kromek
safer and healthier world

THE CALL CAME AND WE ANSWERED!

As the DARPA SIGMA program took shape in 2014, Kromek responded to the call to action and designed, developed and manufactured the D3S Handheld Gamma Neutron Radiation detector.

Summary

As part of the DARPA SIGMA programme, the desire for a low cost, high efficiency radiation detector was addressed, with the development of the D3S NET. The idea was to rapidly deploy multiple units of the discreet D3S NET around borders, city or other key locations, and form a large detector network. With the data aggregated from each detector into a central control room, widespread situational awareness is made possible, and responses to radiological threats anywhere in target area coordinated with speed and efficiency.

Developing a handheld radiation detector for the DARPA SIGMA programme

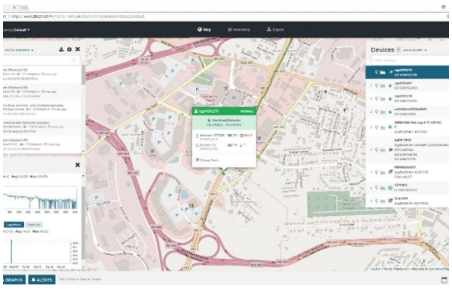
The aim of the DARPA SIGMA program:
The Defense Advanced Research Projects Agency DARPA SIGMA program aims to revolutionize detection and deterrent capabilities for countering nuclear terrorism. The desire for significantly lower-cost and more capable radiation detectors is a common element of multiple detection concepts-of-operations (CONOPs).

A key component of SIGMA thus involves developing novel approaches to achieve low-cost, high-efficiency, packaged radiation detectors with spectroscopic gamma and neutron sensing capability. The program will seek to leverage existing infrastructure to help enable these next-generation detectors and their deployment in order to demonstrate game-changing detection and deterrent systems.

"Terrorist attacks involving the use of proliferated radiological and special nuclear materials pose a potential threat to U.S. citizens and service members. Early detection of such materials and devices made from them is a critical part of the U.S. strategy to prevent attacks."

Dr Vincent Tang, Defense Science Office (DSO) and SIGMA Program Manager

THE CALL CAME AND WE ANSWERED!



The beginnings of DARPA SIGMA and Kromek's involvement:

The DARPA (Defense Advanced Research Projects Agency) SIGMA program began in late 2014 as an effort to create a scalable networked detection capability against radiological and nuclear threats from non-traditional, clandestine attack vectors: typically seen as either a radiological dispersal device or dirty bomb or other use of radioactive material to contaminate infrastructure or directly harm citizens.

DARPA saw the impact the ability to network radiation detectors together to form a large detection net that would have on radiological safety for a city, border or other location. If lots of detectors that talk to one central control room are deployed in an area then they are much harder to avoid than a large static sensor. It also means that they can quickly be deployed into an area without the need for costly setup.

The network (which came to be called SIGMA) would need a cost-effective radiation detector to provide the data into the network – without the detector, the network would have no purpose.

Kromek develops the D3S handheld gamma neutron detector

The DARPA (Defense Advanced Research Projects Agency) SIGMA program began in late 2014 as an effort to create a scalable networked detection capability against radiological and nuclear threats from non-traditional, clandestine attack vectors: typically seen as either a radiological dispersal device or dirty bomb or other use of radioactive material to contaminate infrastructure or directly harm citizens.

kromek
safer and healthier world

THE CALL CAME AND WE ANSWERED!

“Lower-cost and more sensitive detectors, along with innovative deployment strategies, could significantly enhance detection and deterrence of attack.”

Dr Vincent Tang, Defense Science Office (DSO) and SIGMA Program Manager

DARPA SIGMA announcement and tests

The SIGMA network with D3S NET handheld radiation detectors is now deployed protecting vital areas of the USA and is available worldwide.

Background and overview of the program

Dr. Vincent Tang, a program manager in DARPA’s Defense Sciences Office, describes DARPA’s progress toward automated, always-on radiological detection systems designed to detect nuclear materials quickly over vast distances. He spoke at DARPA’s “Wait, What? A Future Technology Forum” on Sept. 9, 2015.

Deployment with Washington DC Fire and Emergency

The D3S was fitted into ambulances to demonstrate its ability to provide cover across a whole city. The fleet provided the first city-scale, dynamic, real-time map of background radiation levels throughout the Capital as well as identifying any unusual spikes that could indicate a threat.

Large scale test in Washington DC, USA

The first large scale test of the system was a 1,000 detector deployment in Washington, D.C. At the time is was the largest number of D3S mobile detectors ever tested at one time and a demonstration of the devices ability to combine the data provided by all those sensors to create minute-by-minute situational awareness of nuclear threats.