

CM-1120B Collimator Module Spec.

2018-09-10

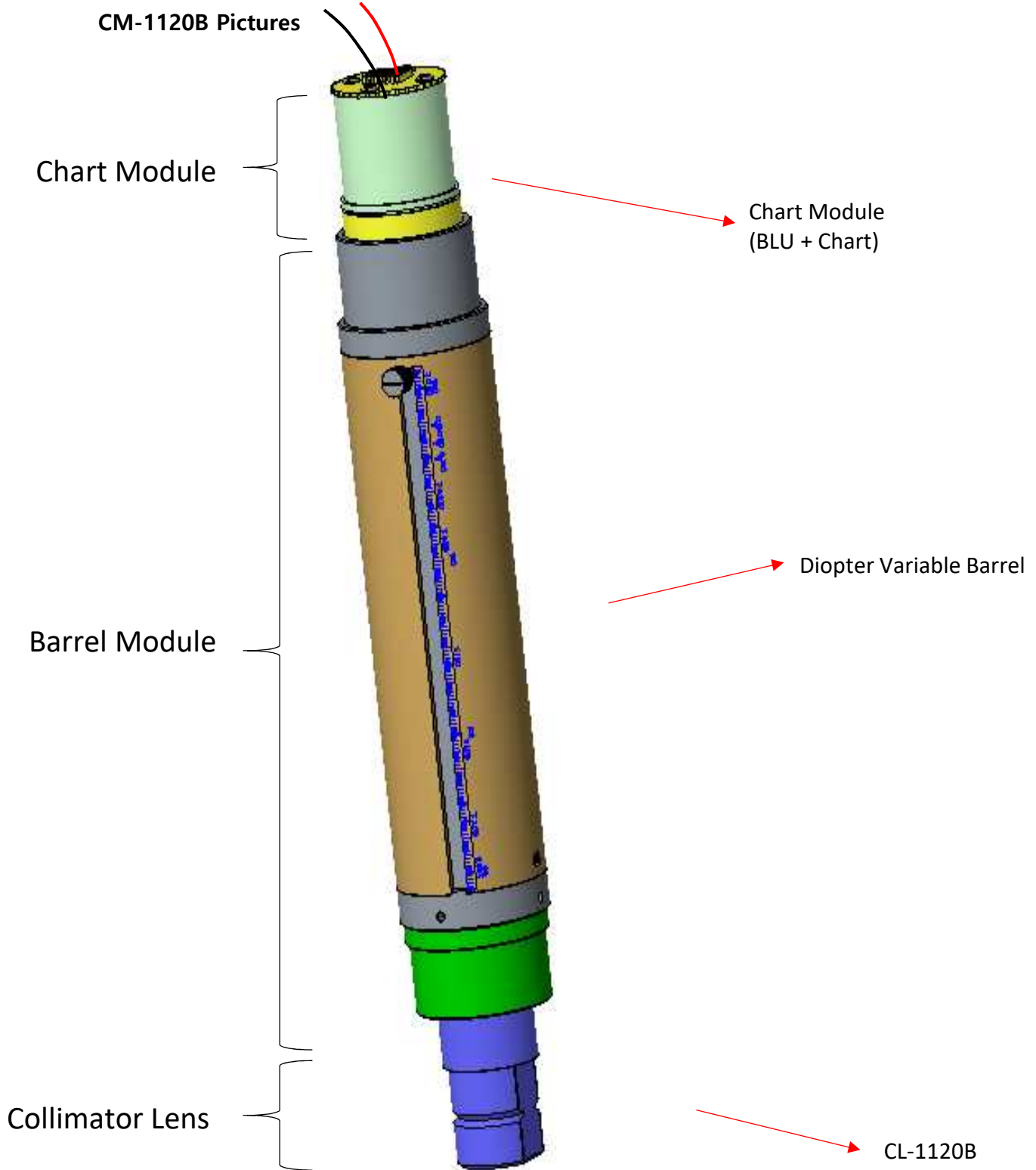
OneStone

Construction of CM-1120B

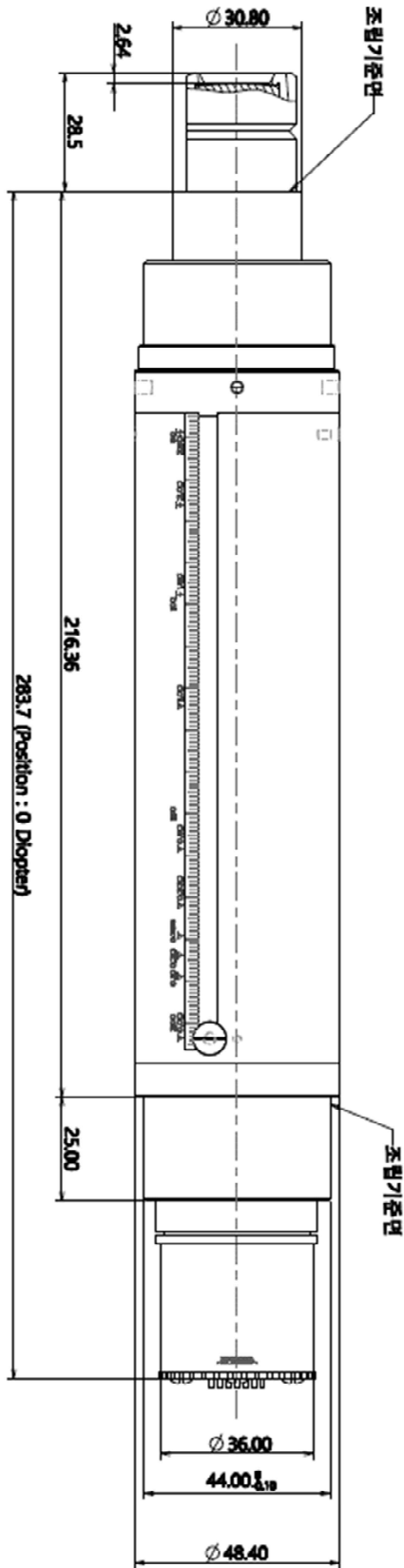
Lighting Section : Chart Module (BLU + Chart)

Collimator Lens Section : Collimator Lens (CL-1120B), Diopter Variable Barrel (0.0D ~ 2.5D)

CM-1120B Pictures



CM-1120B Drawings

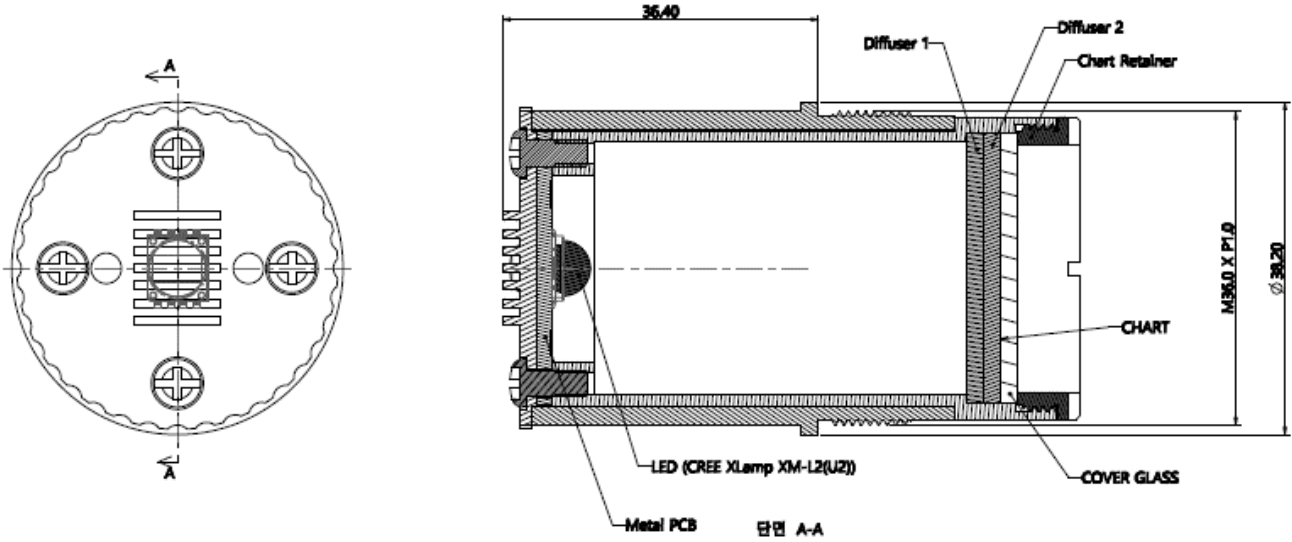


Diopter	Gradation
0 D	203.7
0.25 D	179.4
0.50 D	158.5
1.0 D	124.4
1.5 D	97.8
2.0 D	76.3
2.5 D	58.8

Weight 0.57kg

Lighting section

Color Temperature 6000±500K

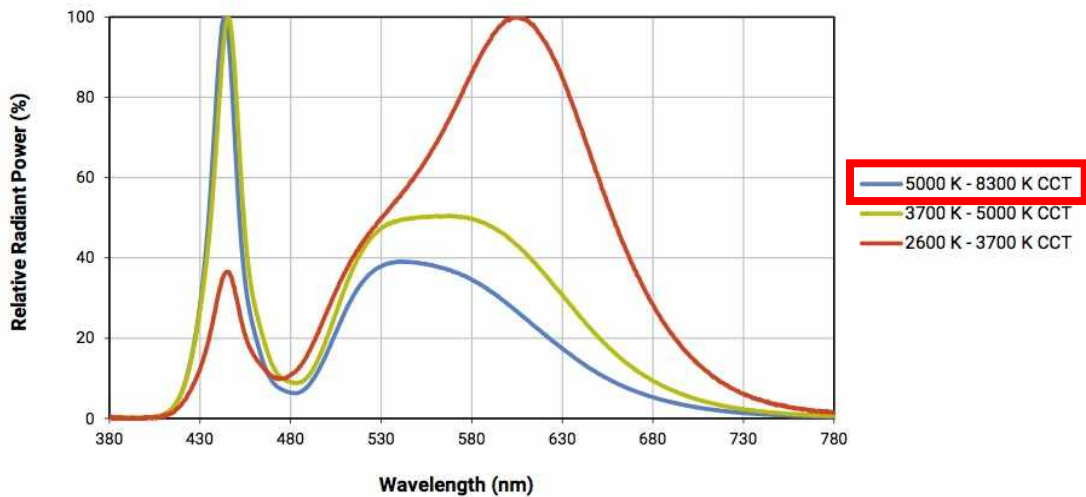


LED Specification

CHARACTERISTICS

Characteristics	Unit	Minimum	Typical	Maximum
Thermal resistance, junction to solder point	°C/W		2.5	
Viewing angle (FWHM)	degrees		125	
Temperature coefficient of voltage	mV/°C		-1.6	
ESD withstand voltage (HBM per Mil-Std-883D)	V			8000
DC forward current	mA			3000
Reverse voltage	V			-5
Forward voltage (@ 700 mA, 85 °C)	V		2.85	3.15
Forward voltage (@ 1500 mA, 85 °C)	V		3.05	
Forward voltage (@ 3000 mA, 85 °C)	V		3.3	
LED junction temperature	°C			150

RELATIVE SPECTRAL POWER DISTRIBUTION



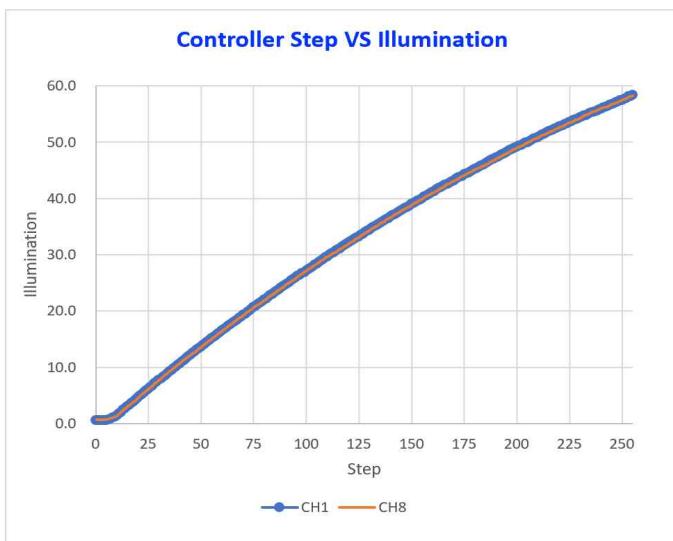
Illumination & Color Temperature



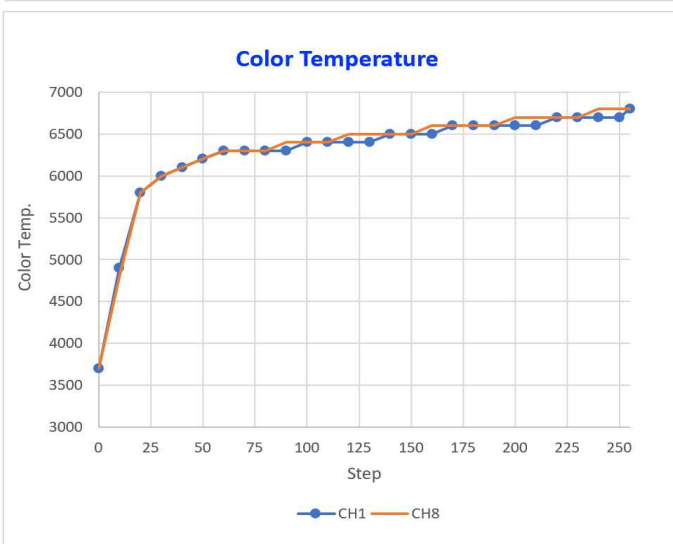
LED Control BOX (4ch ~ 13ch)



CM-1120B



There is little difference in illumination value depending on the channel.



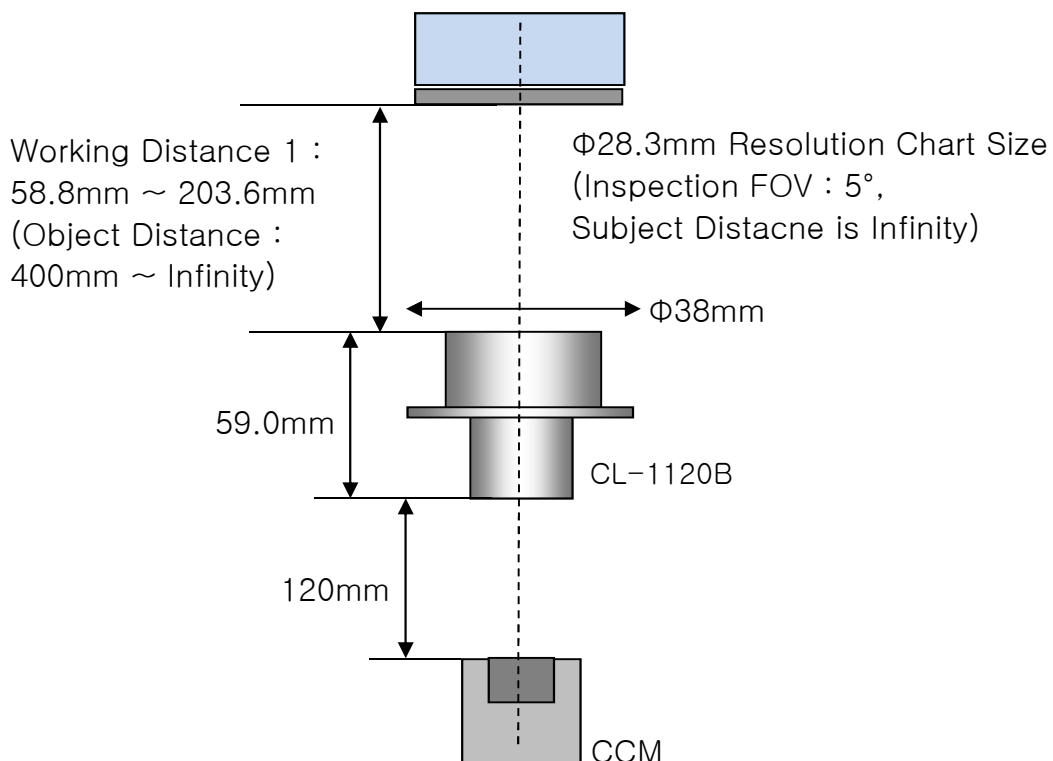
There is little difference in color temperature value depending on the channel.

Mainly used step is between 20 ~ 50.

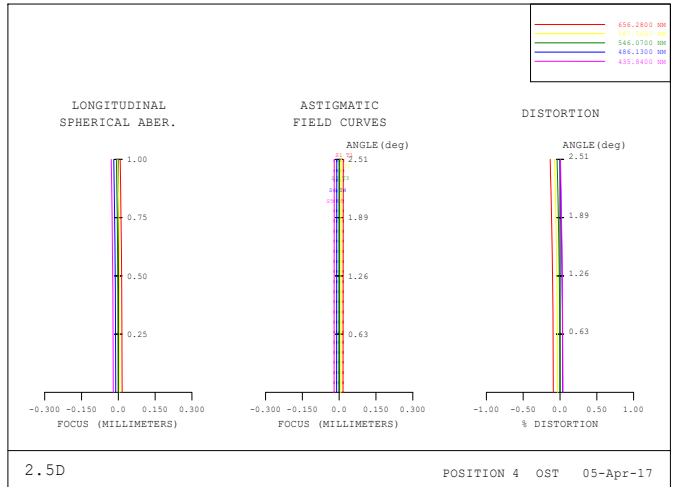
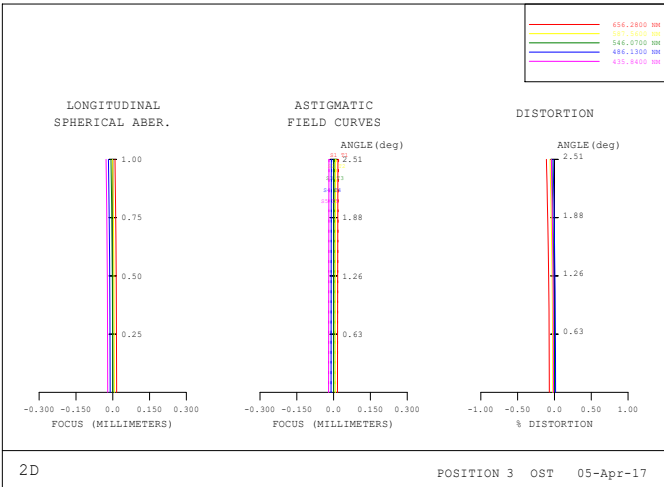
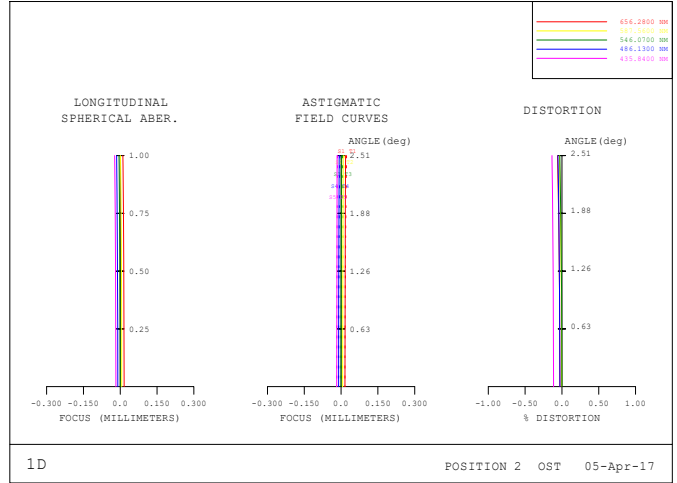
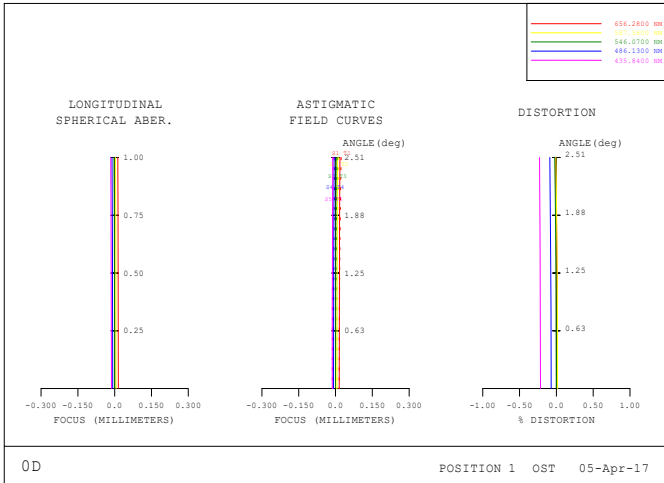
CL-1120B Collimator Lens Specification

Model name	CL-1120B (Designed by OneStone) Collimator lens of CM-1120B
Characteristic of CL-1120B	Inspection of only a specific 5 degree section of the full angle of the full angle of view of the camera lens.
Construction of CL-1120B	4 Glass lenses
EFL	323.9mm
Inspectable FOV of CCM	5°
Ass'y Size	Φ38mm X L59mm
Exit Pupil Size	Φ4.5mm
Exit Pupil Position	120.0mm (Distance from camera lens to CL)
Working Distance (from CL 1st Lens R1 surface to chart)	203.6mm at Object Distance Infinity Chart Size : Φ28.3mm

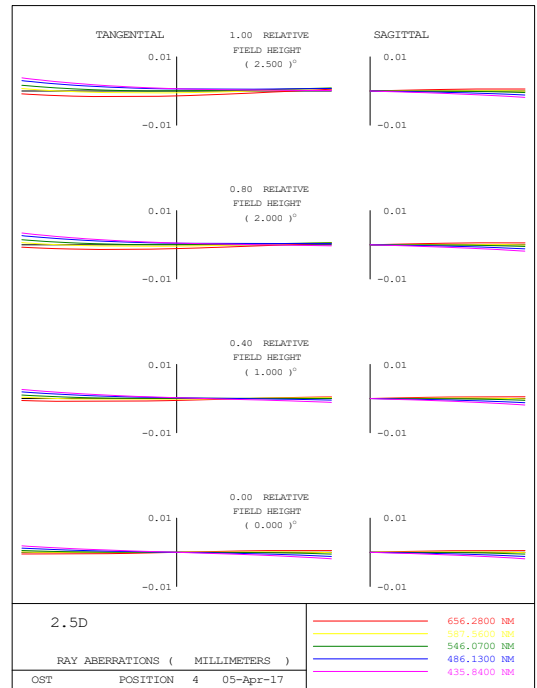
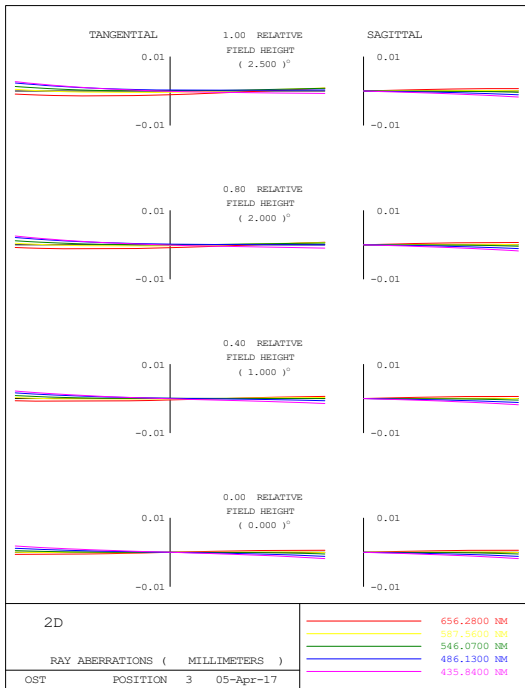
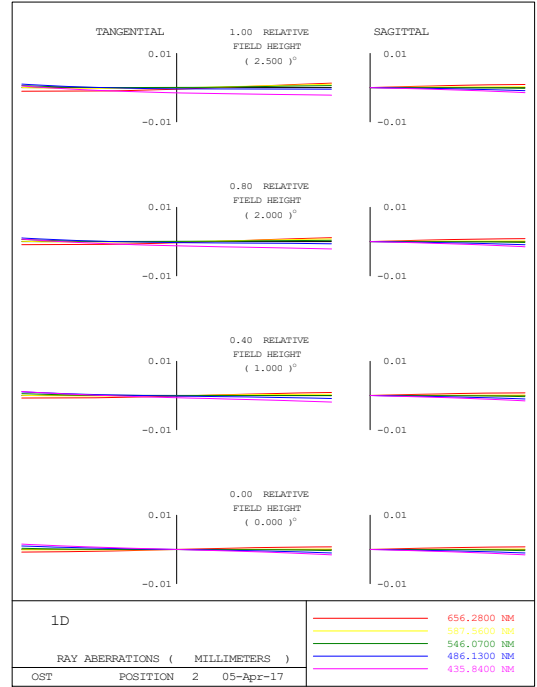
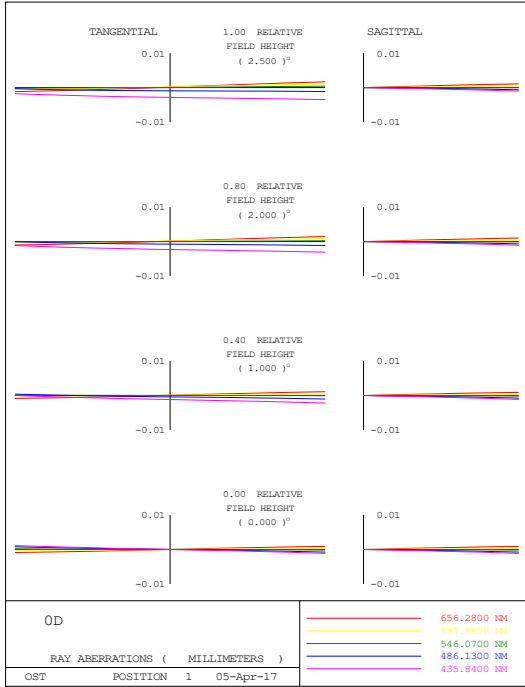
Schematic of CL-1120B



Optical Performance of CL-1120B (Scale 0.3 0.3 1.0)

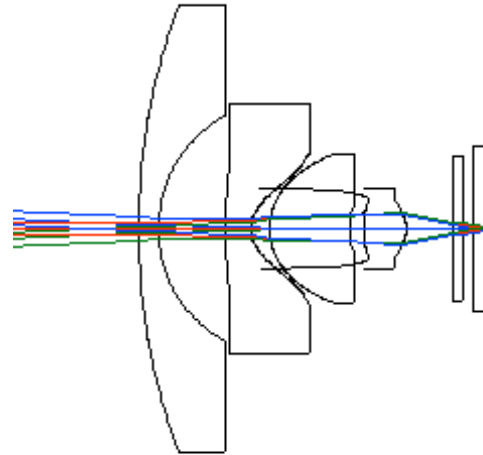


Optical Performance of CL-1120B (Scale ±0.01)

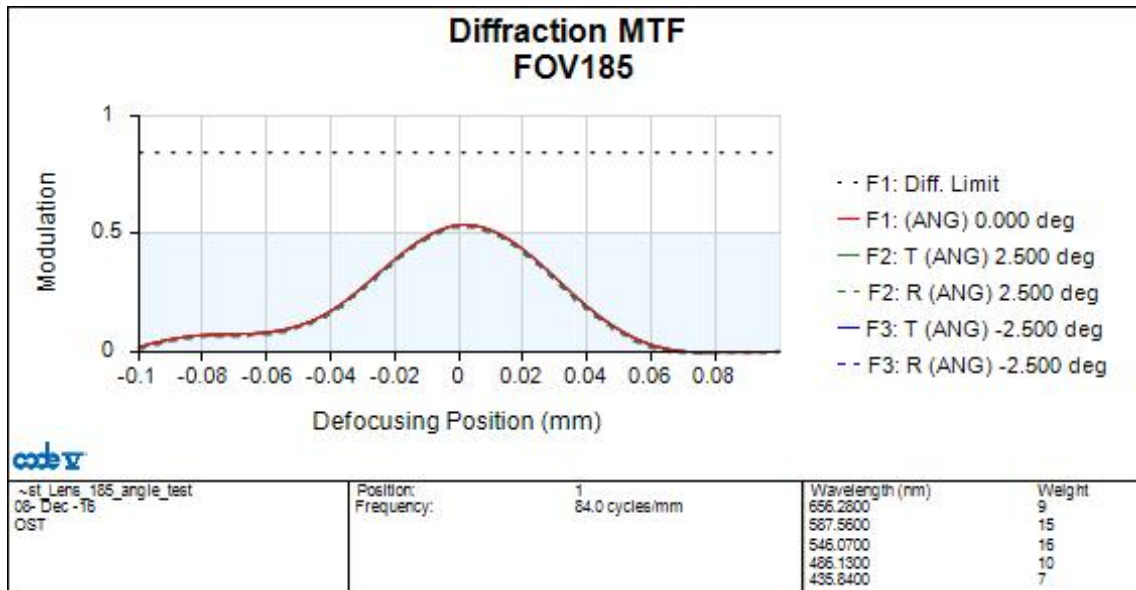


MTF Analysis for FOV 185° Lens of A-Company

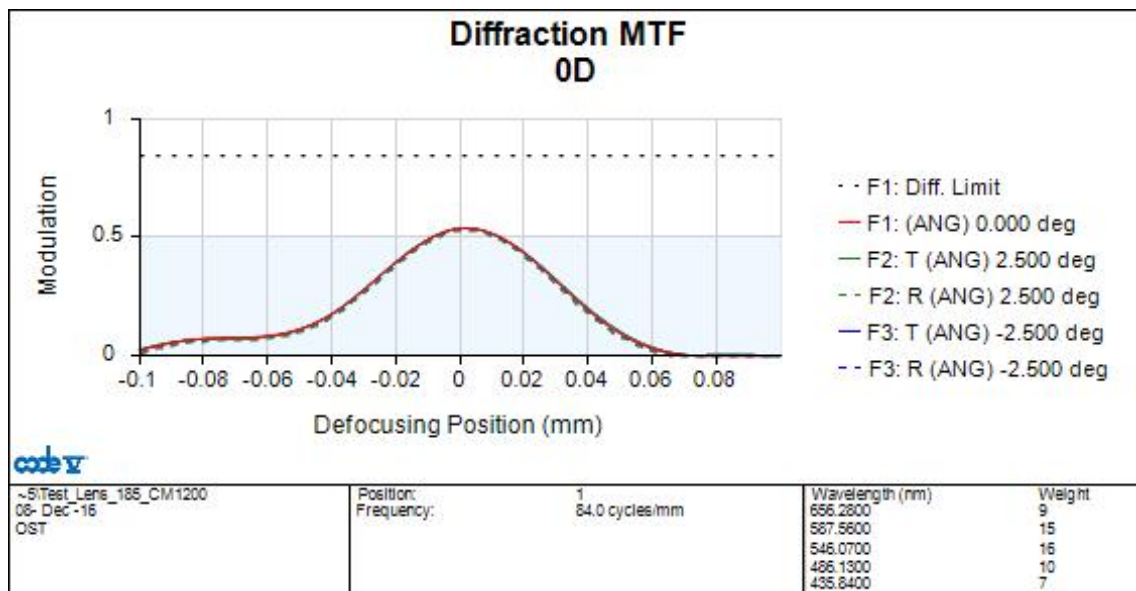
0 degree



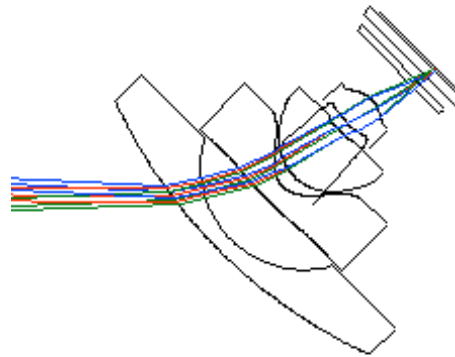
Only Camera Lens



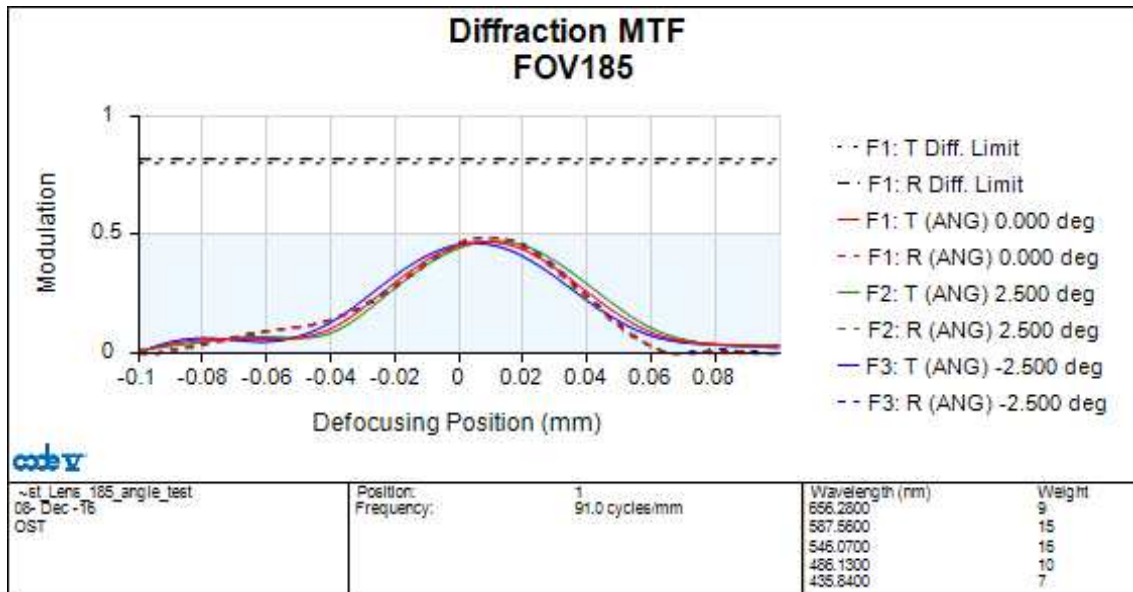
CL-1120B + Camera Lens



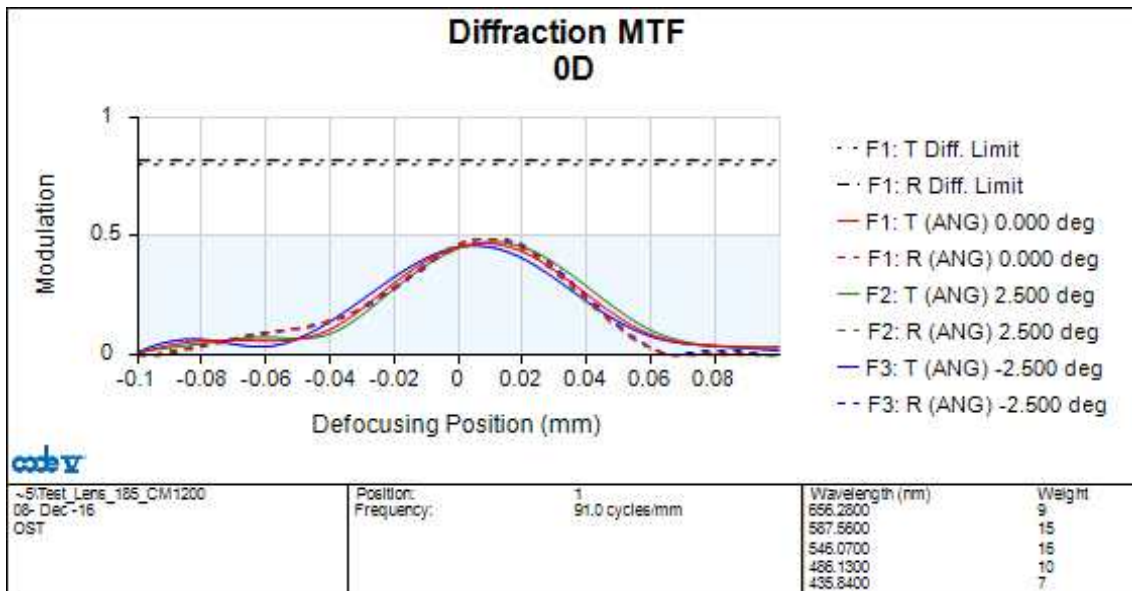
90 degree



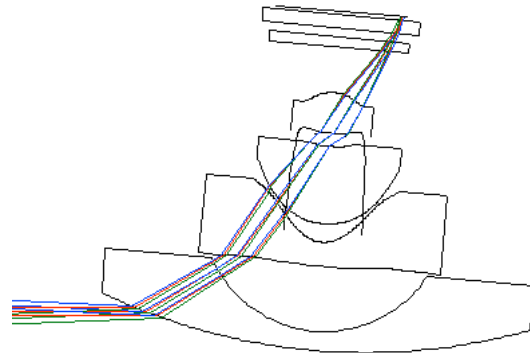
Only Camera Lens



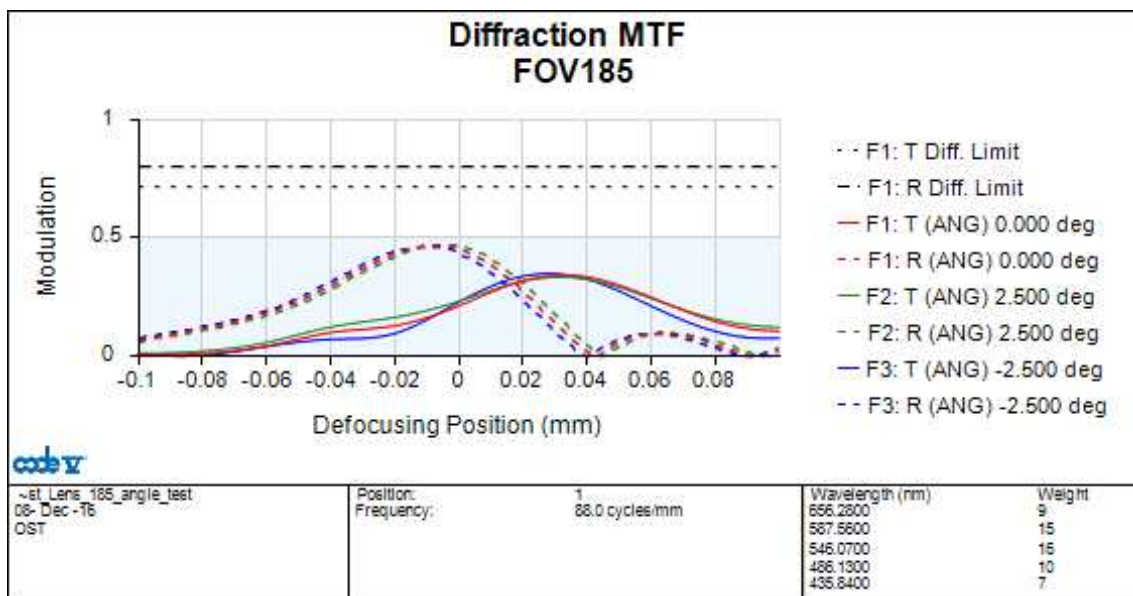
CL-1120B + Camera Lens



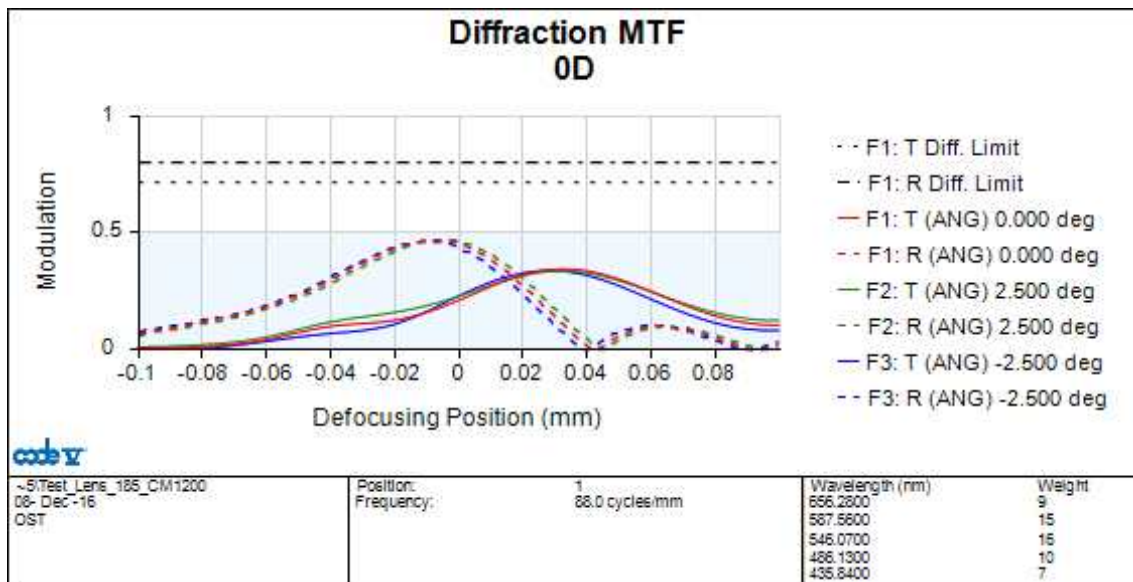
170 degree



Only Camera Lens



CL-1120B + Camera Lens



The Chart Size of CL-1120B (FOV=5.0°)

Object Distance : Real shooting distance with camera

Working Distance : Distance from 1st Lens R1 vertex of CL to chart.

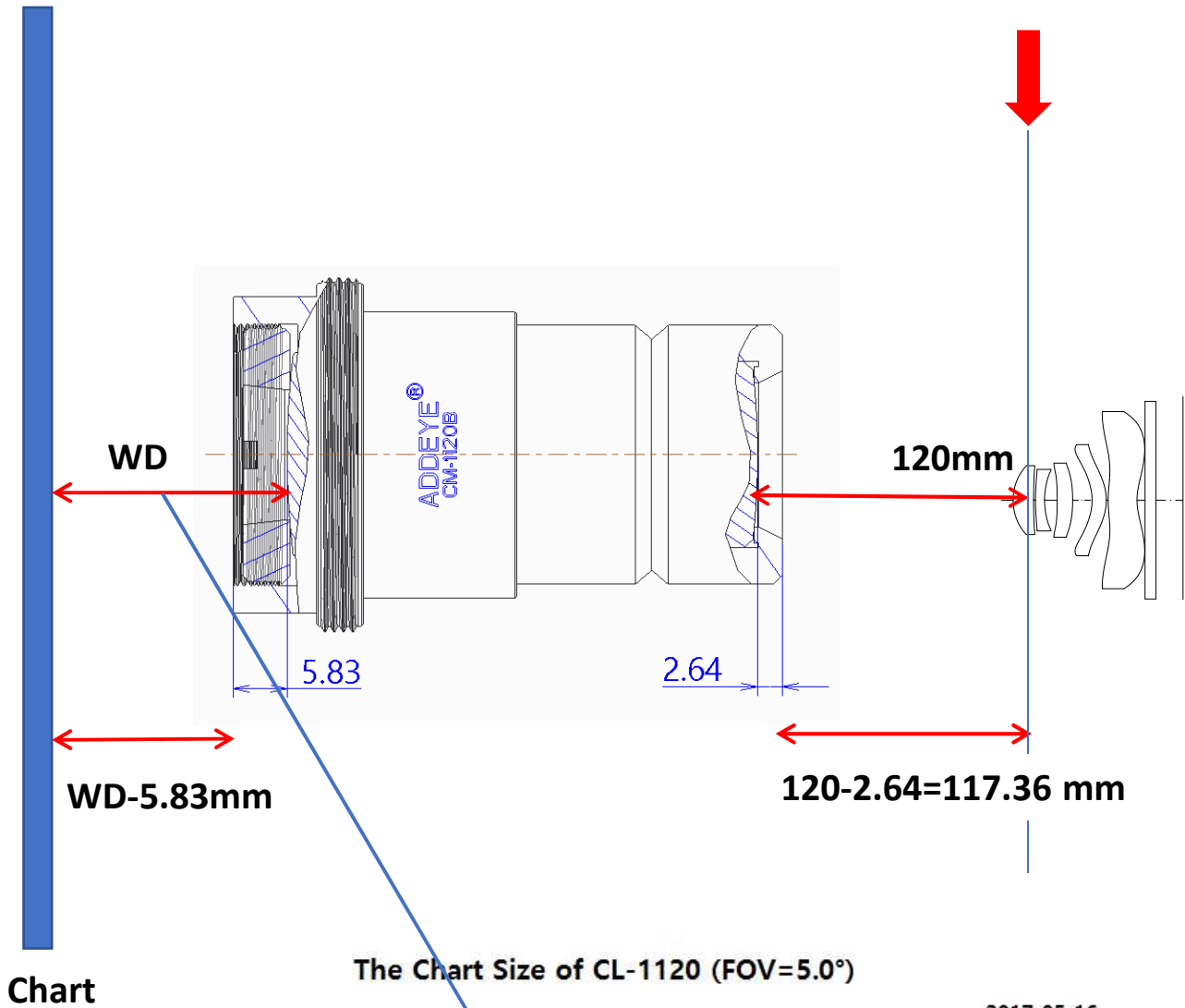
※ This table is based on the FOV of camera lens.

PCM Module	
FOV	5

Object Distance (Object ~ PCM)	Working Distance (Chart ~ Relay Lens)	Chart Size (Φ, mm)	Diopter
1.00E+100	203.65	28.28	0.00D
10000	193.49	27.40	0.10D
8000	191.05	27.18	0.13D
6000	187.06	26.84	0.17D
5000	183.95	26.56	0.20D
4500	181.90	26.39	0.22D
4000	179.39	26.17	0.25D
3500	176.22	25.89	0.29D
3000	172.09	25.53	0.33D
2800	170.07	25.35	0.36D
2600	167.78	25.15	0.38D
2400	165.14	24.92	0.42D
2200	162.09	24.66	0.45D
2000	158.51	24.34	0.50D
1800	154.26	23.97	0.56D
1600	149.13	23.52	0.63D
1400	142.81	22.97	0.71D
1300	139.06	22.64	0.77D
1200	134.82	22.27	0.83D
1100	129.99	21.85	0.91D
1000	124.42	21.37	1.00D
900	117.95	20.80	1.11D
800	110.32	20.13	1.25D
667	97.80	19.04	1.50D
600	90.12	18.37	1.67D
500	76.34	17.17	2.00D
450	68.12	16.45	2.22D
400	58.76	15.63	2.50D

How to set Collimator Lens

The entrance pupil position(EPP) of Camera module lens.
(Not necessarily the same EPP and 1st lens vertex of CM lens)



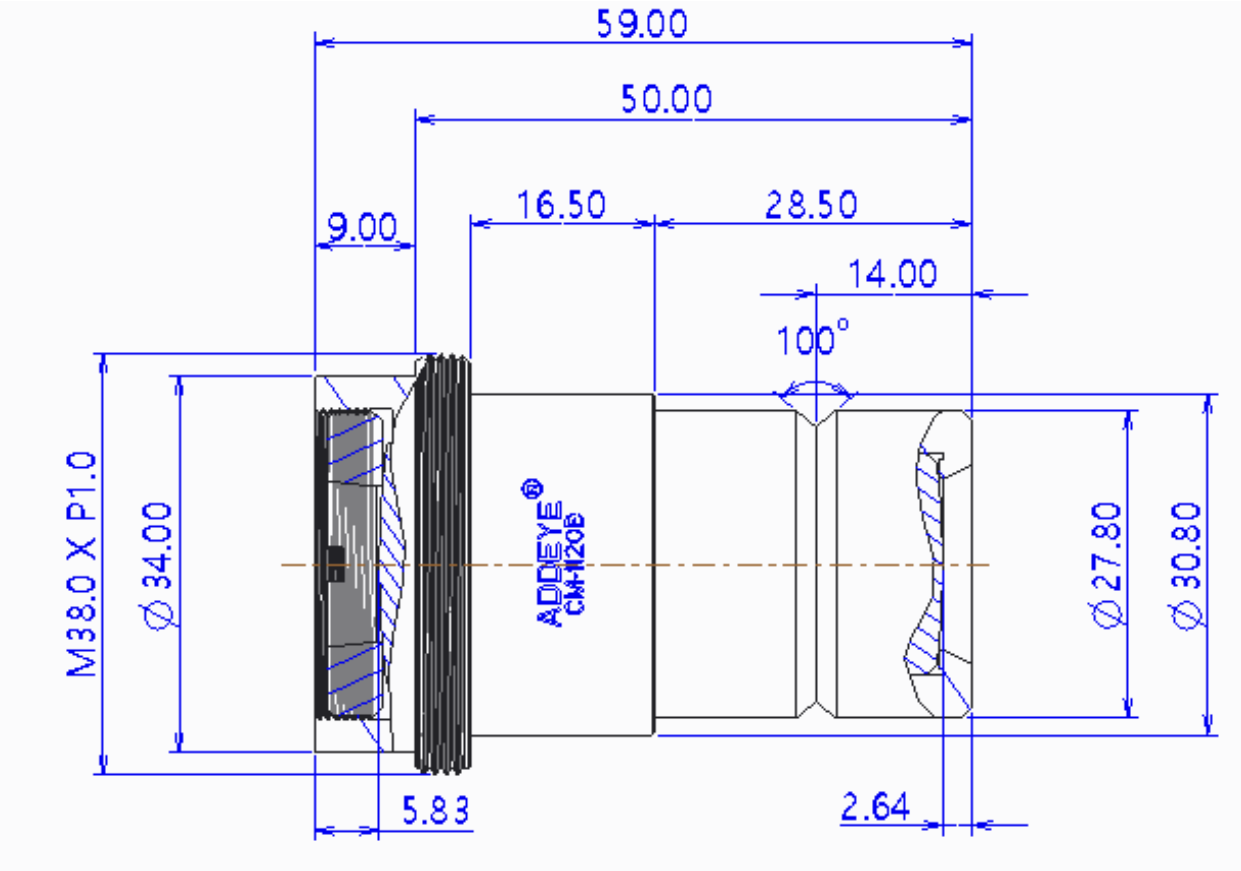
2017-05-16
OneStone

Object Distance : Real shooting distance with camera
Working Distance : Distance from 1st Lens R1 vertex of CL to chart.
※ This table is based on the FOV of camera lens.

PCM Module	
FOV	5

Object Distance	Working Distance	Chart Size (Φ, mm)	Diopter
1.00E+100	203.65	28.28	0.00D
10000	193.49	27.40	0.10D
8000	191.05	27.18	0.13D
6000	187.06	26.84	0.17D
5000	183.95	26.56	0.20D
4500	181.90	26.39	0.22D
4000	179.39	26.17	0.25D
3500	176.22	25.89	0.29D

CL-1120B Drawings



CL-1120B Picture

