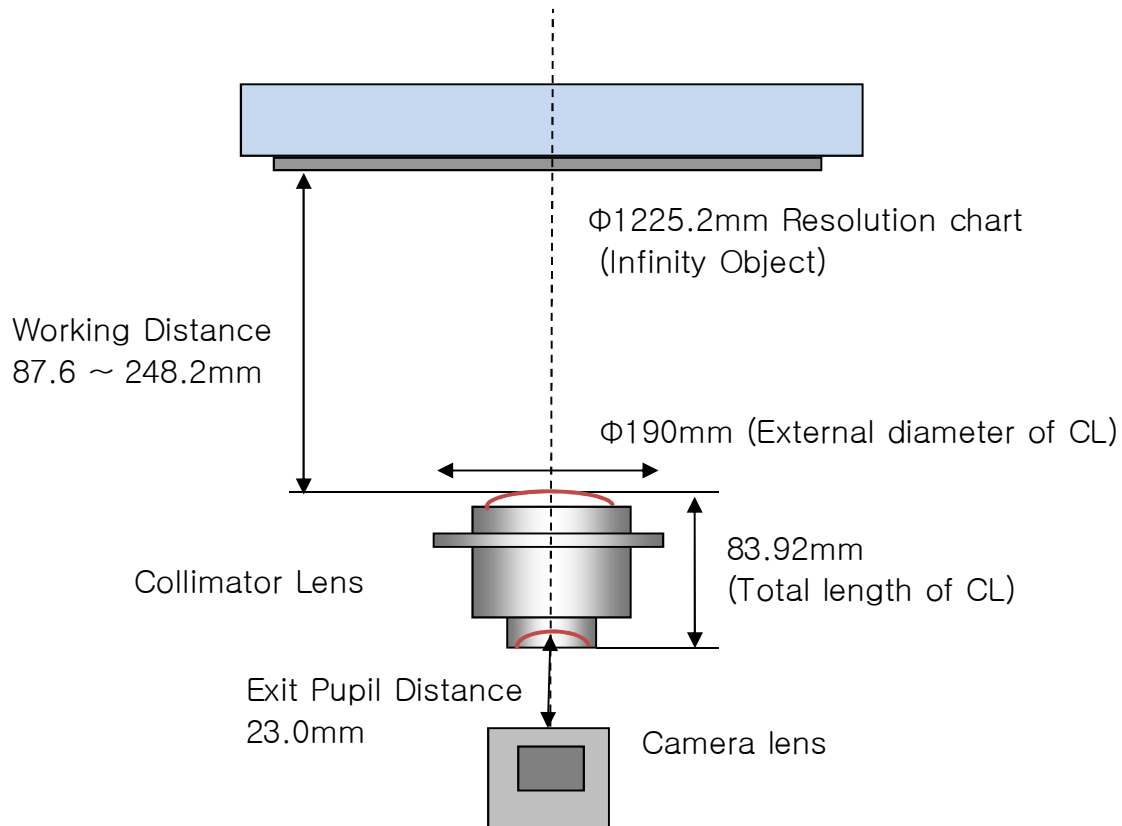


# CL-1223C Collimator Lens Spec.

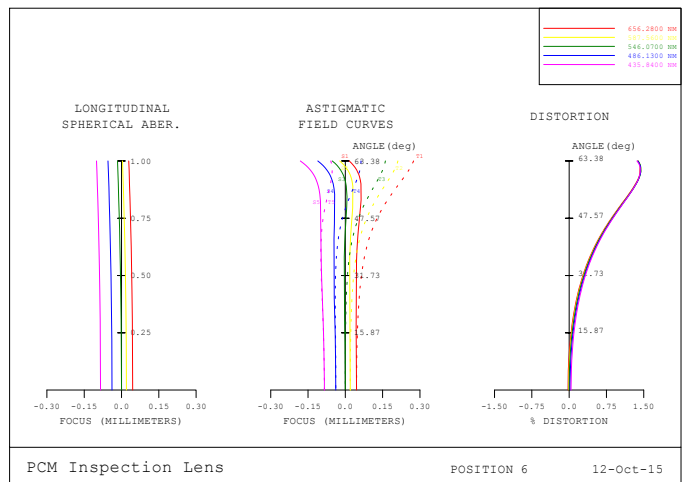
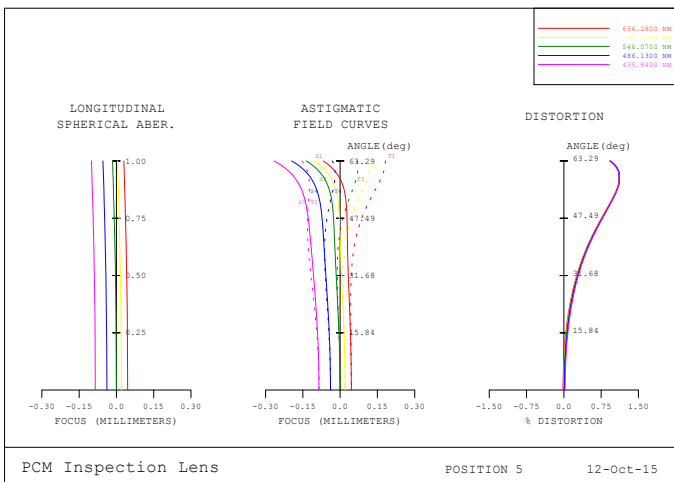
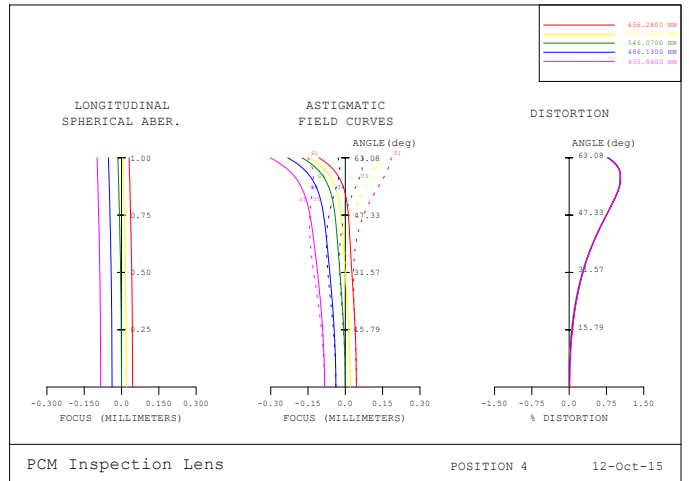
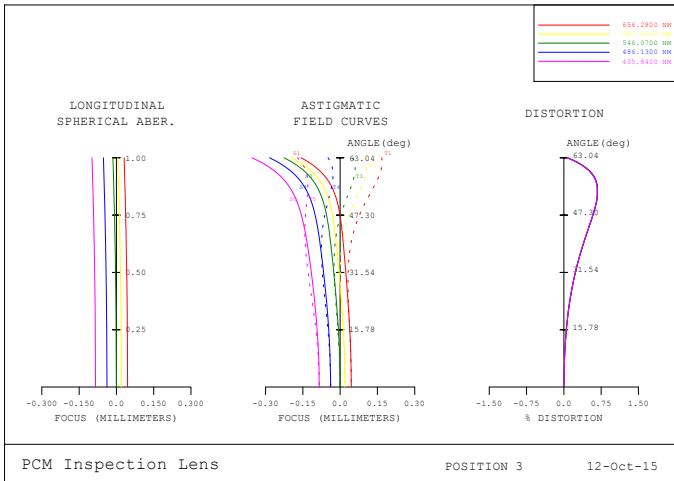
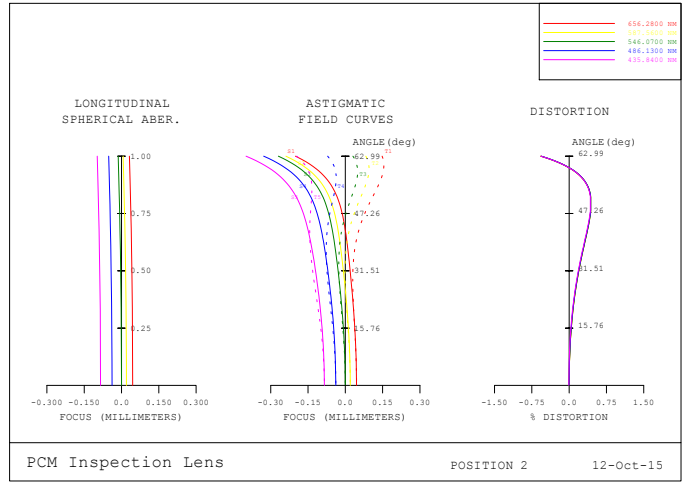
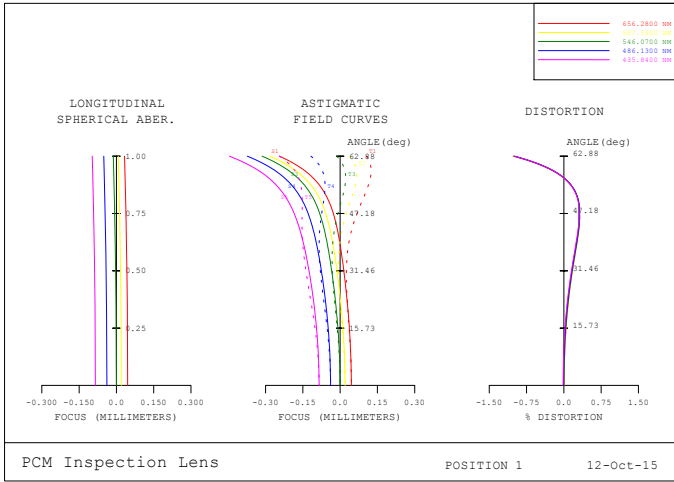
2017-12-08  
OneStone

<b>Model name</b>	CL-1223C (Designed by OneStone)
<b>Characteristic of CL-1223C</b>	Camera Lens of FOV 120 degree is adaptive.
<b>Main Lens</b>	CL-1223C (Main)
<b>Sub Lens Sets</b>	CL-1223C (Sub 0.0D), CL-1223C (Sub 0.5D) CL-1223C (Sub 1.0D), CL-1223C (Sub 1.5D) CL-1223C (Sub 2.0D), CL-1223C (Sub 2.5D)
<b>Main plus each Sub set</b>	ex) CL-1223C (Main+Sub 0.0D)
<b>EFL</b>	350.1mm
<b>Inspectable FOV of CCM</b>	120°
<b>Ass'y Size</b>	Φ190mm X L83.92mm, 3.58kg
<b>Exit Pupil Size</b>	Φ4.5mm (Distance from camera lens to CL)
<b>Exit Pupil Position</b>	23.0mm at Object Distance Infinity
<b>Working Distance (from CL 1st Lens R1 surface to chart)</b>	248.2mm Chart Size : Φ1225.2mm



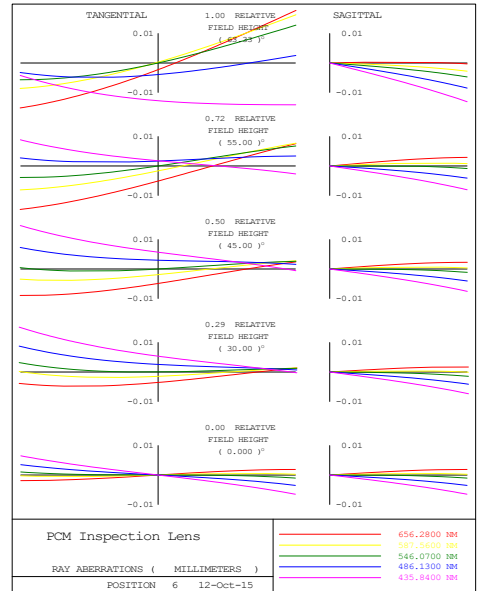
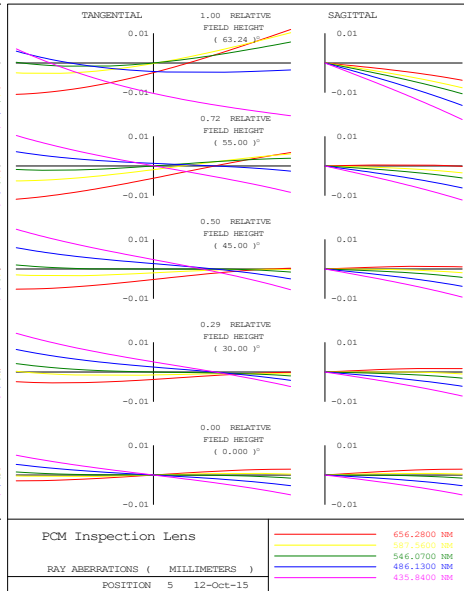
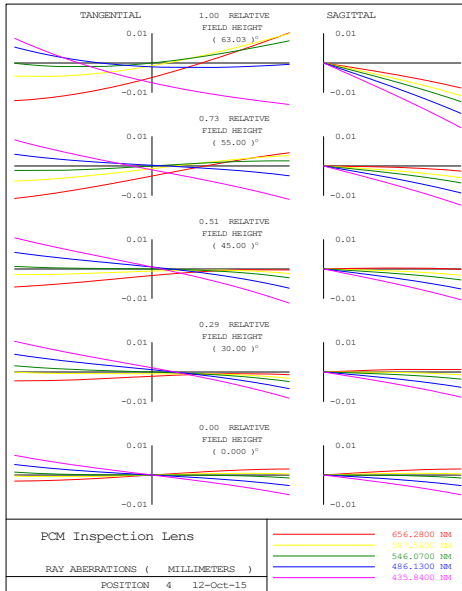
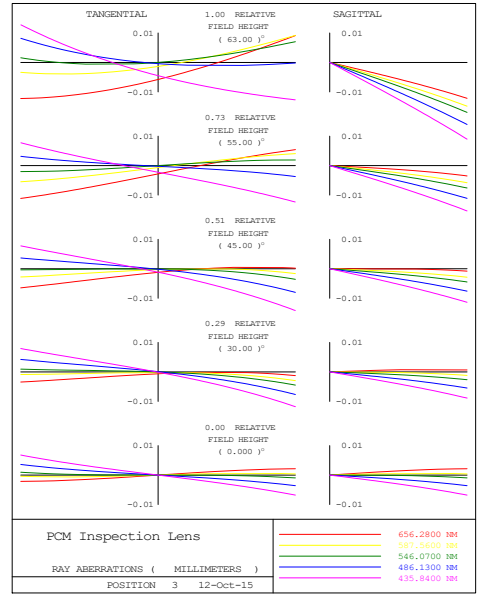
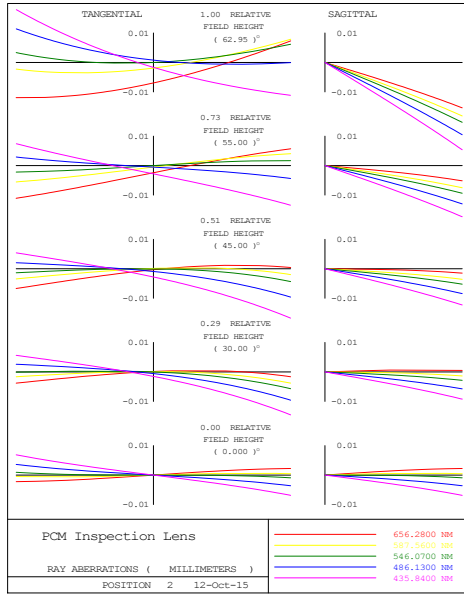
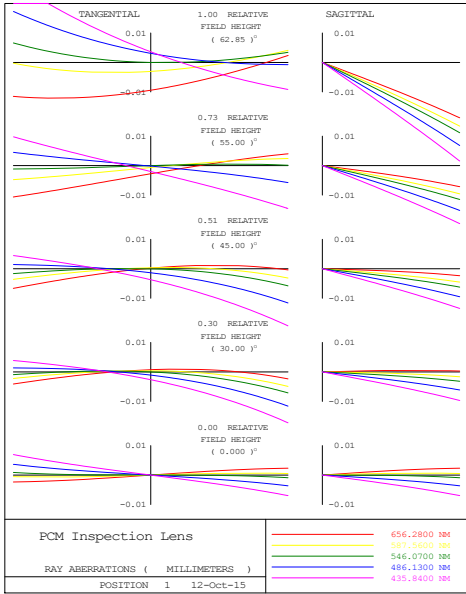
# Optical performance of CL-1223C Lens (Infinity, 2m, 1m, 0.66m, 0.5m, 0.4m at 120°)

Aberration Scale :  $\pm 0.3 \pm 0.3 \pm 1.5\%$



# Optical performance of CL-1223C Lens (Infinity, 2m, 1m, 0.66m, 0.5m, 0.4m at 120°)

Aberration Scale :  $\pm 0.01$

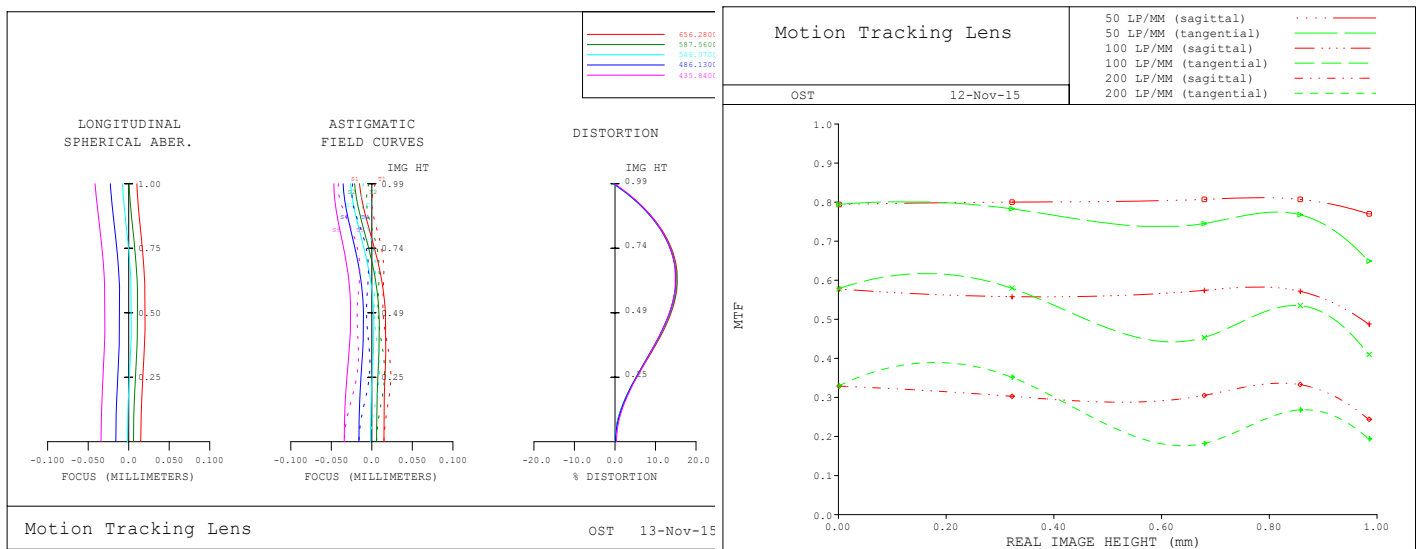
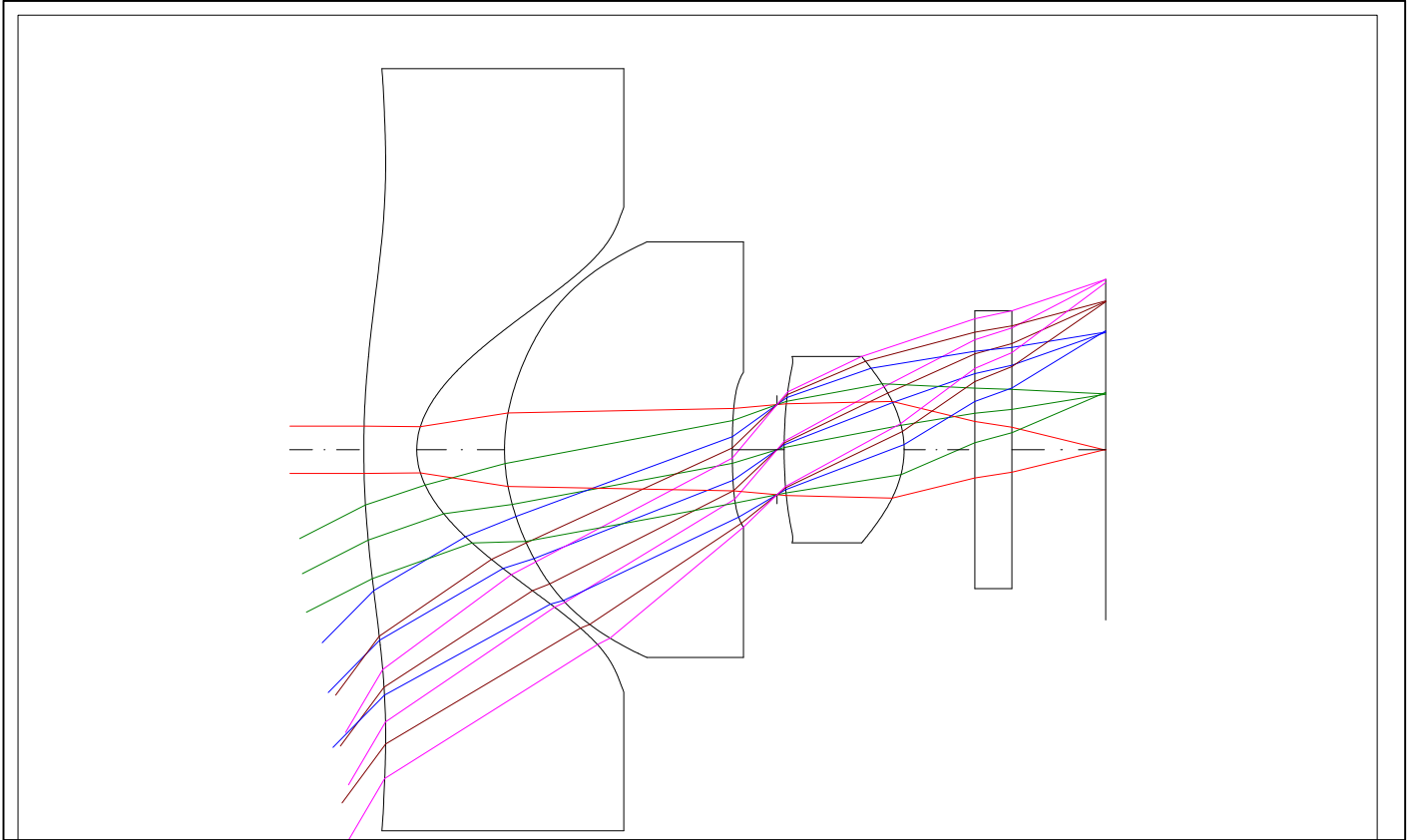


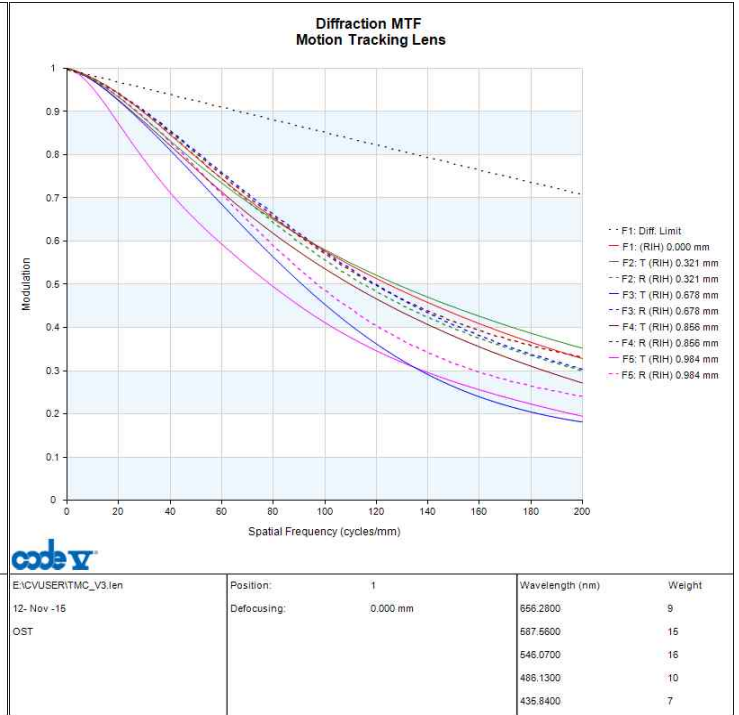
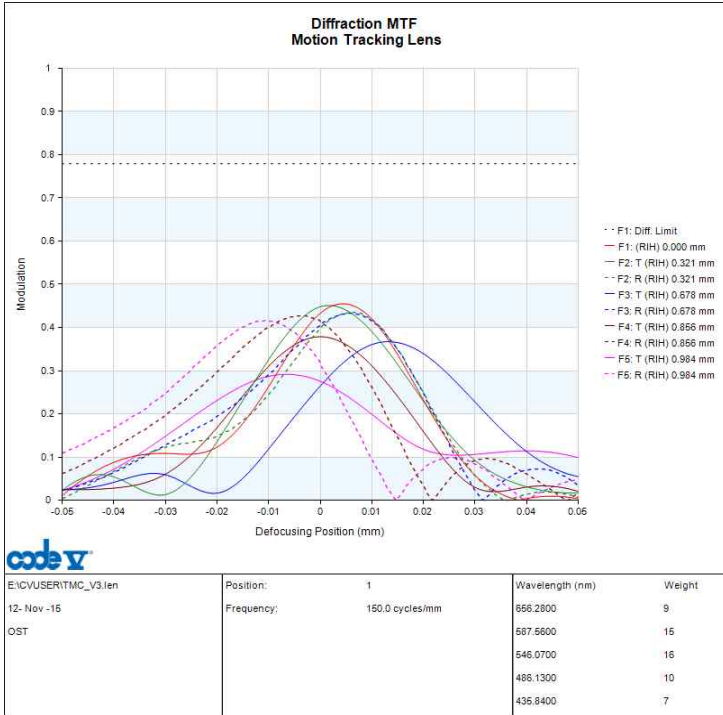
# MTF Analysis for FOV 120° Lens of A company

e<sub>fl</sub> = 0.5698mm      F<sub>no</sub> = 2.086

Object Distance 1m, Through Focus MTF(150lp/mm), MTF(200lp/mm)

Fields = 0.0F, 0.3F, 0.6F, 0.8F, 1.0F





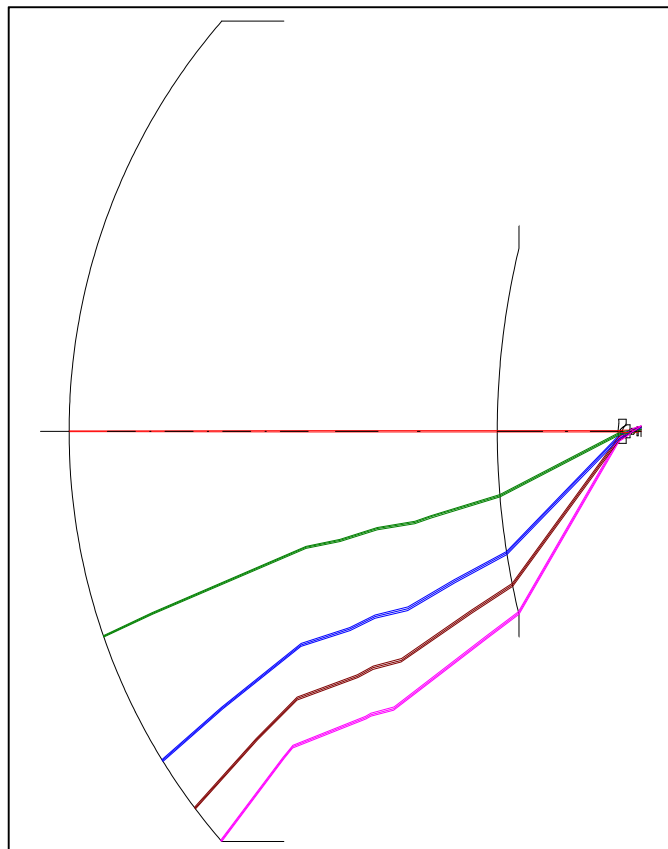
## MTF Analysis for (CL-1223C + FOV 120° Lens of A company)

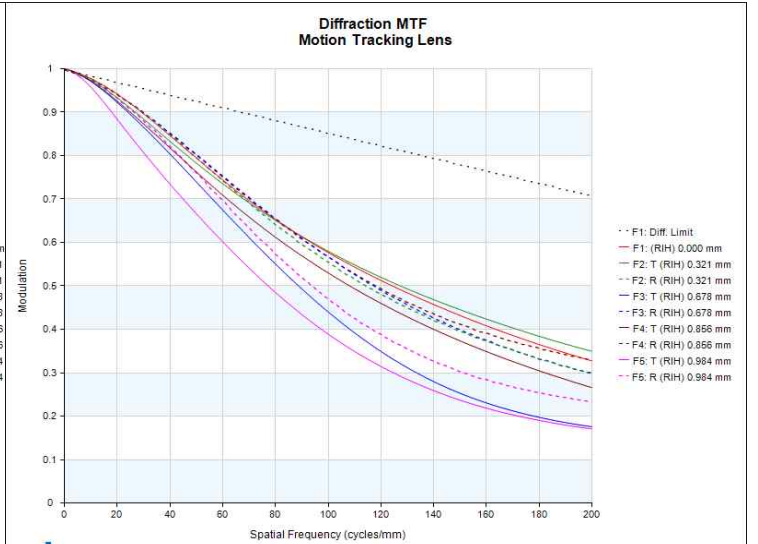
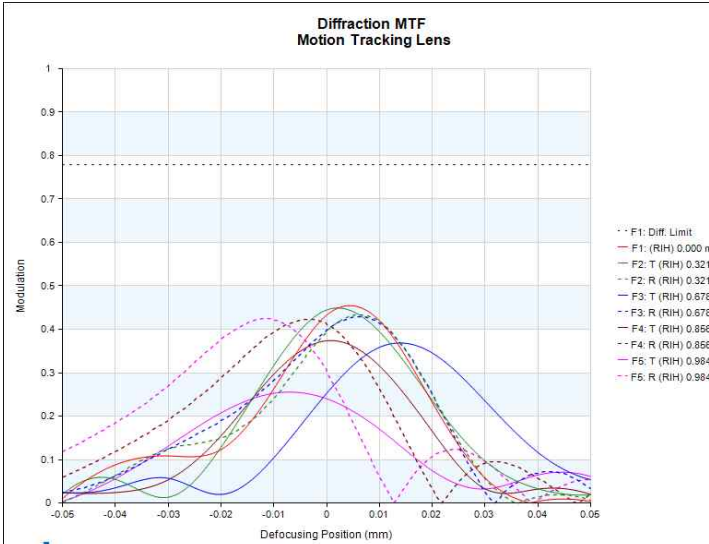
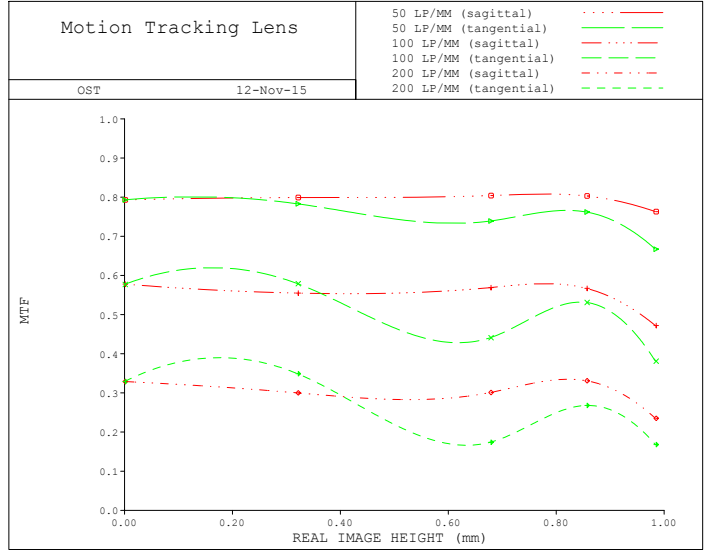
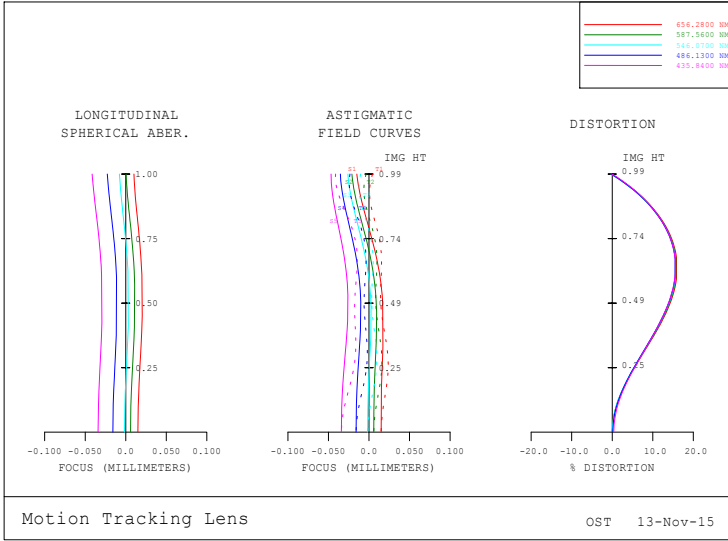
efl (of synthesized) = 0.5163mm

Fno = 2.085

Object Distance 1m, Through Focus MTF(150lp/mm), MTF(200lp/mm)

Fields = 0.0F, 0.3F, 0.6F, 0.8F, 1.0F





E:\CVUSER\ITMC_V3\ten	Position:	1	Wavelength (nm)	Weight
12-Oct-15	Frequency:	150.0 cycles/mm	656.2800	9
OST			587.5600	15
			546.0700	16
			486.1300	10
			435.8400	7

E:\CVUSER\ITMC_V3\ten	Position:	1	Wavelength (nm)	Weight
12-Oct-15	Defocusing:	0.000 mm	656.2800	9
OST			587.5600	15
			546.0700	16
			486.1300	10
			435.8400	7

## The chart size of CL-1223C (Whole Sub Lens is available)

2016-05-09  
OneStone

Object Distance : Real shooting distance with Camera.

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

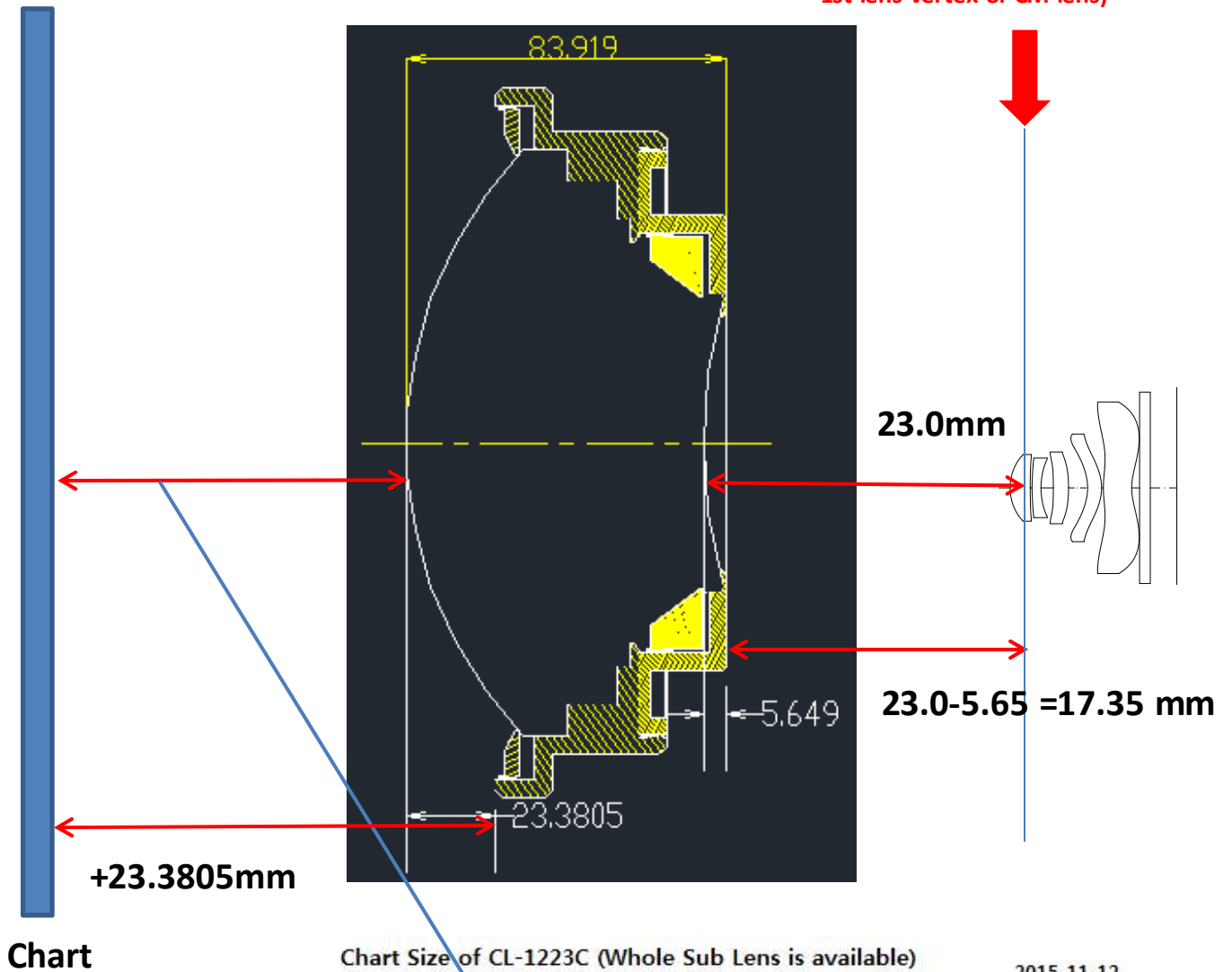
※ This table is based on the FOV of camera lens.

Camera Lens	
FOV	120
Half FOV	60

Object Distance (Object ~ PCM)	Sub Lens (recomanded)	Working Distance (Chart ~ CL vertex)	Chart Size (Φ, mm)
1.00E+100	0D	248.15	1225.2
10000	0D	236.34	1179.2
8000	0D	233.53	1168.2
4500	0D	223.04	1127.3
4000	0D	220.17	1116.1
3000	0.5D	220.11	1120.4
2500	0.5D	213.40	1094.1
2000	0.5D	203.88	1056.8
1900	0.5D	201.48	1047.4
1800	0.5D	198.86	1037.2
1700	0.5D	195.99	1025.9
1600	0.5D	192.83	1013.6
1500	0.5D	189.34	999.9
1400	0.5D	185.47	984.7
1300	0.5D	181.14	967.7
1200	1.0D	181.57	971.5
1100	1.0D	175.76	948.7
1000	1.0D	169.12	922.6
900	1.0D	161.48	892.6
800	1.0D	152.58	857.7
700	1.5D	145.86	832.6
600	1.5D	132.75	781.1
500	2.0D	117.58	727.2
400	2.5D	99.97	659.7
350	2.5D	87.61	610.5

## 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)



Object Distance : Real shooting distance with Camera.  
Working Distance : Distance from 1st Lens R1 surface vertex of CL to chart.  
\* This table is table of chart size on the basis of FOV of camera lens

Camera Lens	
FOV	120
Half FOV	60

Object Distance (Object ~ PCM)	Sub Lens (recommended)	Working Distance (Chart ~ CL vertex)	Chart Size (Φ, mm)
1.00E+100	0D	248.15	1225.2
10000	0D	236.34	1179.2
8000	0D	233.53	1168.2
5000	0D	225.37	1136.4
4000	0D	220.17	1116.1
3000	0.5D	220.11	1115.9
2500	0.5D	213.40	1089.7
2000	0.5D	203.88	1052.5
1000	0.5D	201.40	1042.0



Lens Pictures

