

SY125/MY125 Specification

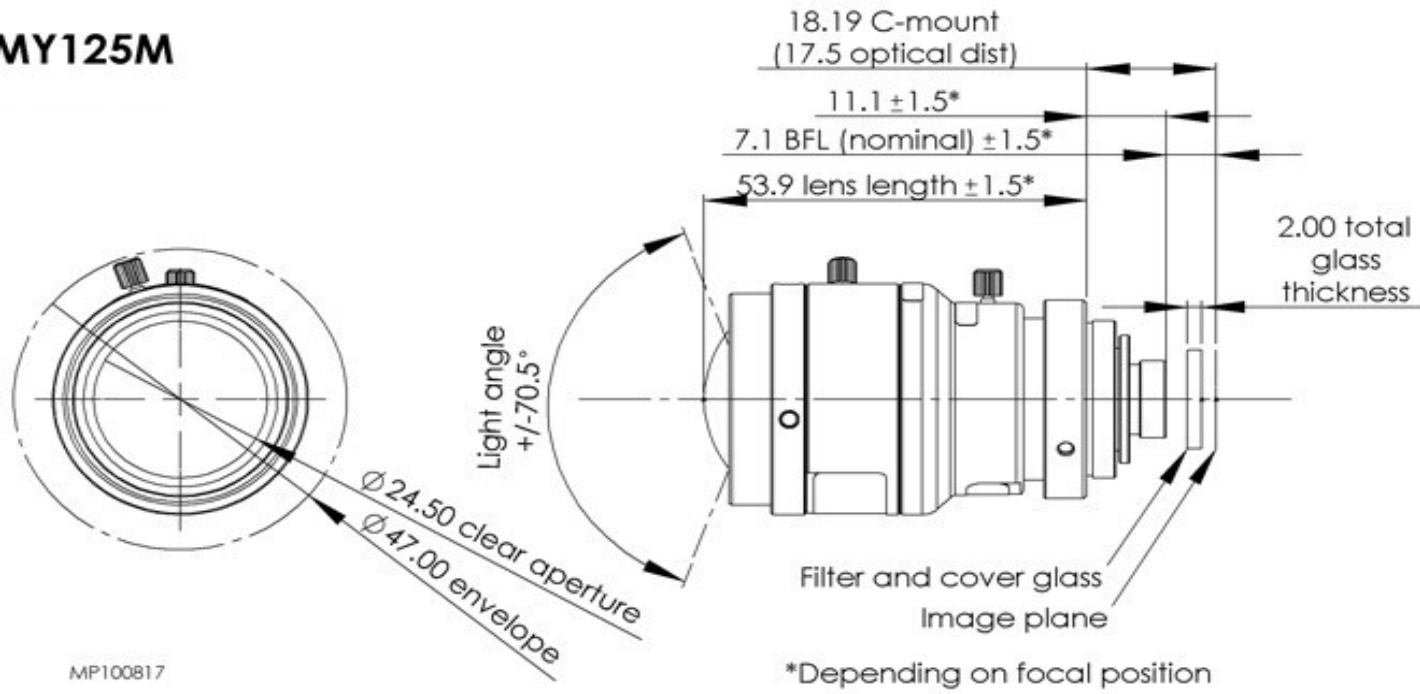
SY125/MY125 lens specifications

Focal length	1.3mm
Image circle	Ø6.9mm
Resolution	Up to 5 megapixels
F/#	F/1.8 to close
Focus Range	0.1m to infinity
IR Correction	Not IR corrected
Lens length	< 72.5mm +/- 1.5mm TTL
Back focal length	BFL 6.4mm (in air)
CRA	< 8°
Entrance pupil location	7.1mm inside lens
Distortion	< 10% at 12mm, < 3% at 50mm
Relative illumination	>40% at Ø9.0mm
Lens transmission	>80%
Weight	TBD
Temperature range	-20°C to 60°C

Sensor size	Field of view for sensor sizes		
	1/4"	1/3"	1/2.5"
Horizontal	109°	125°	135°
Vertical	93°	109°	119°
Diagonal	122°	137°	141°

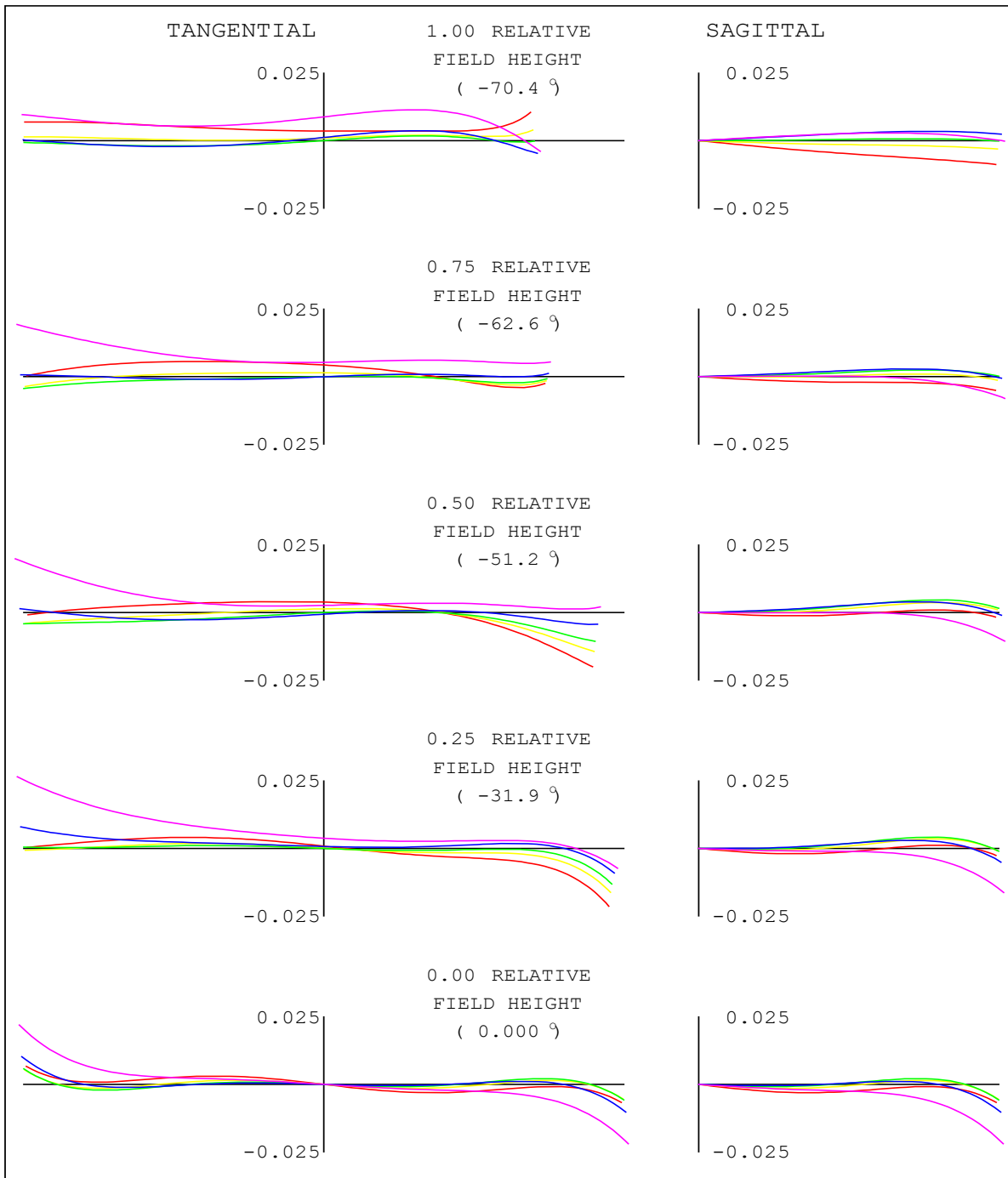
SY125/MY125 Mechanical

MY125M



MP100817

SY125/MY125 Ray plots



SY125Final

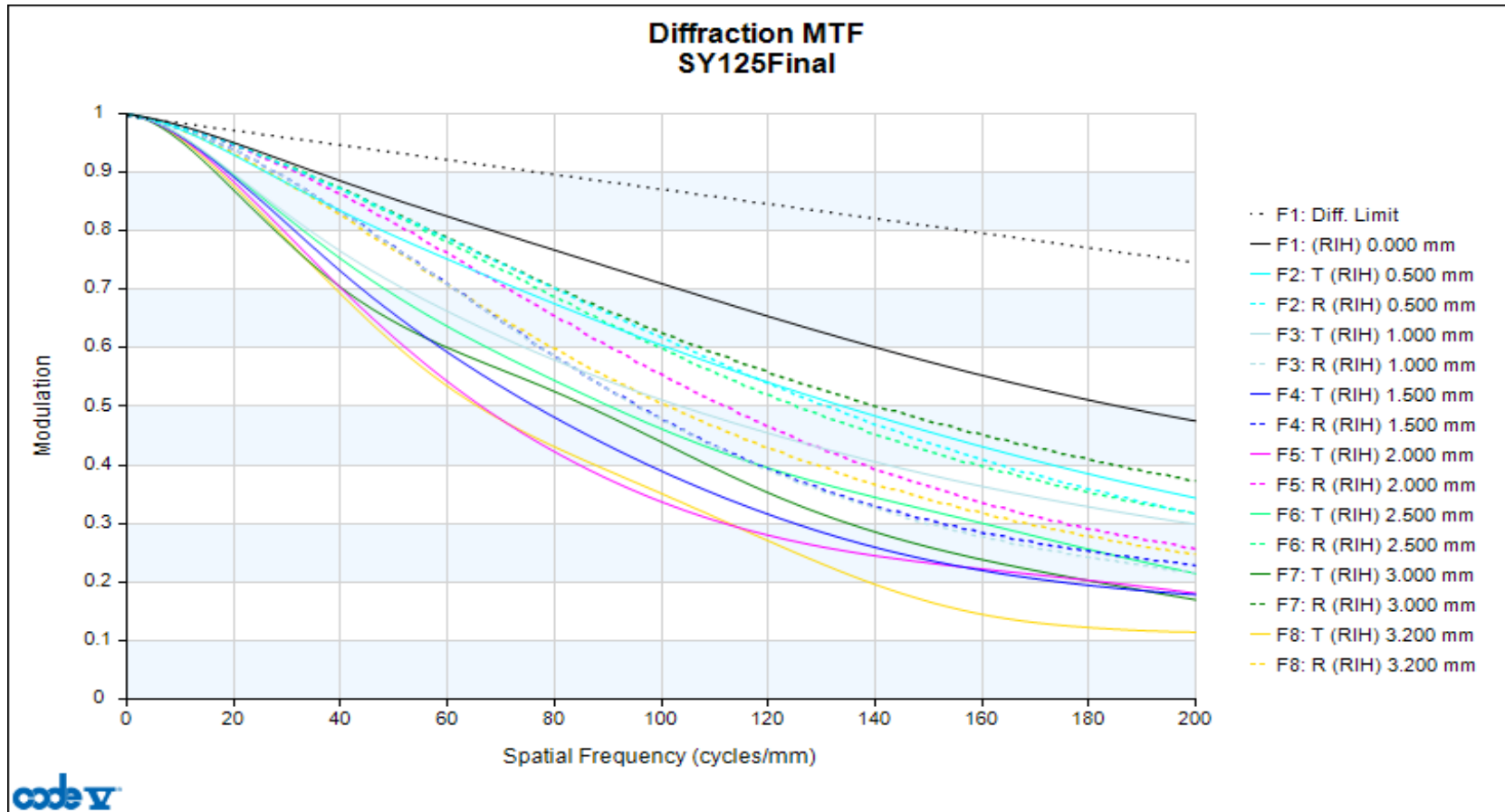
RAY ABERRATIONS (MILLIMETERS)

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18-Nov-19

- 656.2700 NM
- 587.5600 NM
- 546.0700 NM
- 486.1300 NM
- 435.8350 NM

SY125/MY125 Resolution (MTF)

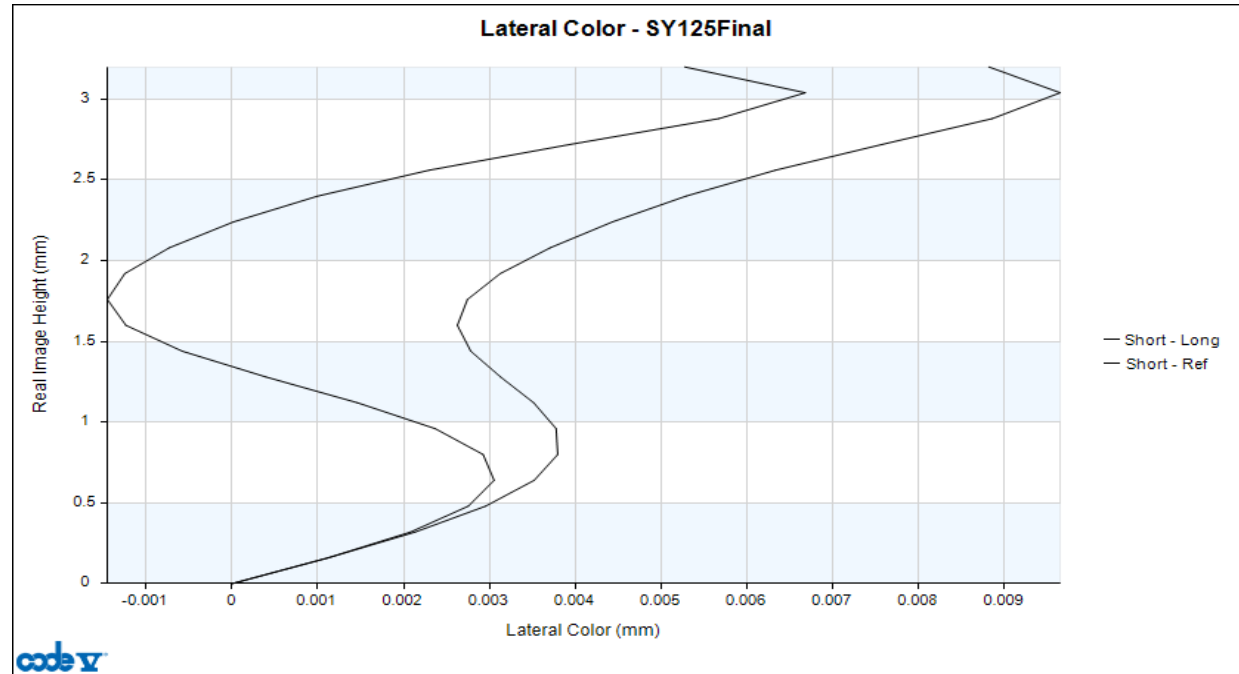


SY125/MY125 Lateral Color Plot

SY125/MY125 Lateral Color Plot

Long wavelength: 656.27 nm
 Reference wavelength: 546.07 nm
 Short wavelength: 435.83 nm

Rel Fld	Field	Short-Long	Short-Ref
0.00	0.000	0.000000	0.000000
0.05	0.160	0.001119	0.001121
0.10	0.320	0.002079	0.002135
0.15	0.480	0.002754	0.002955
0.20	0.640	0.003054	0.003520
0.25	0.800	0.002926	0.003795
0.30	0.960	0.002368	0.003776
0.35	1.120	0.001464	0.003514
0.40	1.280	0.000397	0.003129
0.45	1.440	-0.000579	0.002781
0.50	1.600	-0.001234	0.002625
0.55	1.760	-0.001450	0.002742
0.60	1.920	-0.001247	0.003125
0.65	2.080	-0.000729	0.003707
0.70	2.240	0.000017	0.004430
0.75	2.400	0.000998	0.005288
0.80	2.560	0.002296	0.006329
0.85	2.720	0.003941	0.007573
0.90	2.880	0.005672	0.008856
0.95	3.040	0.006678	0.009646
1.00	3.200	0.005274	0.008815



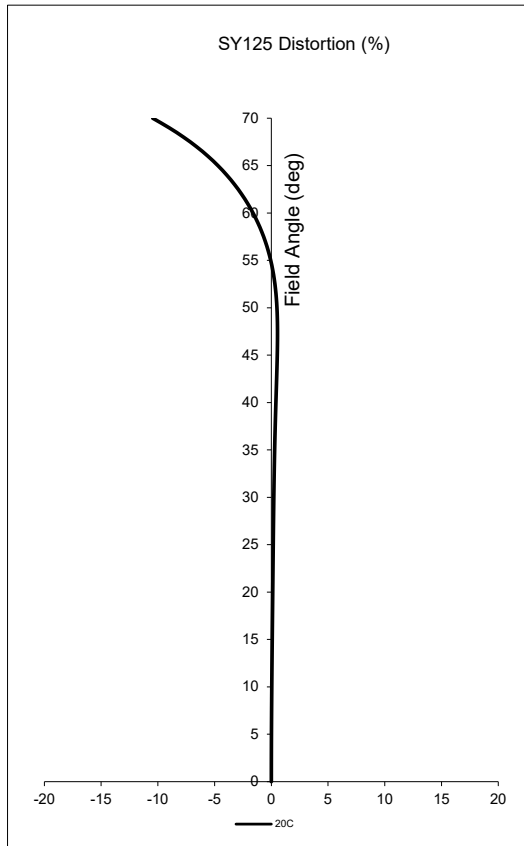
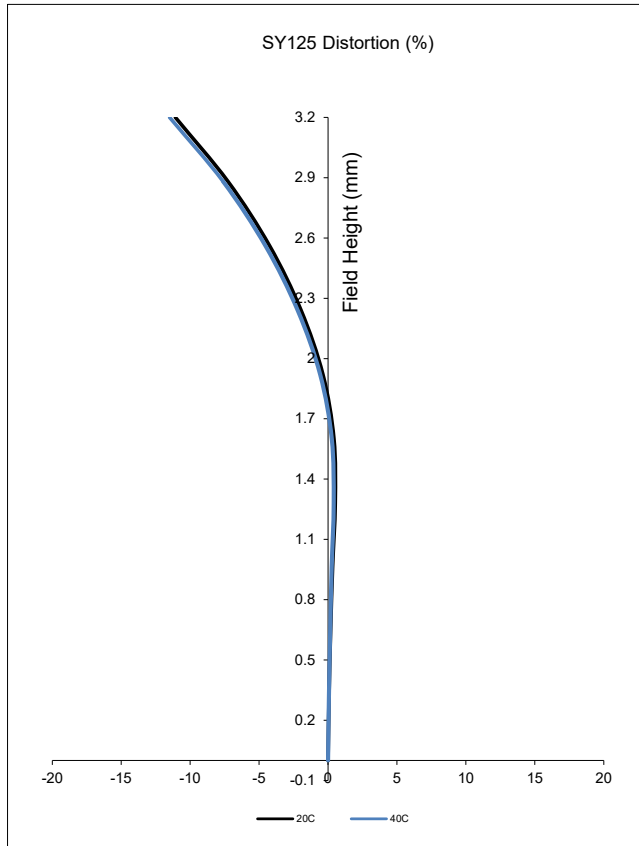
SY125/MY125 Distortion

SY125/MY125 Distortion

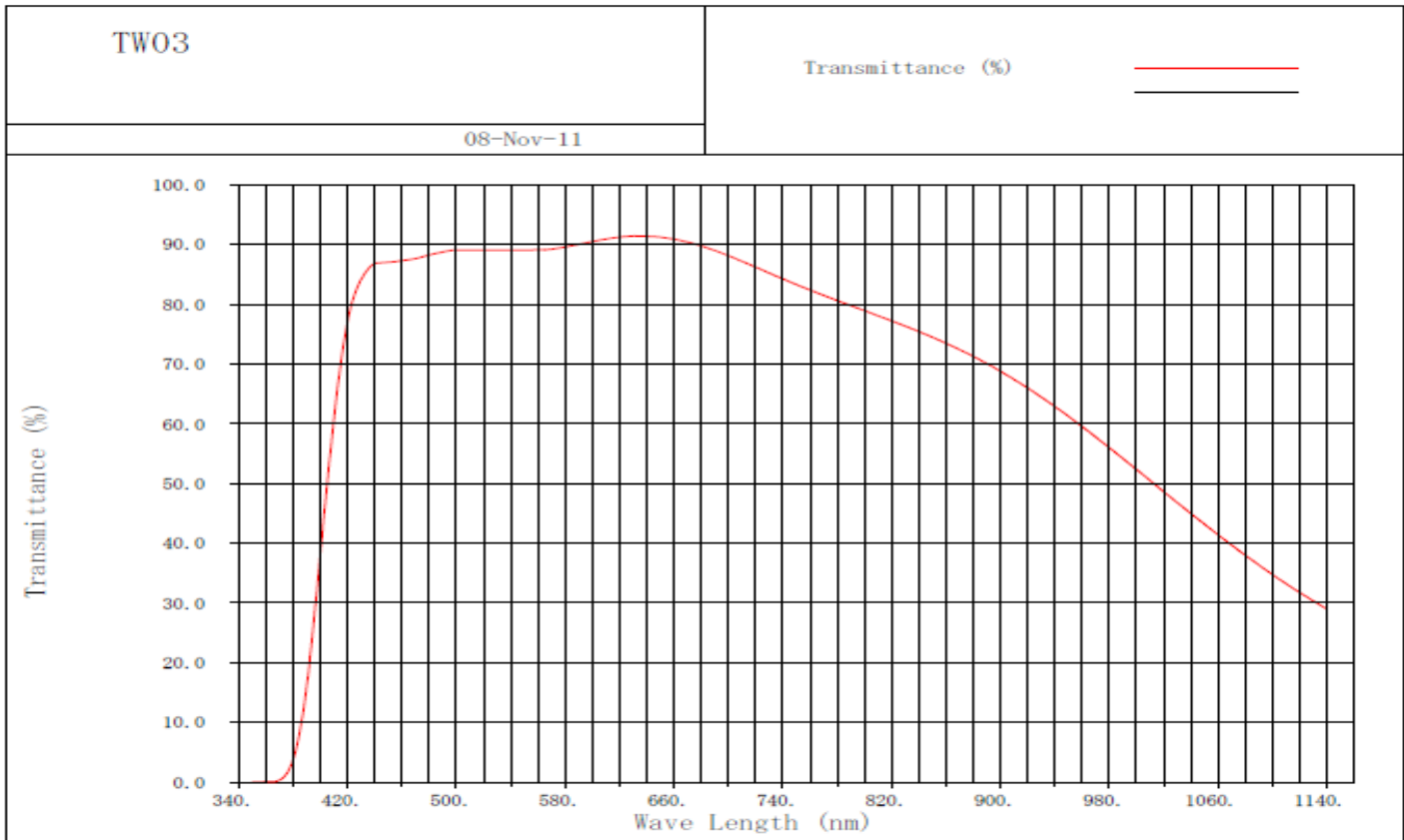
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Visible wavelengths			
	20C	40C	
Field (mm)	Field Angle	Distortion (%)	Distortion (%)
0.00	0.00	0.00	0.00
0.32	14.02	0.07	0.06
0.64	26.51	0.18	0.15
0.96	36.77	0.33	0.26
1.28	44.84	0.52	0.41
1.60	51.22	0.43	0.27
1.92	56.40	-0.37	-0.57
2.24	60.73	-1.96	-2.20
2.56	64.41	-4.23	-4.53
2.88	67.59	-7.25	-7.60
3.20	70.41	-11.07	-11.49

20C			
Field Angle	Distortion (%)	Field Angle	Distortion (%)
0	0	46	0.53764
1	0.00042	47	0.54511
2	0.00169	48	0.54246
3	0.00379	49	0.52662
4	0.00669	50	0.49416
5	0.01038	51	0.44132
6	0.0148	52	0.36412
7	0.01992	53	0.25842
8	0.02568	54	0.12004
9	0.03202	55	-0.05513
10	0.0389	56	-0.27102
11	0.04623	57	-0.53138
12	0.05396	58	-0.83977
13	0.06202	59	-1.19967
14	0.07034	60	-1.61472
15	0.07887	61	-2.08907
16	0.08754	62	-2.62787
17	0.09631	63	-3.23777
18	0.10513	64	-3.92753
19	0.11396	65	-4.70822
20	0.1228	66	-5.59312
21	0.13163	67	-6.59678
22	0.14046	68	-7.73336
23	0.14931	69	-9.01449
24	0.15822	70	-10.44745
25	0.16727		
26	0.17653		
27	0.1861		
28	0.19609		
29	0.20666		
30	0.21794		
31	0.23011		
32	0.24333		
33	0.25778		
34	0.2736		
35	0.29095		
36	0.30992		
37	0.33056		
38	0.35285		
39	0.37665		
40	0.4017		
41	0.42757		
42	0.45364		
43	0.47901		
44	0.50253		
45	0.52269		



SY125/MY125 Transmission

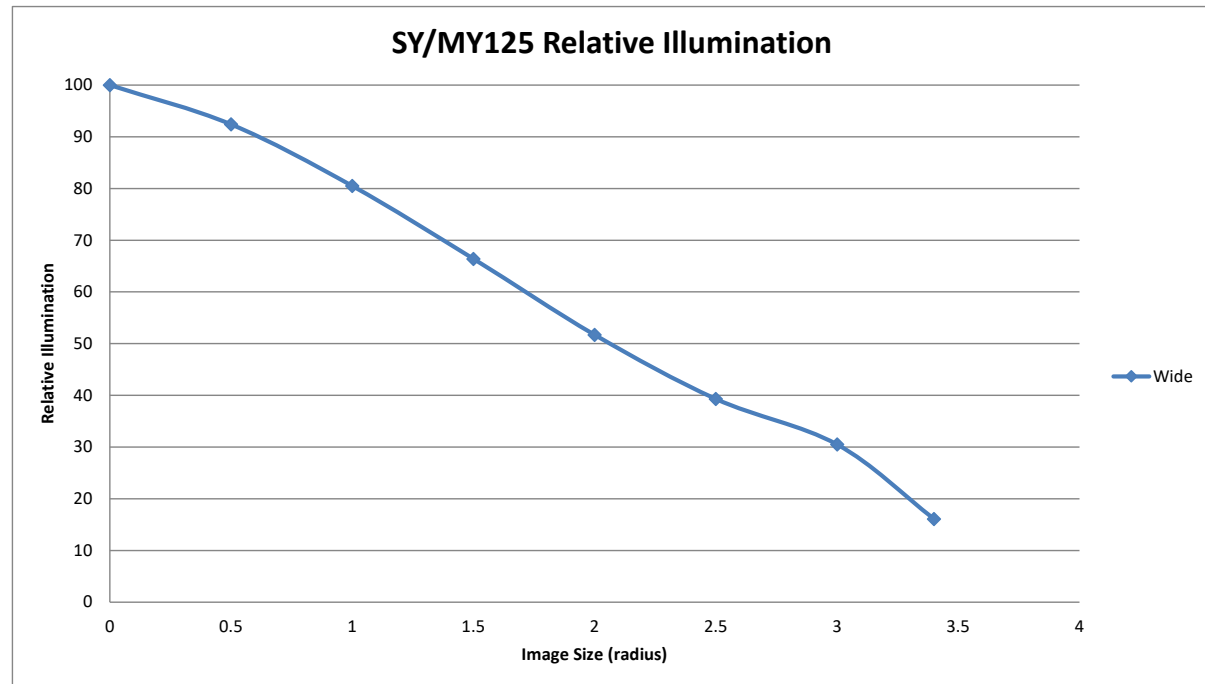


SY125/MY125 Relative Illumination

F number 1.8

SY125 Relative Illumination

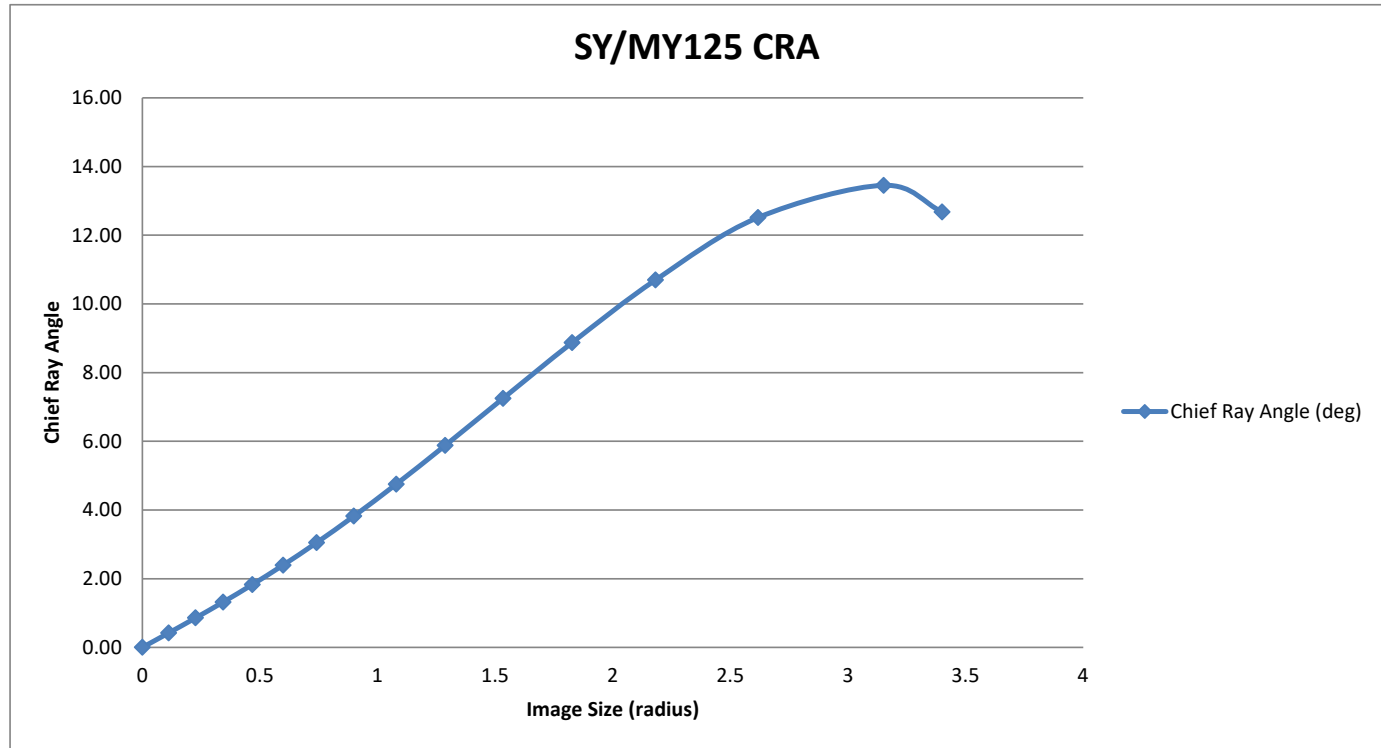
Image Size	Wide
0	100
0.5	92.4
1	80.5
1.5	66.4
2	51.7
2.5	39.3
3	30.5
3.4	16.1



SY125/MY125 Cheif Ray Angle

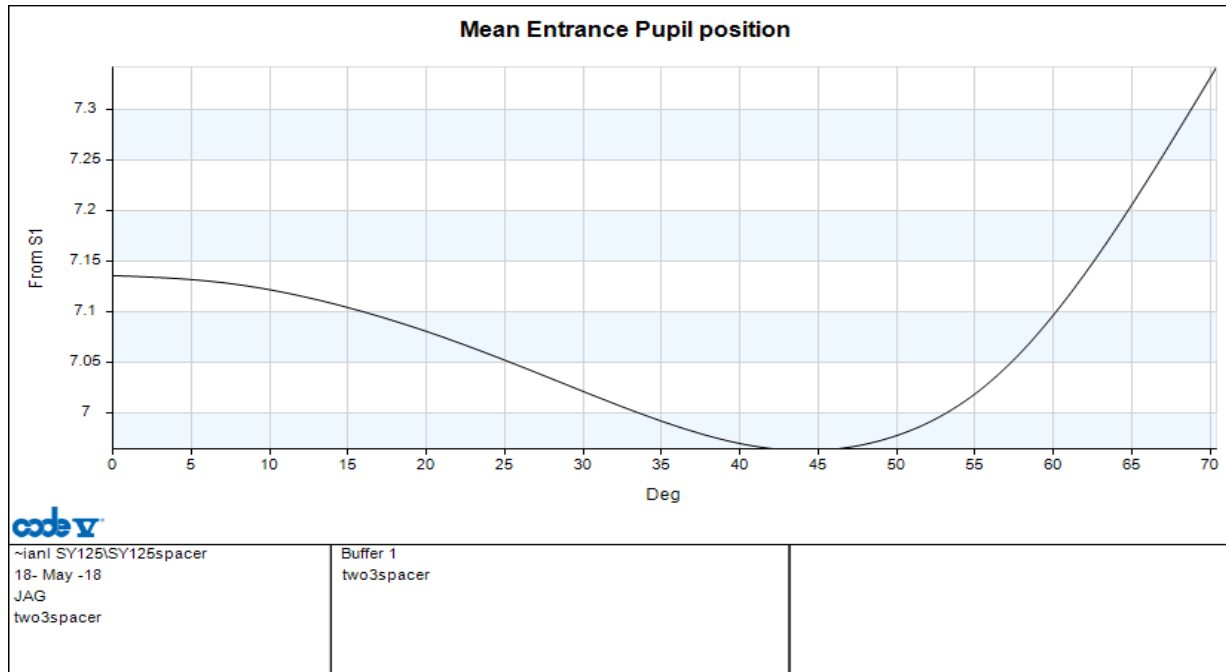
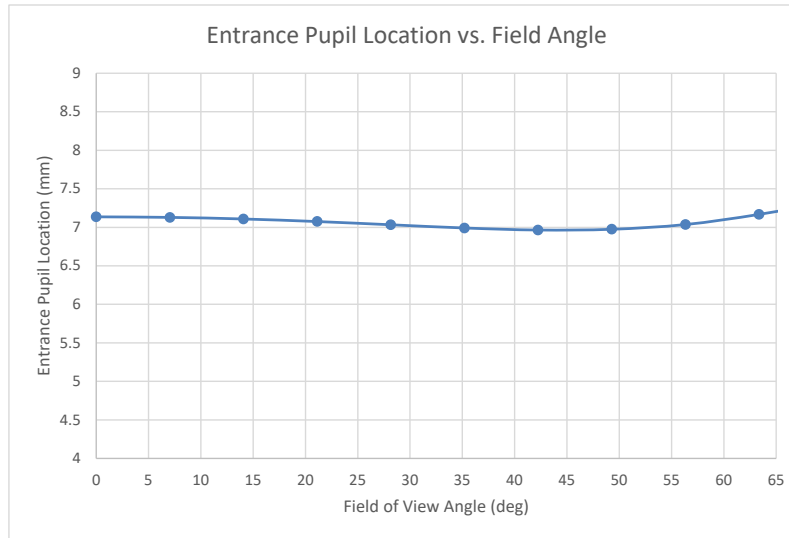
Theia SY125 lens Chief Ray Angle

Image Size	Chief Ray Angle (deg)
0	0.00
0.112	0.42
0.226	0.86
0.343	1.32
0.467	1.83
0.598	2.39
0.741	3.05
0.899	3.82
1.079	4.75
1.287	5.88
1.533	7.25
1.827	8.87
2.182	10.70
2.617	12.51
3.151	13.45
3.4	12.68



SY125/MY125 lens Entrance Pupil Location vs. Field of View Angle

Field Angle (Deg)	Entrance Pupil Location (mm)
0	7.13601
7.04064	7.12896
14.0813	7.10814
21.1219	7.07492
28.1626	7.03313
35.2032	6.99131
42.2439	6.96498
49.2845	6.97468
56.3252	7.03618
63.3658	7.16787
70.4064	7.34167



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