9.89"	1' 8.09"	1' 10"
1' 7.63"	1' 8.39"	1' 7.58"	1' 8.44"	1' 7.53"	1' 8.49"	1' 7.48"	1' 8.55"	1' 7.42"	1' 8.62"	1' 7.35"	1' 8.7"	1' 7.27"	1' 8.79"	1' 7.19"	1' 8.89"



14	16	18	20	22
25' 9.72"	23' 0.38"	20' 6.65"	18' 4.16"	16' 4.57"

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)
25' 7.66"	Infinity	22' 10.3"	Infinity	20' 4.57"	Infinity	18' 2.09"	Infinity	16' 2.49"	Infinity
21' 2.33"	Infinity	19' 3.18"	Infinity	17' 5.78"	Infinity	15' 10.06"	Infinity	14' 3.95"	Infinity
18' 0.76"	Infinity	16' 7.77"	Infinity	15' 3.65"	Infinity	14' 0.41"	Infinity	12' 10.09"	Infinity
15' 8.86"	Infinity	14' 7.88"	Infinity	13' 7.3"	Infinity	12' 7.19"	Infinity	11' 7.59"	Infinity
13' 11.32"	Infinity	13' 1.09"	Infinity	12' 3.02"	Infinity	11' 5.16"	Infinity	10' 7.58"	Infinity
12' 9.33"	780' 7.7"	12' 0.72"	Infinity	11' 4.16"	Infinity	10' 7.69"	Infinity	9' 11.37"	Infinity
11' 4.24"	87' 2.31"	10' 9.43"	148' 10.04"	10' 2.57"	725' 3.46"	9' 7.7"	Infinity	9' 0.85"	Infinity
9' 6.9"	35' 1.83"	9' 2.06"	42' 1.55"	8' 9.09"	54' 2.76"	8' 4.04"	80' 1.2"	7' 10.92"	172' 9.71"
8' 3.34"	22' 0.17"	7' 11.72"	24' 6.46"	7' 7.98"	28' 2.03"	7' 4.11"	33' 9.5"	7' 0.15"	43' 6.87"
7' 9.58"	18' 9.81"	7' 6.37"	20' 7.49"	7' 3.04"	23' 1.43"	6' 11.58"	26' 9.12"	6' 8.02"	32' 6.23"
7' 3.49"	16' 0.3"	7' 0.69"	17' 3.73"	6' 9.77"	19' 0.32"	6' 6.72"	21' 4.96"	6' 3.57"	24' 11.16"
6' 9.04"	13' 6.78"	6' 6.65"	14' 5.64"	6' 4.14"	15' 7.71"	6' 1.5"	17' 2.53"	5' 10.76"	19' 4.78"
6' 5.67"	12' 5.3"	6' 3.48"	13' 2.35"	6' 1.17"	14' 1.93"	5' 10.74"	15' 5.15"	5' 8.21"	17' 1.9"
6' 2.21"	11' 4.57"	6' 0.21"	12' 0.08"	5' 10.1"	12' 9.57"	5' 7.88"	13' 9.84"	5' 5.55"	15' 2.23"
5' 10.63"	10' 4.54"	5' 8.83"	10' 10.73"	5' 6.92"	11' 6.46"	5' 4.9"	12' 4.32"	5' 2.77"	13' 5.23"
5' 6.95"	9' 5.15"	5' 5.33"	9' 10.21"	5' 3.62"	10' 4.46"	5' 1.79"	11' 0.33"	4' 11.87"	11' 10.46"
5' 3.15"	8' 6.35"	5' 1.72"	8' 10.45"	5' 0.19"	9' 3.46"	4' 10.56"	9' 9.7"	4' 8.84"	10' 5.6"
4' 11.22"	7' 8.1"	4' 9.97"	7' 11.38"	4' 8.63"	8' 3.36"	4' 7.2"	8' 8.25"	4' 5.68"	9' 2.35"
4' 7.17"	6' 10.35"	4' 6.09"	7' 0.94"	4' 4.93"	7' 4.06"	4' 3.69"	7' 7.84"	4' 2.36"	8' 0.51"
4' 2.99"	6' 1.06"	4' 2.07"	6' 3.08"	4' 1.08"	6' 5.48"	4' 0.02"	6' 8.37"	3' 10.88"	6' 11.89"
3' 10.66"	5' 4.22"	3' 9.9"	5' 5.75"	3' 9.08"	5' 7.56"	3' 8.19"	5' 9.73"	3' 7.24"	6' 0.33"
3' 6.18"	4' 7.78"	3' 5.57"	4' 8.91"	3' 4.9"	4' 10.25"	3' 4.18"	4' 11.82"	3' 3.4"	5' 1.7"
3' 1.55"	3' 11.71"	3' 1.07"	4' 0.53"	3' 0.55"	4' 1.48"	2' 11.98"	4' 2.59"	2' 11.37"	4' 3.9"
2' 8.76"	3' 4.01"	2' 8.4"	3' 4.56"	2' 8.01"	3' 5.21"	2' 7.59"	3' 5.95"	2' 7.12"	3' 6.83"
2' 6.29"	3' 0.28"	2' 5.99"	3' 0.73"	2' 5.66"	3' 1.24"	2' 5.3"	3' 1.84"	2' 4.91"	3' 2.54"
2' 3.79"	2' 8.63"	2' 3.54"	2' 8.98"	2' 3.27"	2' 9.39"	2' 2.97"	2' 9.86"	2' 2.64"	2' 10.41"
2' 1.23"	2' 5.06"	2' 1.03"	2' 5.33"	2' 0.81"	2' 5.65"	2' 0.57"	2' 6.01"	2' 0.31"	2' 6.43"
1' 10.63"	2' 1.56"	1' 10.48"	2' 1.76"	1' 10.31"	2' 2"	1' 10.12"	2' 2.27"	1' 9.91"	2' 2.58"
1' 7.99"	1' 10.13"	1' 7.87"	1' 10.28"	1' 7.74"	1' 10.45"	1' 7.6"	1' 10.64"	1' 7.44"	1' 10.87"
1' 7.09"	1' 9.01"	1' 6.99"	1' 9.14"	1' 6.87"	1' 9.29"	1' 6.74"	1' 9.46"	1' 6.6"	1' 9.66"