

SPOT

Meter of spatial responsivity of MWIR FPA sensors

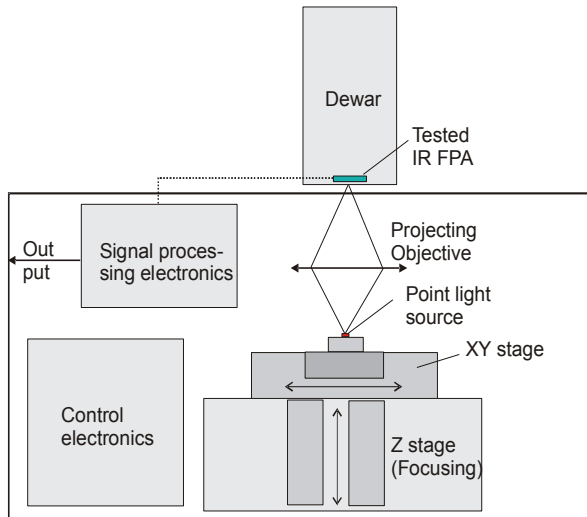


Fig. 1. Block diagram of Spot test station

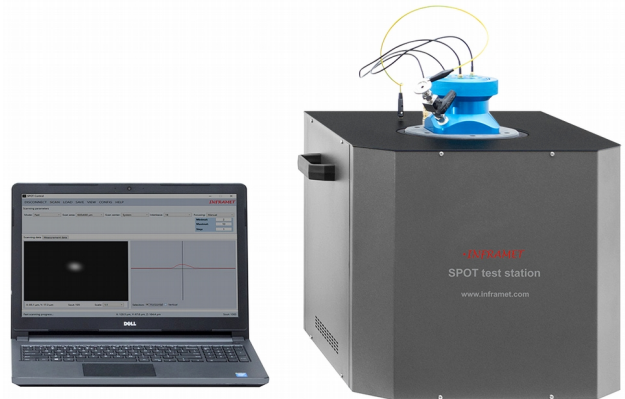


Fig. 2. Photo of Spot test station

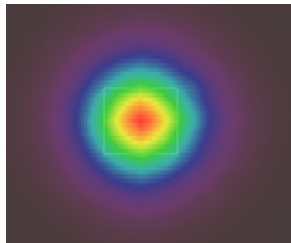


Fig. 3. 2D plot of Spatial Responsivity Function of tested MWIR FPA

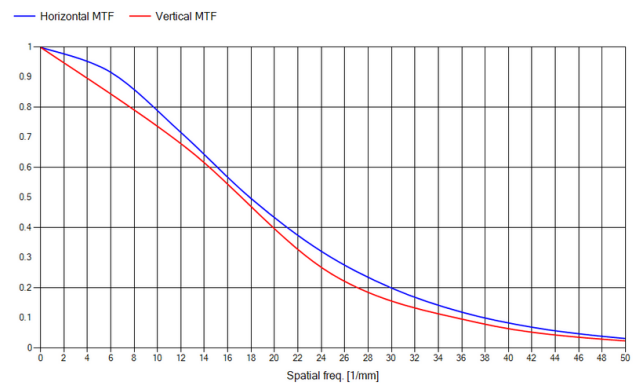


Fig. 4. MTF graph of tested MWIR FPA sensor

BASIC INFORMATION:

SPOT is one of measuring stations offered by Inframet for testing IR FPA sensors and to support improvement of manufacturing technology of such sensors.

In detail, SPOT enables direct measurement of spatial responsivity distribution function of raw MWIR FPA sensors and indirect accurate measurement of Modulation Transfer Function and cross-talk of these imaging sensors. In this way SPOT delivers valuable information about performance of raw MWIR FPA sensors.

From designer point of view SPOT is a scanning light spot projector that projects ultra small light spot on surface of tested MWIR FPA combined with electronic system that measures output signal generated by a single active pixel of tested FPA.

Theoretically output signal should be generated only when the light spot is projected onto the area of the active pixel, practically the response area can be much bigger. SPOT generates graphical sensitivity map of the area around active pixel and Spatial Responsivity Function, and Modulation Transfer Function and cross-talk can be calculated.

SPOT has been originally developed for a manufacturer of MWIR FPAs but this station can be optionally delivered in version for testing SWIR, VIS-NIR or UV FPAs.

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FEATURES

- Control of: a) 3D coordinates of light spot, b) light intensity,
- Measurement and deconvolution of output signal from the active pixel of tested IR FPA
- Measurement of Spatial Responsivity Function of IR FPA
- Calculation of MTF and crosstalk of tested IR FPA
- Fully computerized system
- Software can show optimal focusing

TECHNICAL SPECIFICATIONS

Parameter	Value
<i>Sensor</i>	
Typical tested sensors	InSb/HgCdTe FPAs sensitive from 1 μm to about 5.5 μm
Optional tested sensors	SWIR FPAs, VIS-NIR FPAs, UV FPAs
Pixel pitch of tested sensor	Typically > 8 μm Option < 8 μm
FPA resolution	up to SXGA format 1280 x 1024
Responsivity	>0.1 A/W
Accessories	Customer is responsible to deliver read out electronics and dewar
<i>Light spot projector</i>	
Max power of light spot	4 mW
Light spot diameter	< 6 μm at 70% of light power
Dynamic of regulation of light power	At least 100 times
Optics	Near perfect, diffraction limited
Control	From PC via USB
<i>Scanning system</i>	
XY scanning area	At least 10x10 mm
Scanning resolution	rough movement – 2.5 μm ; precision movement: 0.5 μm
Focusing range	18 mm
Focusing resolution	0.5 μm
Control	From PC via USB
<i>Other parameters</i>	
Working temperature	+5°C to 35°C
Storage temperature	-5°C to 55°C
Working humidity	Up to 85%
Storage humidity	Up to 90%

**specifications are subject to change without prior notice*

Version 1.2

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