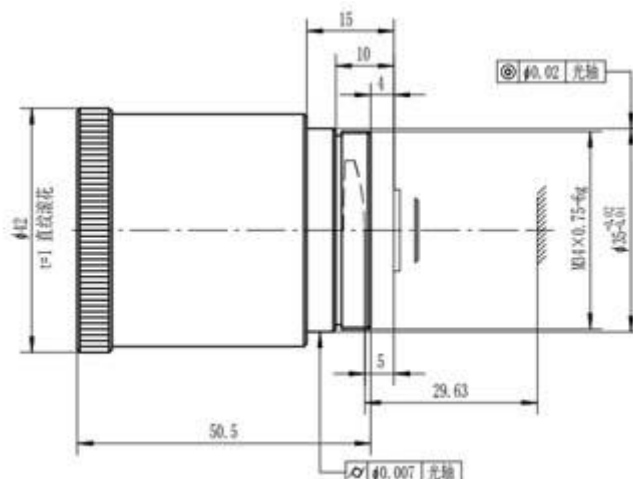


## 13mm/F2.0 Optical Athermalized Lens for MWIR Thermal

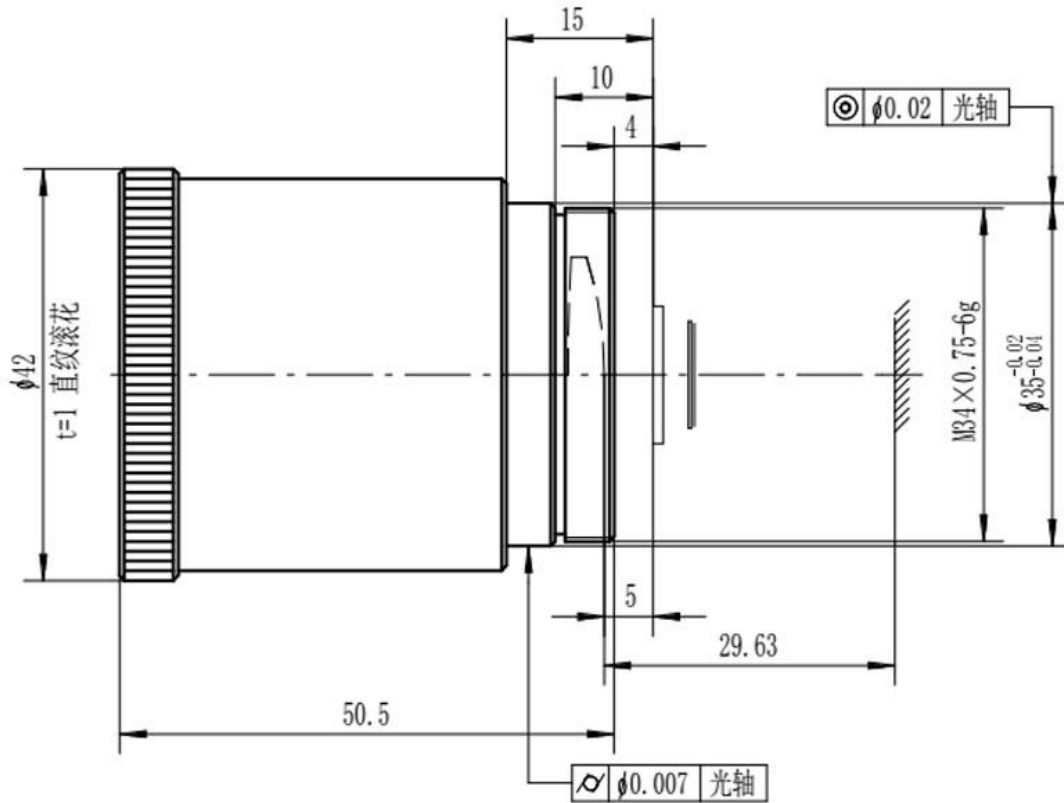
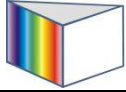
### Cameras

**13mmF2.0 athermalized lens module** is designed for cooled detector ( InSb FPA Focal Plane Arrays ) of 640x512-15 $\mu$ m at MWIR wavelength range 3.7~4.8 $\mu$ m, it is optical passively athermalized, and is optimized optically for good MTF and low distortion at temperature range of -40 $^{\circ}$ C to +50 $^{\circ}$ C. Please see the following data sheet and curves to get more information about this lens module. The improvements and changes of the design is available for customer's special request.

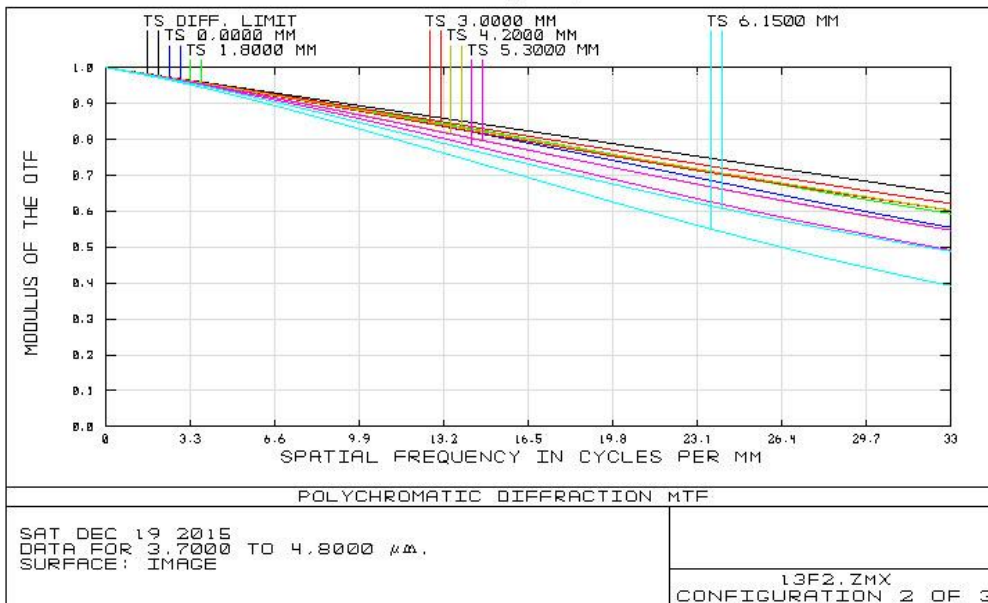


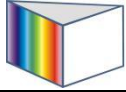
### SPECIFICATIONS

Optical Parameters	
EFL :	13mm
f Number (f#)	2.0
Wavelength range	3.7~4.8 micro
Detector	640x512-15micro
FOV	40.53°x32.91° (50.61°)
Coating	DLC+AR
Average Transmittance	>81%
Working temperature range	-40 $^{\circ}$ C ~ +50 $^{\circ}$ C (Need not to refocus)
Maxium Diameter	24mm
Overall Optical Length	75mm
BFL	29.63mm (5mm in air, 24.63mm in detector)
Distortion	<5%

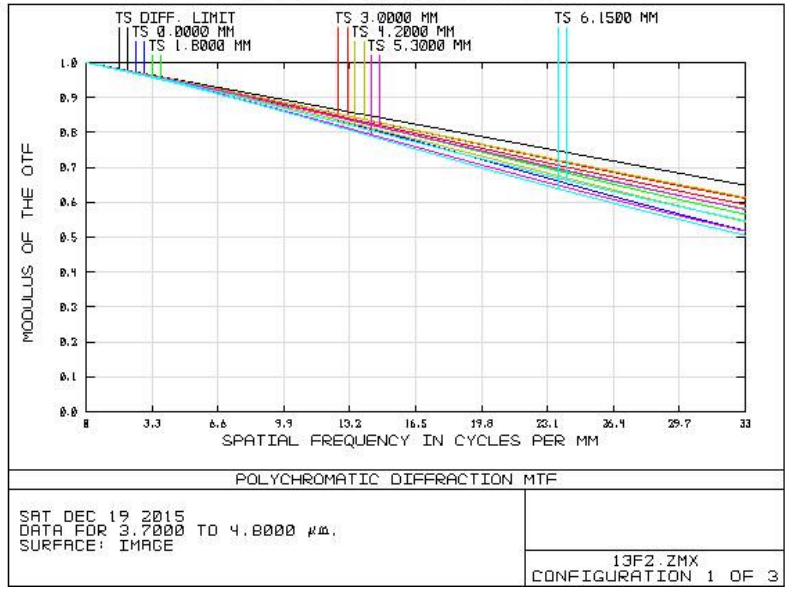


-40°MTF (@33lp/mm)

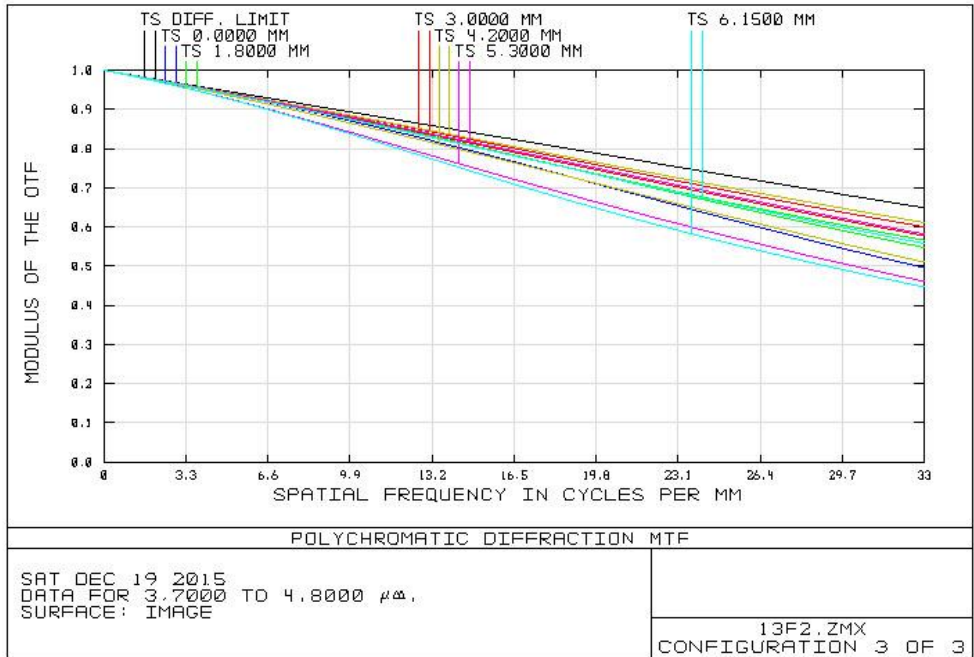


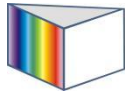


20° MTF (@33lp/mm)

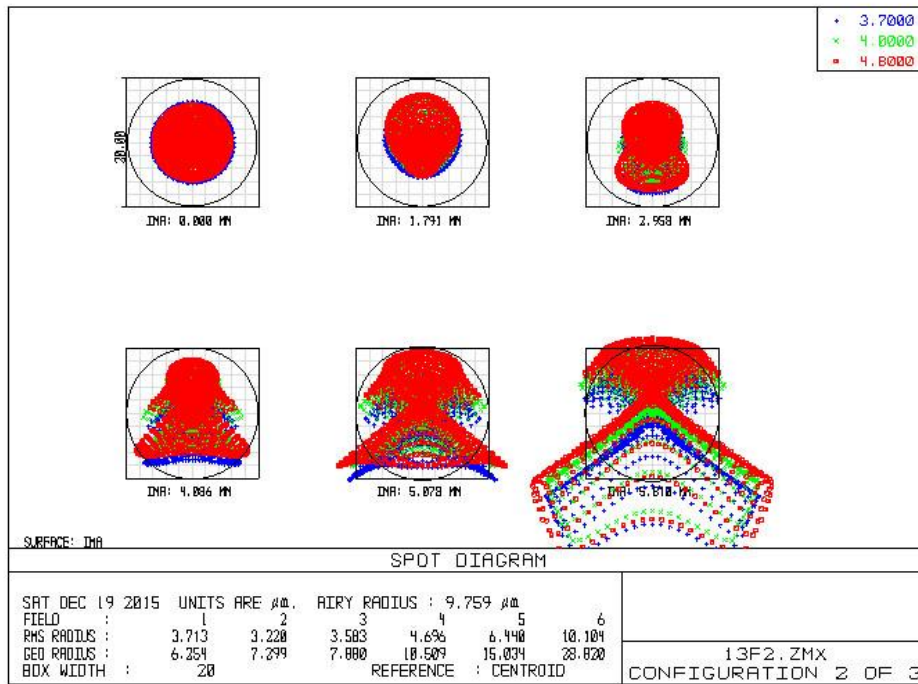


50° MTF (@33lp/mm)

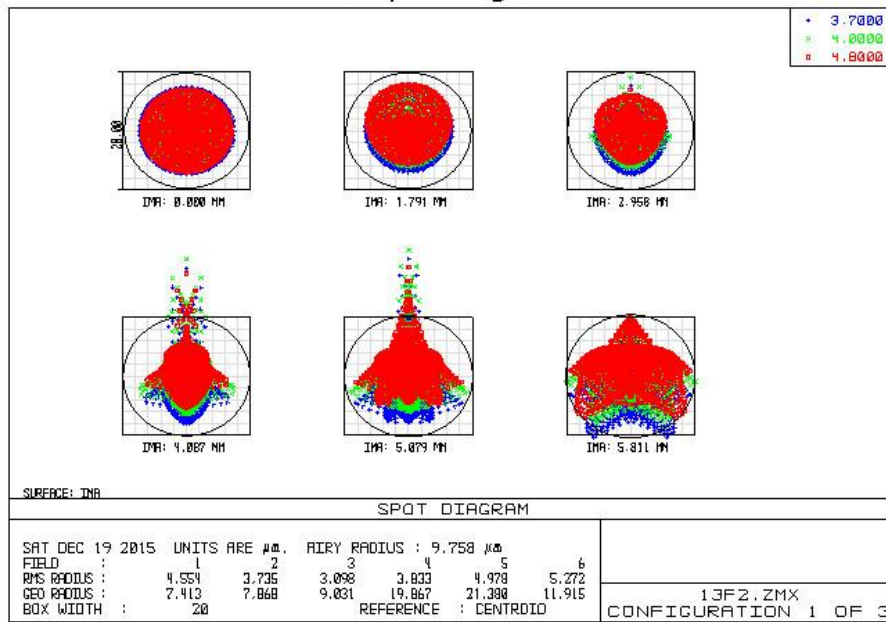


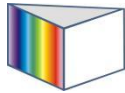


-40° Spot diagram

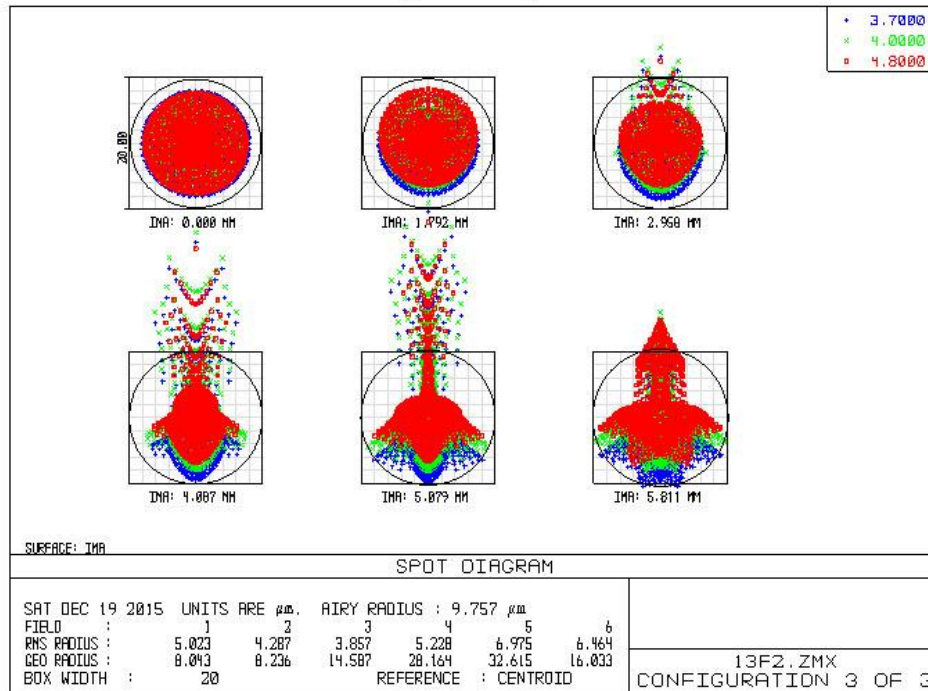


20° Spot diagram

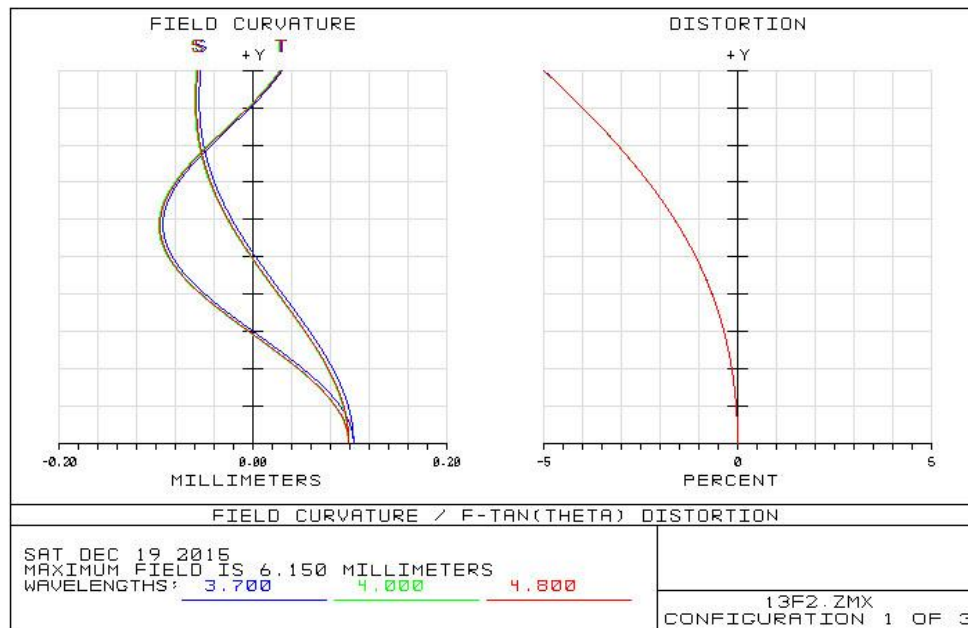


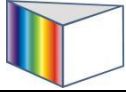


50° Spot diagram

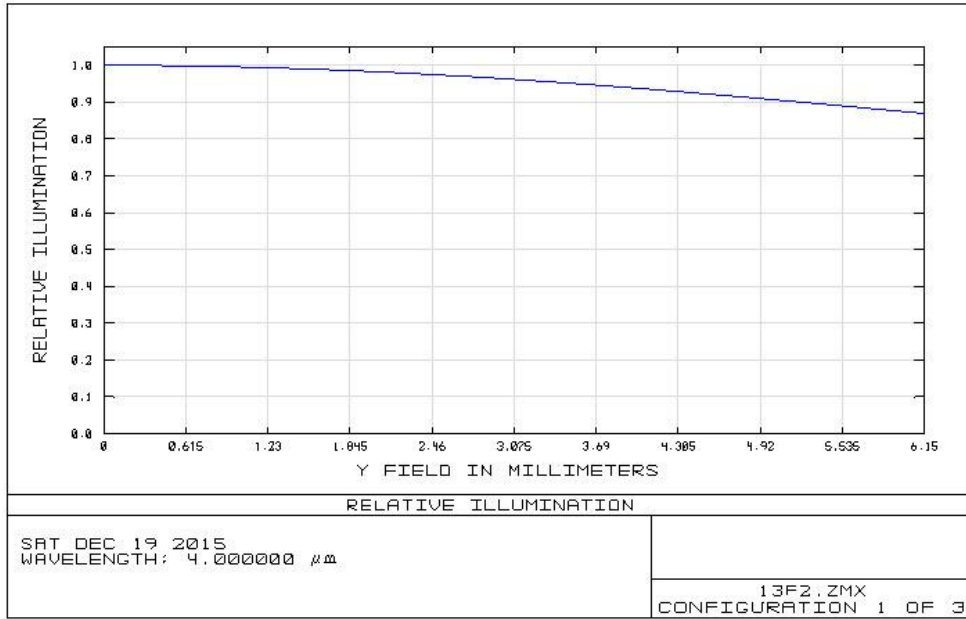


20°Field curvature and distortion





### Relative Illumination



### Vignetting

