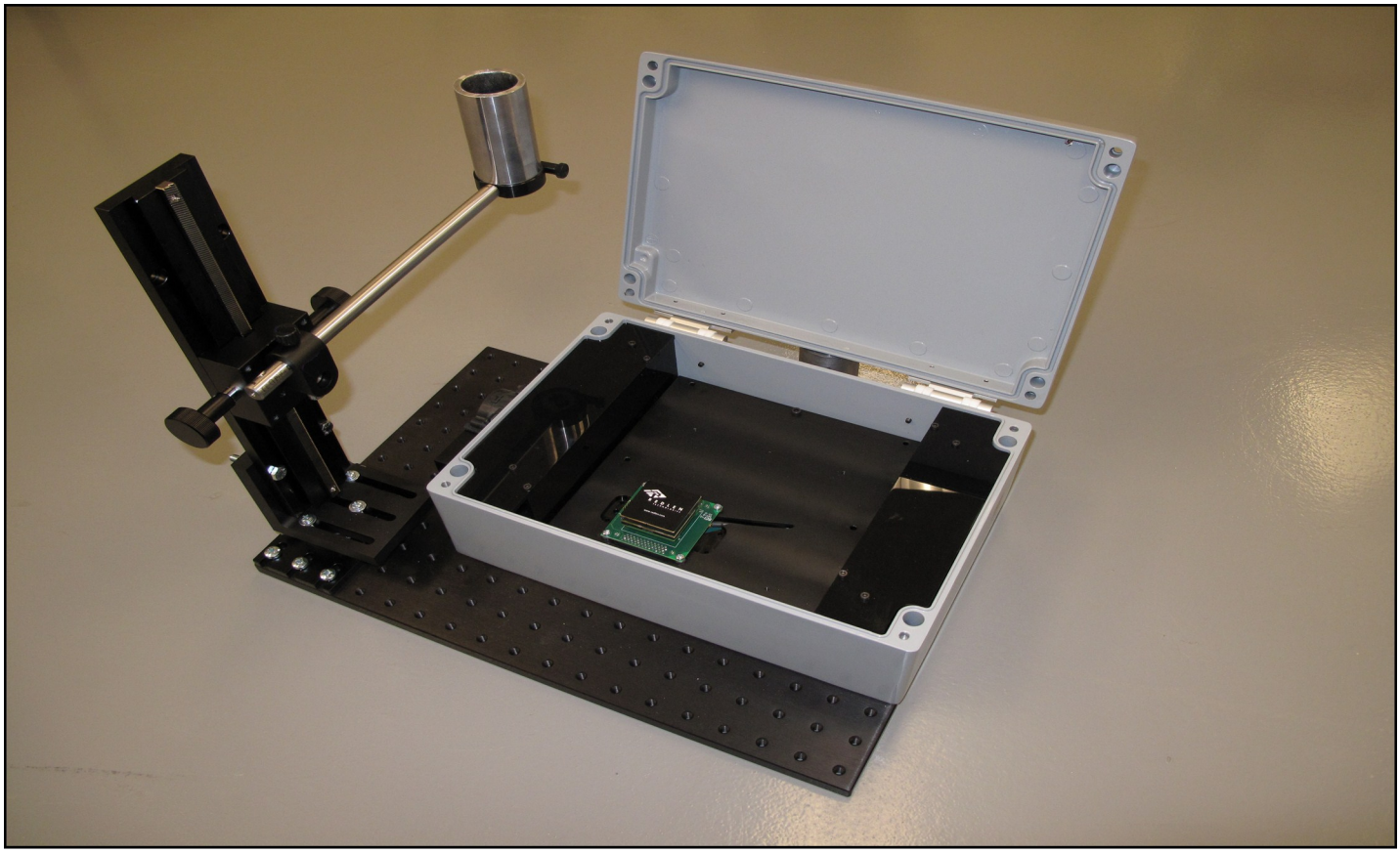
REDLEN TECHNOLOGIES

MODULE EVALUATION SYSTEM



SYSTEM DESCRIPTION

Redlen Technologies is a leading manufacturer of high performance CZT radiation detectors and nuclear imaging modules.

Redlen's Module Evaluation System is a self-contained platform that enables design engineers to evaluate Redlen's 40x40mm 256-pixel nuclear imaging module and to facilitate rapid integration of these modules into a customer's nuclear imaging equipment and systems.

The evaluation system provides access to the full array of module functions and enables designers to configure and test the operation of Redlen's Nuclear Imaging Modules (NIM) during exposure to a user-supplied radiation source.

The system facilitates development and testing of customer designed interface drivers to the NIM's intelligent communications port.

SYSTEM FEATURES

The Module Evaluation System includes;

- A main system enclosure that holds a 40x40mm 256-pixel nuclear imaging module and has inputs for an external high voltage DC bias source, an external low voltage DC source and a high-speed USB communications interface.
- A base platform with mechanical arm that allows precise position and height adjustment of a user-supplied radiation source.
- Redlen's PC-based evaluation system software that allows operators to configure and test the nuclear imaging module and to measure and record the module's spectral energy performance and efficiency characteristics.

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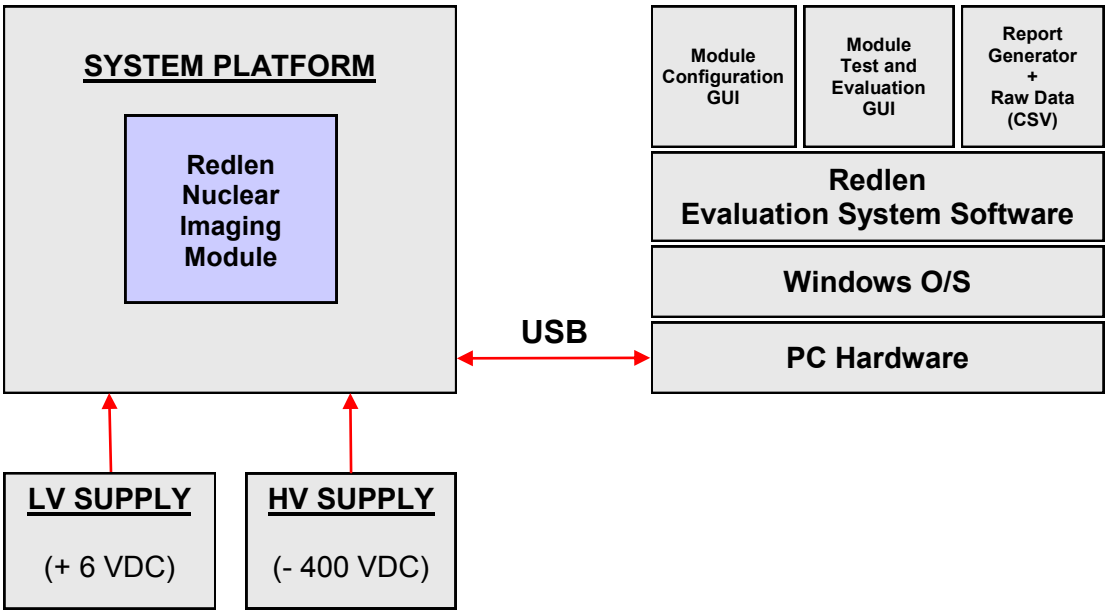
MODULE EVALUATION SYSTEM

System Block Diagram



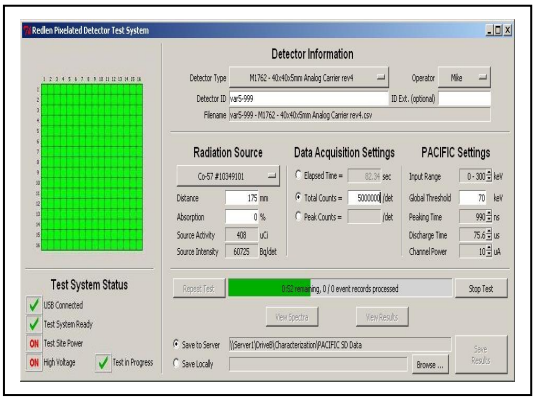
System Software

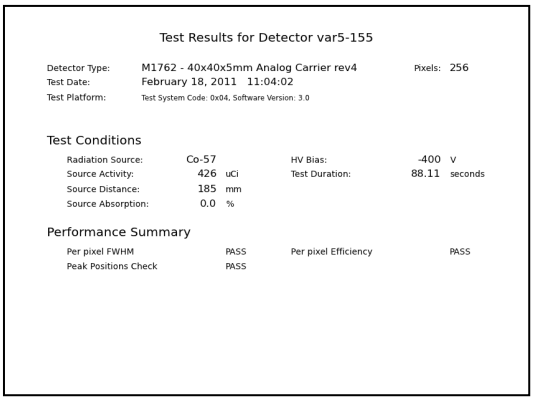
The Module Evaluation System includes Redlen's PC-based evaluation system software that allows engineers and developers unrestricted access to the module's configuration and data output registers.

This user-friendly software allows operators to configure the module's set-up registers and to alter various test and measurement criteria. The software automatically generates a full array of module performance reports including:

- Energy Resolution (FWHM% per pixel)
- Efficiency (EFF% per pixel)
- Total Counts (counts per pixel)
- Summary of Test Conditions

The Module Evaluation System software can also output raw module performance data to a CSV file that allows post-processing by user-supplied custom data analysis software.





Test Results for Detector var5-155

Detector Type:	M1762 - 40x40x5mm Analog Carrier rev4	Pixels:	256
Test Date:	February 18, 2011 11:04:02		
Test Platform:	Test System Code: 0x04, Software Version: 3.0		

Test Conditions

Radiation Source:	Co-57	HV Bias:	-400 V
Source Activity:	426 uCi	Test Duration:	88.11 seconds
Source Distance:	185 mm		
Source Absorption:	0.0 %		

Performance Summary

Per pixel FWHM	PASS	Per pixel Efficiency	PASS
Peak Positions Check	PASS		

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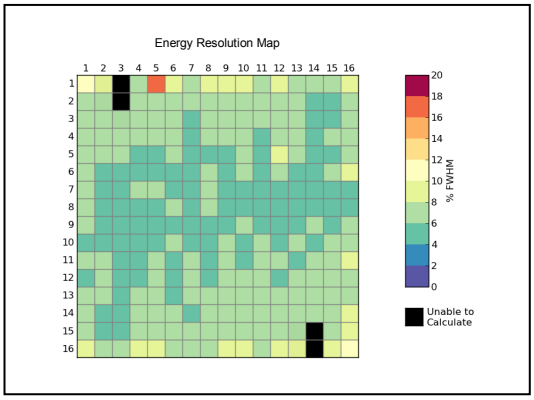
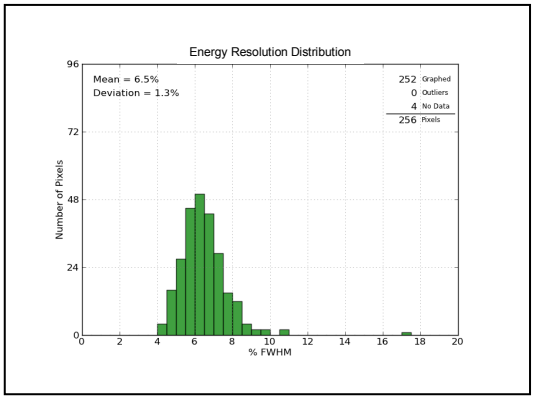
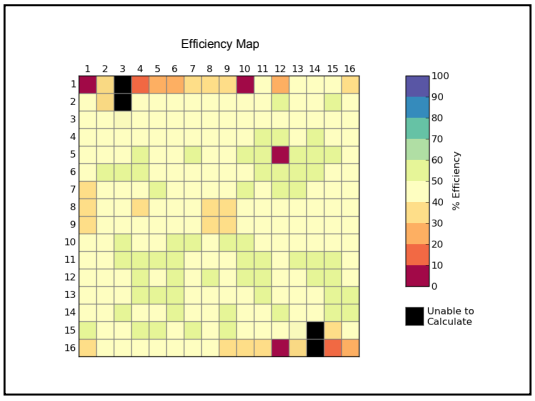
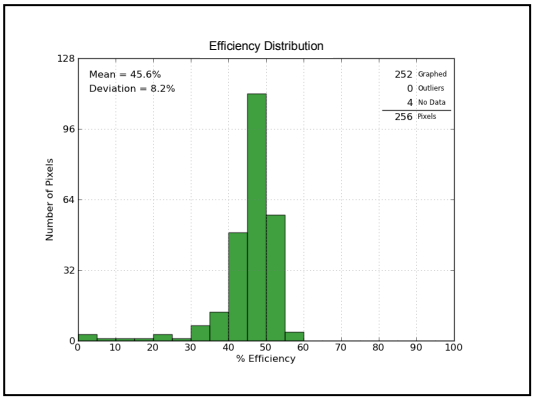
System Reports

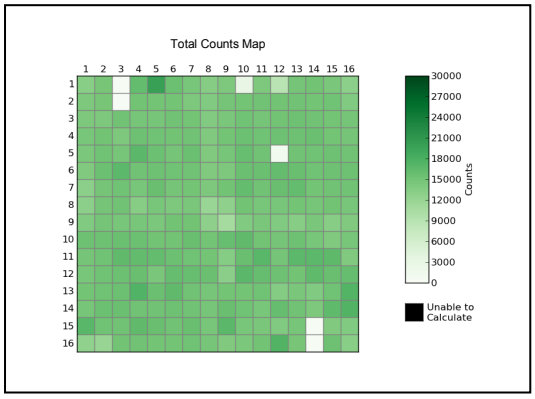
The Module Evaluation System provides a complete array of nuclear imaging module performance reports including Energy Resolution (FWHM% per pixel and histogram), Efficiency (% per pixel and histogram) and Total Counts (counts per pixel and histogram). The system also provides full access to raw data by providing convenient data export to CSV files for post-processing via user-defined algorithms.

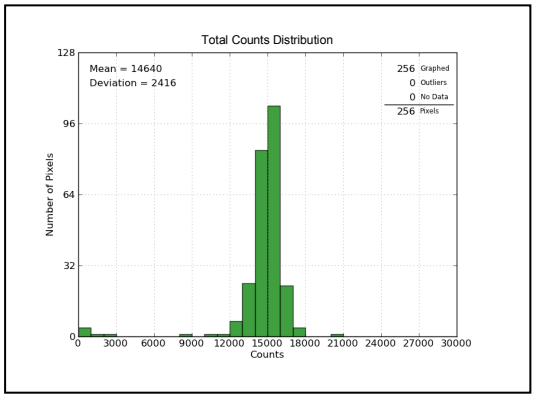












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MODULE EVALUATION SYSTEM

Technical Specifications

MODULE EVALUATION SYSTEM

- Description: System to configure, test and evaluate Redlen Nuclear Imaging Modules
  Includes system enclosure with receptacle for one imaging module
  Includes adjustable arm to hold user-supplied radiation source
  Includes HVDC power cable, LVDC power cable, USB cable
  Includes one (1) Nuclear Imaging Module (model M1762-404005-256)
  Includes Redlen Module Evaluation System software
  Includes Installation and Operation Manual

- Physical dimensions:
  Base: 45cm x 30cm x 40cm (W x D x H nominal with arm)
  Enclosure: 34cm x 26cm x 12cm (W x D x H nominal)

- Optional: Spare Nuclear Imaging Module
  PC with Redlen Module Evaluation System software pre-installed
  HV Power supply: -400 to -600 VDC, 25W (1mV AC ripple maximum)
  LV Power supply: + 6.0 VDC, 10W

NUCLEAR IMAGING MODULE

- Part# M1762-404005-256
- Description: Nuclear Imaging Module
- Detector Material: CZT solid-state semiconductor crystal
- Detector Technology: CZT detector with integrated spectral imaging ASIC and digital interface
- Pixels per module: 256
- Pixel pitch: 2.46mm (nominal)
- Pixel size: 2.2mm x 2.2mm (nominal)
- Energy Range: 45 to 300 keV
- Energy Resolution: Module mean ER (typical): 6.5 % (under Co-57 source)
- Incident Count Rate: 60,000 cps / module (230 cps / pixel)
- Physical dimensions: 40mm x 40mm x 28mm (L x W x H nominal)
- Power requirements: Bias voltage (nominal): -400 to -600 VDC, < 1uA (max)
  Analog supply voltage: +5.0 VDC, +3.3 VDC (all +/- 5%), 40mA (typical)
  Digital supply voltage: +5.0 VDC, +2.5 VDC, +1.2 VDC (all +/- 5%), 90mA (typ)
- Operating temperature: +20 to +30 degrees C
- Storage temperature: +5 to +50 degrees C

Evaluation System and Nuclear Imaging Module specifications are preliminary and subject to change.

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