optec S.p.A.
OPTICAL & OPTOELECTRONIC SYSTEMS
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LENS OB-SWIR300/3.5 – P/N C0245

General Description

The new range for imaging inspection is the Short Wave Infrared Region, starting from 0.9µm to 3µm. This lens wants to cover the first range from 0.9µm to 2.3 µm with a very high quality image.The high F/N and a very good transmission obtained using special optical glasses, are the main characteristics of this lens. The good transmission in the visible range is also helpful for alignment and tracking application.

Optical and mechanical parameters

Focal length	300 mm
Image format (diagonal)	20.5 mm
F.O.V. (diagonal)	3.9 degrees
Max aperture	F/N = 3.5
Object format	N.A.
Min working distance	6000 mm
Zoom value	N.A.
Focus	Manual
Iris	Max F/N = 3.5 Min F/N = 22

N. of elements	7
Dimensions	Dia 99 x 293 mm
Weight	2 Kg
Options	
Focus motorized	Upon request
Iris motorized	Upon request
Zoom motorized	N.A.
Other mount type	Upon request
Customization	Upon request

P/N	*wavelength range*	*mount type*	*note*
C0245.001	900-1700 nm	Canon	Without iris diaphragm
C0245.002	900-1700 nm	Canon	With manual iris diaphragm
C0245.003	900-1700 nm	Canon	Without iris with motorized focus
C0245.011	1700-2300 nm	Canon	Without iris diaphragm
C0245.012	1700-2300 nm	Canon	With manual iris diaphragm
C0245.013	1700-2300 nm	Canon	Without iris with motorized focus
C0245.021	900-2300 nm	Canon	Without iris diaphragm
C0245.022	900-2300 nm	Canon	With manual iris diaphragm
C0245.023	900-2300 nm	Canon	Without iris with motorized focus

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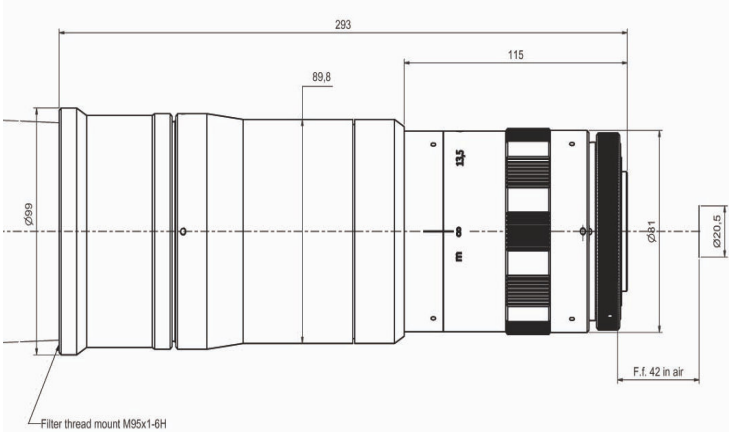
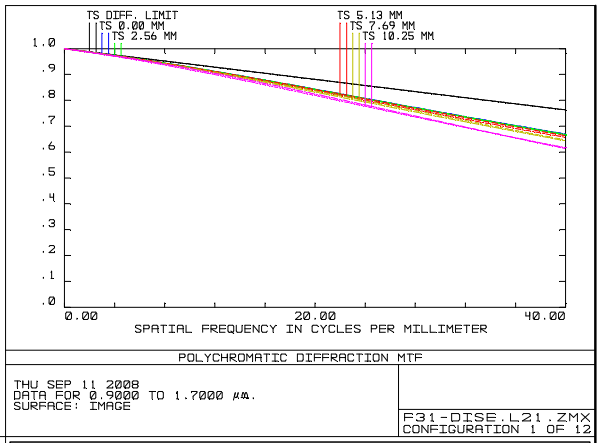
Outline Dimensions ….. & Technical Notes

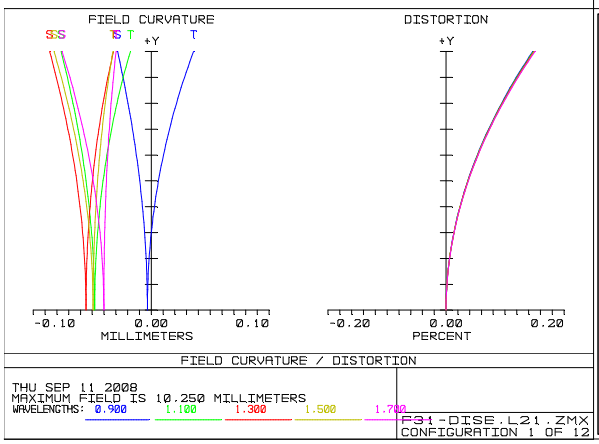
All the dimensions are reported to help the customer, mainly to define the interface with the cameras. More details are available upon request and technical drawings are open for the customers and their needs. The main parameters are reported in the front table and, here below.

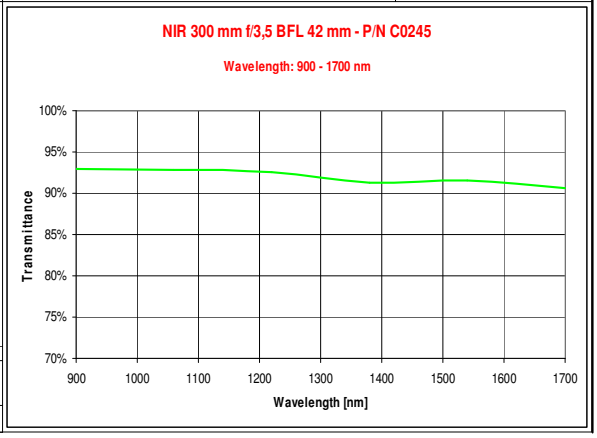


MTF,Field Curvature, Distortion and Trasmission from 900 to 1700 nm

The MTF curves in terms of contrast and spatial resolution are shown. These curves are verified at the max F/N, best focus plane and in the infrared region controlling the chromatic aberrations. The different line colour seems different part of the field of view, starting from the center (0%) to the corner (100%).







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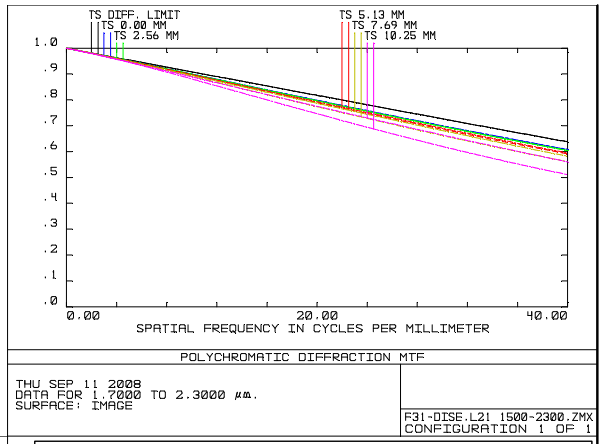
Optical parameters for wavelength range 0.9 – 1.7 µm

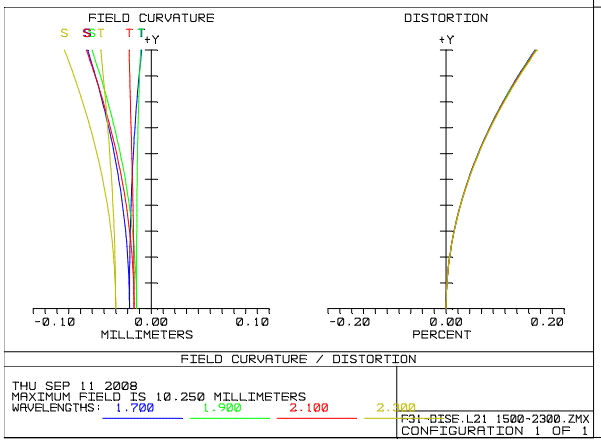
Resolution	MTF > 60%@40lp/mm
Distortion	< 0.2%
Average axial chromatic aberration	< 0.0477 mm

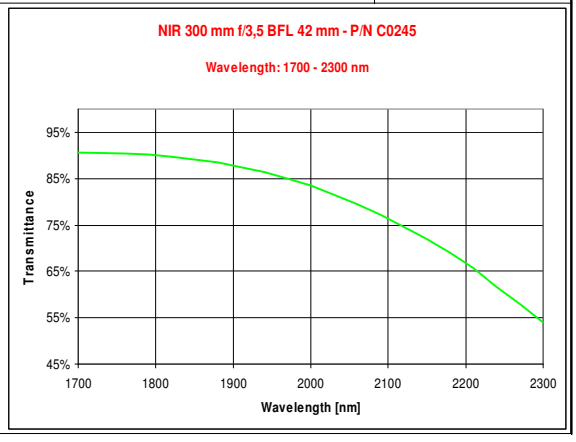
Transmission	> 90%
Antireflection Coating	R ≤ 0.5%
Vignetting	< 12%

MTF, Field Curvature, Distortion and Trasmission from 1700 to 2300 nm

The calculated MTF values are displayed below and are verified at the maximum F/N and the best focus plane. The colored lines represent the F.O.V. starting in the center (0%) to the corner (100%)







Optical parameters for wavelength range 1.7 – 2.3 µm

Resolution	MTF > 50%@40lp/mm
Distortion	< 0.2%

Transmission	> 55%
Antireflection Coating	R ≤ 0.5%

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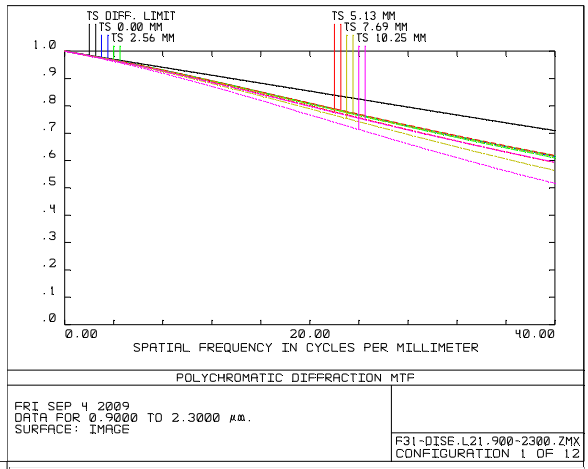
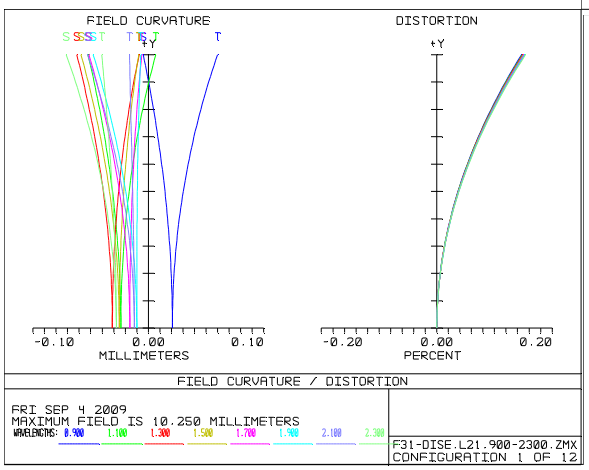
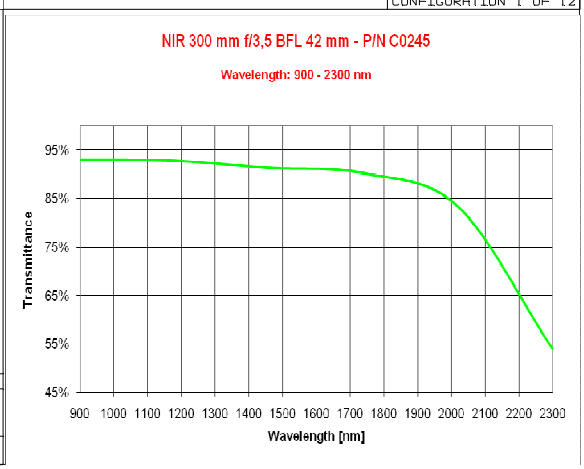
MTF, Field Curvature, Distortion and Trasmission from 900 to 2300 nm

The calculated MTF values are displayed below and are verified at the maximum F/N and the best focus plane. The colored lines represent the F.O.V. starting in the center (0%) to the corner (100%)







Optical parameters for wavelength range 0.9 – 2.3 µm

Resolution	MTF > 50%@40lp/mm	Transmission	> 55%
Distortion	< 0.2%	Antireflection Coating	R ≤ 0.5%