

# 90mm~1100mm F4.0 MWIR Thermal Imaging Camera Lenses For Cooled Detectors

Hangzhou Shalom EO

Code: 313-004

## 1. Specifications:

### 1.1 Optical Specifications

Items	Parameters		Notes
	Wide FOV	Narrow FOV	
Focal Lengths	75mm	1100mm	
F/#	4.0	4.0	
Resolution	640x512-15 $\mu$ m		
HFOV x VFOV	6.11°x4.89°	0.5°x0.4°	
Transmission Range	3.7 $\mu$ m~4.8 $\mu$ m		
Coating on Front Surface Exposing to Air	DLC		
Transmission Rate	>80%		Calculation According to 1mm Witness sample
Operating Temperature	-40°C~+60°C		
Storage Temperature	-50°C~+70°C		
Focus Range	15m-Infinity	200m-Infinity	
Distortion	<2.0%	<2.75%	
Optical Axis Alignment	The offset of the crosshair center position is $\leq$ 5 pixels		

### 1.2 Mechanical Specifications

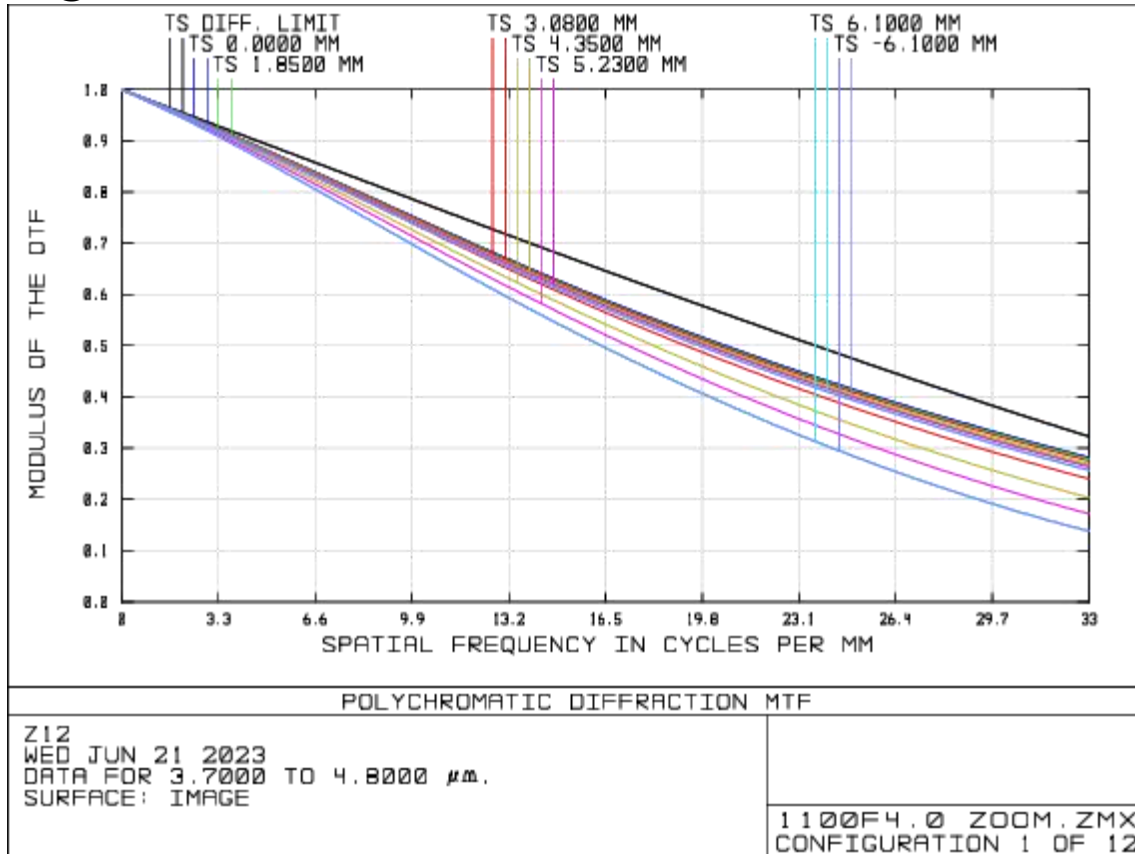
Items	Parameters	Notes
Weight	~8kg	
External Housing	Black Anodized	
Sealing	IP67 for the Front Lens and Flange	
Camera Installation	Rear	Refer to Drawing
Lens Installation	Flange	Refer to Drawing
Back Working Distance	26mm	Refer to Drawing
Maximum Dimension	350.57mm x $\phi$ 295mm	
Focusing Mechanism	Encoder Motor	
Zooming Mechanism	Encoder Motor	
Focusing Time	Depending on the Setting of the Controller	
Zooming Time		

### 1.3 Specifications for Electronics

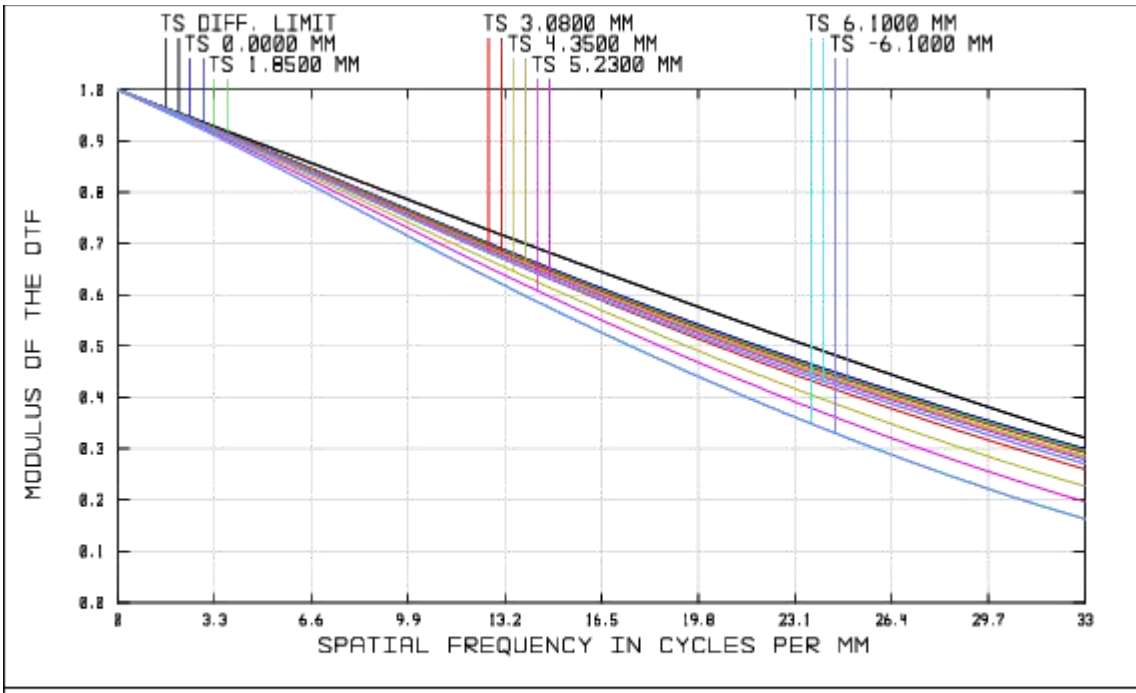
Items	Parameters	Notes
Drive Voltage	12V DC	For details, refer to the driver board control manual
Communication Protocol	RS232 /422	
Host Software	MotorCtr.exe	

## 2. Imaging Performance

### 2.1 MTF@20°C



**EFL 1100mm**

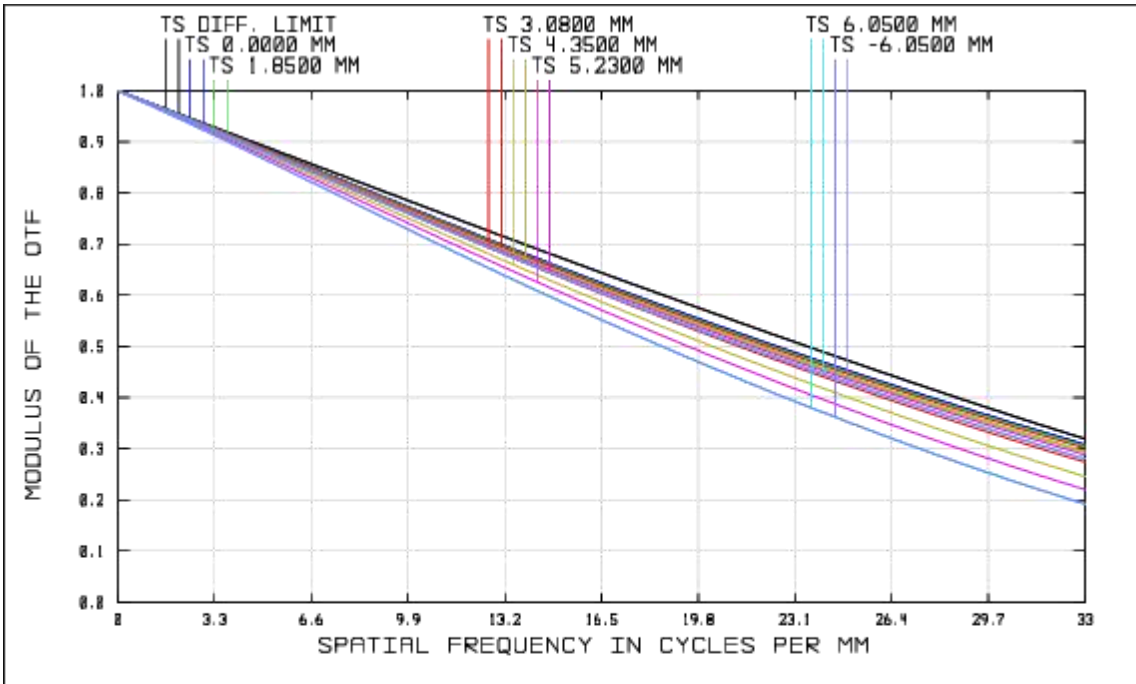


POLYCHROMATIC DIFFRACTION MTF

Z12  
 WED JUN 21 2023  
 DATA FOR 3.7000 TO 4.8000  $\mu\text{m}$ .  
 SURFACE: IMAGE

1100F4.0 ZOOM.ZMX  
 CONFIGURATION 3 OF 12

EFL 900mm

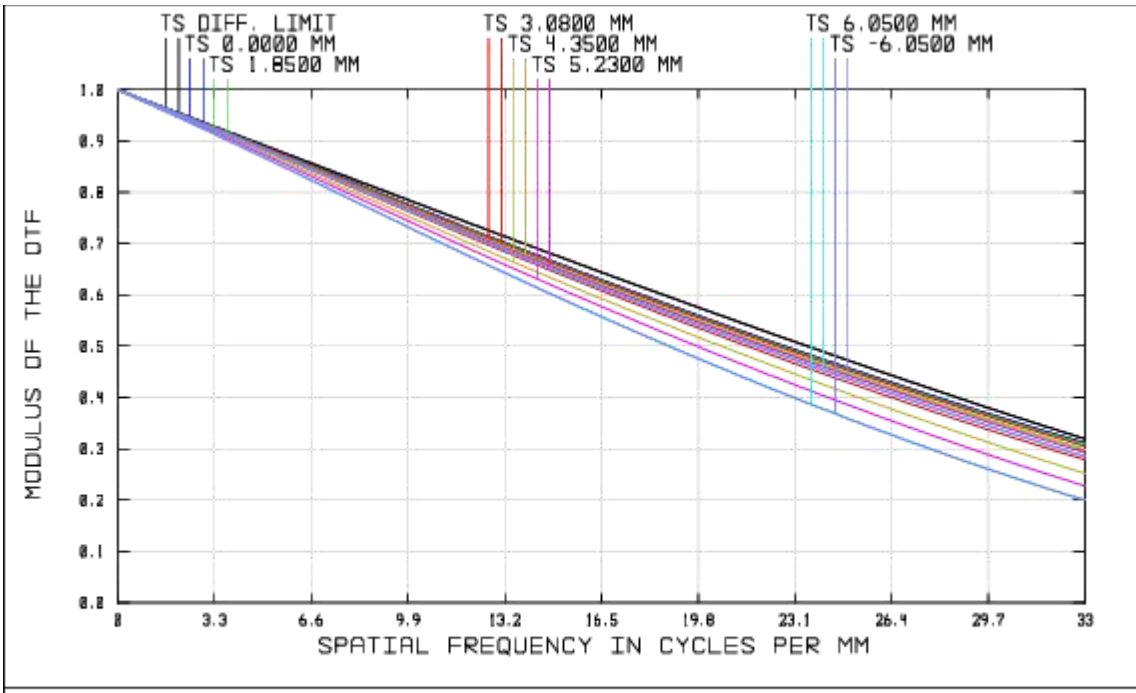


POLYCHROMATIC DIFFRACTION MTF

Z12  
 WED JUN 21 2023  
 DATA FOR 3.7000 TO 4.8000  $\mu\text{m}$ .  
 SURFACE: IMAGE

1100F4.0 ZOOM.ZMX  
 CONFIGURATION 5 OF 12

EFL 700mm

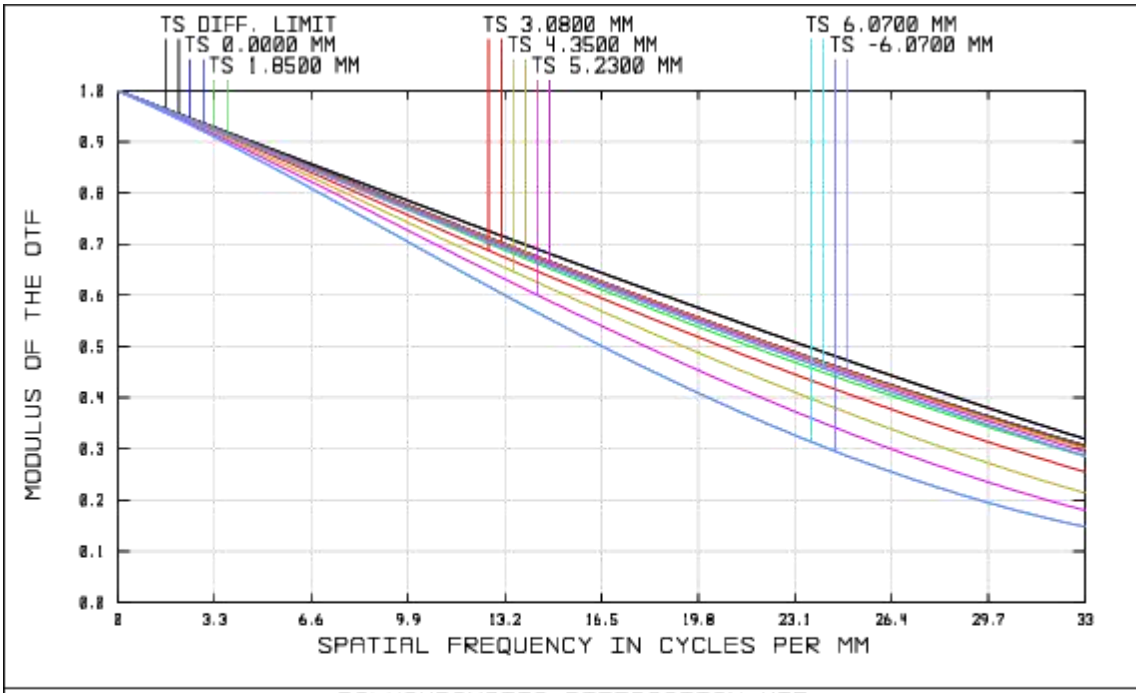


POLYCHROMATIC DIFFRACTION MTF

Z12  
 WED JUN 21 2023  
 DATA FOR 3.7000 TO 4.8000  $\mu\text{m}$ .  
 SURFACE: IMAGE

1100F4.0 ZOOM.ZMX  
 CONFIGURATION 7 OF 12

EFL 500mm

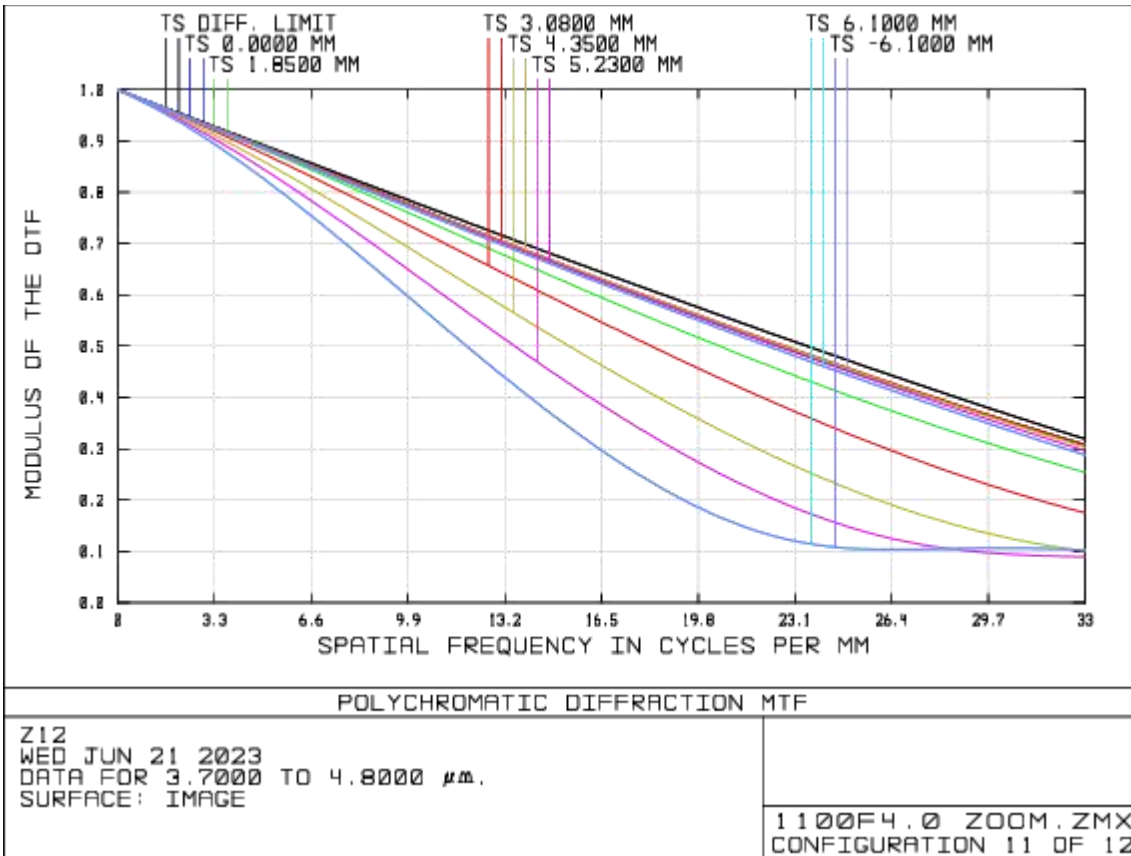


POLYCHROMATIC DIFFRACTION MTF

Z12  
 WED JUN 21 2023  
 DATA FOR 3.7000 TO 4.8000  $\mu\text{m}$ .  
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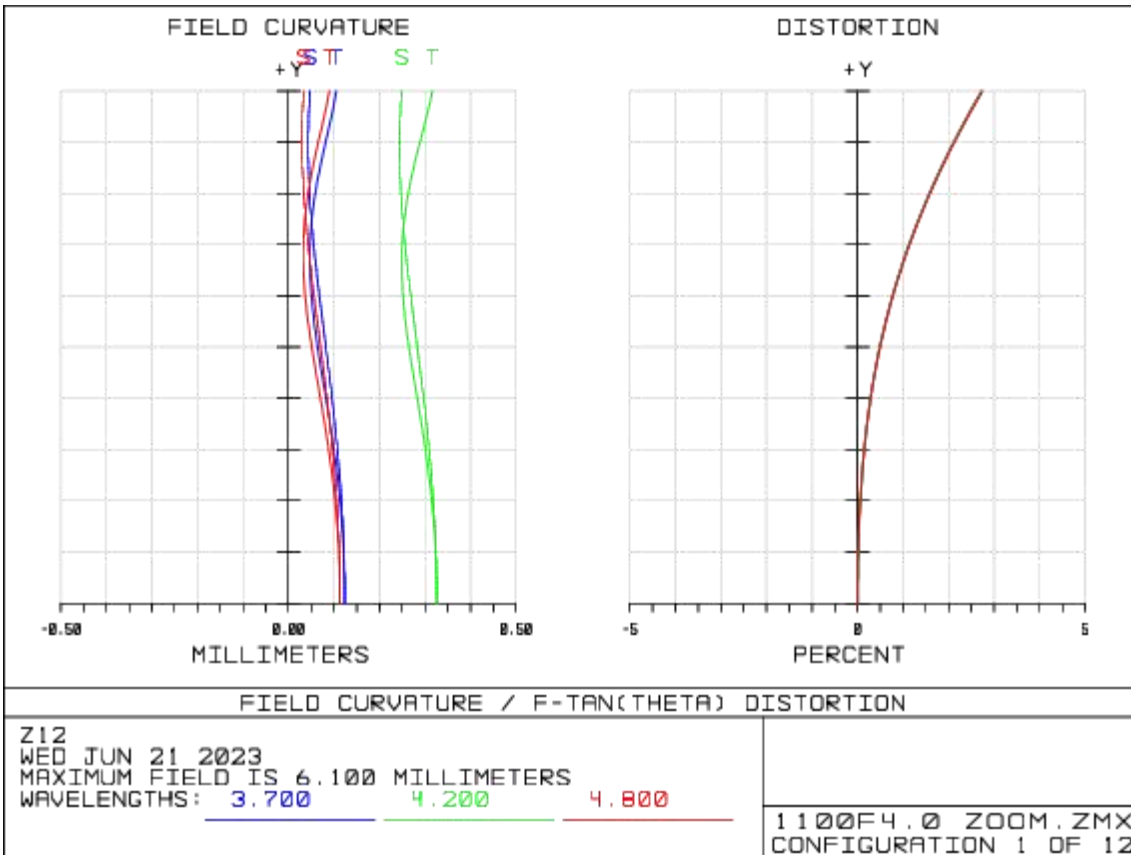
1100F4.0 ZOOM.ZMX  
 CONFIGURATION 9 OF 12

EFL 300mm

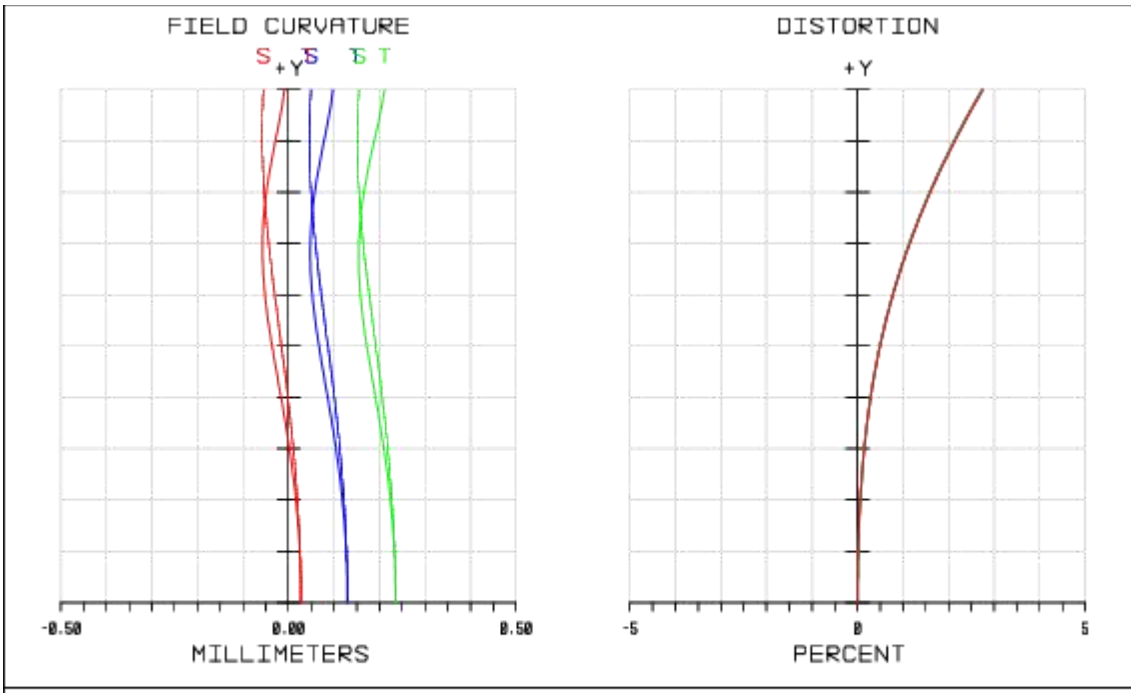


EFL 90mm

## 2.2 Field Curvature/Distortion



EFL 1100mm

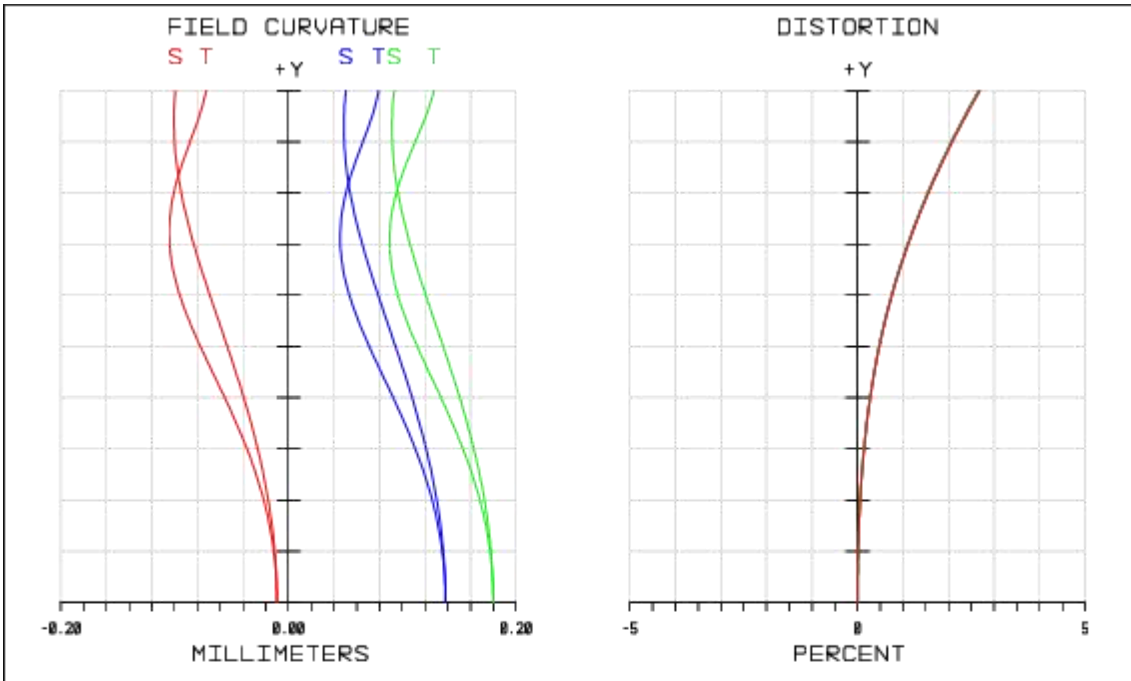


FIELD CURVATURE / F-TAN(THETA) DISTORTION

Z12  
 WED JUN 21 2023  
 MAXIMUM FIELD IS 6.100 MILLIMETERS  
 WAVELENGTHS: 3.700 4.200 4.800

1100F4.0 ZOOM.ZMX  
 CONFIGURATION 3 OF 12

EFL 900mm

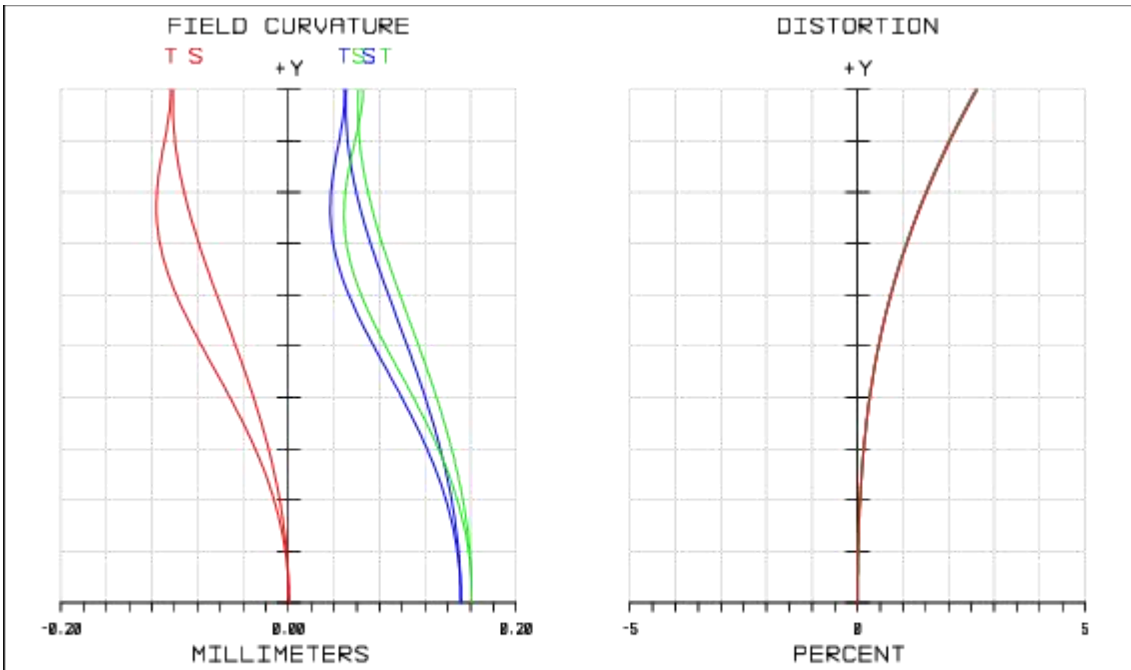


FIELD CURVATURE / F-TAN(THETA) DISTORTION

Z12  
 WED JUN 21 2023  
 MAXIMUM FIELD IS 6.050 MILLIMETERS  
 WAVELENGTHS: 3.700 4.200 4.800

1100F4.0 ZOOM.ZMX  
 CONFIGURATION 5 OF 12

EFL 700mm

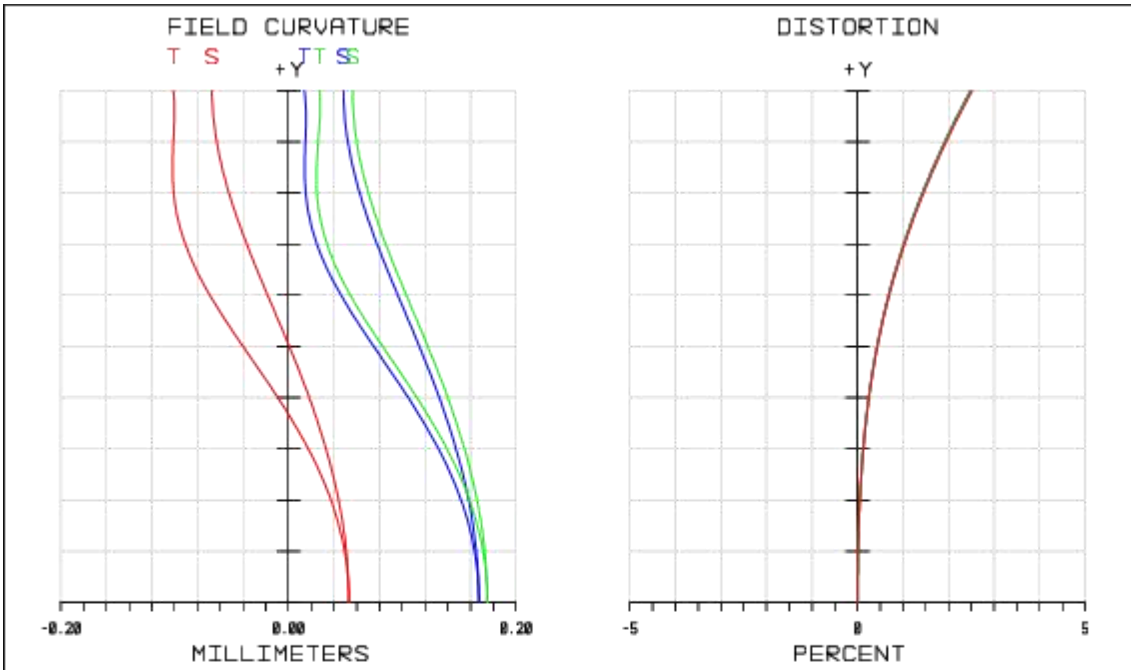


FIELD CURVATURE / F-TAN(THETA) DISTORTION

Z12  
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 MAXIMUM FIELD IS 6.050 MILLIMETERS  
 WAVELENGTHS: 3.700 4.200 4.800

1100F4.0 ZOOM.ZMX  
 CONFIGURATION 7 OF 12

EFL 500mm

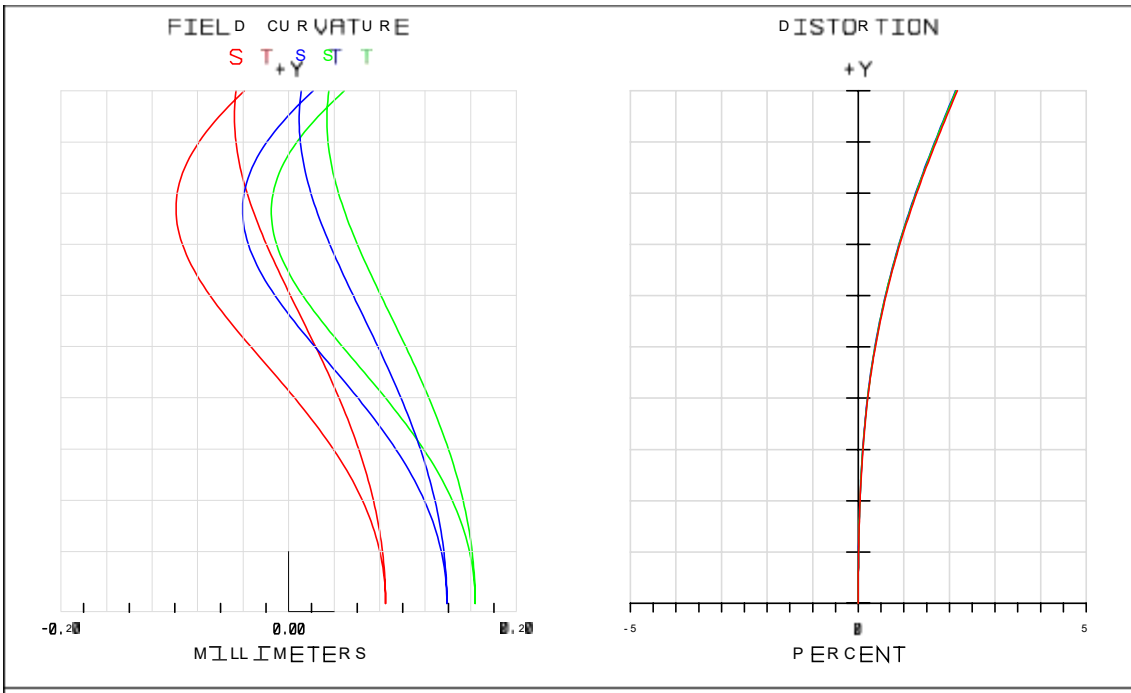


FIELD CURVATURE / F-TAN(THETA) DISTORTION

Z12  
 WED JUN 21 2023  
 MAXIMUM FIELD IS 6.070 MILLIMETERS  
 WAVELENGTHS: 3.700 4.200 4.800

1100F4.0 ZOOM.ZMX  
 CONFIGURATION 9 OF 12

EFL 300mm



FIELD CURVATURE / F-TAN(THETA) DISTORTION

Z12  
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 MAXIMUM FIELD IS 6.100 MILLIMETERS  
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1100F4.0 ZOOM.ZMX  
 CONFIGURATION 11 OF 12

EFL 90mm