

SmartCAM Alpha Beta Plus

SmartCAM AB+



Who are we and what do we do?

- Specialise in the design and manufacture of health physics and radiation protection systems
 - Installed on-line monitoring systems
 - Stand Alone (alpha-beta aerosol, gas, dose, liquid)
 - Networks (Building / Plant / Site / Regional networks)
 - Stack Sampling and Stack Flow Measurement
- Established in 1976
- 65 employees – Offices in the UK and USA
- Quality Assurance - ISO9001 and ASME NQA-1

Capabilities: Stack Effluent

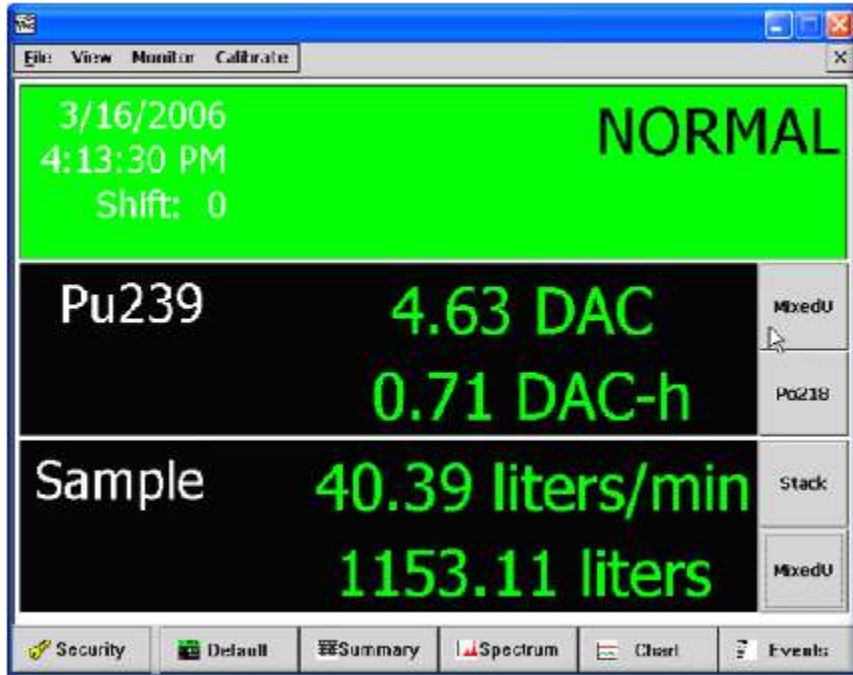


SmartCAM Continuous Air Monitor Alpha Beta CAM

- Alpha spectrum analysis with peak fitting algorithm used in differential spectrum
- Temperature and pressure spectrum stabilization (Patented)
- Detachable head assembly for remote monitoring
- Gamma dose-rate sensor (option)



SmartCAM Display



- Easy to use, easy to navigate, touch screen display
- Continuous Display of
 - Concentration (i.e. DAC) by Nuclide
 - Dose (i.e. DAC-h) by Nuclide
 - Sample Flow
 - Integrated Sample Volume
 - Temperature
 - Dose Rate (optional)
 - Pressure

Key Project: 2011-2012 Areva MOX – Area CAMs



 **Shaw** | AREVA
MOX SERVICES, LLC

Key Project: 2011-2015

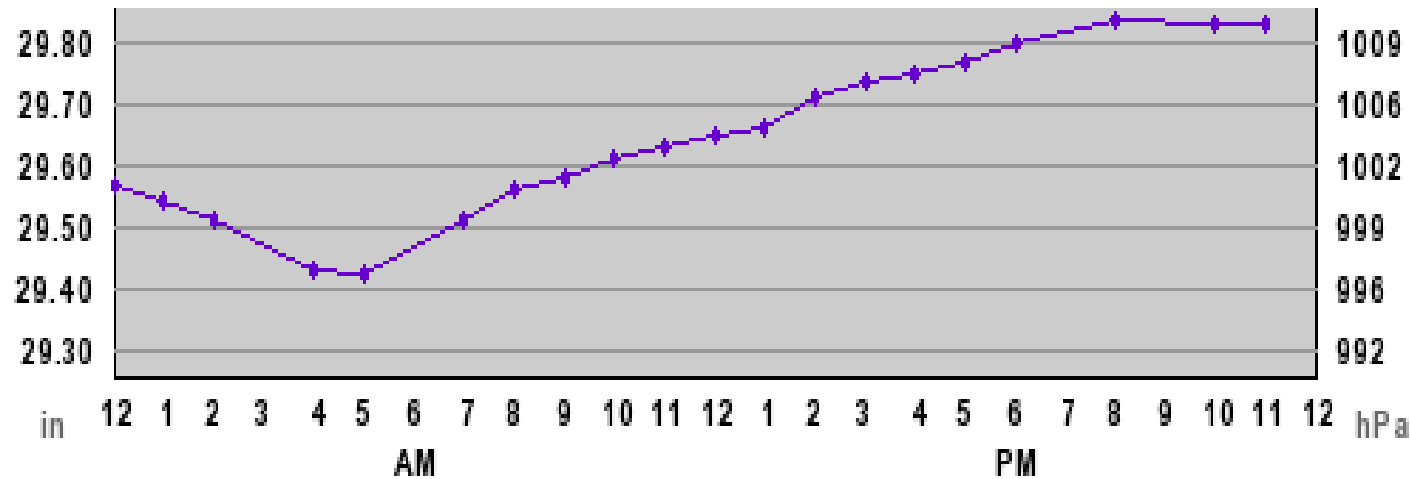
Bechtel National – Stack Monitors & Area CAMs



Temperature and Pressure

- Variable Nature of Temperature and Pressure produces a variable air density

AWHITU: Summary for Tue, Sep 21, 2010

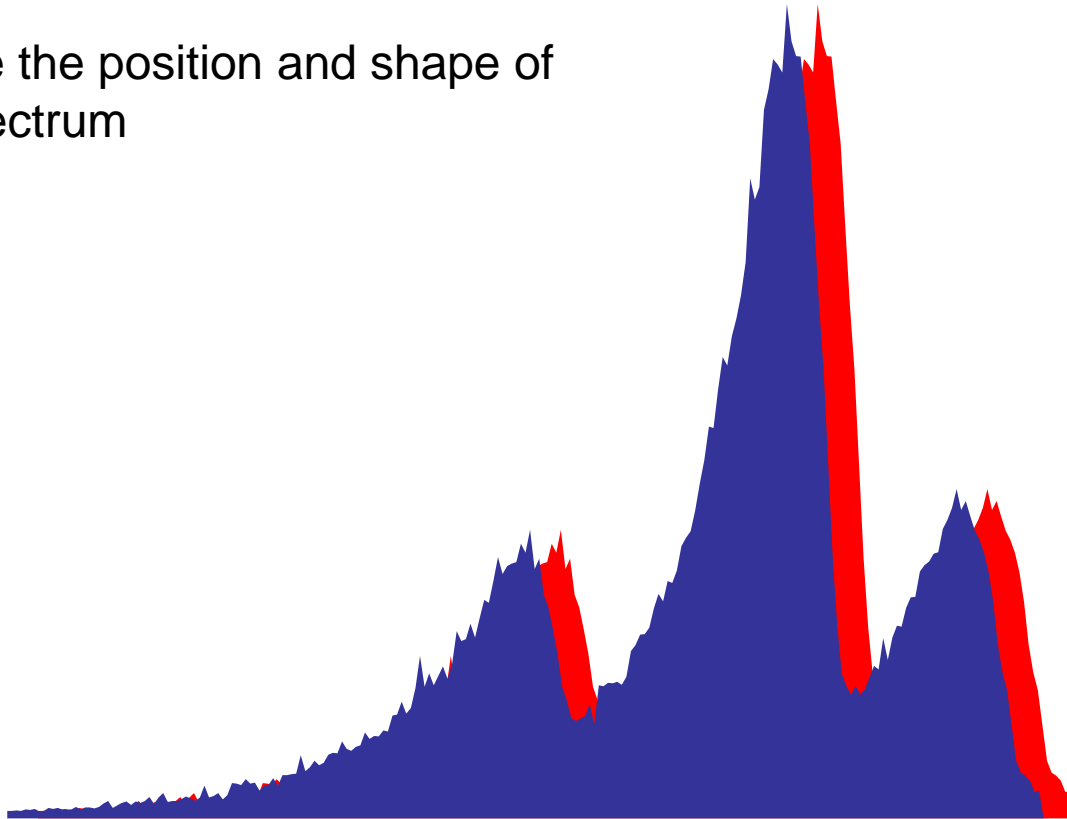


Pressure



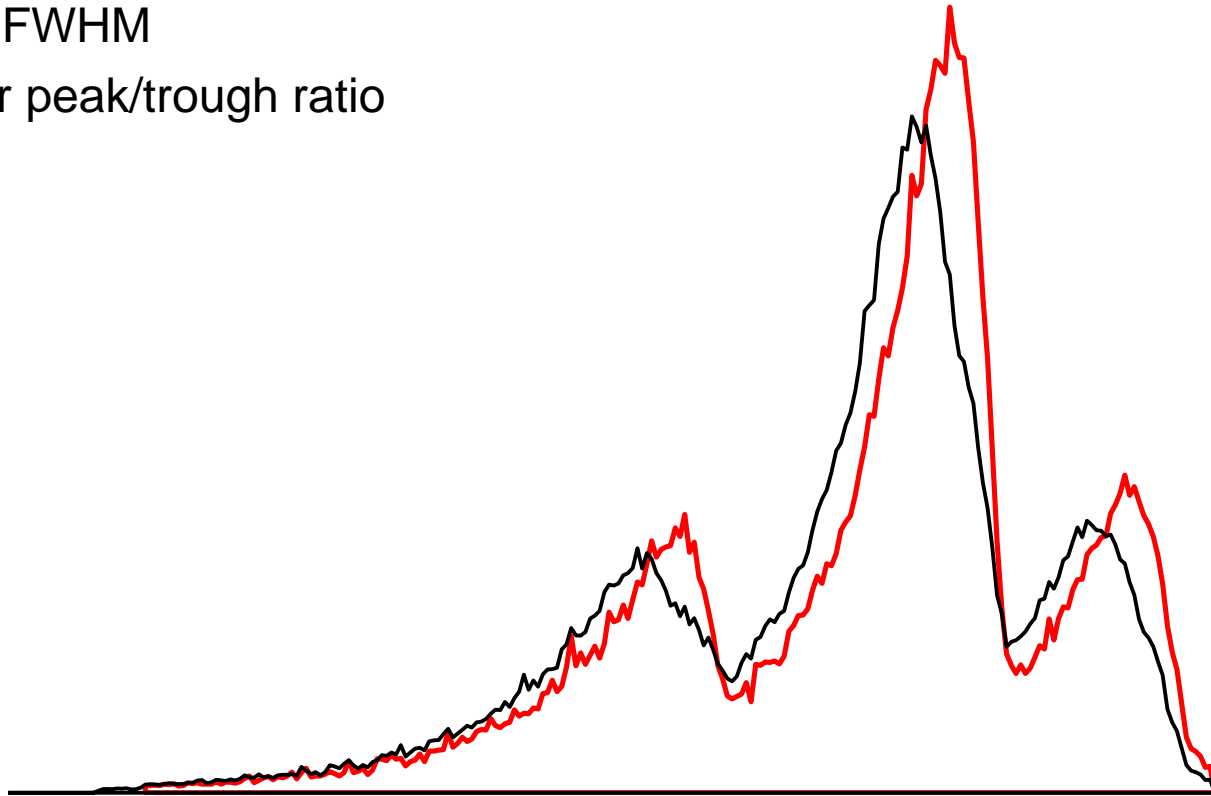
Changes in air density...

- change the position and shape of our spectrum



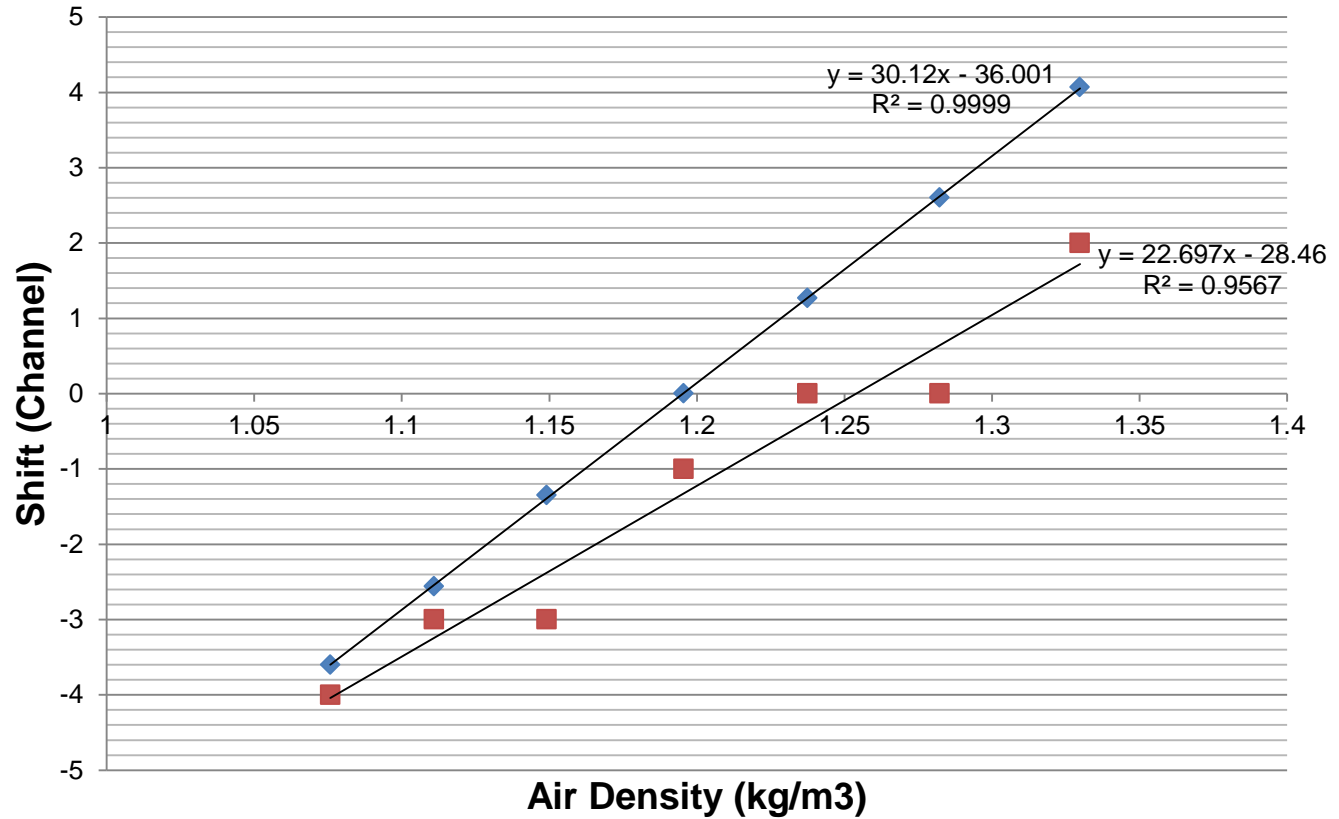
Changes in spectrums include:

- Peak position change
- Larger FWHM
- Smaller peak/trough ratio



Measured Response

Peak Correction



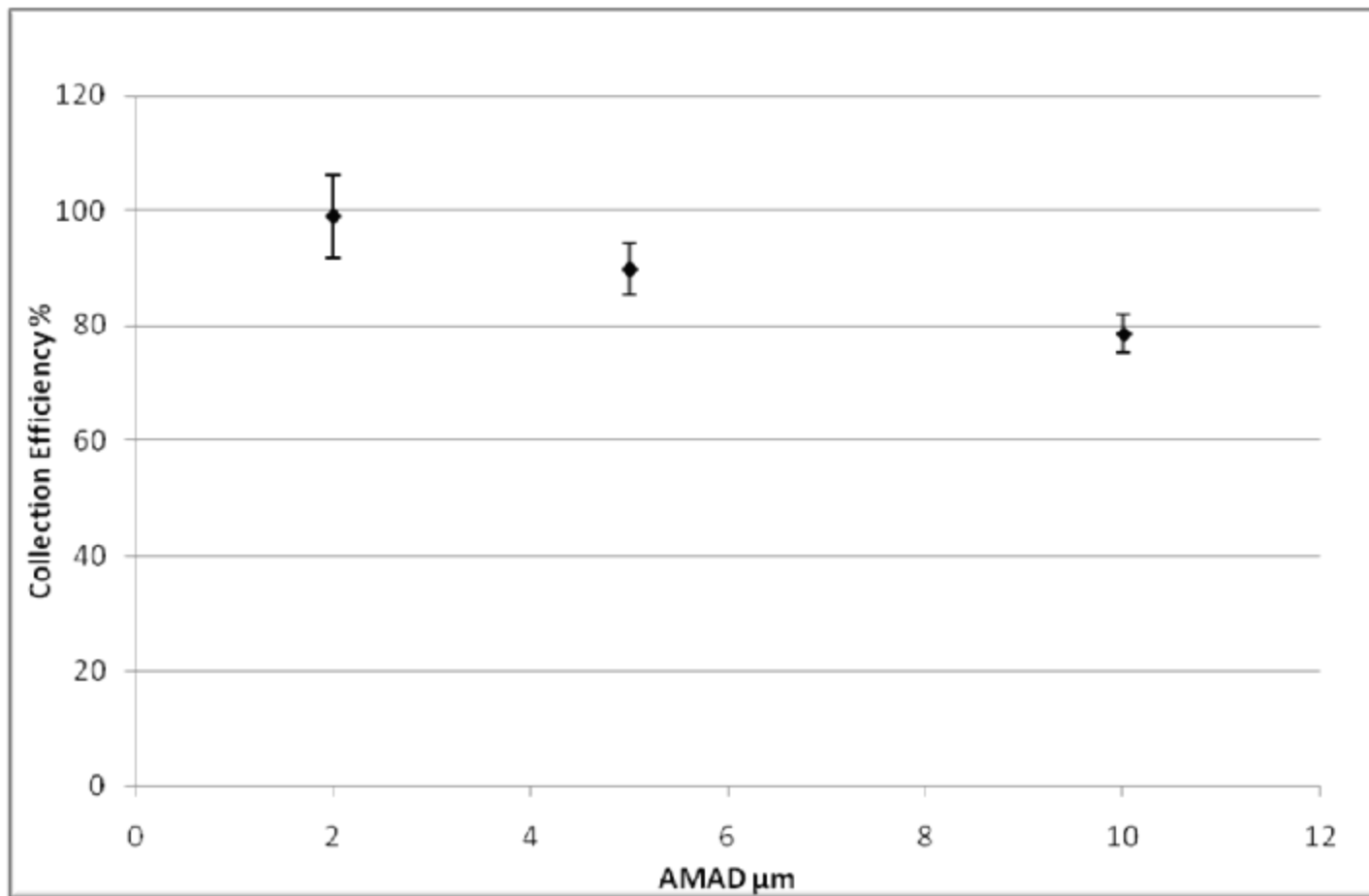
Temperature and Pressure

The SmartCAM.....

- Continuously Measures Pressure and Temperature
- Compensating algorithm prevents any 'shift' in the peak positions
- No need to recalibrate when it is moved to a different location

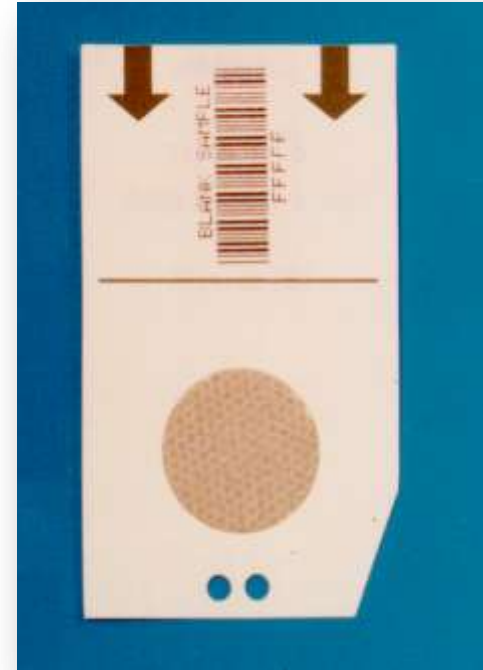


SmartCAM Performance

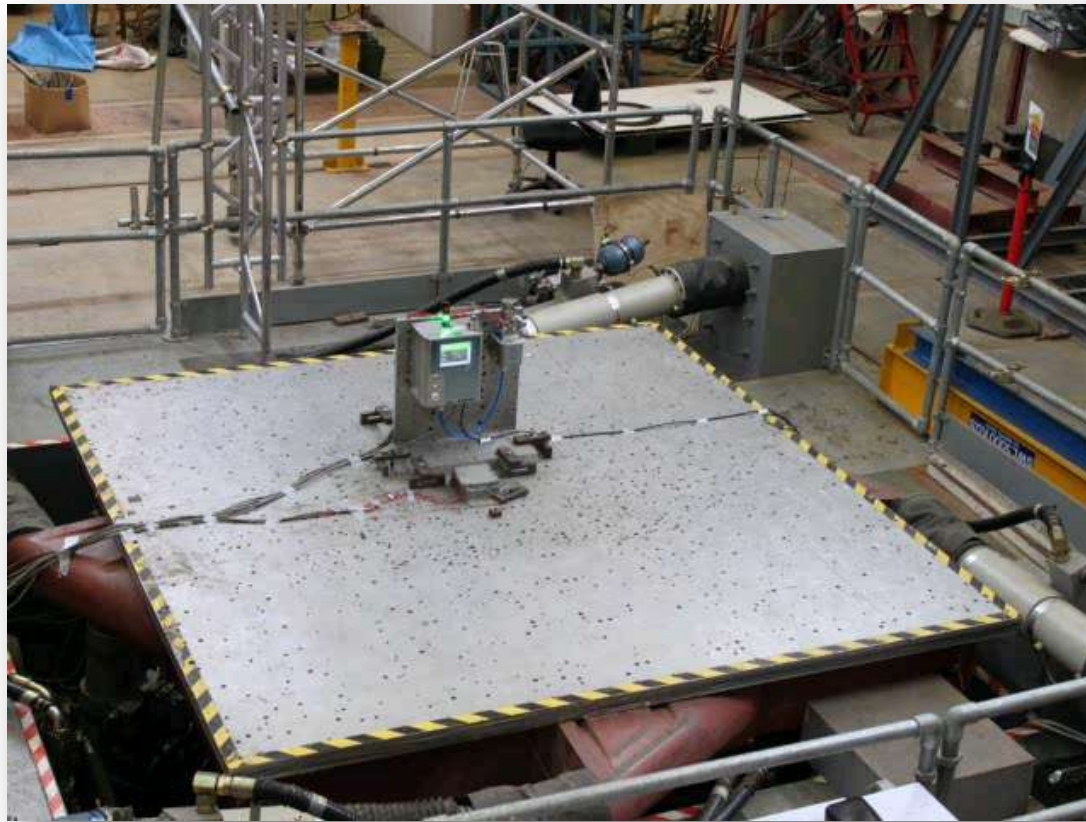


SmartCAM Filter

- Card mounted filter / Moving Filter/ Fixed Filter
- 25 mm diameter active area
- Filter types **GF/A**, **Fluoropore**, **Speclon**
- Quick filter exchange process
- Easy to handle and transport
- Differential pressure to check for filter damage



Seismic Analysis



SmartCAM - Outputs

- Stand-alone or network operation
- Wide range of Inputs and Outputs
 - 4 x relay contacts (Fail, Alert, Alarm, custom applications)
 - 2 x current inputs (4-20 mA for stack flow rate)
 - 3 x current outputs (4-20 mA , configurable)
 - 1 x RS-485 port
 - 1 x RS-232 port
 - 1 x RJ-45 Ethernet connection
- Protocols: Lab Impex, Radnet, and ModBus (ProfiBus using an adapter)



Recent Design Changes

- Upgraded to a more flexible detector cable
 - Now using a more rugged, easier to use connector
- Added ModBus support (allows ProfiBus)
- New bracket attaching head to display
- Seismic testing
- NRTL tested to UL 61010-1/CSA-C22.2 No. 61010-1 Second Edition: Electrical Equipment for Measurement Control and laboratory Use
 - For more information, see [:http://ulstandardsinfonet.ul.com/scopes/scopes.asp?fn=61010-1.html](http://ulstandardsinfonet.ul.com/scopes/scopes.asp?fn=61010-1.html)
- 47-mm filter



SmartCAM Summary

- Fixed Filter or Moving Filter
- Gamma dose rate option
- Pressure and Temperature Compensation
 - Providing more stable spectrums
- Advanced Peak Fit Algorithm
 - Providing Improved Accuracy and Fewer False Alarms
- Simple Mechanical Design
 - Improved Reliability and Increased Ease of Use
 - Local Spectrum Display and Touch Screen interface
- Detector Head design for ambient air or stack applications
 - Can be used attached or remotely



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