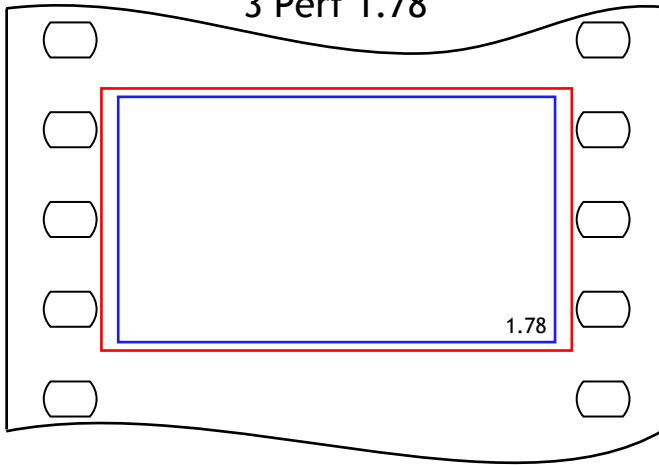


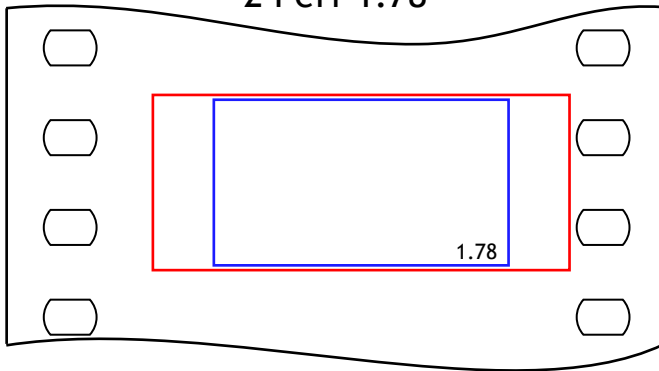
3 Perf 1.78



3 perf camera aperture = 0.980 x 0.546 in.
 3 perf 1.78 = 0.910 x 0.511 in.
 area = 0.465 in.

[4 perf dimensions 0.945 x 0.531 are commonly used in 3 perf gate]

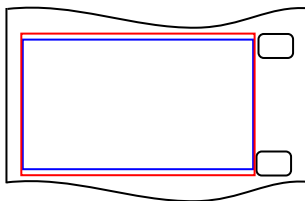
2 Perf 1.78



2 perf camera aperture = 0.868 x 0.365 in.
 2 perf 1.78 = 0.614 x 0.345 in.
 area = 0.212 sq. in.

[Panavision 2-perf cameras are Academy centered. No image area advantage is gained by super centering because of height limitations]

S16 1.78



S16 camera aperture = 0.486 x 0.295 in.
 S16 1.78 = 0.480 x .270 in.
 area = 0.130 sq. in.

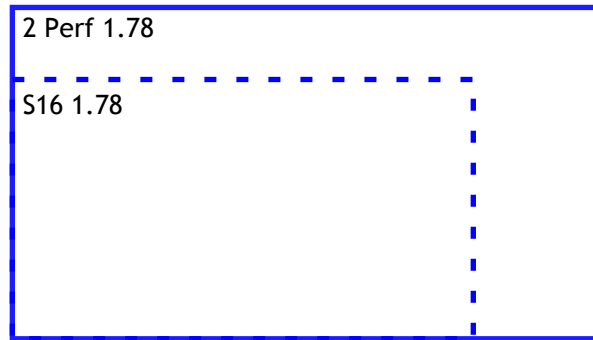
Difference in negative area:

3P 1.78 is **3.6x** larger than S16 1.78

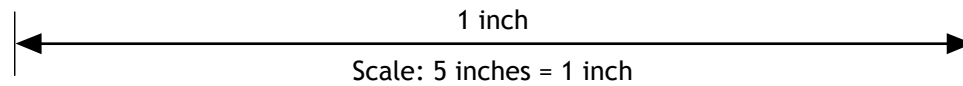
3P 1.78 is **2.2x** larger than 2P 1.78

2P 1.78 is **1.6x** larger than S16 1.78

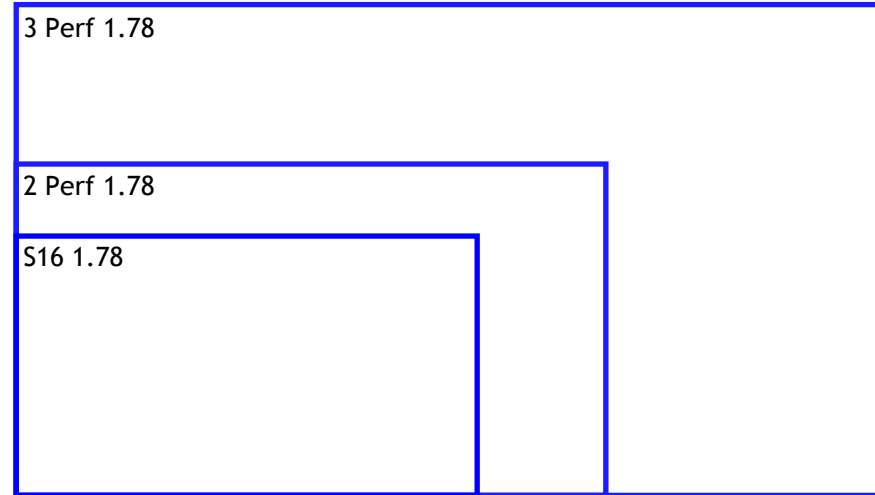
1.78 [16x9] origination: Super 16 / 35mm 2 perf
a comparison of image area



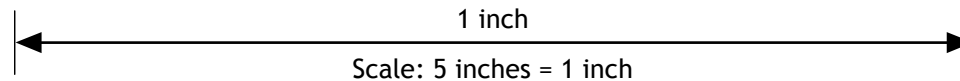
2 Perf 1.78 is **1.6x** larger in area than Super16 1.78



1.78 [16x9] origination: Super 16 / 35mm 2 perf / 35mm 3 perf
a comparison of image area



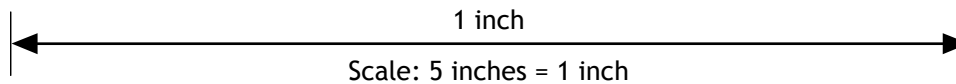
Difference in area:
3P 1.78 is **3.6x** larger than S16 1.78
3P 1.78 is **2.2x** larger than 2P 1.78
2P 1.78 is **1.6x** larger than S16 1.78



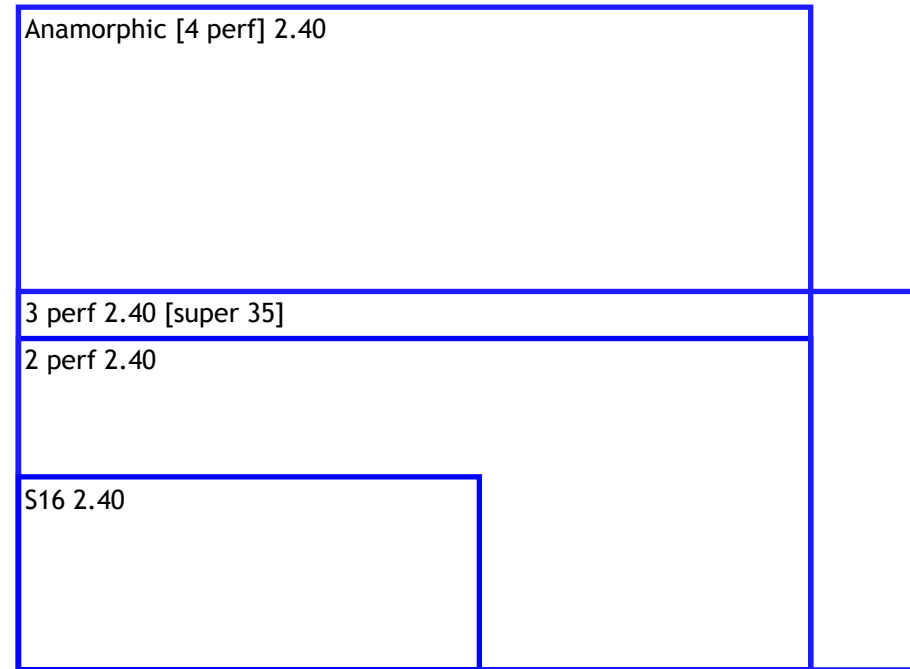
2.40 origination: 2 perf / 3 perf
a comparison of image area



Difference in area:
3 perf 2.40 is 1.3x [30%] larger than 2 perf 2.40



2.40 origination: S16 spherical / 2 perf spherical / 3 perf spherical / 4 perf Anamorphic
a comparison of image area



Difference in area:

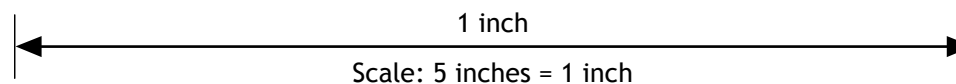
2 perf 2.40 is **3x [300%]** larger than S16 2.40

3 perf 2.40 is **1.3x [30%]** larger than 2 perf 2.40

Anamorphic is **2x [100%]** larger than 2 perf 2.40

Anamorphic is **1.5x [50%]** larger than 3 or 4 perf Super 35 2.40

Anamorphic is the "Gold Standard"



PANAVISION SUPER SPEED LENSES - Approximate Field of View

Note: Only change numbers in highlighted cells

0.480 in X 0.270 in

Super16 1.78

Focal length	4.5 mm				
Focus distance	Horizontal		Vertical		Hor. Angle
5 ft.	13 ft.	7 in.	7 ft.	7 in.	107.1 deg.
10 ft.	27 ft.	1 in.	15 ft.	3 in.	Vert. Angle
20 ft.	54 ft.	2 in.	30 ft.	6 in.	74.6 deg.

Focal length	35 mm				
Focus distance	Horizontal		Vertical		Hor. Angle
5 ft.	1 ft.	9 in.	0 ft.	12 in.	19.8 deg.
10 ft.	3 ft.	6 in.	1 ft.	12 in.	Vert. Angle
20 ft.	6 ft.	12 in.	3 ft.	11 in.	11.2 deg.

Focal length	6 mm				
Focus distance	Horizontal		Vertical		Hor. Angle
5 ft.	10 ft.	2 in.	5 ft.	9 in.	90.9 deg.
10 ft.	20 ft.	4 in.	11 ft.	5 in.	Vert. Angle
20 ft.	40 ft.	8 in.	22 ft.	10 in.	59.5 deg.

Focal length	50 mm				
Focus distance	Horizontal		Vertical		Hor. Angle
5 ft.	1 ft.	3 in.	0 ft.	8 in.	13.9 deg.
10 ft.	2 ft.	5 in.	1 ft.	4 in.	Vert. Angle
20 ft.	4 ft.	11 in.	2 ft.	9 in.	7.8 deg.

Focal length	8 mm				
Focus distance	Horizontal		Vertical		Hor. Angle
5 ft.	7 ft.	7 in.	4 ft.	3 in.	74.6 deg.
10 ft.	15 ft.	3 in.	8 ft.	7 in.	Vert. Angle
20 ft.	30 ft.	6 in.	17 ft.	2 in.	46.4 deg.

Focal length	64 mm				
Focus distance	Horizontal		Vertical		Hor. Angle
5 ft.	0 ft.	11 in.	0 ft.	6 in.	10.9 deg.
10 ft.	1 ft.	11 in.	1 ft.	1 in.	Vert. Angle
20 ft.	3 ft.	10 in.	2 ft.	2 in.	6.1 deg.

Focal length	9.5 mm				
Focus distance	Horizontal		Vertical		Hor. Angle
5 ft.	6 ft.	5 in.	3 ft.	7 in.	65.4 deg.
10 ft.	12 ft.	10 in.	7 ft.	3 in.	Vert. Angle
20 ft.	25 ft.	8 in.	14 ft.	5 in.	39.7 deg.

Focal length	85 mm				
Focus distance	Horizontal		Vertical		Hor. Angle
5 ft.	0 ft.	9 in.	0 ft.	5 in.	8.2 deg.
10 ft.	1 ft.	5 in.	0 ft.	10 in.	Vert. Angle
20 ft.	2 ft.	10 in.	1 ft.	7 in.	4.6 deg.

Focal length	12 mm				
Focus distance	Horizontal		Vertical		Hor. Angle
5 ft.	5 ft.	1 in.	2 ft.	10 in.	53.9 deg.
10 ft.	10 ft.	2 in.	5 ft.	9 in.	Vert. Angle
20 ft.	20 ft.	4 in.	11 ft.	5 in.	31.9 deg.

Focal length	100 mm				
Focus distance	Horizontal		Vertical		Hor. Angle
5 ft.	0 ft.	7 in.	0 ft.	4 in.	7.0 deg.
10 ft.	1 ft.	3 in.	0 ft.	8 in.	Vert. Angle
20 ft.	2 ft.	5 in.	1 ft.	4 in.	3.9 deg.

Focal length	16 mm				
Focus distance	Horizontal		Vertical		Hor. Angle
5 ft.	3 ft.	10 in.	2 ft.	2 in.	41.7 deg.
10 ft.	7 ft.	7 in.	4 ft.	3 in.	Vert. Angle
20 ft.	15 ft.	3 in.	8 ft.	7 in.	24.2 deg.

Focal length	138 mm				
Focus distance	Horizontal		Vertical		Hor. Angle
5 ft.	0 ft.	5 in.	0 ft.	3 in.	5.1 deg.
10 ft.	0 ft.	11 in.	0 ft.	6 in.	Vert. Angle
20 ft.	1 ft.	9 in.	0 ft.	12 in.	2.8 deg.

Focal length	25 mm				
Focus distance	Horizontal		Vertical		Hor. Angle
5 ft.	2 ft.	5 in.	1 ft.	4 in.	27.4 deg.
10 ft.	4 ft.	11 in.	2 ft.	9 in.	Vert. Angle
20 ft.	9 ft.	9 in.	5 ft.	6 in.	15.6 deg.

Focal length	165 mm				
Focus distance	Horizontal		Vertical		Hor. Angle
5 ft.	0 ft.	4 in.	0 ft.	2 in.	4.2 deg.
10 ft.	0 ft.	9 in.	0 ft.	5 in.	Vert. Angle
20 ft.	1 ft.	6 in.	0 ft.	10 in.	2.4 deg.

Focal length	200 mm				
Focus distance	Horizontal		Vertical		Hor. Angle
5 ft.	0 ft.	4 in.	0 ft.	2 in.	3.5 deg.
10 ft.	0 ft.	7 in.	0 ft.	4 in.	Vert. Angle
20 ft.	1 ft.	3 in.	0 ft.	8 in.	2.0 deg.

PRIMO PRIMES - Approximate Field of View

Note: Only change numbers in highlighted cells

0.614 0.345
2 perf 1.78

Focal length	10 mm				
Focus distance	Horizontal		Vertical		Hor. Angle
5 ft.	7 ft.	10 in.	4 ft.	5 in.	75.9 deg.
10 ft.	15 ft.	7 in.	8 ft.	9 in.	Vert. Angle
15 ft.	23 ft.	5 in.	13 ft.	2 in.	47.3 deg.

Focal length	50 mm				
Focus distance	Horizontal		Vertical		Hor. Angle
5 ft.	1 ft.	7 in.	0 ft.	11 in.	17.7 deg.
10 ft.	3 ft.	1 in.	1 ft.	9 in.	Vert. Angle
15 ft.	4 ft.	8 in.	2 ft.	8 in.	10.0 deg.

Focal length	14.5 mm				
Focus distance	Horizontal		Vertical		Hor. Angle
5 ft.	5 ft.	5 in.	3 ft.	0 in.	56.5 deg.
10 ft.	10 ft.	9 in.	6 ft.	1 in.	Vert. Angle
15 ft.	16 ft.	2 in.	9 ft.	1 in.	33.6 deg.

Focal length	65 mm				
Focus distance	Horizontal		Vertical		Hor. Angle
5 ft.	1 ft.	2 in.	0 ft.	8 in.	13.7 deg.
10 ft.	2 ft.	5 in.	1 ft.	4 in.	Vert. Angle
15 ft.	3 ft.	7 in.	2 ft.	0 in.	7.7 deg.

Focal length	21 mm				
Focus distance	Horizontal		Vertical		Hor. Angle
5 ft.	3 ft.	9 in.	2 ft.	1 in.	40.7 deg.
10 ft.	7 ft.	5 in.	4 ft.	2 in.	Vert. Angle
15 ft.	11 ft.	2 in.	6 ft.	3 in.	23.6 deg.

Focal length	75 mm				
Focus distance	Horizontal		Vertical		Hor. Angle
5 ft.	1 ft.	0 in.	0 ft.	7 in.	11.9 deg.
10 ft.	2 ft.	1 in.	1 ft.	2 in.	Vert. Angle
15 ft.	3 ft.	1 in.	1 ft.	9 in.	6.7 deg.

Focal length	24 mm				
Focus distance	Horizontal		Vertical		Hor. Angle
5 ft.	3 ft.	3 in.	1 ft.	10 in.	36.0 deg.
10 ft.	6 ft.	6 in.	3 ft.	8 in.	Vert. Angle
15 ft.	9 ft.	9 in.	5 ft.	6 in.	20.7 deg.

Focal length	85 mm				
Focus distance	Horizontal		Vertical		Hor. Angle
5 ft.	0 ft.	11 in.	0 ft.	6 in.	10.5 deg.
10 ft.	1 ft.	10 in.	1 ft.	0 in.	Vert. Angle
15 ft.	2 ft.	9 in.	1 ft.	7 in.	5.9 deg.

Focal length	27 mm				
Focus distance	Horizontal		Vertical		Hor. Angle
5 ft.	2 ft.	11 in.	1 ft.	7 in.	32.2 deg.
10 ft.	5 ft.	9 in.	3 ft.	3 in.	Vert. Angle
15 ft.	8 ft.	8 in.	4 ft.	10 in.	18.4 deg.

Focal length	100 mm				
Focus distance	Horizontal		Vertical		Hor. Angle
5 ft.	0 ft.	9 in.	0 ft.	5 in.	8.9 deg.
10 ft.	1 ft.	7 in.	0 ft.	11 in.	Vert. Angle
15 ft.	2 ft.	4 in.	1 ft.	4 in.	5.0 deg.

Focal length	30 mm				
Focus distance	Horizontal		Vertical		Hor. Angle
5 ft.	2 ft.	7 in.	1 ft.	6 in.	29.1 deg.
10 ft.	5 ft.	2 in.	2 ft.	11 in.	Vert. Angle
15 ft.	7 ft.	10 in.	4 ft.	5 in.	16.6 deg.

Focal length	125 mm				
Focus distance	Horizontal		Vertical		Hor. Angle
5 ft.	0 ft.	7 in.	0 ft.	4 in.	7.1 deg.
10 ft.	1 ft.	3 in.	0 ft.	8 in.	Vert. Angle
15 ft.	1 ft.	10 in.	1 ft.	1 in.	4.0 deg.

Focal length	35 mm				
Focus distance	Horizontal		Vertical		Hor. Angle
5 ft.	2 ft.	3 in.	1 ft.	3 in.	25.1 deg.
10 ft.	4 ft.	5 in.	2 ft.	6 in.	Vert. Angle
15 ft.	6 ft.	8 in.	3 ft.	9 in.	14.3 deg.

Focal length	150 mm				
Focus distance	Horizontal		Vertical		Hor. Angle
5 ft.	0 ft.	6 in.	0 ft.	4 in.	6.0 deg.
10 ft.	1 ft.	0 in.	0 ft.	7 in.	Vert. Angle
15 ft.	1 ft.	7 in.	0 ft.	11 in.	3.3 deg.

Focal length	40 mm				
Focus distance	Horizontal		Vertical		Hor. Angle
5 ft.	1 ft.	11 in.	1 ft.	1 in.	22.1 deg.
10 ft.	3 ft.	11 in.	2 ft.	2 in.	Vert. Angle
15 ft.	5 ft.	10 in.	3 ft.	3 in.	12.5 deg.

PRIMO PRIMES - Approximate Field of View

Note: Only change numbers in highlighted cells

0.910 0.511
3 perf 1.78

Focal length	10 mm				
Focus distance	Horizontal		Vertical		Hor. Angle
5 ft.	11 ft.	7 in.	6 ft.	6 in.	98.3 deg.
10 ft.	23 ft.	1 in.	12 ft.	12 in.	Vert. Angle
15 ft.	34 ft.	8 in.	19 ft.	6 in.	66.0 deg.

Focal length	50 mm				
Focus distance	Horizontal		Vertical		Hor. Angle
5 ft.	2 ft.	4 in.	1 ft.	4 in.	26.0 deg.
10 ft.	4 ft.	7 in.	2 ft.	7 in.	Vert. Angle
15 ft.	6 ft.	11 in.	3 ft.	11 in.	14.8 deg.

Focal length	14.5 mm				
Focus distance	Horizontal		Vertical		Hor. Angle
5 ft.	7 ft.	12 in.	4 ft.	6 in.	77.1 deg.
10 ft.	15 ft.	11 in.	8 ft.	11 in.	Vert. Angle
15 ft.	23 ft.	11 in.	13 ft.	5 in.	48.2 deg.

Focal length	65 mm				
Focus distance	Horizontal		Vertical		Hor. Angle
5 ft.	1 ft.	9 in.	0 ft.	12 in.	20.2 deg.
10 ft.	3 ft.	7 in.	1 ft.	12 in.	Vert. Angle
15 ft.	5 ft.	4 in.	2 ft.	12 in.	11.4 deg.

Focal length	21 mm				
Focus distance	Horizontal		Vertical		Hor. Angle
5 ft.	5 ft.	6 in.	3 ft.	1 in.	57.7 deg.
10 ft.	11 ft.	0 in.	6 ft.	2 in.	Vert. Angle
15 ft.	16 ft.	6 in.	9 ft.	3 in.	34.3 deg.

Focal length	75 mm				
Focus distance	Horizontal		Vertical		Hor. Angle
5 ft.	1 ft.	6 in.	0 ft.	10 in.	17.5 deg.
10 ft.	3 ft.	1 in.	1 ft.	9 in.	Vert. Angle
15 ft.	4 ft.	7 in.	2 ft.	7 in.	9.9 deg.

Focal length	24 mm				
Focus distance	Horizontal		Vertical		Hor. Angle
5 ft.	4 ft.	10 in.	2 ft.	8 in.	51.4 deg.
10 ft.	9 ft.	8 in.	5 ft.	5 in.	Vert. Angle
15 ft.	14 ft.	5 in.	8 ft.	1 in.	30.3 deg.

Focal length	85 mm				
Focus distance	Horizontal		Vertical		Hor. Angle
5 ft.	1 ft.	4 in.	0 ft.	9 in.	15.5 deg.
10 ft.	2 ft.	9 in.	1 ft.	6 in.	Vert. Angle
15 ft.	4 ft.	1 in.	2 ft.	3 in.	8.7 deg.

Focal length	27 mm				
Focus distance	Horizontal		Vertical		Hor. Angle
5 ft.	4 ft.	3 in.	2 ft.	5 in.	46.3 deg.
10 ft.	8 ft.	7 in.	4 ft.	10 in.	Vert. Angle
15 ft.	12 ft.	10 in.	7 ft.	3 in.	27.0 deg.

Focal length	100 mm				
Focus distance	Horizontal		Vertical		Hor. Angle
5 ft.	1 ft.	2 in.	0 ft.	8 in.	13.2 deg.
10 ft.	2 ft.	4 in.	1 ft.	4 in.	Vert. Angle
15 ft.	3 ft.	6 in.	1 ft.	11 in.	7.4 deg.

Focal length	30 mm				
Focus distance	Horizontal		Vertical		Hor. Angle
5 ft.	3 ft.	10 in.	2 ft.	2 in.	42.1 deg.
10 ft.	7 ft.	8 in.	4 ft.	4 in.	Vert. Angle
15 ft.	11 ft.	7 in.	6 ft.	6 in.	24.4 deg.

Focal length	125 mm				
Focus distance	Horizontal		Vertical		Hor. Angle
5 ft.	0 ft.	11 in.	0 ft.	6 in.	10.6 deg.
10 ft.	1 ft.	10 in.	1 ft.	0 in.	Vert. Angle
15 ft.	2 ft.	9 in.	1 ft.	7 in.	5.9 deg.

Focal length	35 mm				
Focus distance	Horizontal		Vertical		Hor. Angle
5 ft.	3 ft.	4 in.	1 ft.	10 in.	36.5 deg.
10 ft.	6 ft.	7 in.	3 ft.	9 in.	Vert. Angle
15 ft.	9 ft.	11 in.	5 ft.	7 in.	21.0 deg.

Focal length	150 mm				
Focus distance	Horizontal		Vertical		Hor. Angle
5 ft.	0 ft.	9 in.	0 ft.	5 in.	8.8 deg.
10 ft.	1 ft.	6 in.	0 ft.	10 in.	Vert. Angle
15 ft.	2 ft.	4 in.	1 ft.	4 in.	5.0 deg.

Focal length	40 mm				
Focus distance	Horizontal		Vertical		Hor. Angle
5 ft.	2 ft.	11 in.	1 ft.	7 in.	32.2 deg.
10 ft.	5 ft.	9 in.	3 ft.	3 in.	Vert. Angle
15 ft.	8 ft.	8 in.	4 ft.	10 in.	18.4 deg.

FOCAL LENGTH EQUIVALENTS

2007.09.04

Equivalent lens focal lengths in mm, for same field of view

<u>35 3P 1.78</u>	<u>35 2P 1.78</u>	<u>S16 1.78</u>	<u>S16 1.78</u>	<u>35 2P 1.78</u>	<u>35 3P 1.78</u>
10	6.8	5.3	4.5	5.8	8.5
14.5	9.8	7.7	6	7.7	11.4
17.5	11.8	9.2	8	10.2	15.1
21	14.2	11.1	9.5	12.1	18.0
24	16.2	12.7	12	15.3	22.7
27	18.2	14.3	16	20.4	30.3
30	20.3	15.9	20	25.6	37.9
35	23.6	18.5	25	31.9	47.3
40	27.0	21.1	35	44.7	66.2
50	33.8	26.4	40	51.1	75.7
75	50.6	39.6	50	63.9	94.6
85	57.4	44.9	75	95.8	141.9
100	67.5	52.8	85	108.6	160.9
150	101.3	79.3	100	127.8	189.3