

CapeScintTM

Standard and Custom Radiation Detectors

SiPM PRODUCT CATALOG

Detector Assemblies / Scintillation Probes



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CapeScintTM

Standard and Custom Radiation Detectors



Scintillation Crystals

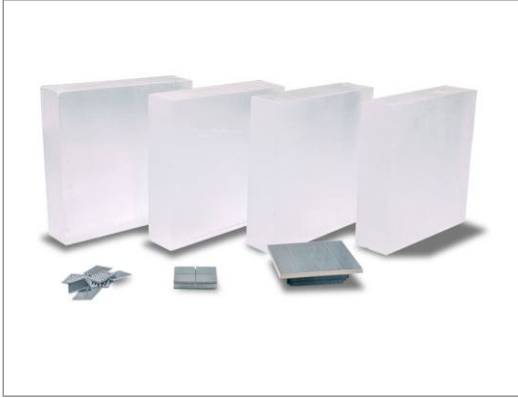


Detector Assemblies



Scintillation Probes

CapeScint is a subsidiary of CapeSym, Inc. a multi-faceted company with 100+ years of combined experience in scintillators, semiconductors, and radiation detection instruments. CapeScint has its warehouse facilities and customer support staff located in Greater Boston Area, Massachusetts, USA.



Founded in 1992 as Cape Simulations, CapeSym, Inc. is now a multi-faceted company offering novel technical crystals and detectors for nuclear detection, including ScintiClearTM SrI₂(Eu) and ElpasolightTM CLYC(Ce) scintillators. In addition, CapeSym offers radiation detection instruments and equipment through www.zievert.com.



Our ongoing R&D leverages decades of experience in crystal growth, solid state physics, analytical chemistry, materials science, thermo-fluid transport, and engineering design. CapeScint as a subsidiary of CapeSym, Inc. has a long history working with the US Government as a contractor and as a supplier of essential goods and services. During the last 30 years CapeSym, Inc. and supported missions of multiple US Government agencies including NASA, MDA, USAF, DoE, DTRA, NIH, CWMD, and US Navy.

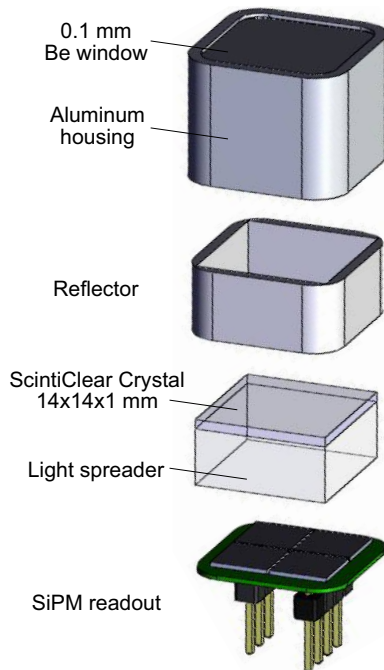
ScintiClear SC-14x1c-SiPM-T Gamma Radiation Detector Assembly

ScintiClear™ SC-14x1c-SiPM-T is a new high-performance SrI(Eu)-based solid state X-ray radiation detector made in the USA. Our proprietary crystal growth, manufacturing, and encapsulation processes improve the inherently excellent properties of SrI(Eu) scintillator and utilize all the benefits of cutting edge SiPM technology. Build-in temperature sensor allows precise monitoring of SiPM/crystal temperature.

- High sensitivity – 2cm² scintillator area
- Ultra compact design
- Fully solid state detector not sensitive to magnetic field
- Low bias requirements: 26-32V
- High signal amplitude (can be used without preamp)
- Sensor for Temperature-compensated Multichannel Analysis
- Operating temperature: -40 to 55 °C



	SC-14x1c-SiPM-T
Shape	Cuboid
Detector type	SrI ₂ (Eu)
Detector size	14x14x1 mm
Energy range	From 2 keV
Typical resolution	30% at 5.9 keV
Typical sensitivity to gamma radiation, cps/(μ Sv·h ⁻¹)	N/A
Neutron detection	No
Readout	2x2 6mm SiPMs
Dimensions	17x17x18 mm
Weight	8 g
Additional Information	0.1mm Be window for low energy X-rays. Fast and standard outputs. Integrated temperature sensor



Scintillation Assemblies

MacroPixel 14x25c-SiPM-T Gamma and Gamma Neutron Radiation Detector Assemblies

Ultra-lightweight and compact **MacroPixel 14x25c-SiPM-T** Scintillation Gamma and Gamma Neutron Radiation Detector Assemblies with 14x14x25.4 mm (5 cc) high-performance crystal coupled to SiPM array with T-sensor.

- High sensitivity – 5 cc scintillator
- Ultra compact design
- Fully solid state detector not sensitive to magnetic field
- Low bias requirements: 26-32V
- Operating temperature: -40 to 55°C
- Sensor for Temperature-compensated Multichannel Analysis

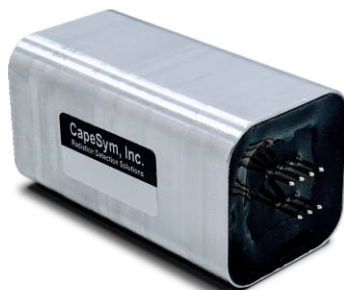


	SC-14x25c-SiPM-T	nEL-14x25c-SiPM-T	NaI-14x25c-SiPM-T	CsI-14x25c-SiPM-T
Shape	Cuboid			
Detector type	SrI ₂ (Eu)	Cs ₂ LiYCl ₆	NaI(Tl)	CsI(Tl)
Detector size	14x14x25.4 mm			
Energy range	From 10 keV			
Typical resolution at 662 keV (¹³⁷ Cs)	3.0%	5%	6.5%	6.0%
Typical sensitivity to gamma radiation, cps/(μ Sv·h ⁻¹)	130 (¹³⁷ Cs)	90 (¹³⁷ Cs)	95 (¹³⁷ Cs)	120 (¹³⁷ Cs)
Neutron detection	No	Yes	No	
Readout	2x2 6mm SiPMs			
Dimensions	17x17x32 mm			
Weight	32 g	25 g	25 g	32 g
Additional Information	Fast and standard outputs. Integrated temperature sensor			

MegaPixel 28x51c-SiPM-T Gamma and Gamma Neutron Radiation Detector Assemblies

Ultra-lightweight and compact **MegaPixel 28x51c-SiPM-T** Scintillation Gamma and Gamma Neutron Radiation Detector Assemblies with 28x28x50.8 mm (40 cc) high-performance crystal coupled to SiPM array with T-sensor.

- High sensitivity – 40 cc scintillator
- Ultra compact design
- Fully solid state detector not sensitive to magnetic field
- Low bias requirements: 26-32V
- Operating temperature: -40 to 55°C
- Sensor for Temperature-compensated Multichannel Analysis



	SC-28x51c-SiPM-T	nEL-28x51c-SiPM-T	NaI-28x51c-SiPM-T	CsI-28x51c-SiPM-T
Shape	Cuboid			
Detector type	SrI ₂ (Eu)	Cs ₂ LiYCl ₆	NaI(Tl)	CsI(Tl)
Detector size	28x28x50.8 mm			
Energy range	From 10 keV	From 20 keV	From 10 keV	
Typical resolution at 662 keV (¹³⁷ Cs)	3.2%	6.0%	6.5%	6.0%
Typical sensitivity to gamma radiation, cps/(μ Sv·h ⁻¹)	780 (¹³⁷ Cs) 600 (⁶⁰ Co)	635 (¹³⁷ Cs) 480 (⁶⁰ Co)	690 (¹³⁷ Cs) 515 (⁶⁰ Co)	780 (¹³⁷ Cs) 590 (⁶⁰ Co)
Neutron detection	No	Yes	No	
Readout	4x4 6mm SiPMs			
Dimensions	31x31x64 mm			
Weight	200 g	150 g	165 g	200 g
Additional Information	Fast and standard outputs. Integrated temperature sensor			

Scintillation Detector Arrays

Array16-ScintiClear-MacroPixel and Array16-ScintiClear-MegaPixel Gamma Radiation Detector Arrays

Scintillation Detector Arrays (4x4) include high-performance ScintiClear $\text{SrI}_2(\text{Eu})$ crystals coupled to individual SiPM readout with T-sensor.

- High sensitivity
- Ultra compact design
- Fully solid state detector not sensitive to magnetic field
- Low bias requirements: 26-32V
- Operating temperature: -40 to 55°C
- Sensor for Temperature-compensated Multichannel Analysis



	Array16-ScintiClear-MacroPixel	Array16-ScintiClear-MegaPixel
Shape	Cuboid	
Detector type	$\text{SrI}_2(\text{Eu})$	$\text{SrI}_2(\text{Eu})$
Detector size	14x14x25.4 mm (16 pcs)	28x28x50.8 mm (16 pcs)
Energy range	From 10 keV	
Typical pixel resolution at 662 keV (^{137}Cs)	3.0%	3.2%
Typical sensitivity to gamma radiation, cps/ $(\mu\text{Sv}\cdot\text{h}^{-1})$	1600 (^{137}Cs) 1250 (^{60}Co)	9200 (^{137}Cs) 7800 (^{60}Co)
Neutron detection	No	No
Readout	2x2 6mm SiPMs (16 pcs)	4x4 6mm SiPMs (16 pcs)
Dimensions	67x67x38 mm	125x125x65 mm
Weight	450 g	3200 g
Additional Information	Fast and standard outputs. Integrated temperature sensor	

MacroPixel-MCA Spectrometric Gamma and Gamma Neutron Radiation Probes

Ultra-lightweight and compact **MacroPixel-MCA** Scintillation Gamma and Gamma Neutron Radiation Detection Probes with 14x14x25.4 mm (5 cc) high-performance crystal coupled to SiPM array and read by tiny USB MCA. High sensitive sensor with on the chip temperature stabilization and pulse pile-up rejection, as well as rugged watertight IP67 housing, makes MacroPixel-MCA perfectly suited for field or lab applications. A user-friendly GUI for Windows and Android devices is included with the detector.

- High sensitivity – 5 cc scintillator
- Ultra compact design
- Fully solid state detector not sensitive to magnetic field
- IP67 dust proof and water resistant
- Operating temperature: -40 to 50°C
- Temperature stabilization and pulse pileup rejection



	SC-MacroPixel-MCA	nEL-MacroPixel-MCA	Nal-MacroPixel-MCA	CsI-MacroPixel-MCA
Detector type	SrI ₂ (Eu)	Cs ₂ LiYCl ₆	Nal(Tl)	CsI(Tl)
Detector size	14x14x25.4 mm			
Energy range	10 – 4000 keV	20 – 4000 keV	10 – 4000 keV	
Maximum count rate, cps	25000	20000	50000	40000
Typical resolution at 662 keV (¹³⁷ Cs)	3.0%	6.0%	6.5%	6.0%
Typical sensitivity to gamma radiation, cps/(μ Sv·h ⁻¹)	130 (¹³⁷ Cs)	90 (¹³⁷ Cs)	95 (¹³⁷ Cs)	120 (¹³⁷ Cs)
Neutron detection	No	Yes	No	
Protection class	IP67			
Interface	Micro USB Type B			
Operation temperature	-40°C to +50°C			
Dimensions	17x17x70 mm			
Weight	40 g	35 g	35 g	40 g

MegaPixel-MCA Spectrometric Gamma and Gamma Neutron Radiation Probes

Ultra-lightweight and compact **MegaPixel-MCA** Scintillation Gamma and Gamma Neutron Radiation Detection Probes with 28x28x50.8 mm (40 cc) high-performance crystal coupled to SiPM array and read by tiny USB MCA. High sensitive sensor with on the chip temperature stabilization and pulse pile-up rejection, as well as rugged watertight IP67 housing, makes MegaPixel-MCA perfectly suited for field or lab applications. A user-friendly GUI for Windows and Android devices is included with the detector.

- High sensitivity – 40 cc scintillator
- Ultra compact design
- Fully solid state detector not sensitive to magnetic field
- IP67 dust proof and water resistant
- Operating temperature: -20 to 50°C
- Temperature stabilization and pulse pileup rejection

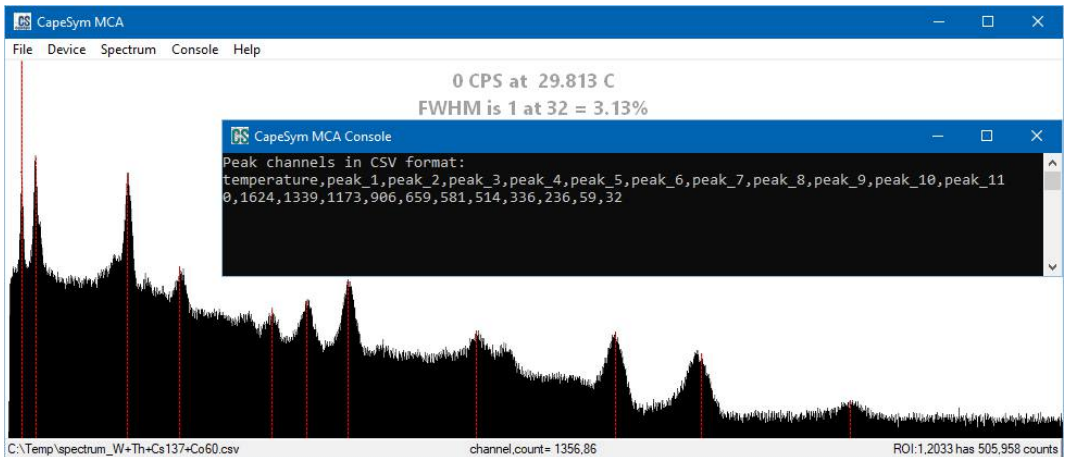
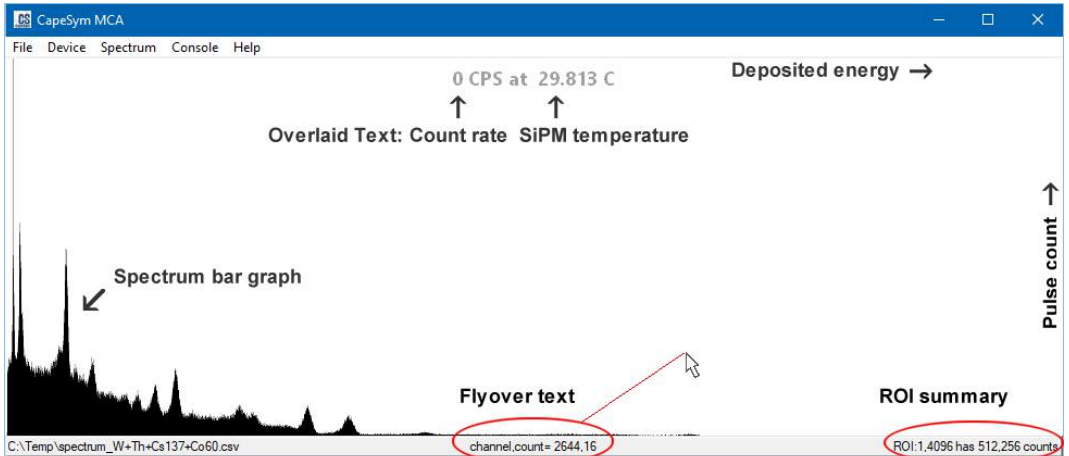


	SC-MegaPixel-MCA	nEL-MegaPixel-MCA	Nal-MegaPixel-MCA	CsI-MegaPixel-MCA
Detector type	SrI ₂ (Eu)	Cs ₂ LiYCl ₆	Nal(Tl)	CsI(Tl)
Detector size	28x28x50.8 mm			
Energy range	10 – 4000 keV	20 – 4000 keV	10 – 4000 keV	
Maximum count rate, cps	25000	20000	50000	40000
Typical resolution at 662 keV (¹³⁷ Cs)	3.2%	6.0%V	6.5%	6.0%
Typical sensitivity to gamma radiation, cps/(μSv·h ⁻¹)	780 (¹³⁷ Cs) 600 (⁶⁰ Co)	635 (¹³⁷ Cs) 480 (⁶⁰ Co)	690 (¹³⁷ Cs) 515 (⁶⁰ Co)	780 (¹³⁷ Cs) 590 (⁶⁰ Co)
Neutron detection	No	Yes	No	
Protection class	IP67			
Interface	Micro USB Type B			
Operation temperature	-20°C to +50°C			
Dimensions	31x31x95 mm			
Weight	210 g	160 g	175 g	210 g

CapeSym MCA Software

CapeSym MCA is the real-time gamma energy spectrum monitor for CapeSym's STM32-based USB multichannel analyzers. The software runs on the Microsoft Windows desktop operating systems and can be used to directly read and control the CapeSym MCA hardware.

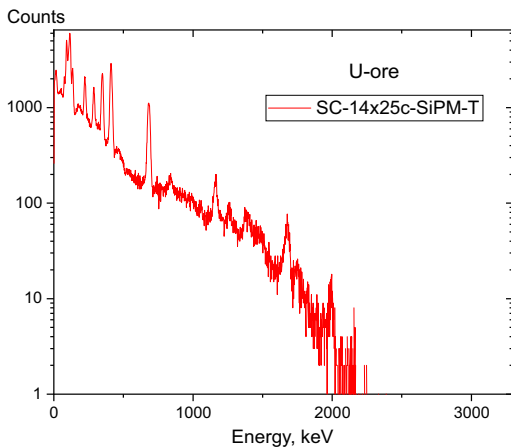
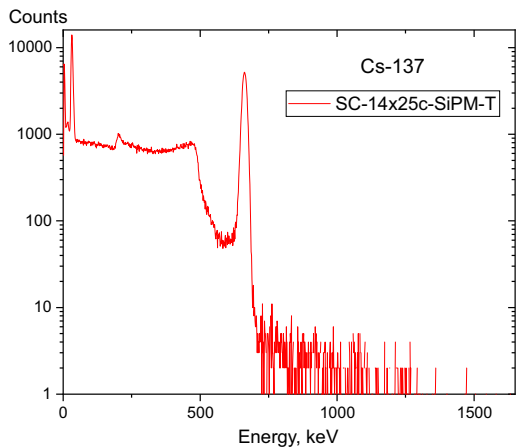
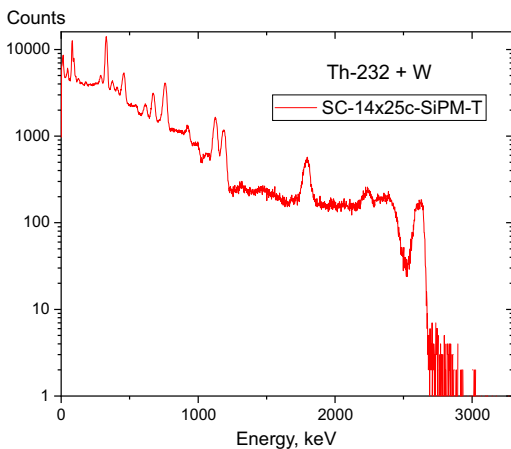
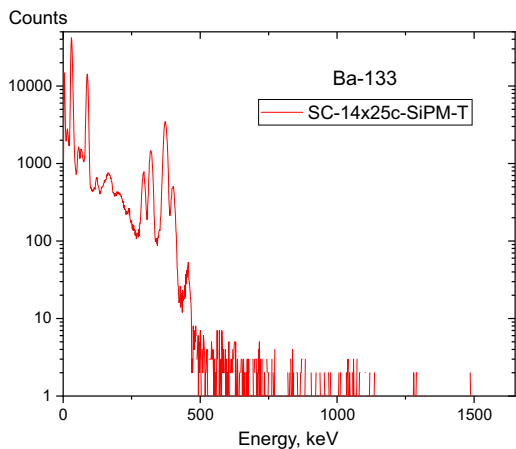
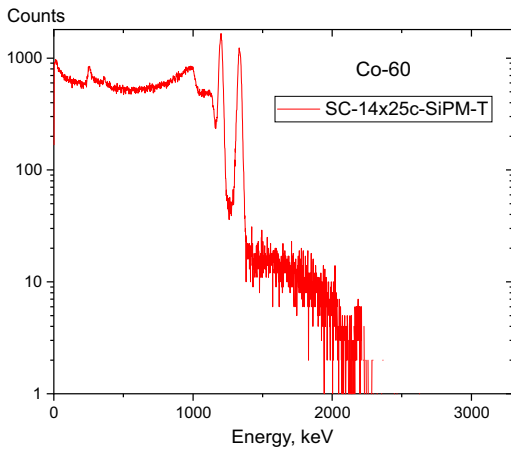
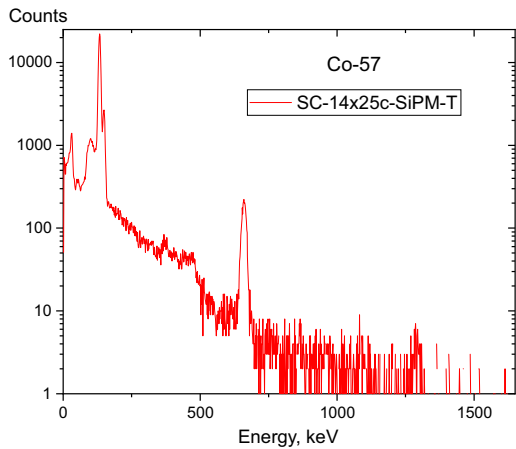
- Configurable operating parameters of the MCA
- Pulse Pileup Rejection Calibration
- Temperature and Energy Calibration
- Spectrum processing
- Manual and auto saving/loading of the spectrum
- Changeable channel data type
- User-friendly GUI for Windows and Android devices



Design and specifications are subject to change without notice

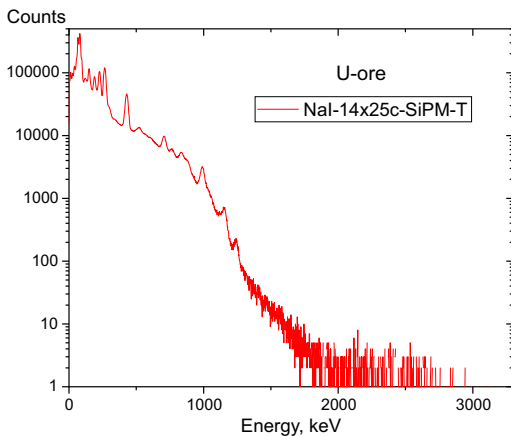
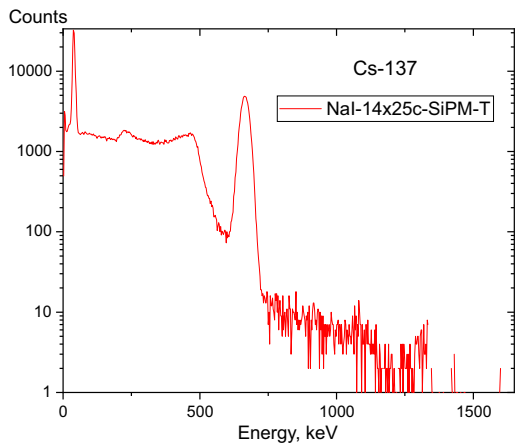
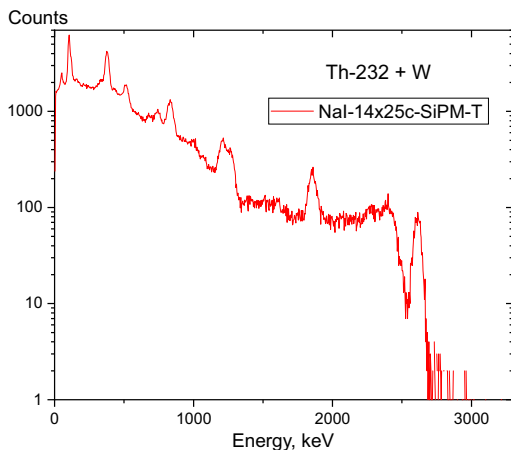
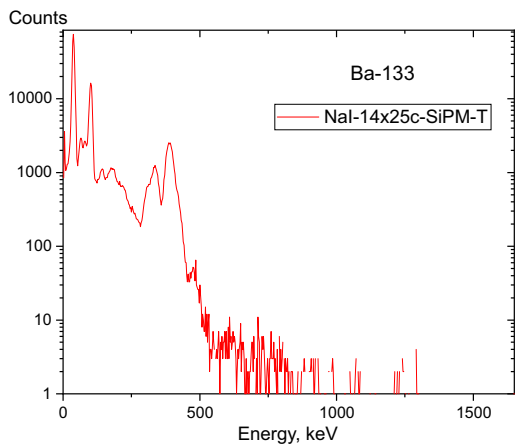
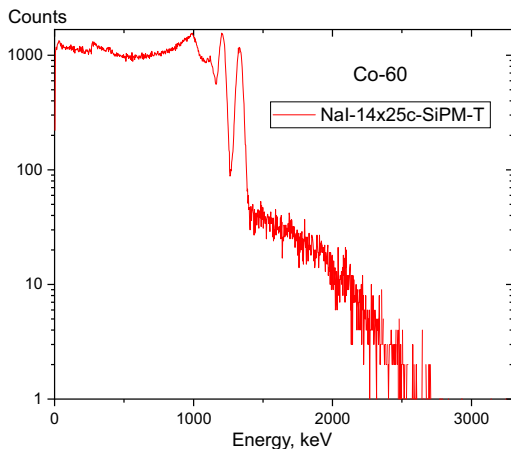
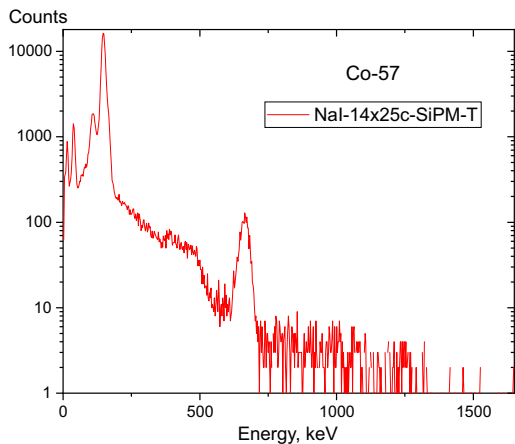
Unambiguous Identification with ScintiClear Scintillation Assemblies

(All spectra taken with MacroPixel SC-14x25c-SiPM-T detector assembly)



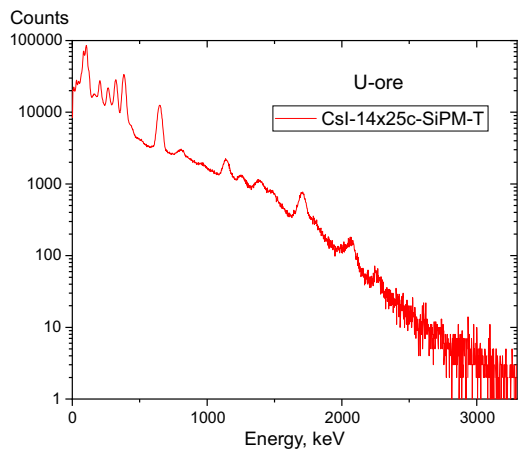
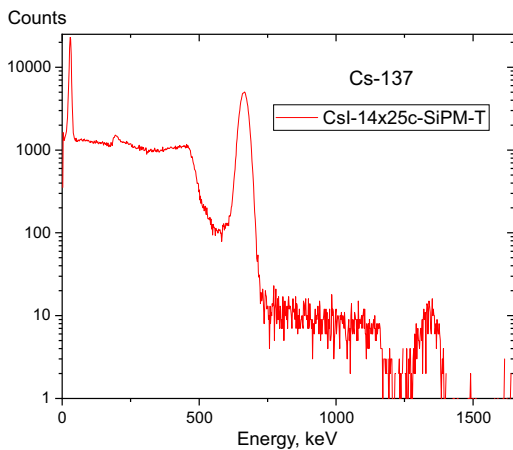
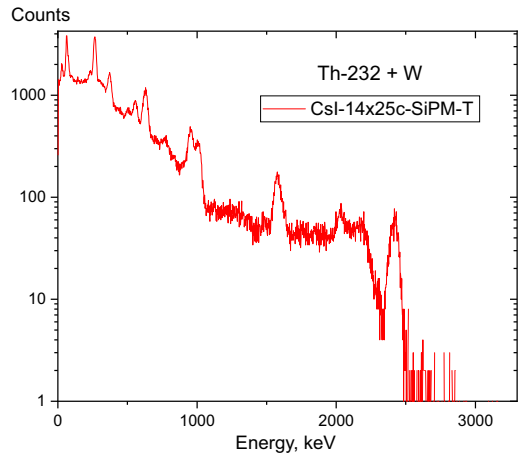
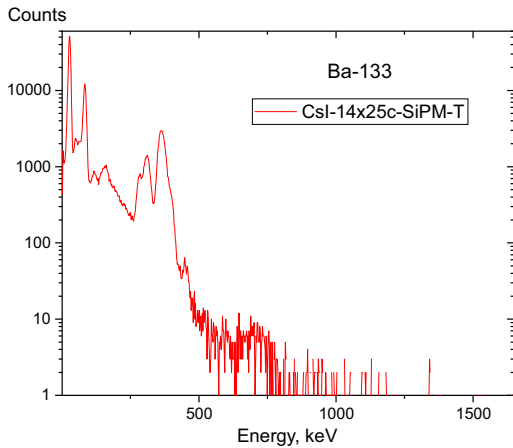
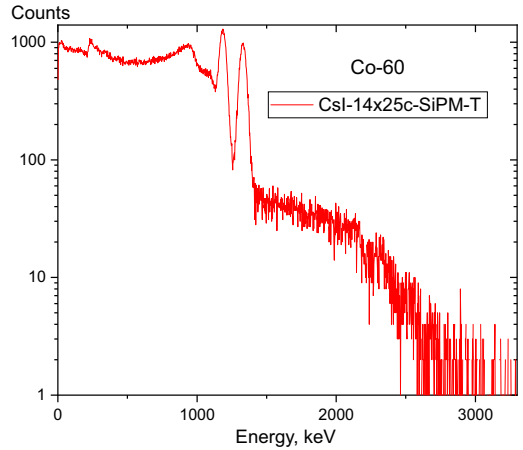
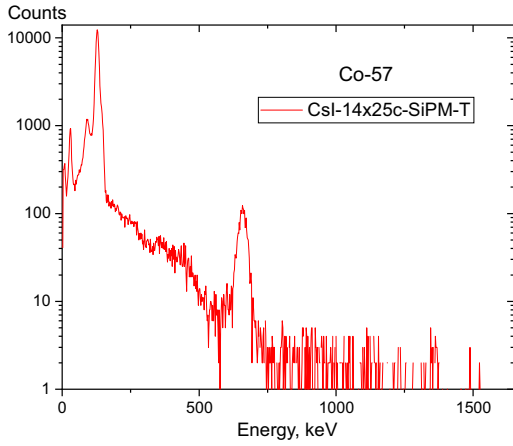
Unambiguous Identification with NaI Scintillation Assemblies

(All spectra taken with MacroPixel NaI-14x25c-SiPM-T detector assembly)



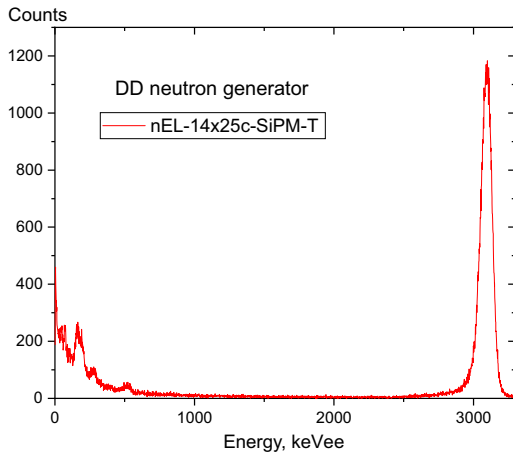
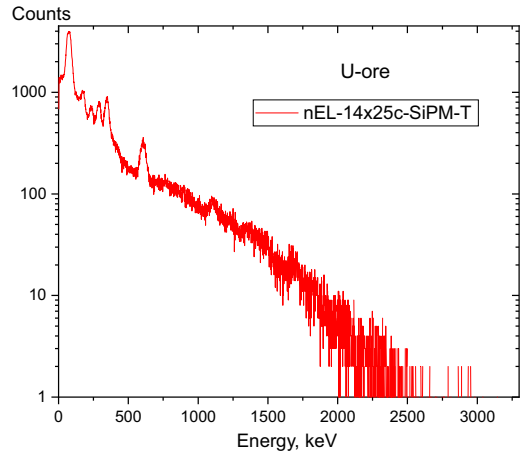
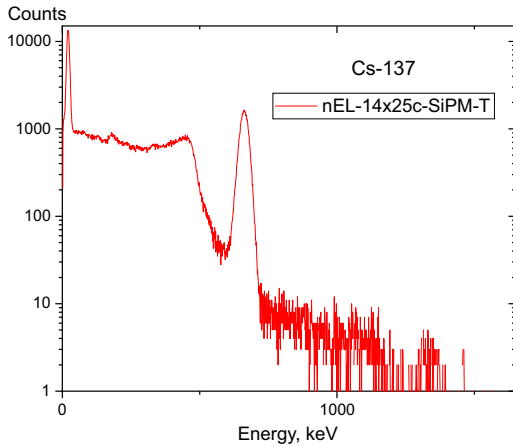
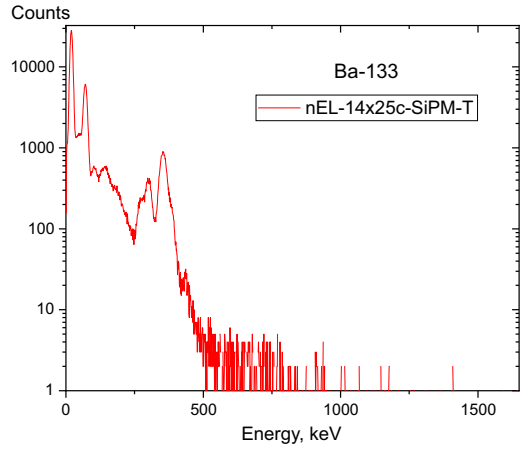
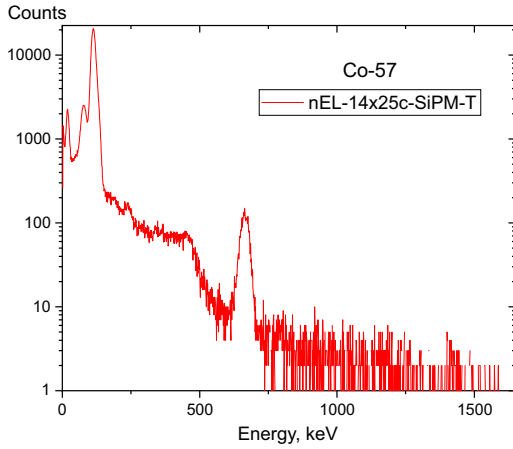
Unambiguous Identification with CsI Scintillation Assemblies

(All spectra taken with MacroPixel CsI-14x25c-SiPM-T detector assembly)



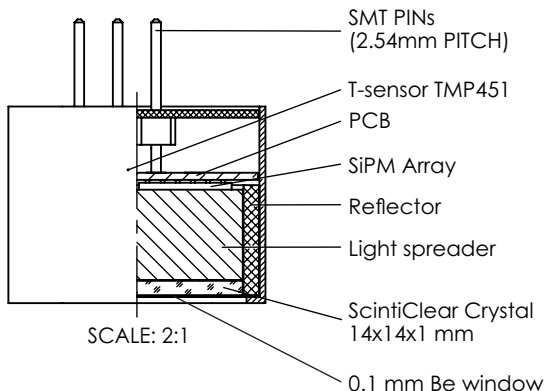
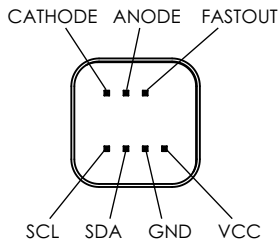
Unambiguous Identification with ElpasOlight Scintillation Assemblies

(All spectra taken with MacroPixel nEL-14x25c-SiPM-T detector assembly)



ScintiClear SC-14x1c-SiPM-T

Dimensions: 17x17x18 mm, Weight: 8 g



MacroPixel SC-14x25c-SiPM-T

Dimensions: 17x17x32 mm, Weight: 26 g

MacroPixel nEL-14x25c-SiPM-T

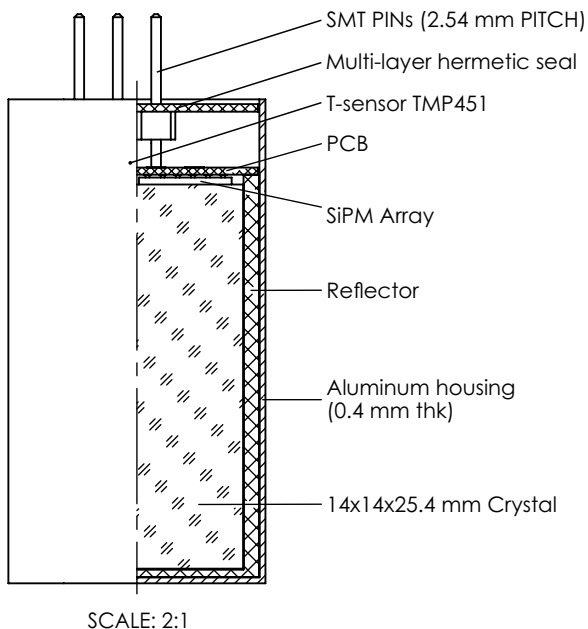
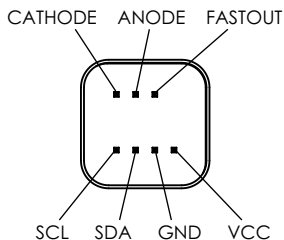
Dimensions: 17x17x32 mm, Weight: 25 g

MacroPixel NaI-14x25c-SiPM-T

Dimensions: 17x17x32 mm, Weight: 25 g

MacroPixel CsI-14x25c-SiPM-T

Dimensions: 17x17x32 mm, Weight: 32 g



MegaPixel SC-28x51c-SiPM-T

Dimensions: 31x31x64 mm, Weight: 200 g

MegaPixel nEL-28x51c-SiPM-T

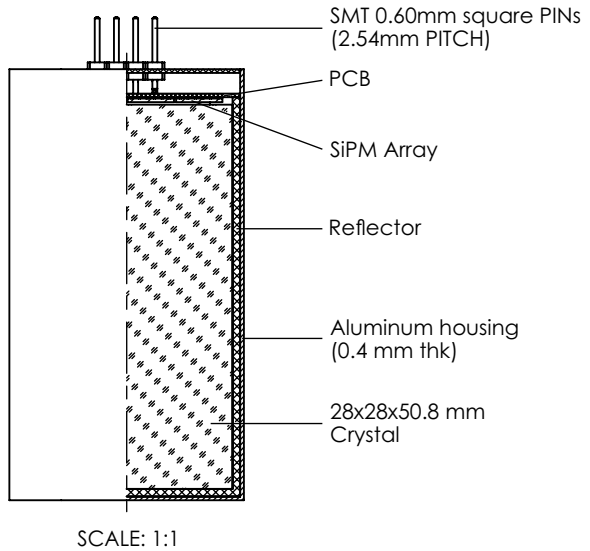
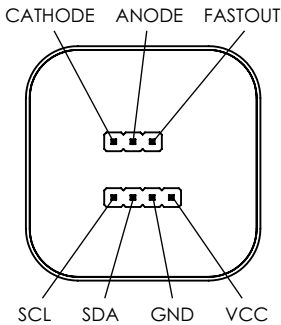
Dimensions: 31x31x64 mm, Weight: 150 g

MegaPixel NaI-28x51c-SiPM-T

Dimensions: 31x31x64 mm, Weight: 165 g

MegaPixel CsI-28x51c-SiPM-T

Dimensions: 31x31x64 mm, Weight: 200 g



SC-MacroPixel-MCA

Dimensions: 17x17x70 mm , Weight: 40 g

nEL-MacroPixel-MCA

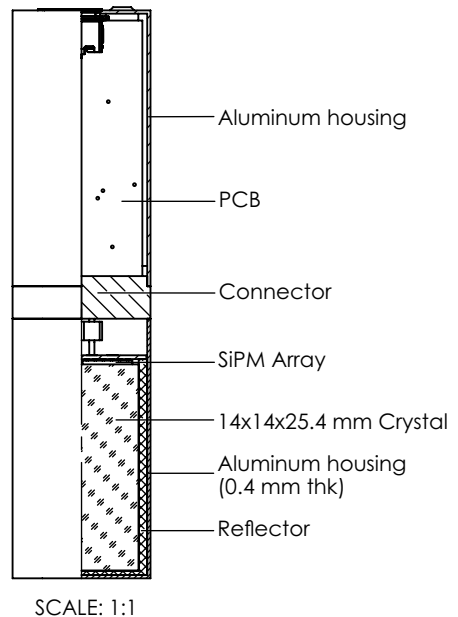
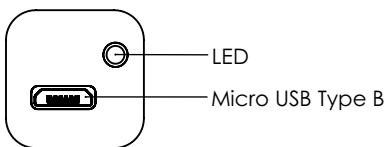
Dimensions: 17x17x70 mm , Weight: 35 g

NaI-MacroPixel-MCA

Dimensions: 17x17x70 mm , Weight: 40 g

CsI-MacroPixel-MCA

Dimensions: 17x17x70 mm , Weight: 35 g



Typical Scintillation Probes 2D drawings

SC-MegaPixel-MCA

Dimensions: 31x31x90 mm , Weight: 210 g

nEL-MegaPixel-MCA

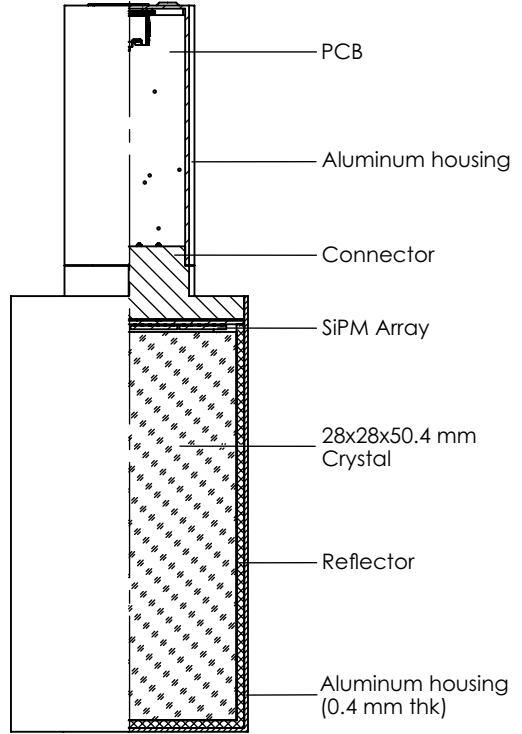
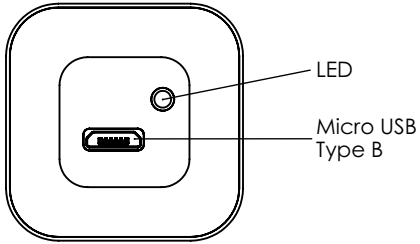
Dimensions: 31x31x90 mm , Weight: 175 g

Nal-MegaPixel-MCA

Dimensions: 31x31x90 mm , Weight: 210 g

CsI-MegaPixel-MCA

Dimensions: 31x31x90 mm , Weight: 160 g



SCALE: 1:1

Standard and Custom Radiation Detectors

CapeScintTM

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