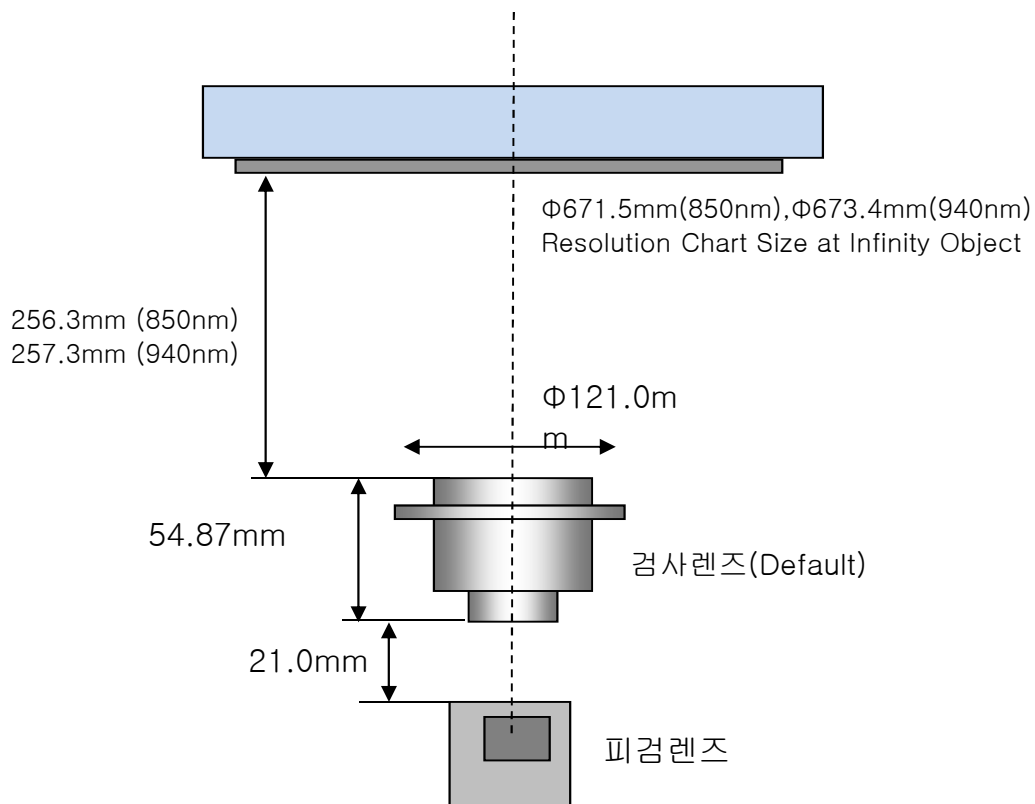


# CL-921IR (F320-90IR) Collimator Lens Specification

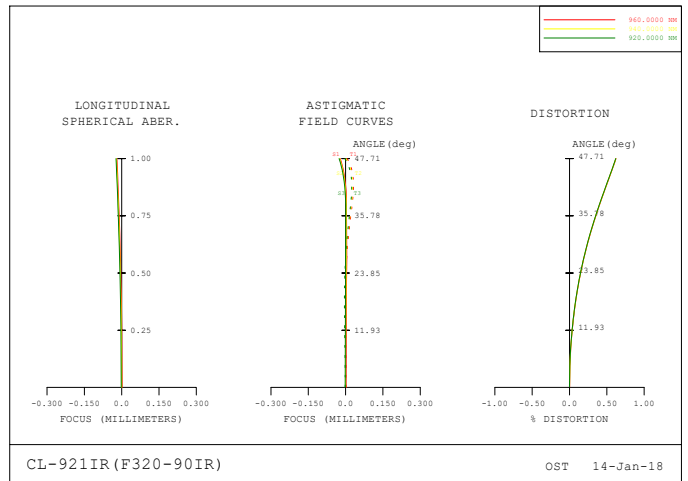
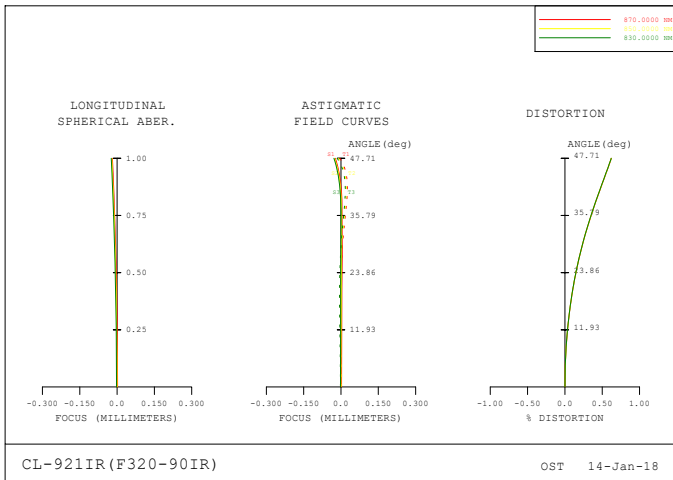
2019-01-23  
OneStone

<b>Model name</b>	CL-921IR (Designed by OneStone)
<b>Characteristic of CL-921IR</b>	Available with IR System (850nm, 940nm)
<b>Construction of CL (Default)</b>	Main Lens Only
<b>EFL</b>	336.2mm (850nm), 337.2mm(940nm)
<b>Inspectable FOV of CCM</b>	90°
<b>Ass'y Size</b>	Φ121.0mm X L54.87mm, 0.84kg
<b>Exit Pupil Size</b>	Φ4.5mm
<b>Exit Pupil Position</b>	21.0mm (from Vertex of CL CCM side to CCM)
<b>Working Distace</b> (from CL 1st Lens R1 surface to Chart)	256.3mm at Object Distance Infinity (850nm) 257.3mm at Object Distance Infinity (940nm)



# Optical Performance of CL-921IR Lens (OD = 0.8m, RW = 850nm, 940nm at 90°)

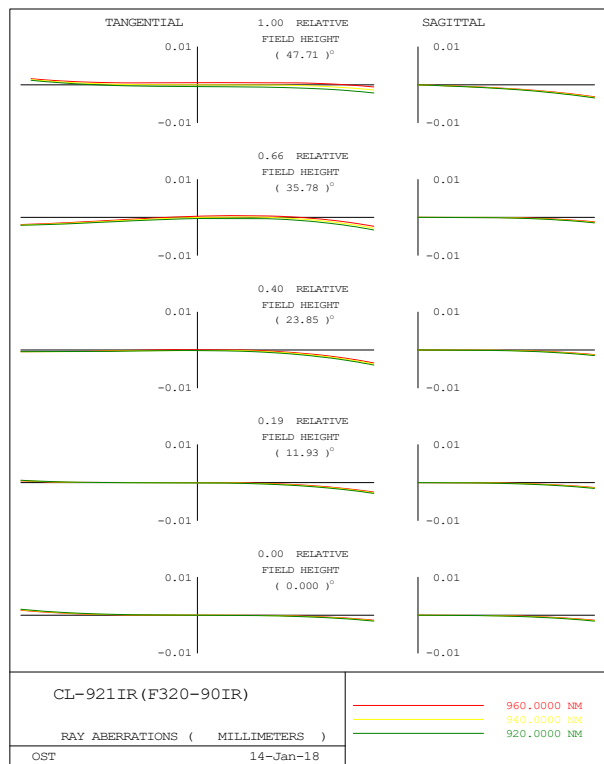
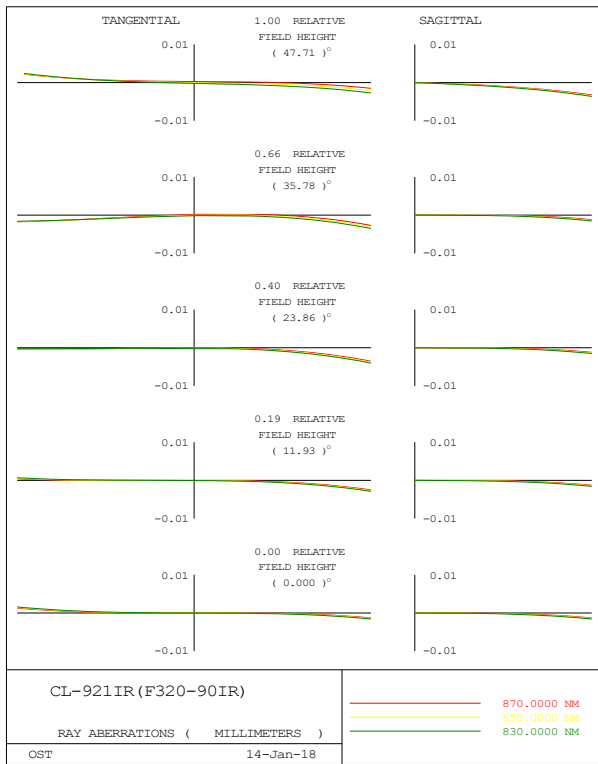
Aberration Scale :  $\pm 0.3 \pm 0.3 \pm 1.0\%$



Field Curvature : less than 0.018D  
Distortion : less than 0.622%

Astigmatism : less than 0.079D

Aberration Scale :  $\pm 0.01$



Longitudinal Chromatic Aberration : less than 0.044D

Lateral Chromatic Aberration : less than 0.005D

### MTF Analysis for FOV 80.0° Lens of S-Company

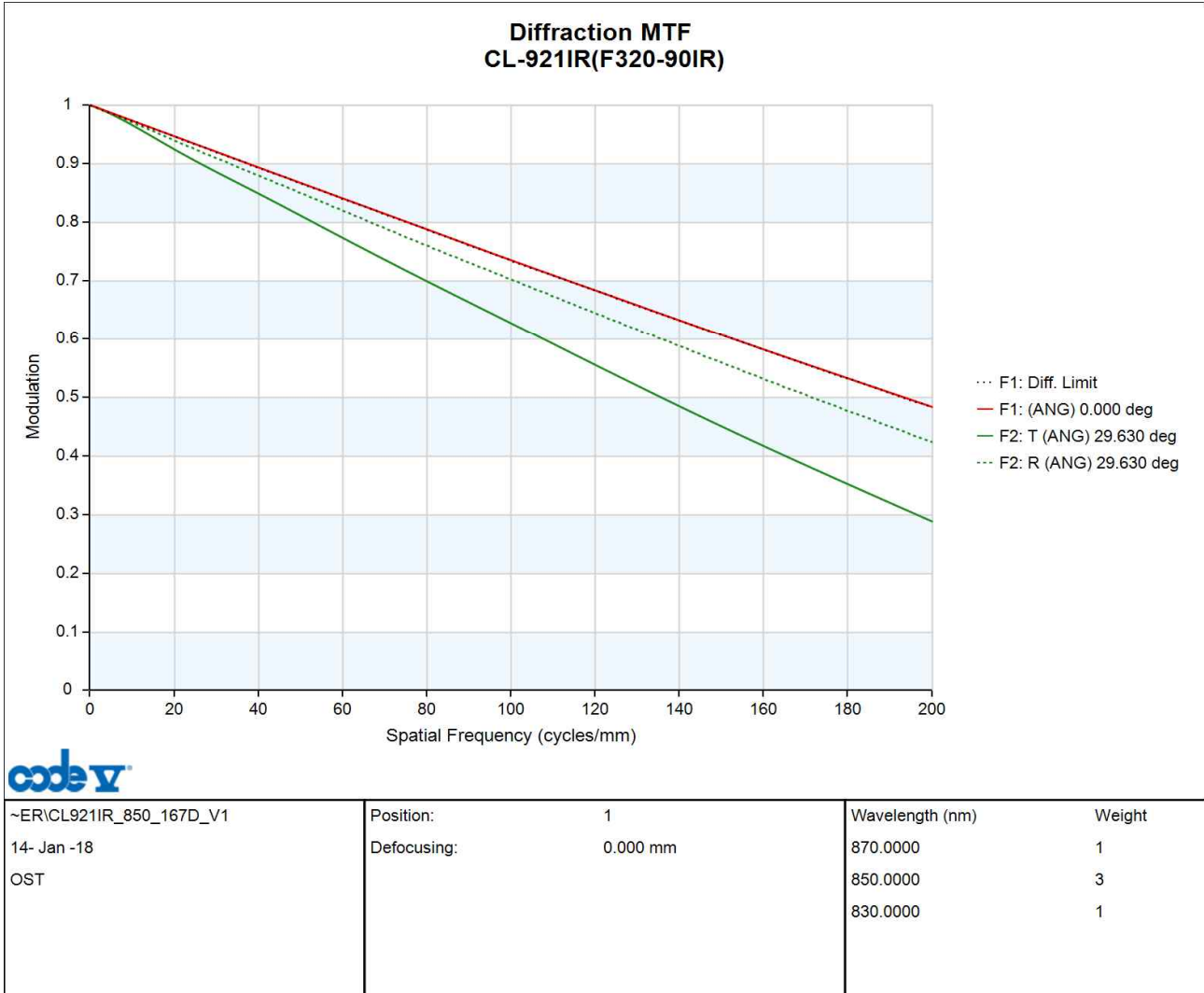
e<sub>fl</sub> = 1.22mm

F<sub>no</sub> = 2.45

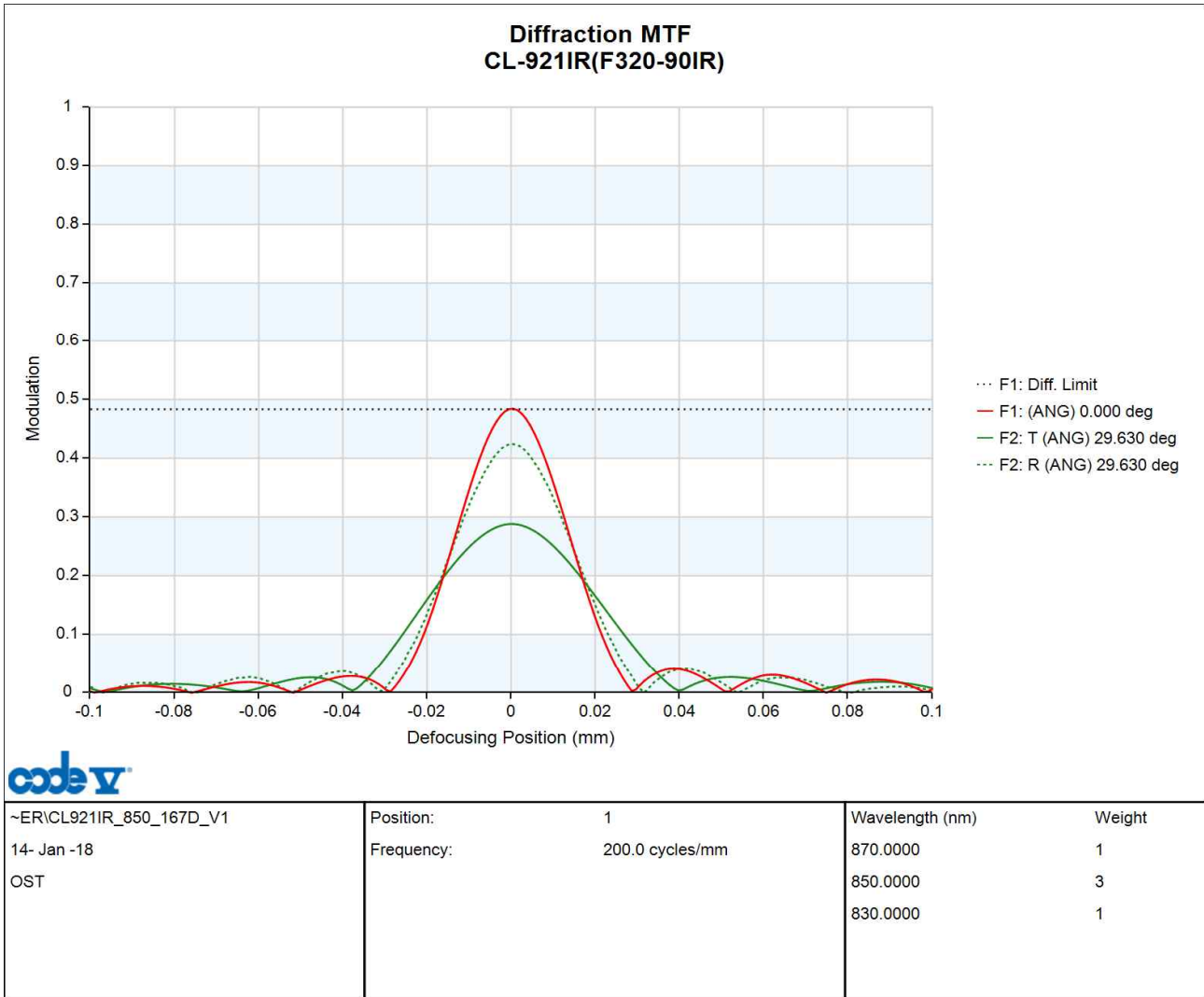
Reference Wave : 850nm

EPD = 0.498mm ( = e<sub>fl</sub>/F<sub>no</sub>)

Object Distance : 0.8m (Center, 0.7F)



Object Distance : 0.8m (Center, 0.7F)



## The chart size of CL-921IR (Reference Wave 850nm)

2019-01-23

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	90
Half	45

Object Distance (Object ~ PCM)	Working Distance (Chart ~ Relay Lens)	Chart Size (Φ, mm)
1.00E+100	256.34	<b>671.5</b>
10000	245.44	<b>647.5</b>
8000	242.83	<b>641.8</b>
6000	238.59	<b>632.5</b>
5000	235.28	<b>625.2</b>
4500	233.11	<b>620.4</b>
4000	230.45	<b>614.6</b>
3500	227.11	<b>607.2</b>
3000	222.76	<b>597.7</b>
2800	220.64	<b>593.0</b>
2600	218.24	<b>587.7</b>
2400	215.48	<b>581.6</b>
2200	212.30	<b>574.6</b>
2000	208.57	<b>566.5</b>
1800	204.16	<b>556.8</b>
1600	195.77	<b>538.3</b>
1400	192.34	<b>530.8</b>
1300	188.50	<b>522.3</b>
1200	184.17	<b>512.8</b>
1100	179.25	<b>502.0</b>
1000	173.61	<b>489.6</b>
900	167.07	<b>475.2</b>
800	159.42	<b>458.4</b>
700	150.33	<b>438.4</b>
600	139.35	<b>414.2</b>
500	125.85	<b>384.5</b>
450	117.85	<b>367.0</b>
400	108.81	<b>347.1</b>

## The chart size of CL-921IR (Reference Wave 940nm)

2019-01-23

OneStone

Object Distance : Real shooting distance with Camera.

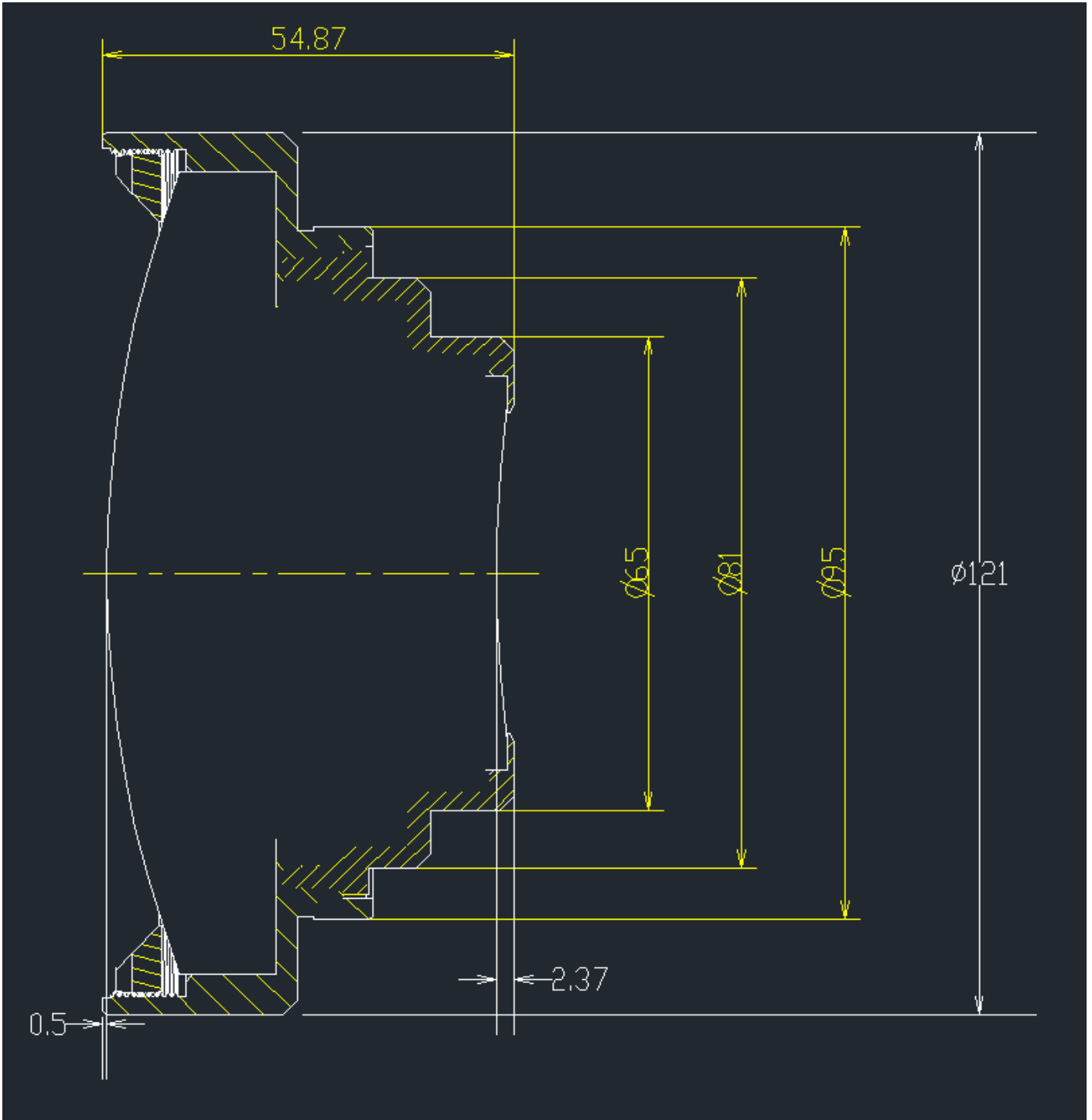
Working Distance : Distance from 1st Lens R1 vertex of CL to chart.

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

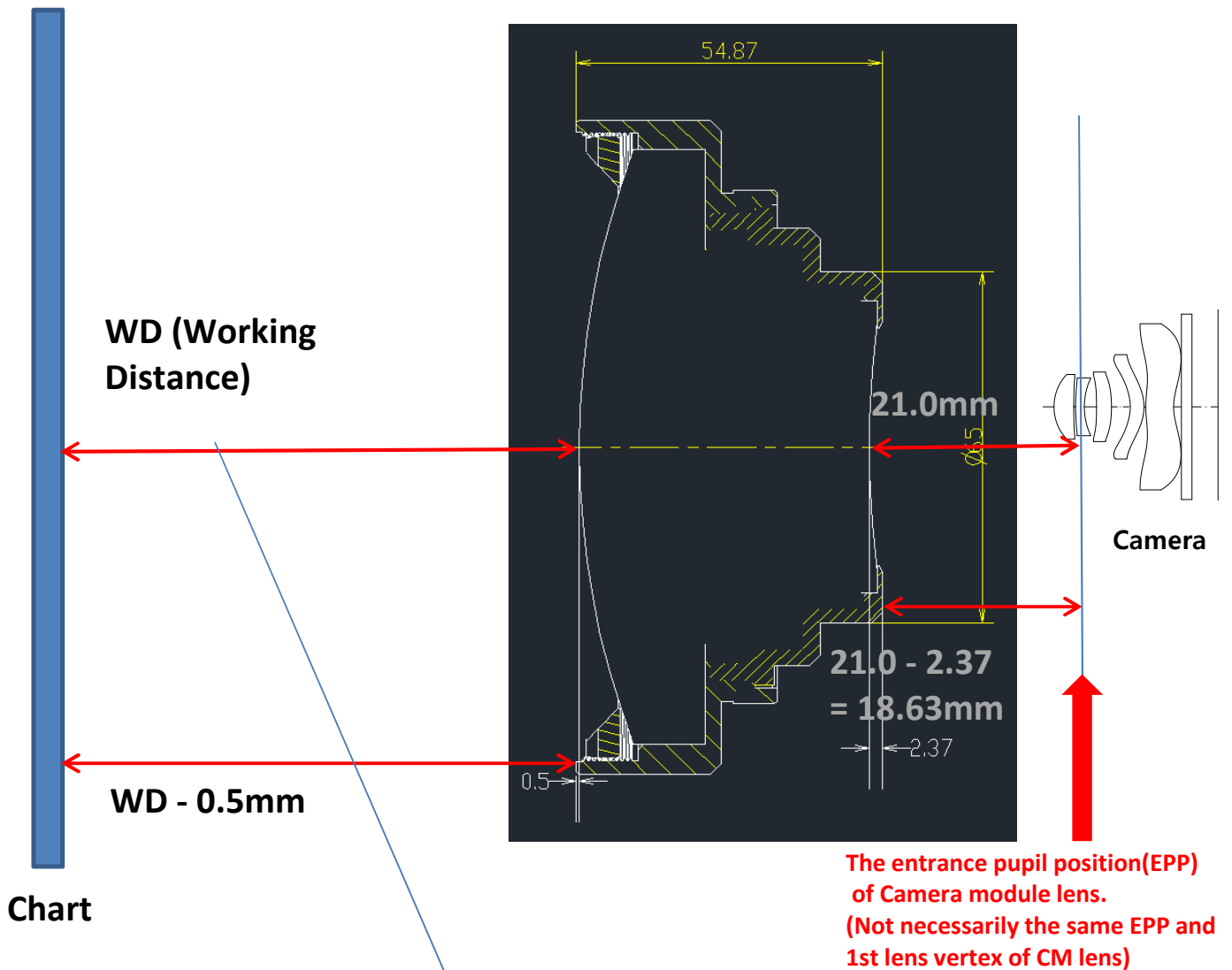
PCM Module	
FOV	90
Half	45

Object Distance	Working Distance	Chart Size (Φ, mm)
1.00E+100	257.25	<b>673.4</b>
10000	246.28	<b>649.3</b>
8000	243.66	<b>643.5</b>
6000	239.40	<b>634.2</b>
5000	236.07	<b>626.9</b>
4500	233.89	<b>622.1</b>
4000	231.22	<b>616.2</b>
3500	227.85	<b>608.8</b>
3000	223.49	<b>599.2</b>
2800	221.36	<b>594.5</b>
2600	218.94	<b>589.2</b>
2400	216.17	<b>583.1</b>
2200	212.97	<b>576.1</b>
2000	209.23	<b>567.8</b>
1800	204.79	<b>558.1</b>
1600	199.46	<b>546.4</b>
1400	196.37	<b>539.6</b>
1300	189.06	<b>523.5</b>
1200	184.71	<b>513.9</b>
1100	179.77	<b>503.1</b>
1000	174.10	<b>490.6</b>
900	167.54	<b>476.2</b>
800	159.85	<b>459.3</b>
700	150.72	<b>439.2</b>
600	139.71	<b>415.0</b>
500	126.15	<b>385.2</b>
450	118.13	<b>367.6</b>
400	109.07	<b>347.6</b>

# CL-921IR Outer Mechanical Drawings



## How to set Collimator Lens



The chart size of CL-921IR (Reference Wave 850nm)

2018-01-14  
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	90
Half	45

Object Distance	Working Distance	Chart Size (Φ, mm)
1.00E+100	256.34	671.5
10000	245.46	647.6
8000	242.86	641.9
6000	238.64	632.6
5000	235.36	625.4



Lens Pictures

