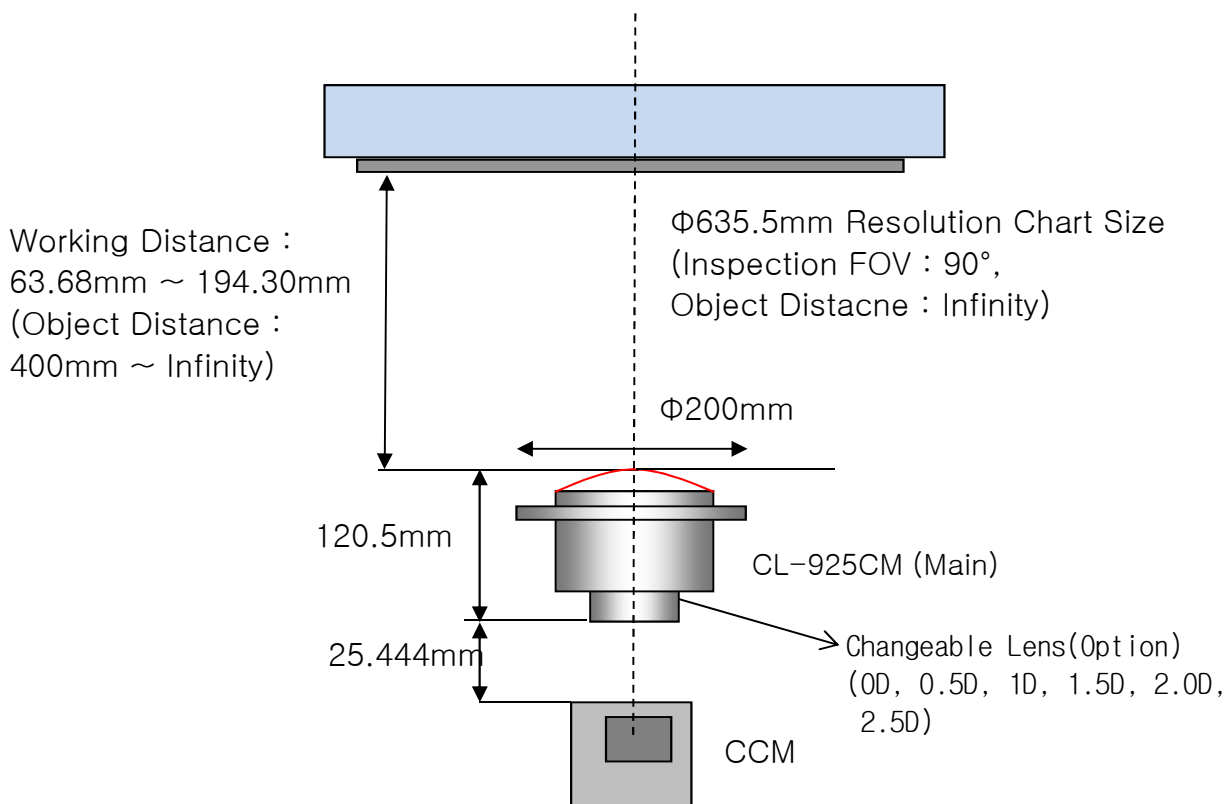


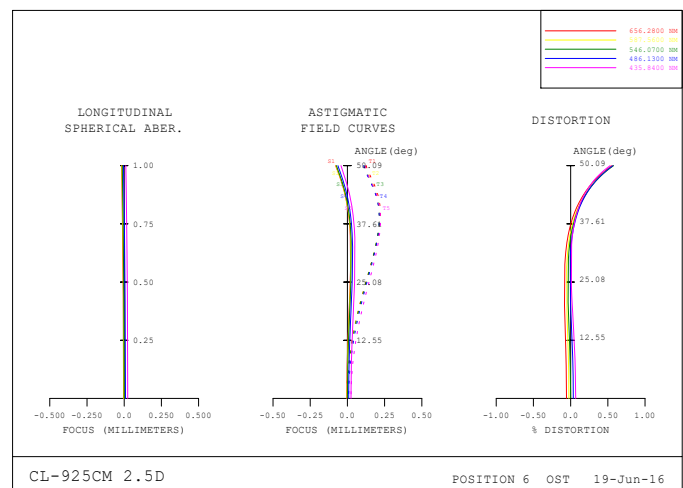
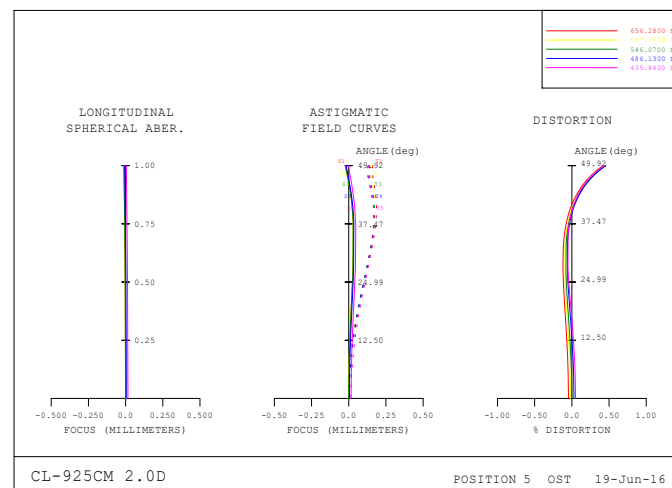
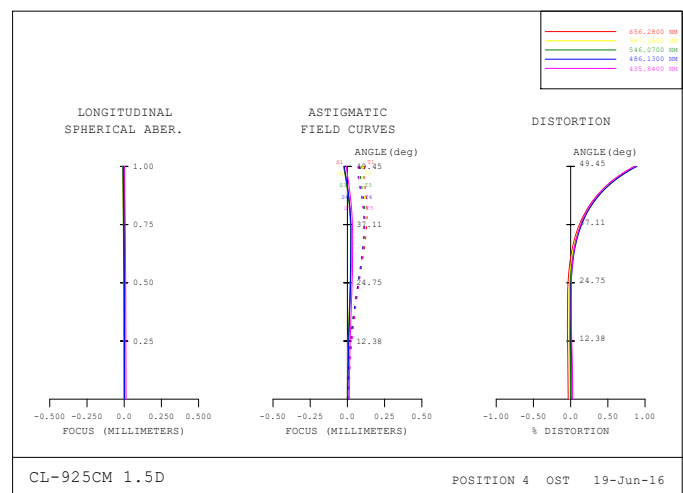
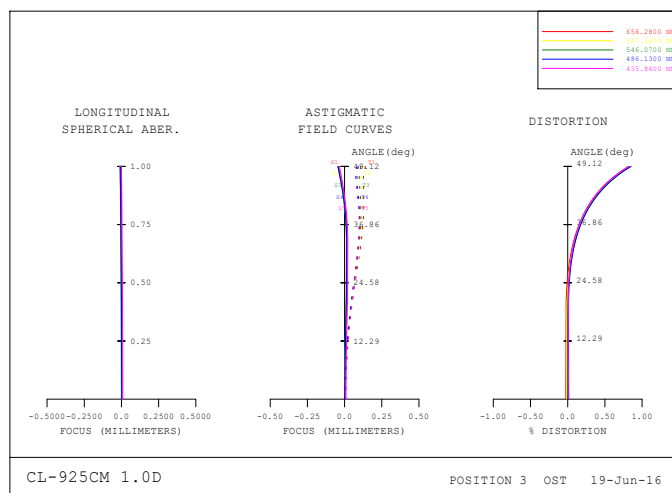
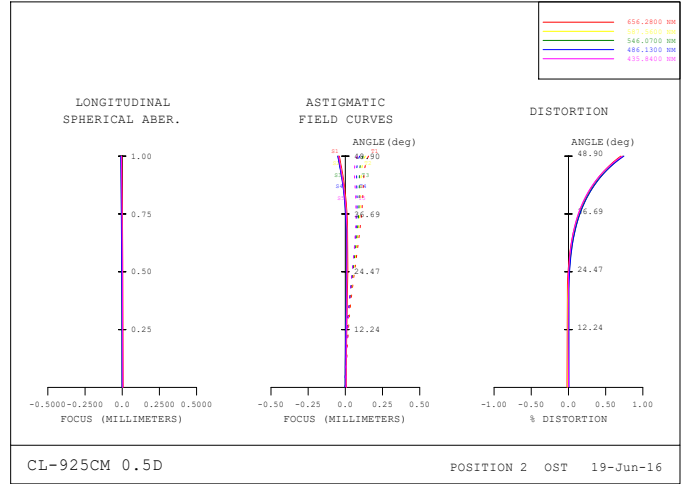
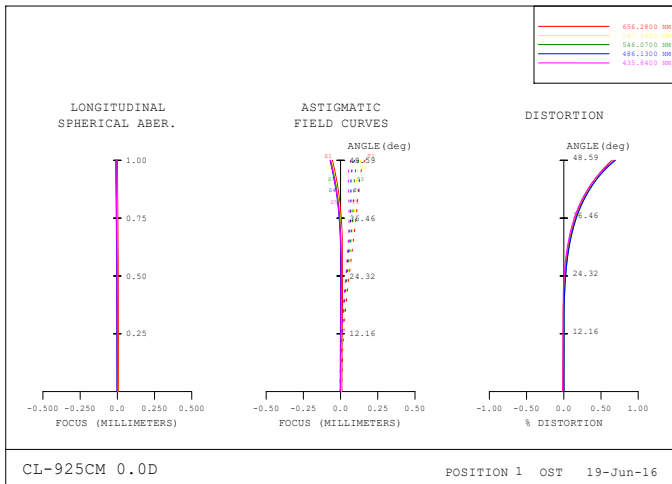
CL-925CM Collimator Lens Spec.

2020-02-06
OneStone

Model name	CL-925CM (Designed by OneStone)
Characteristic of CL-925CM	Changeable Lens, Multiple Exit Pupils
Main Lens	CL-925CM (Main)
Sub Lens Sets	CL-925CM (Sub 0.0D), CL-925CM (Sub 0.5D) CL-925CM (Sub 1.0D), CL-925CM (Sub 1.5D) CL-925CM (Sub 2.0D), CL-925CM (Sub 2.5D)
Main plus each Sub set	ex) CL-925CM (Main+Sub 0.0D)
EFL	320 ~ 400mm
Inspectable FOV of CCM	90°
Ass'y Size	Φ200mm X L120.53mm
Exit Pupil Size	Φ4.0mm (Pupil Motion Circle : Φ14.0mm)
Exit Pupil Position	25.444mm (from Vertex of CL CCM side to CCM)
Working Distace (from CL 1st Lens R1 surface to Chart)	194.30mm at Object Distance Infinity (0D) 63.68mm at Object Distance 0.4m (2.5D)

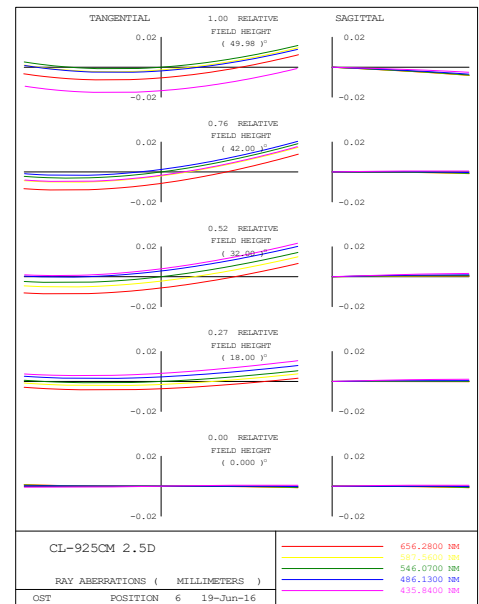
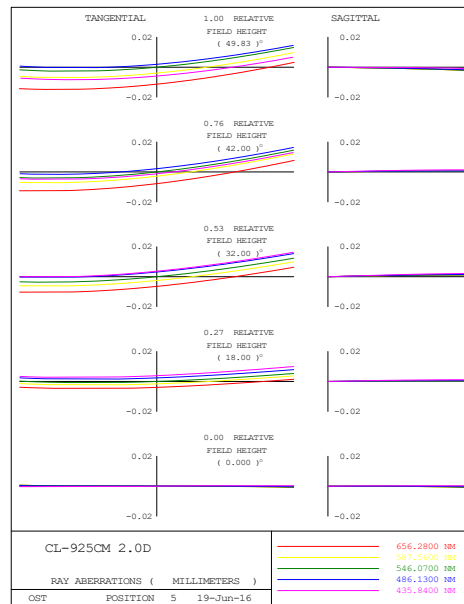
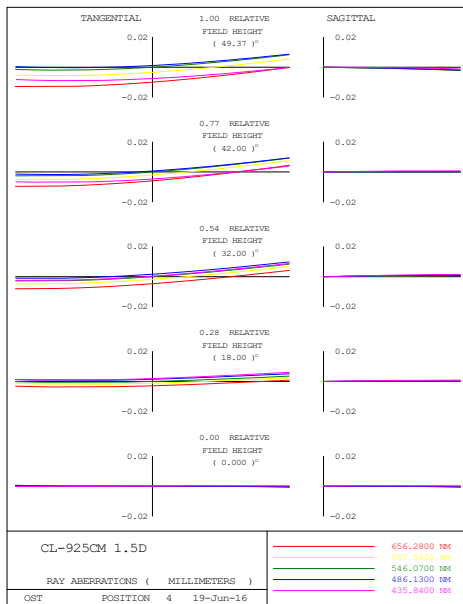
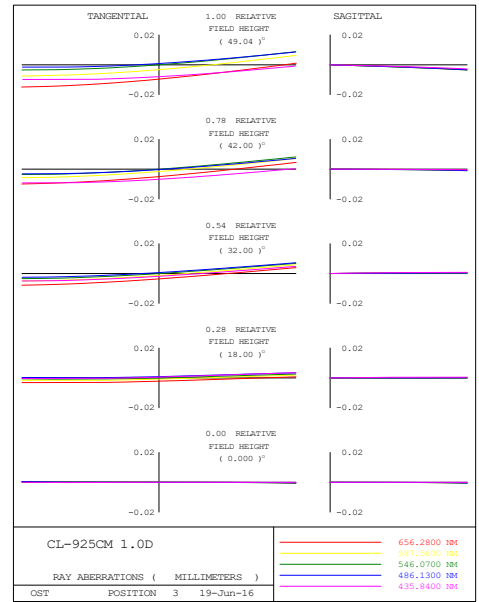
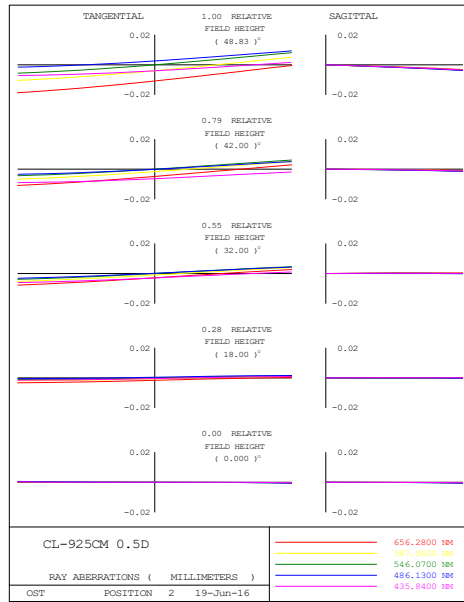
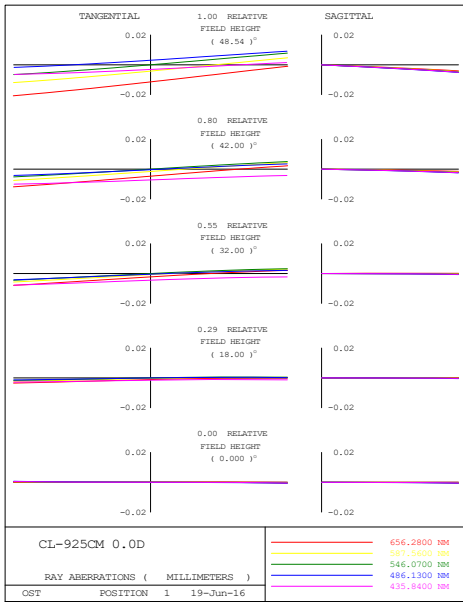


Optical Performance of CL-925CM Lens (Infinity, 2m, 1m, 0.667m, 0.5m, 0.4m at 90°)



Astigmatism : less than 0.095D
 Field Curvature : less than 0.115D
 Distortion : less than 1%
 Aberration Scale : $\pm 0.5 \pm 0.5 \pm 1.0\%$

Optical Performance of CL-925CM Lens (Infinity, 2m, 1m, 0.667m, 0.5m, 0.4m at 90°)



Longitudinal Chromatic Aberration : less than 0.018D

Lateral Chromatic Aberration : less than 0.025D

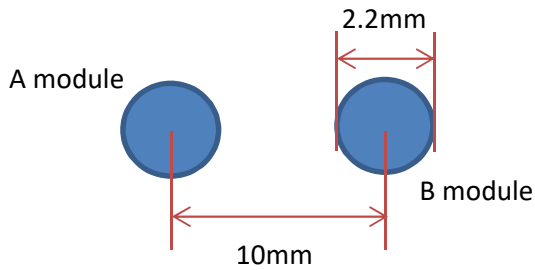
Aberration Scale : ± 0.02

MTF Analysis for FOV 90.0° Dual Camera Lens

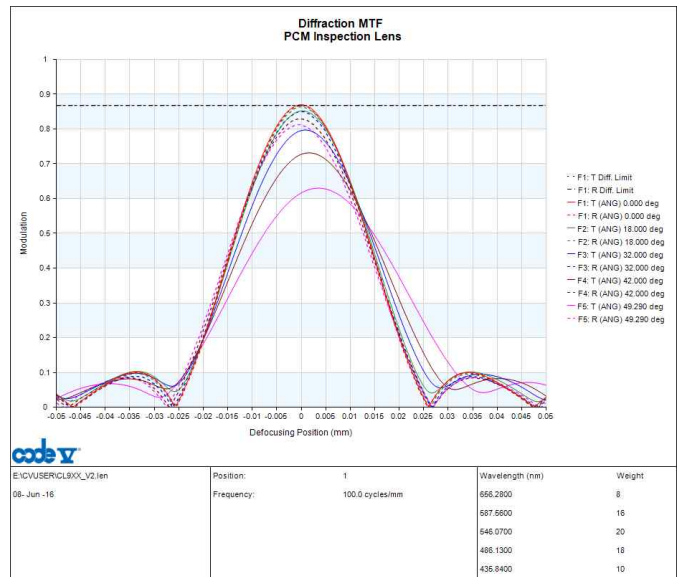
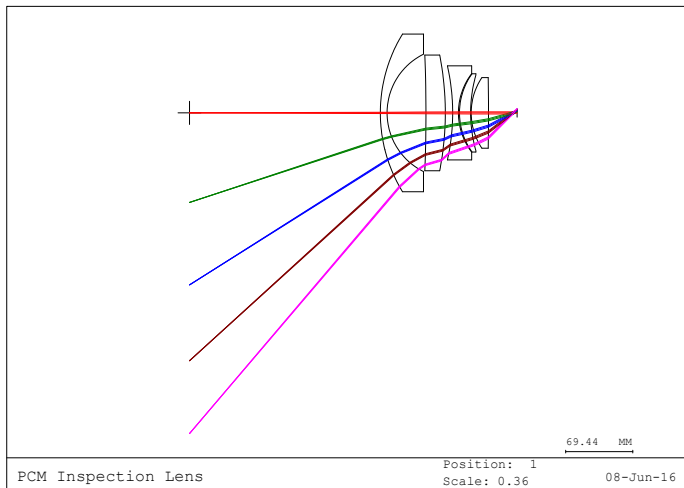
$e\text{fl} = 4.20\text{mm}$ $F\text{no} = 1.90$

$\text{EPD} = 2.2\text{mm}$ (= $e\text{fl}/F\text{no}$)

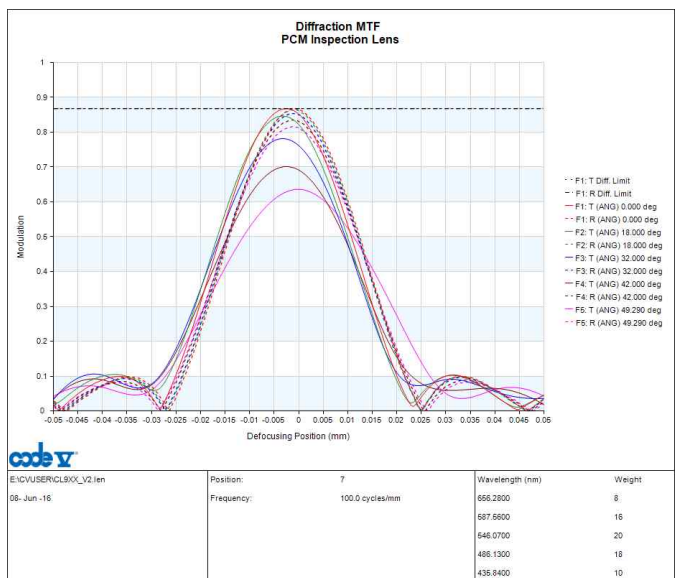
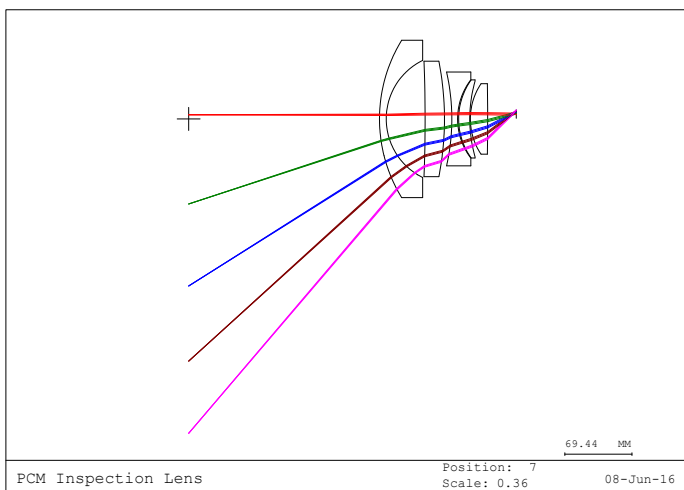
Object Distance : Infinty (Center, 0.7F)



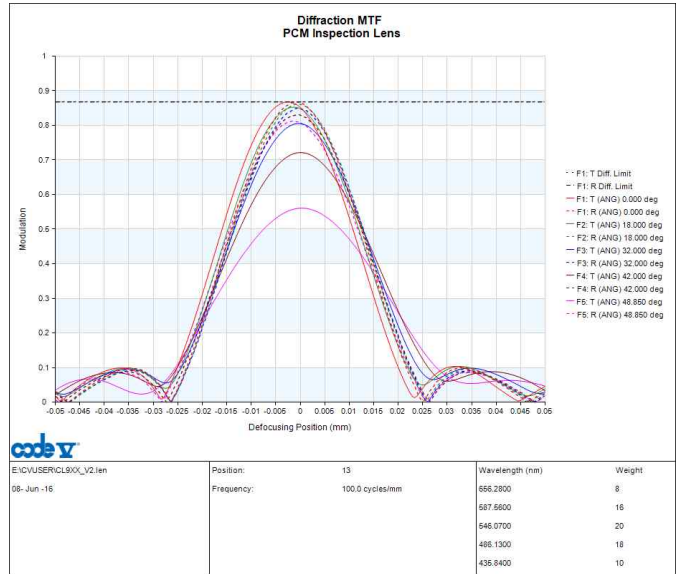
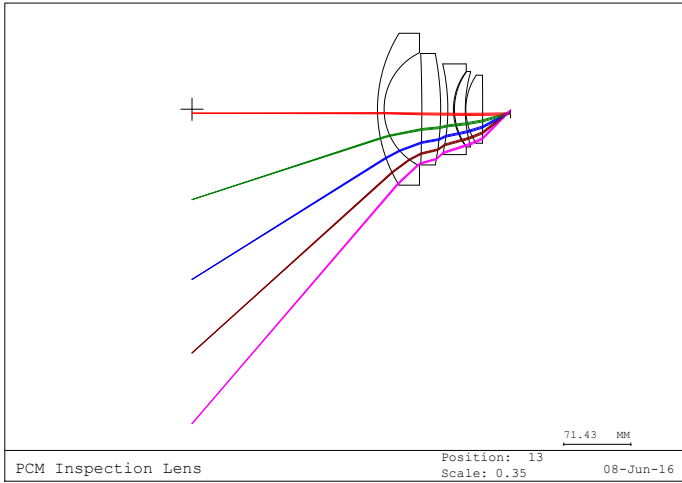
Center of A and B



A module



B module



The chart size of CL-925CM(F320-90CM) (Using whole sub lens)

2016-06-19

OneStone

Object Distance : Real shooting distance with Camera Module.

Working Distance : Distance from vertex of collimator lens to chart

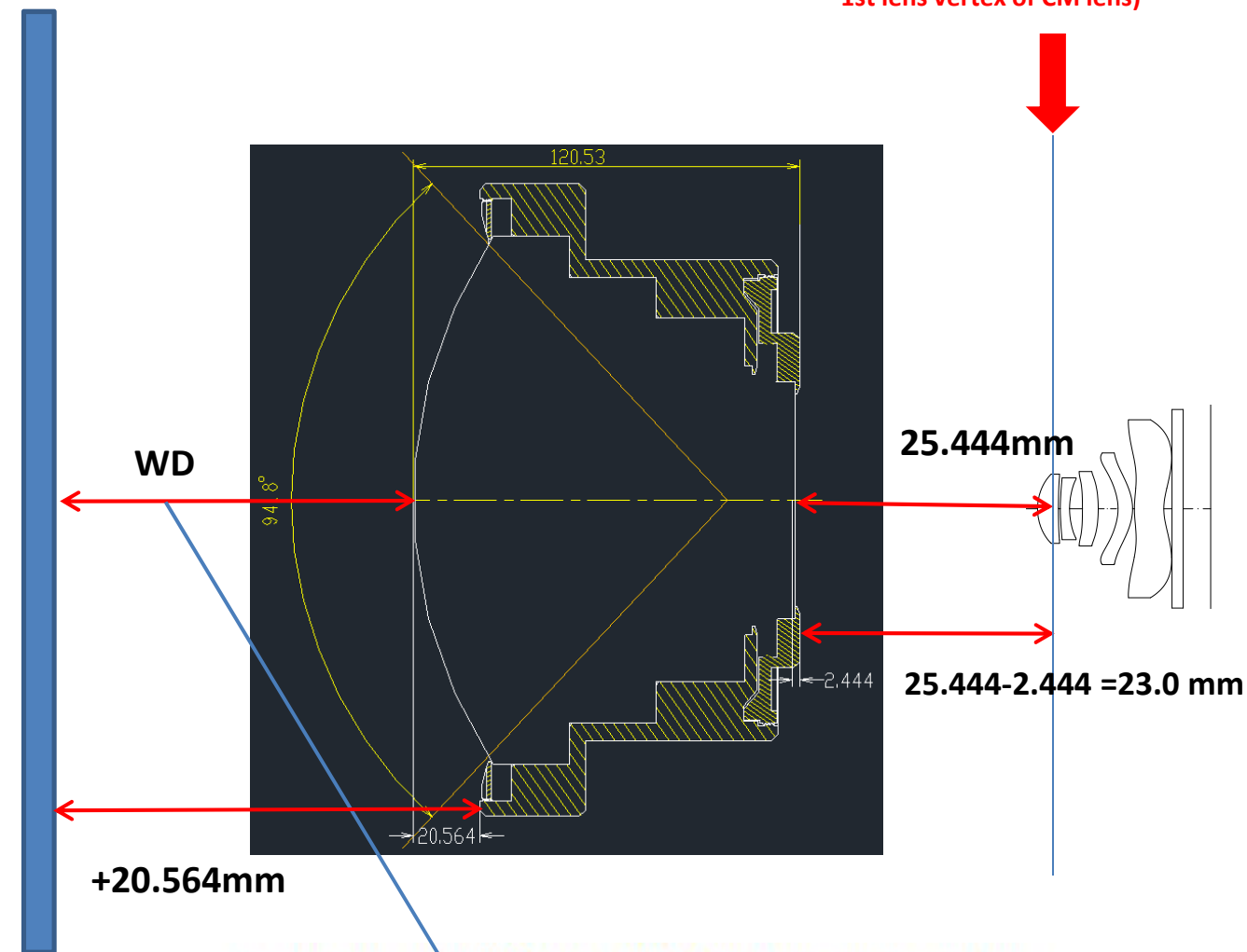
※ This table is made up with the basis of FOV of Camera Module Lens.

PCM Module	
FOV	90
Half	45

Object Distance (Object ~ PCM)	Sub Lens (recommend)	Working Distance (Chart ~ C/L vertex)	Chart Size (Φ, mm)
1.00E+100	0D	194.30	635.5
100000	0D	193.28	633.2
50000	0D	192.26	630.9
25000	0D	190.26	626.4
10000	0D	184.42	613.1
8000	0D	182.05	607.8
5000	0D	175.20	592.3
4500	0D	173.24	587.8
4000	0.5D	183.17	616.1
3500	0.5D	179.78	608.4
3000	0.5D	175.39	598.3
2500	0.5D	169.48	584.8
2000	0.5D	161.09	565.6
1900	0.5D	158.98	560.8
1800	0.5D	156.66	555.5
1700	0.5D	154.13	549.7
1600	0.5D	151.34	543.3
1500	1.0D	154.49	554.3
1400	1.0D	150.84	545.9
1300	1.0D	146.76	536.5
1200	1.0D	142.17	525.9
1100	1.0D	136.97	513.9
1000	1.0D	131.03	500.2
900	1.0D	124.18	484.5
800	1.5D	124.19	489.5
700	1.5D	113.86	465.4
600	2.0D	103.96	448.9
500	2.0D	88.43	412.1
400	2.5D	63.68	355.3

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)



The chart size of CL-925CM(F320-90CM) (Using whole sub lens)

2016-06-19
OneStone

Object Distance : Real shooting distance with Camera Module.

Working Distance : Distance from vertex of collimator lens to chart

※ This table is made up with the basis of FOV of Camera Module Lens.

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50000	0D	192.26	630.9
25000	0D	190.26	626.4
10000	0D	184.42	613.1
8000	0D	182.05	607.8

Lens Pictures



