



## FEATURES

- 1024 x 1024 Resistive Emitter Array Size
- Real-Time Automated Non-Uniformity Correction
- 14 bit High Gray-Scale Resolution for any UUT Integration Time
- Pixel Rise Time of 6.5 msec from off state to maximum array drive. < 5.0 msec available with Scene Accelerator Upgrade \*
- Advanced Micro-Emitter Array Technology
- Proprietary Unit Cell Design Minimizes Thermal and Electrical Crosstalk
- Windows™ based GUI Automates Setup and Operation of all MIRAGE Components
- Accepts Digital (DVI) and Locally Stored Custom Image Inputs

## OVERVIEW

MIRAGE™-XL is a complete turnkey infrared scene projector that utilizes unique resistive emitter array technology to produce high definition dynamic IR scenes. Signal processing electronics, power supplies, emitter array cooling, calibration (non-uniformity correction) hardware, and user interface software are all integrated with the MIRAGE™ emitter engine. MIRAGE™-XL accepts digital (DVI) or locally stored custom image input, and delivers a high-fidelity infrared scene to the user's or SBIR-supplied optics. Typical test applications include hardware-in-the-loop testing of missile seekers, FLIR testing, counter measure simulation and testing of tracking systems.

## SYSTEM COMPONENTS

Command & Control Electronics



The C&CE provides the user interface, user control, signal processing/formatting, NUC and data/image input for all MIRAGE systems. The C&CE is a PC-based subsystem.

Thermal Support Subsystem & Chiller



The TSS includes power supplies, refrigerated chiller, an ion pump controller for DEE operation and a top-level ICD. Custom length cables and hoses available.

Digital Emitter Engine



The DEE is an advanced micro-emitter array. This state-of-the-art integrated circuit is constructed of thermally isolated mechanical structures with deposited thin film resistive heaters, fabricated on an advanced sub-micron silicon read-in integrated circuit (RIIC).

\* Rise and fall times measured using industry standard 10-90% radiance settling time

## Solutions

### for Every EO Test Requirement

30 S. Calle Cesar Chavez, Suite D • Santa Barbara, Ca. 93103  
 ph (805) 965-3669 • fax (805) 963-3858 • <http://www.sbir.com>

The product(s) described in this document will require an export license for shipment outside of the United States.

## OPTIONS

### Calibration Radiometry System (CRS)

The CRS compares emitter output on a pixel-by-pixel basis to the output of a blackbody, yielding a uniform and accurate radiant output over the full dynamic range of the emitter.



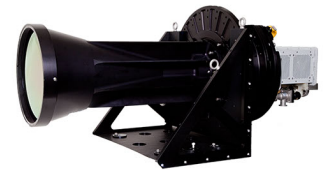
Calibration Radiometry System

### Real-time Image Playback System (RIPS)

SBIR's Real Time Image Playback System (RIPS) is a low cost PC disk array based real-time digital image capture and playback system. The RIPS is designed to capture real-time digital image data from a DVI interface and store the image sequences on a high speed disk array for real-time playback into the MIRAGE™ dynamic infrared scene projector. A user friendly GUI provides DVR type functionality to RECORD, PLAY, STOP, and LOOP through a selected image sequence. The image data is output (played back) in the DVI format for driving the MIRAGE™-H and MIRAGE™-XL IR scene projection systems.

### Collimators

SBIR can provide and integrate custom collimators based on a customer's specifications.



Custom Collimator

### Scene Accelerator

This upgrade is ideal for users running UUTs at very high frame rates. By increasing the drive of the first frame of a temperature transition, faster pixel rise times across all temperature transitions are achieved.

### Real Time Translation & Rotation

This upgrade allows the user to apply geometric transformations to scene data in real time on a frame by frame basis. This is primarily used to reduce latency in closed loop HWIL simulation scenarios.

## SPECIFICATIONS

Emitter Array Resolution.....	1024 x 1024 pixels
Pixel Pitch.....	48 microns
Apparent Temperature Range.....	285-675K (3-5 μm), 290-650K with NUC applied 285-525K (8-12 μm), 290-500K with NUC applied
Thermal Resolution (MWIR).....	<40mK below 325K MWIR apparent <100mK above 325K MWIR apparent
Input Frame Rate.....	20-200 Hz
Non-Uniformity Correction.....	Real-time correction up to 16 drive points
Max Pixels Change Per Frame.....	Full frame (1,048,576 pixels)
Pixel Rise Time (off to max drive).....	6.5 msec. <5.0 msec with Scene Accelerator upgrade
Dead Pixels.....	< 0.5%
DEE Size.....	14.5" diameter x 13.5" long
DEE Weight.....	54 pounds
Input Scene Data.....	Accepts digital (DVI) and local memory image upload inputs

## ORDER INFORMATION

Please contact the SBIR sales team at (805) 965-3669 to ensure proper part number and to receive a quotation.

\* Specifications are subject to change without prior notice

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