

# NEMA DICOS and ANSI HSSP




The Association of Electrical and Medical Imaging Equipment Manufacturers





# NEMA Values

-  Promote the safe and effective design, installation of products.
-  Value open, competitive markets
-  Support national regulations and voluntary standards that are technically sound, economically justified, and promote innovation, public safety, access to life saving and energy efficient products, and efficient resource allocation.



# NEMA Values

## Collaborate within NEMA to:

- improve production and manufacturing of products,
- enlarge their distribution, and
- promote innovation and increased efficiency and safety of use of electrical and medical imaging



# Vision Statement

With a North American focus and global reach, NEMA is the voice of and forum for the electrical and medical imaging industries serving manufacturer members.



# Mission Statement

As the voice for the electrical and medical imaging industries, NEMA is a pacesetter champion for safety, innovation, interoperability, environment, and market enhancement through advocacy, business information, and standards for products, systems, and technologies.



# Standards

- 💡 Influence international technical standards activity by ensuring that international standards embrace North American products
- 💡 Raise NEMA's profile at I.E.C.
  - Influence North American standards activity by ensuring that North American standards are compatible with I.E.C. standards



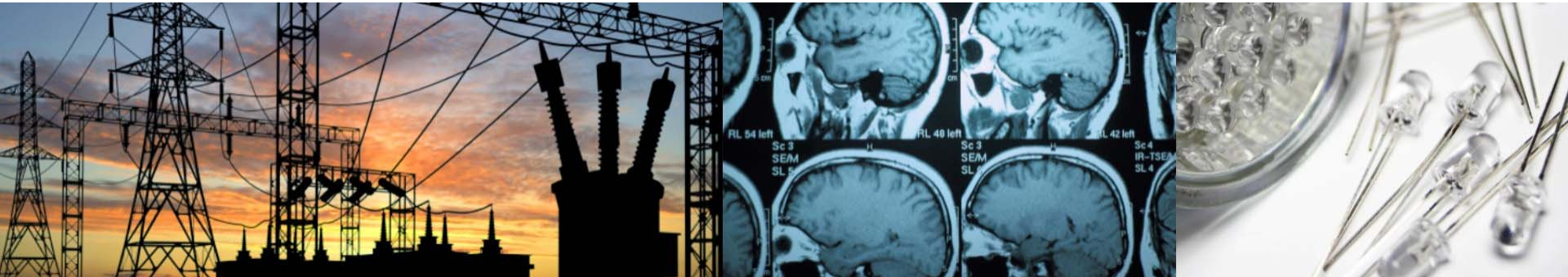
# Standards

-  Modify standards development process to address conformity and testing aspects
-  Develop certification capability and grow certification programs
-  Move toward dynamic standards development process that augments NEMA's influence on interoperability standards involving other industries such as software, transportation, and utilities

# DICOS Phase 2 Standards Activities



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# Equipment Interoperability

- ✎ Couldn't security screening equipment from different manufacturers be interoperable?
- ✎ Interoperable means “The ability of two or more systems or components to exchange information and to use the information that has been exchanged” (courtesy of IEEE)



## Equipment Interoperability (2)

-  With interoperability, airport screening equipment could produce, store, display, process, send, and retrieve—without regard to brand
-  Use different Automated Target Recognition (ATR) / Automated Threat Detection (ATD) algorithms as needed.






# DICOS Project Development

- ✎ NEMA has member technical expertise, DICOM, and standards development expertise
- ✎ ...A standards project is born
  - DICOM (medical) is being adapted into DICOS (security)
  - Reliance on DICOM provided a sound basis for DICOS development—and we are grateful
  - Many existing DICOM services and data infrastructure can be inherited and leveraged without change.






# DICOM versus DICOS—Differences

## DICOM

-  Patient
-  Subject of Exam= Patient Only
-  About 3 patients per hour/CT device, depending on complexity of exam, with scans = ~ 8 bags

## DICOS

-  Passenger
-  Subject of Exam= Passenger + checked bags + carry-on
-  1,000 bags/hour







# Develop DICOS v02

Based on DICOS v01, DICOS v02 project includes:

- 🔧 Develop Support for AIT & QR (Task 1)
- 🔧 Update TDR IOD (Task 2)
- 🔧 Revise IODs (Task 3)
- 🔧 Data Transmission (Task 4)
- 🔧 Publish DICOS v02 (Task 5)



# Support AIT (Task 1)

-  **Drafted two additional AIT modules:**
  - 2D for: Passive/Active MMW, XBS, TX, THz, Active/Passive IR; and
  - 3D for: Passive/Active MMW, THz
-  **Developed additional QR module**
-  **Next/final Task 1 deliverable due Nov 30 2011**
-  **Task is on or ahead of schedule**



## Update TDR IOD (Task 2)

- ✎ **Modify DICOS v01 Threat Detection Report to:**
  - Address Operator TDR (v01 is ATR)
  - Support AIT/QR
- ✎ **Next Task 2 deliverable due Sep 30 2011, with Task 2 complete Dec 30 2011**
- ✎ **Sep 30 deliverable includes text + some examples, with supplemental on Oct 14**



# Data Transmission (Task 4)

## Task 4 purpose is to:


- Provide proof that DICOM file services can actually transport DICOS-format files
- Determine how much “overhead” is incurred in transmissions using DICOM file services

 First report is complete, several other reports and studies are in progress





# Revise IODs (Task 3) & Publish (Task 5)

 Task 3 is based on both GFI (from DHS-contracted sources) & revisions identified via Tasks 1, 2, & 4

- Scheduled Dec 1 2011 thru Feb 29 2012

 Task 5 includes NEMA balloting and publication

- Scheduled Mar 1 2012 thru Jun 30 2012

# DICOS PHASE 3



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## Partnership with DHS

- NEMA remains committed to working closely with Department of Homeland Security (DHS) Science & Technology to develop standards which will improve security imaging by allowing greater equipment interoperability.



# Modalities - Status Report

In reviewing SCS priorities, the status of NEMA activities follows:

- 💡 Checked bag (DICOS 1)
- 💡 Checkpoint (DICOS 1)
- 💡 Cargo
- 💡 Advanced technology (DICOS 2)
- 💡 Vehicle scanners - with and without people and cargo
- 💡 Stand-off detection
- 💡 Shoe scanners (DICOS 2)
- 💡 Liquid threat detection (DICOS 1)
- 💡 Support-personnel access points
- 💡 Human screening



# Objective of Proposed DICOS Phase 3

## Develop DICOS Phase 3 for Air Cargo Scanning to:

- Standardize representation of relevant metadata
- Allow consistent transmission of relevant metadata and images
- Promote interoperability



# How Do We Get Started?



## Method of approach

- Consensus Standards Development, as used in DICOS Phase 1 and DICOS Phase 2
- Identify new participants



## Anticipated results

- A standardized approach to consistent representation and transmission of metadata associated with air cargo scanning for security purposes.



# DICOS 3 supports DHS mission:

For air cargo, DICOS Phase 3 would allow the transmission and exchange of images and relevant metadata, enabling automatic or operator-based threat detection, either locally or at a remote (centralized) location

💡 Promote efficiencies in air cargo security examination, via remote analysis and exchange of standardized metadata, reducing resource requirements for shippers/airlines and TSA

💡 Allow for the establishment of centralized TSA screening sites with remote analysis capability, which would help achieve the goal of 100% cargo screening

💡 Remote analysis of images of potentially dangerous cargo could keep personnel out of danger zones



# Questions and Discussion!

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