

CM-10120 Collimator Module Spec.

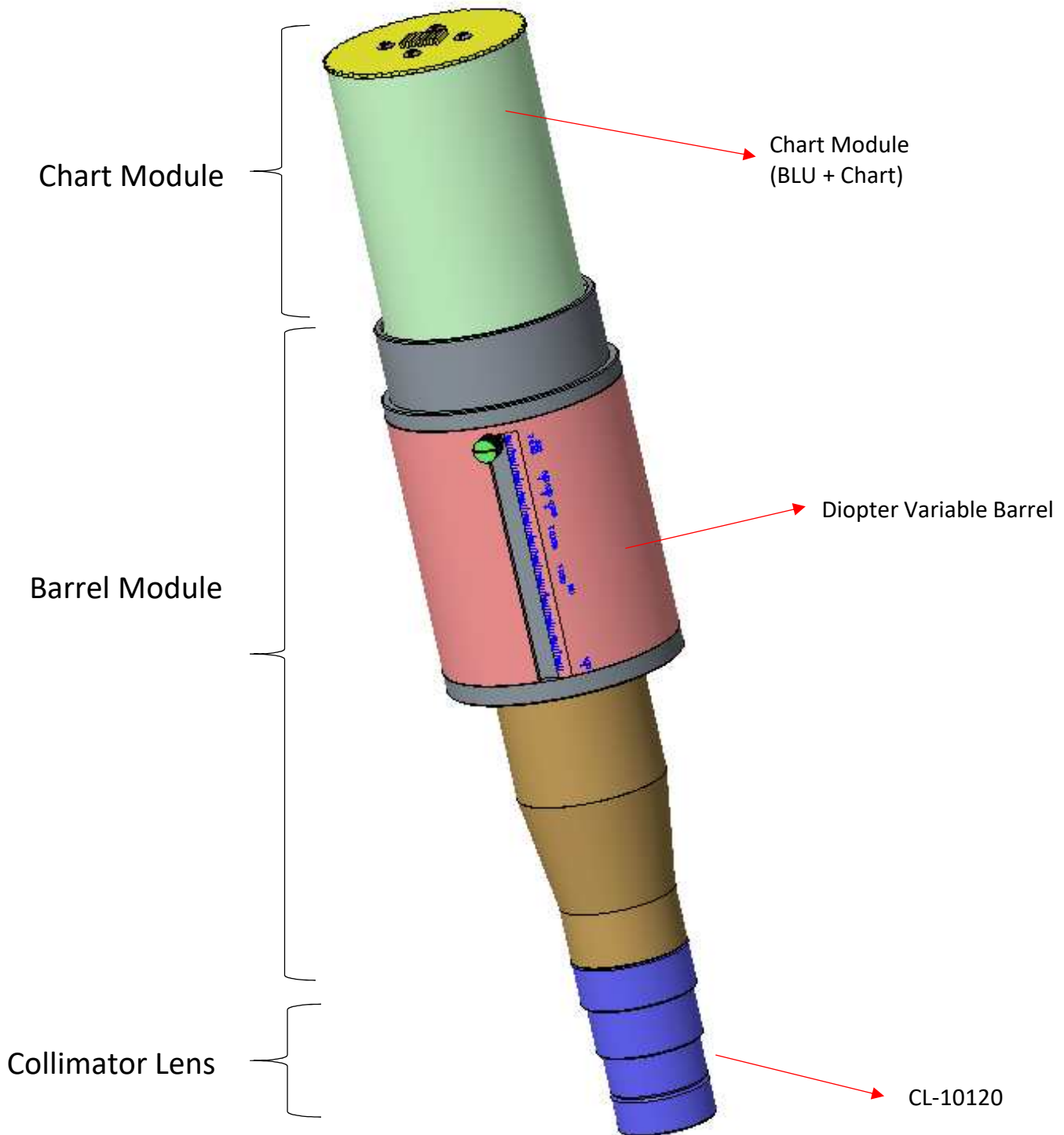
2018-09-10
OneStone

Construction of CM-10120

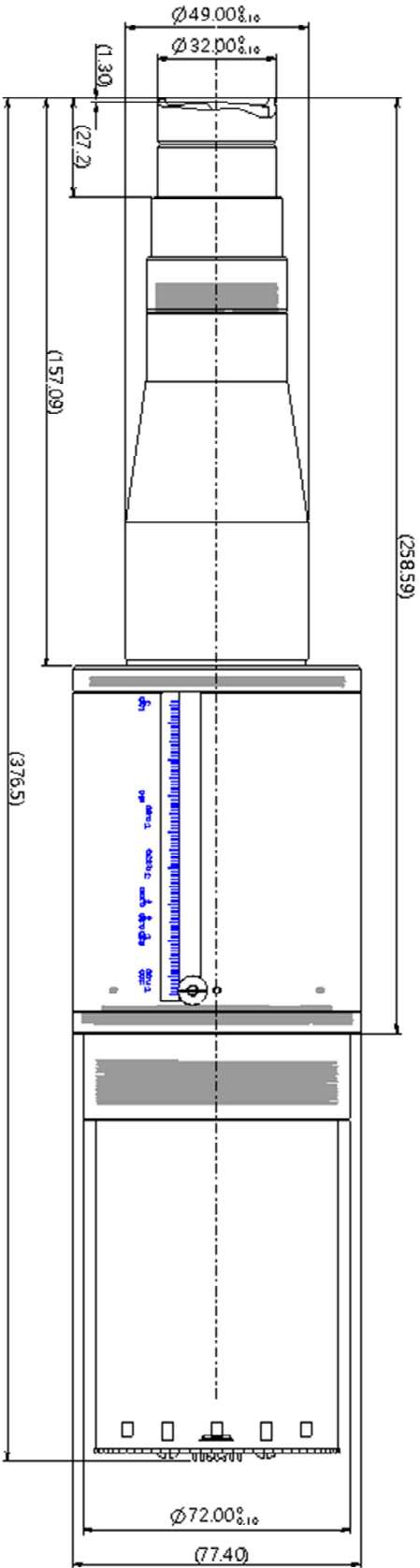
Lighting Section : Chart Module (BLU + Chart)

Collimator Lens Section : Collimator Lens (CL-10120), Diopter Variable Barrel (0.0D ~ 1.0D)

CM-10120 Pictures



CM-10120 Drawing

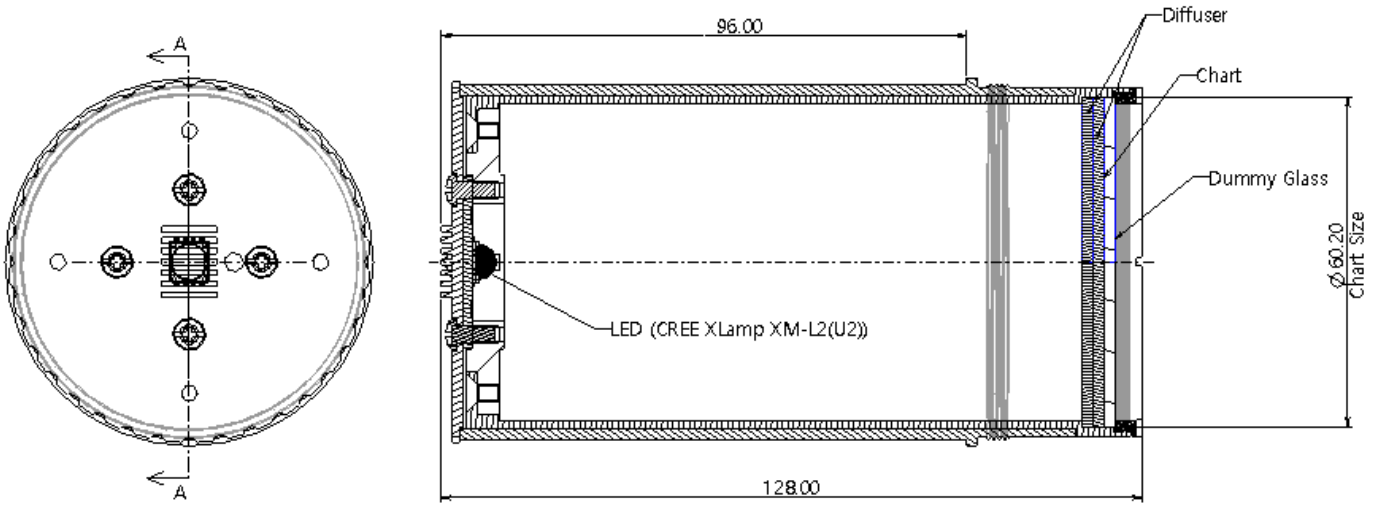


Dioptor	Gradation
0 D	203.7
0.25 D	179.4
0.50 D	158.5
1.0 D	124.4

Weight 0.87kg

Lighting section

Color Temperature 6000±500K

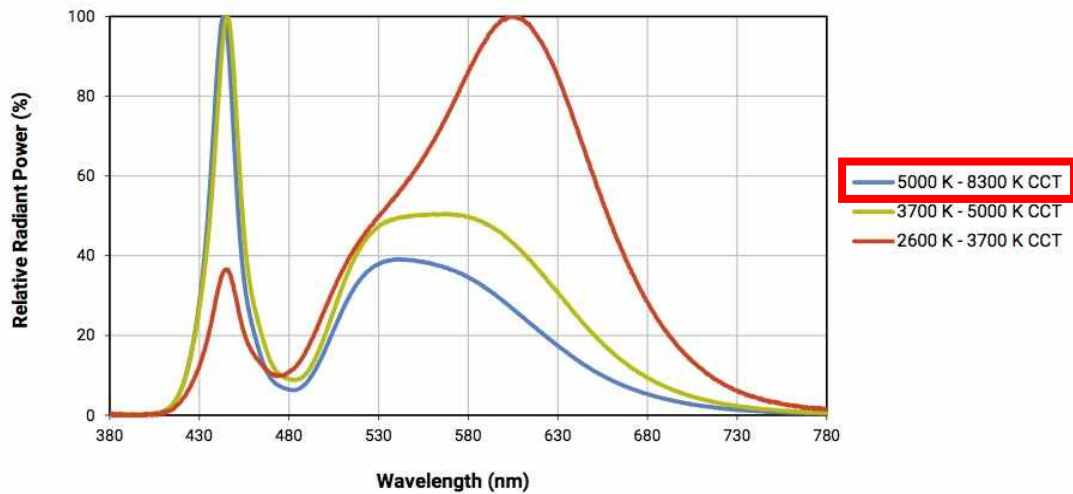


LED Specification

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

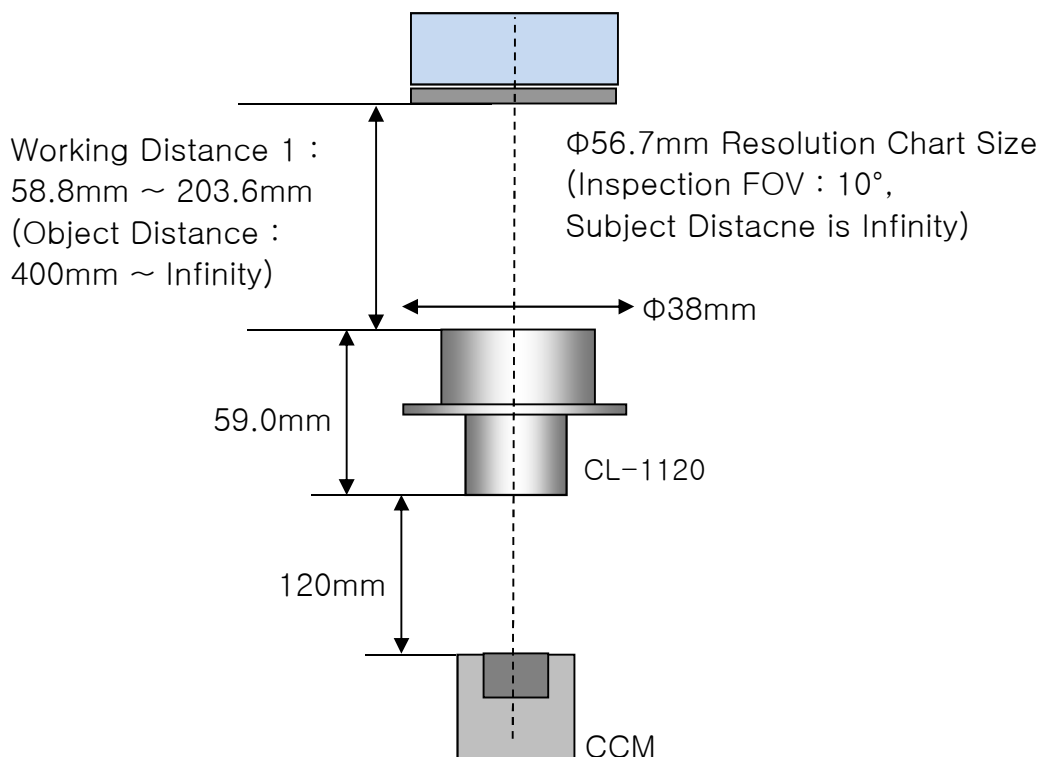
RELATIVE SPECTRAL POWER DISTRIBUTION



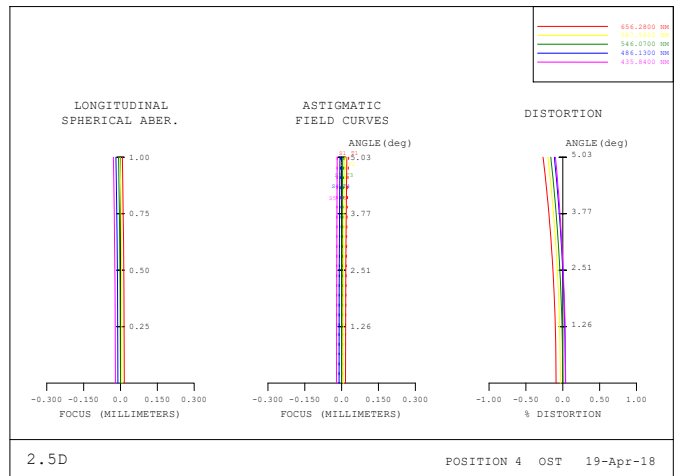
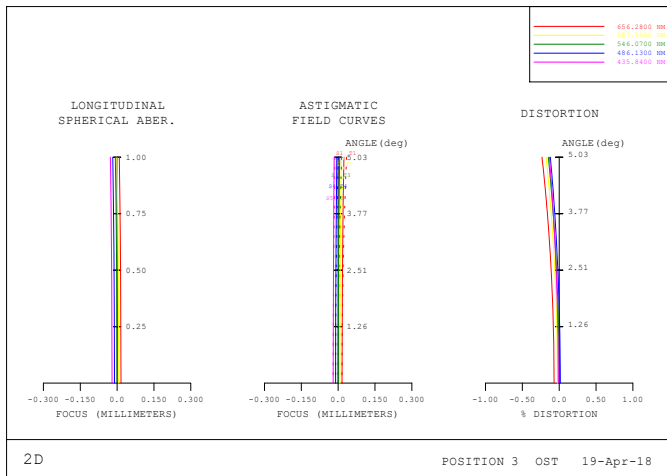
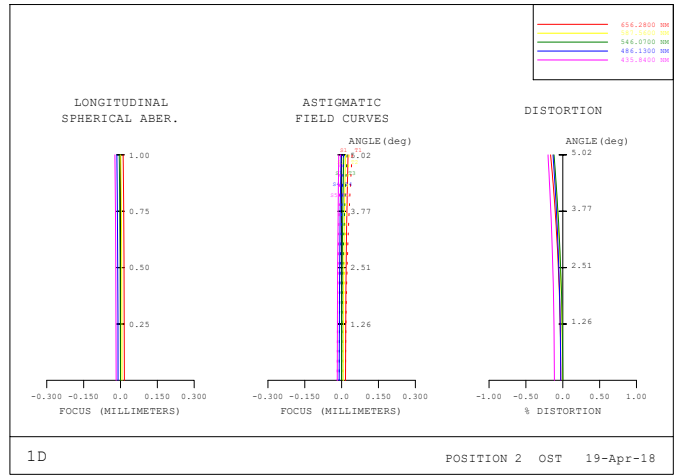
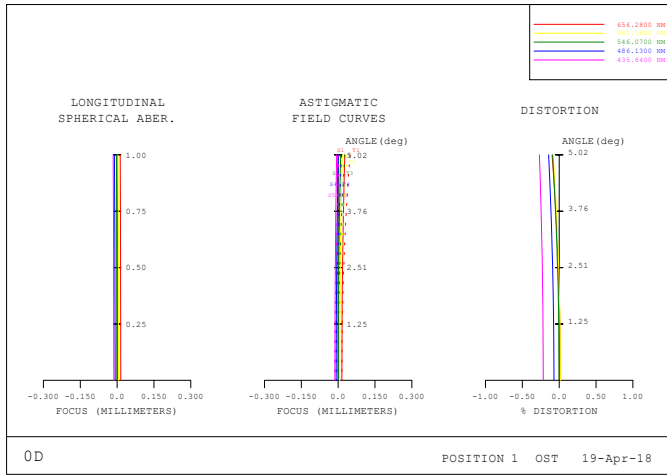
CL-10120 Collimator Lens Specification

Model name	CL-10120 (Designed by OneStone) Collimator lens of CM-10120
Characteristic of CL-10120	Inspection of only a specific 10 degree section of the full angle of the full angle of view of the camera lens.
Construction of CL-10120	4 Glass lenses
EFL	323.9mm
Inspectable FOV of CCM	10°
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 : Φ56.7mm

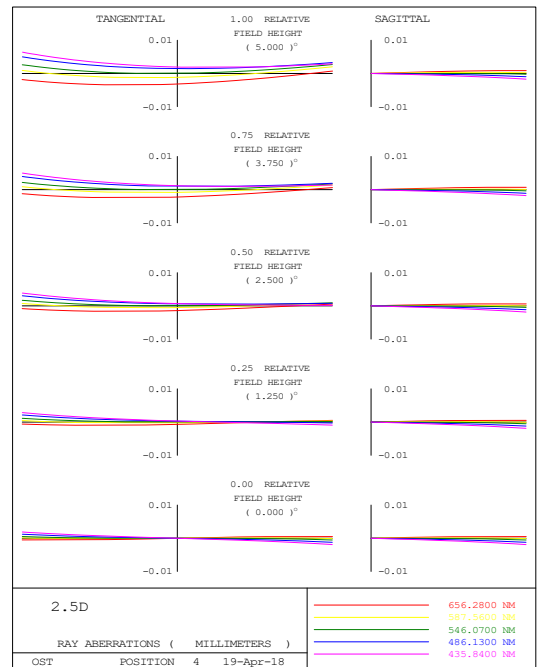
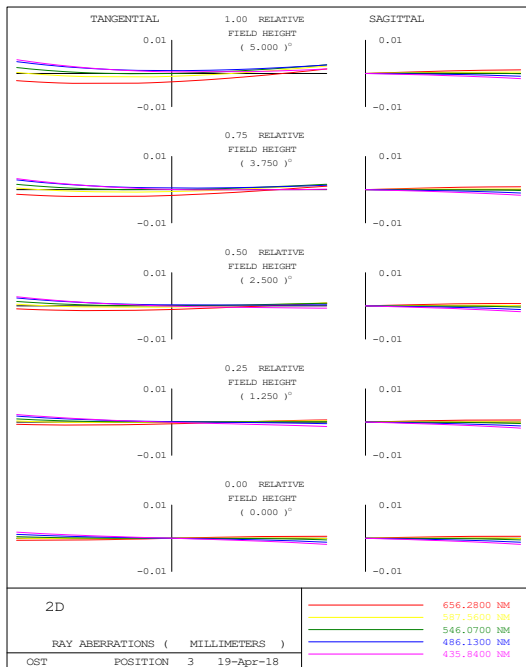
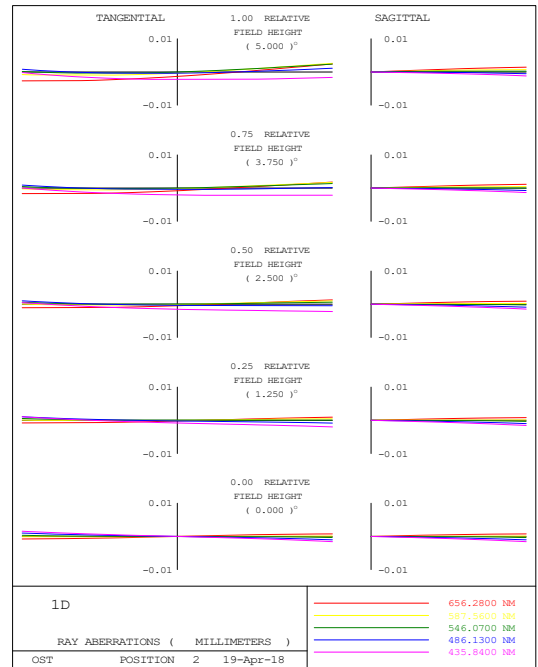
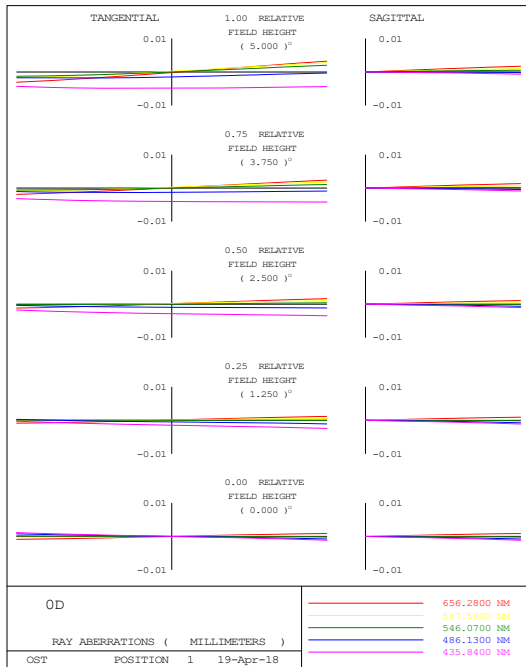
Schematic of CL-10120



Optical Performance of CL-10120 (Scale 0.3 0.3 1.0)

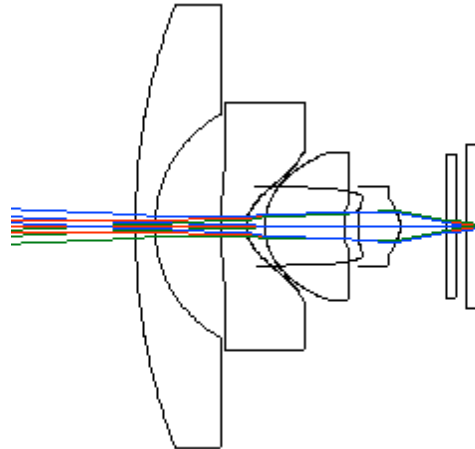


Optical Performance of CL-10120 (Scale ± 0.01)

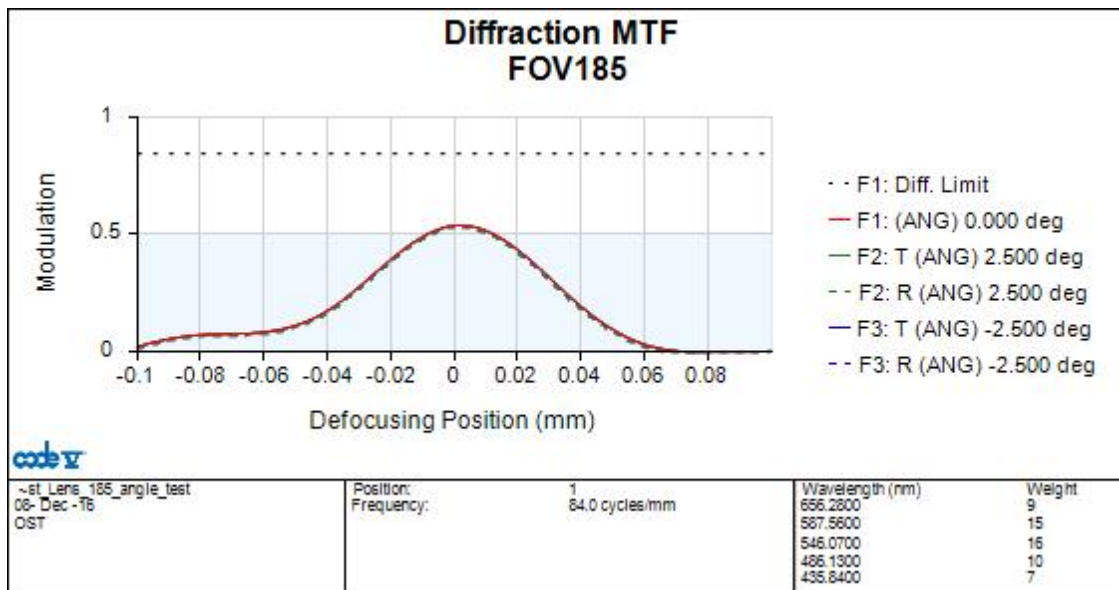


MTF Analysis for FOV 185° Lens of A-Company

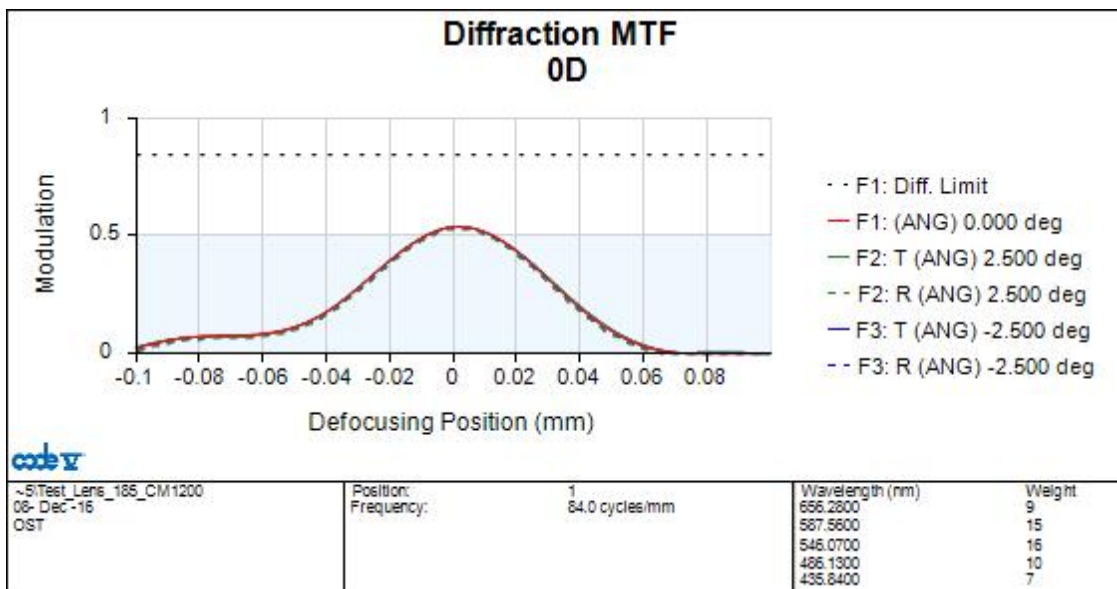
0 degree



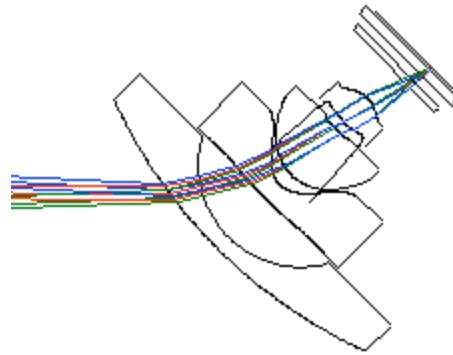
Only Camera Lens



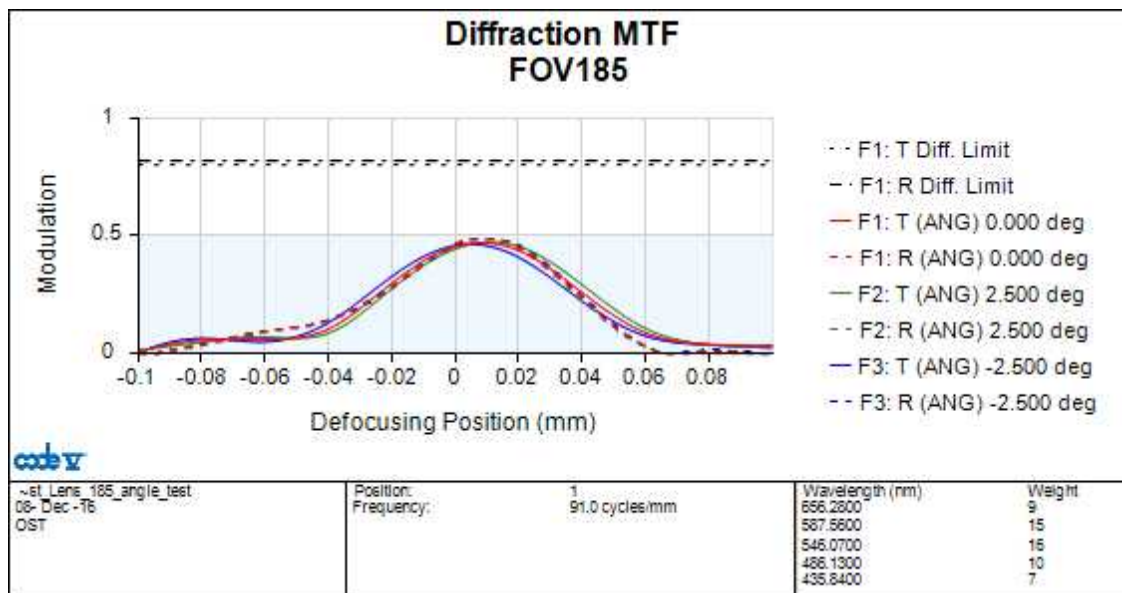
CL-1120B + Camera Lens



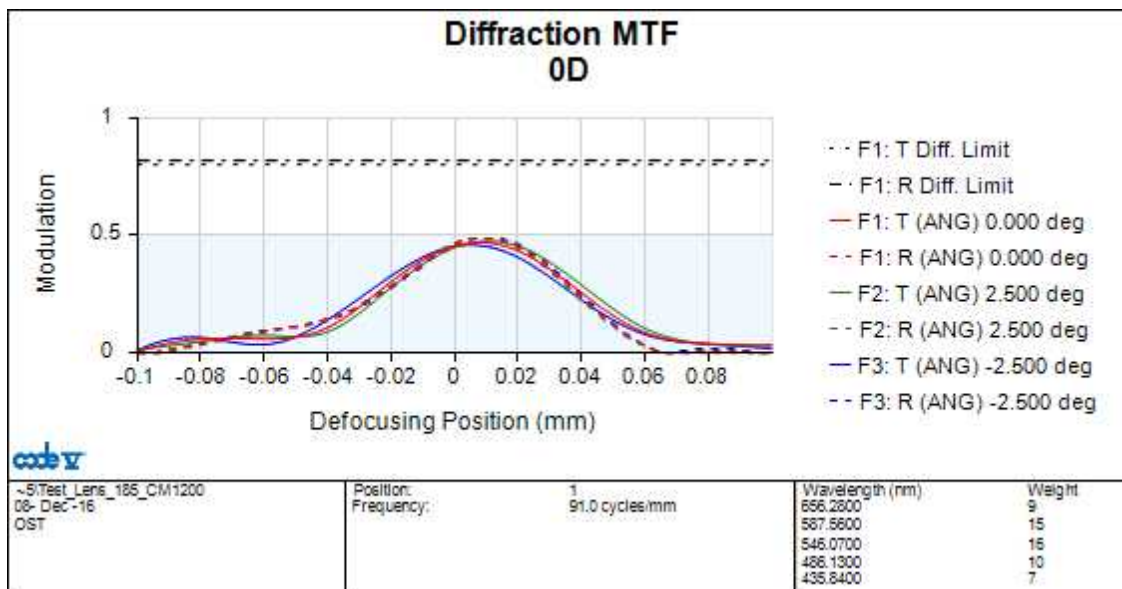
90 degree



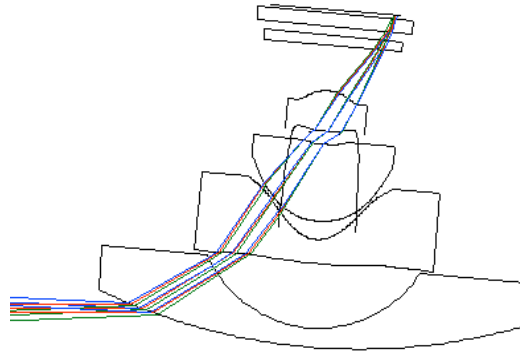
Only Camera Lens



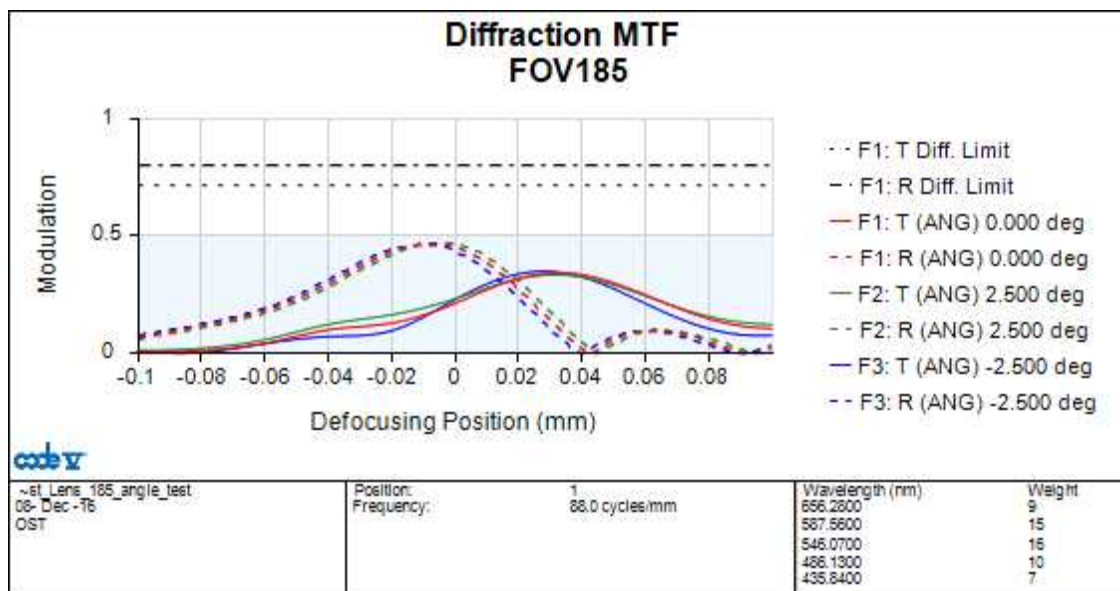
CL-1120B + Camera Lens



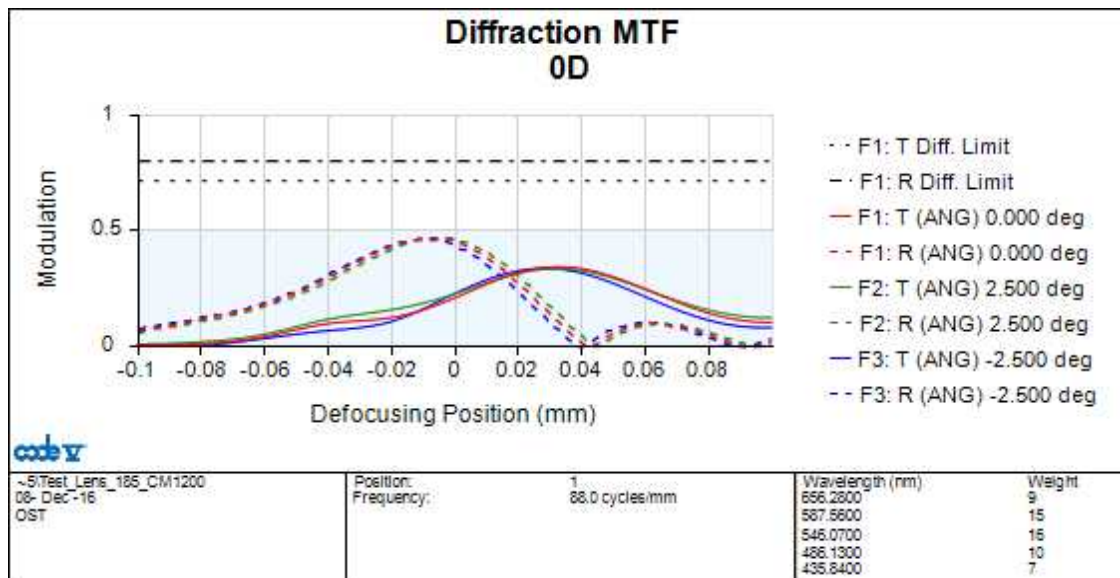
170 degree



Only Camera Lens



CL-1120B + Camera Lens



The Chart Size of CL-10120 (FOV=10.0°)

Object Distance : Real shooting distance with camera

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

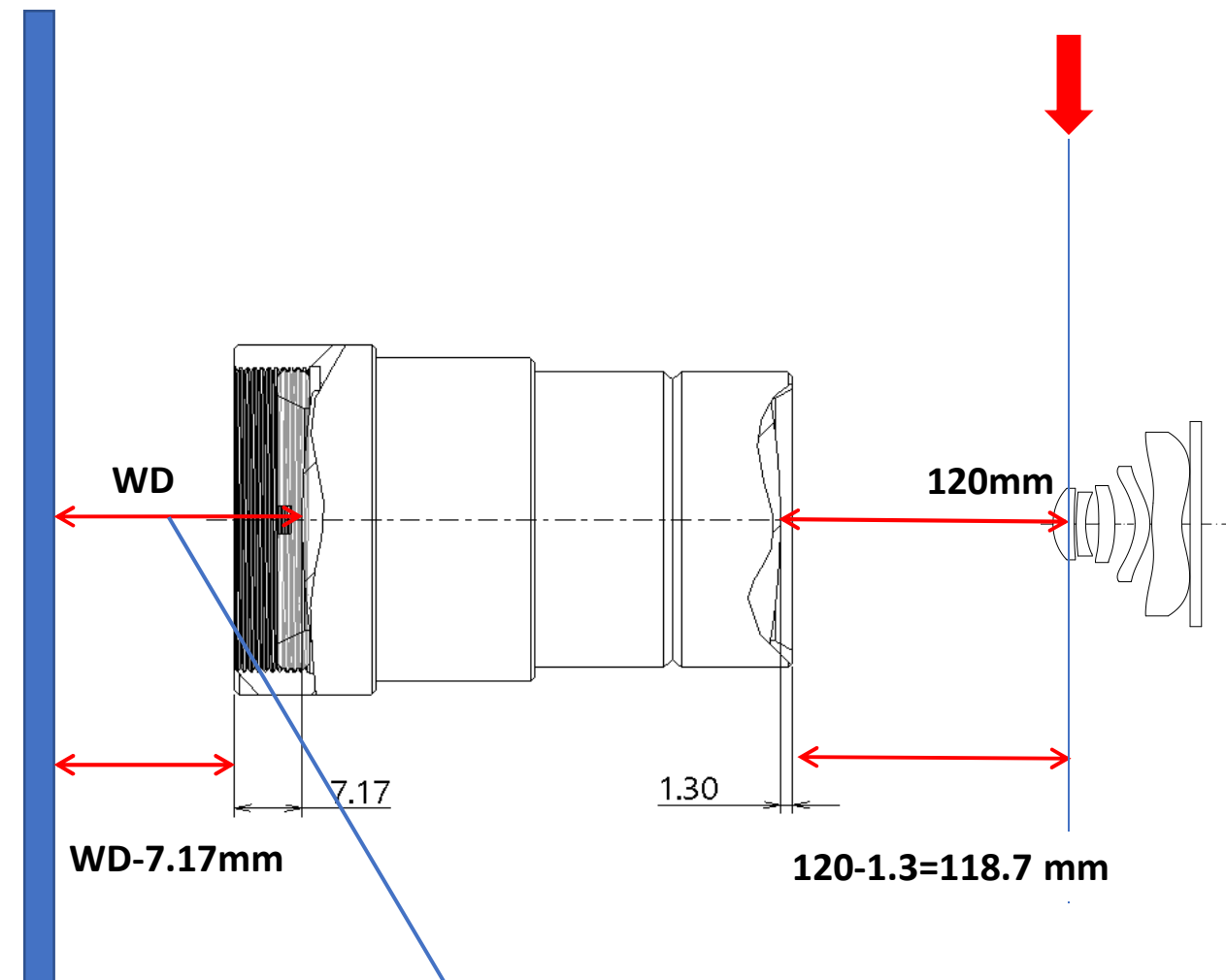
※ This table is based on the FOV of camera lens.

PCM Module	
FOV	10

Object Distance (Object ~ PCM)	Working Distance (Chart ~ Relay Lens)	Chart Size (Φ, mm)	Diopter
1.00E+100	203.65	56.73	0.00D
50000	201.56	56.36	0.02D
20000	198.49	55.82	0.05D
15000	196.80	55.53	0.07D
10000	193.49	54.95	0.10D
9000	192.40	54.76	0.11D
8000	191.05	54.52	0.13D
7000	189.33	54.22	0.14D
6000	187.06	53.82	0.17D
5000	183.95	53.28	0.20D
4500	181.90	52.92	0.22D
4000	179.39	52.48	0.25D
3500	176.22	51.93	0.29D
3000	172.09	51.20	0.33D
2750	169.53	50.75	0.36D
2500	166.51	50.23	0.40D
2250	162.90	49.59	0.44D
2000	158.51	48.83	0.50D
1900	156.48	48.47	0.53D
1800	154.26	48.08	0.56D
1700	151.82	47.66	0.59D
1600	149.13	47.18	0.63D
1500	146.14	46.66	0.67D
1400	142.81	46.08	0.71D
1300	139.06	45.42	0.77D
1200	134.82	44.68	0.83D
1100	129.99	43.83	0.91D
1000	124.42	42.86	1.00D

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)



Chart

The Chart Size of CL-10120 (FOV=10.0°)

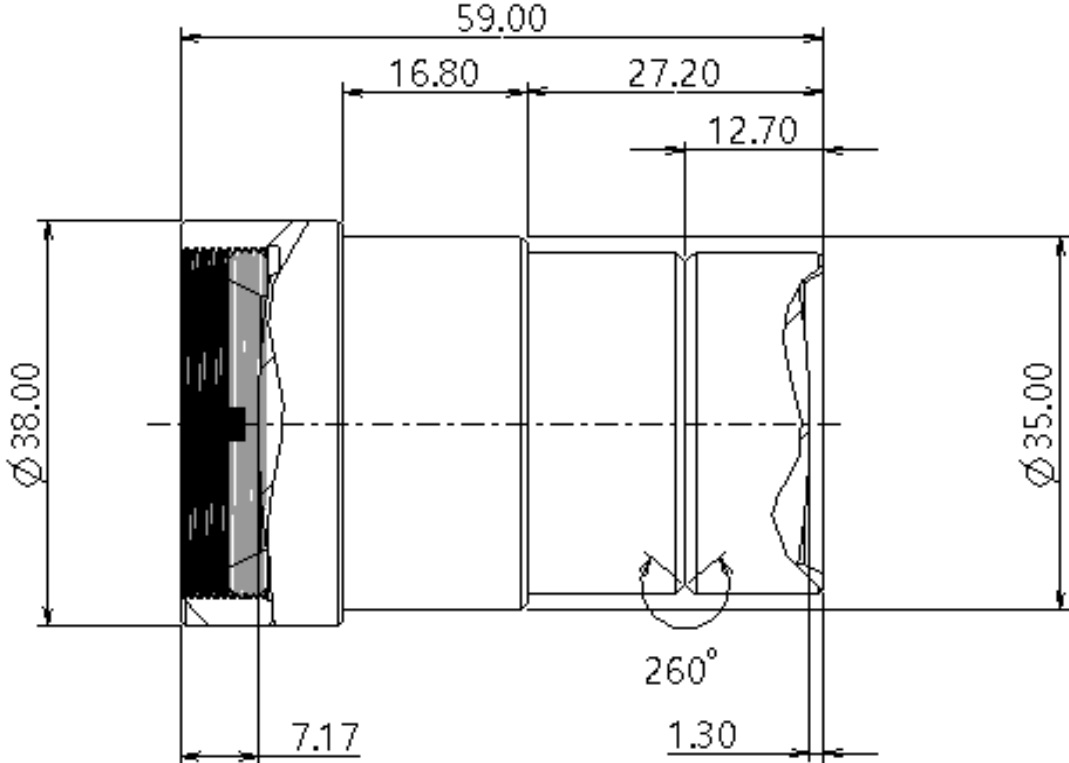
Object Distance : Real shooting distance with camera
Working Distance : Distance from 1st Lens R1 vertex of CL to chart.

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

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20000	198.49	55.82	0.05D
15000	196.80	55.53	0.07D
10000	193.49	54.95	0.10D
5000	189.49	54.36	0.14D

CL-10120 Drawings



CL-10120 Picture

