Combining technologies-radiography and neutron based- for cargo security applications

Tsahi Gozani*, Felix Liu*, Alan Akery[x], Doug Brown*

[*] *Ancore Corp , an OSI Systems Company*
[x] *Rapiscan Security Products Inc, an OSI Systems Company*

Inspection of air and sea cargo has traditionally been done by X-ray systems of various energies relying on operators to analyze images looking for anomalies in the image of cargo that may signify a threat. This has shown only limited success in detecting explosives and other threats, which do not have any distinctive shapes.

OSI Systems, through its subsidiaries Rapiscan and Ancore, has combined high-energy x-ray radiography with thermal neutron analysis (TNA) to create the combined system- "TNX". The system provides automatic material specific detection of bulk threat items, like explosives, while furnishing the operator with a high-resolution image for weapons detection and also to identify anomalies for the TNA to inspect.

Similarly the Pulsed Fast Neutron Analysis (PFNA) can be combined with high-energy x-ray to create a "PFNX" system for both air and sea cargo applications. This enables the operator obtain a three dimensional image of the material composition of the cargo under inspection and remove the clutter from the image leaving only the potentially hazardous material(s) automatically while viewing a high resolution image for manifest verification and weapons.

The current status of the technology will be discussed and data be presented