

» MTF Test Station - OptiShop

METS Test System for Testing IR Optical Elements

The MTF Test Station (OptiShop) is a modular, optical test bench for measuring the Modulation Transfer Function (MTF) and Transmittance of optical components across wide spectral ranges, including Visible, SWIR, MWIR and LWIR.

In addition to the basic MTF measurements, OptiShop measures other lens parameters such as: EFL, BFL, FFL, distortion and field curvature.

CI Systems has developed a diffraction-limited, chromatically-corrected microscope objective for the SWIR, MWIR and LWIR MTF tests, delivering a reliable test, free of distortion caused by the UUT optics.

OptiShop is designed as a test bench for a wide range of IR Imagers and other cameras. The integration of CI Systems' standard METS Collimator in OptiShop, makes OptiShop a one-stop modular, cost-effective optical test bench for measuring all the optical properties of a UUT across the entire imaging spectrum.



MTF Test Station (OptiShop System)

» Supported Tests:

Lens Measurements:	IR / Vis Imagers Measurements:
<ul style="list-style-type: none"> ▶ MTF (on-axis and off-axis) ▶ EFL (Effective Focal Length) ▶ BFL (Back Focal Length) ▶ Depth of Focus ▶ Distortion ▶ Astigmatism ▶ Field curvature ▶ Line of Sight retention (Zoom Lenses) ▶ Mechanical alignment (boresight) ▶ Chromatic aberrations (Vis) 	<ul style="list-style-type: none"> ▶ MRTD (objective & subjective) ▶ NETD ▶ MTF ▶ SiTF ▶ Uniformity

(* other tests are possible upon request

» Video Capture MTF Testing vs. Slit Scan MTF Testing :

OptiShop supports both testing methods:
Video Capture MTF and Slit Scan MTF.

Whereas the Slit Scan MTF Testing Method is the cost effective way of measuring optical systems' MTF, now using the Video Capture MTF Testing method, modern digital cameras from visible to far IR spectral ranges can be tested in significantly greater throughput rates.

The Video Capture MTF Testing allows for real-time measurement of optical components as well as multi camera systems.

Main advantages using the Video Capture MTF Test Method:

- ▶ Simultaneous tangential and sagittal MTF measurement.
- ▶ Measuring a system with a short and negative BFL.
- ▶ Supports measurements with large BFL areas.
- ▶ Real-time alignment of zoom optics.
- ▶ MTF measurement of low resolution systems

» MTF Test Station - *OptiShop*

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» Specifications:

Optical System parameters

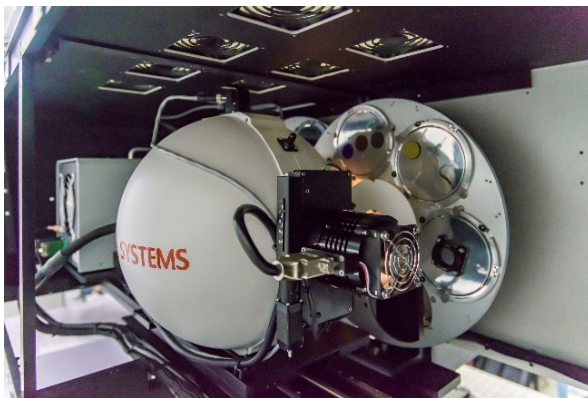
Collimator Model	CI Systems METS
Collimator Focal length	70" (up to 220" optional)
Collimator Clear aperture	12" (Larger Optional)
Off-axis bench type:	Motorized
Off-axis bench angular range	± 35°

Measurement parameters

MTF measurement accuracy	< 2.5%
MTF measurement repeatability	< 1.5%
Transmission measurement accuracy	< 2.0%
Lens under test aperture range	From 1" to 10"
Lens under test f/#	f/1 for 8-12µm; f/1.3 for 3-5µm

Testing Method:

	Video Capture MTF	Slit Scan MTF
Spectral range (µm)	0.4 - 0.7 µm 1.3 - 2.2 µm 3 - 5 µm 8 - 12 µm	0.8 - 2.2 µm 3 - 5 µm 8 - 12 µm
Working distance	MWIR > -20 mm LWIR > -7 mm	> 4.6 mm



Radiation Sources and Targets Wheel at the Collimator's Focal Plane



The OptiShop MTF Test Station at work

Distribution in the UK & Ireland