

Development of Standards

“Digital Imaging and Communication in Security (DICOS)”

ADSA ‘13

NEMA Vision

NEMA is the preeminent source of worldwide market information for the electroindustry, and the leading advocate of global standards and government policies that benefit its members and the public.

What is NEMA?

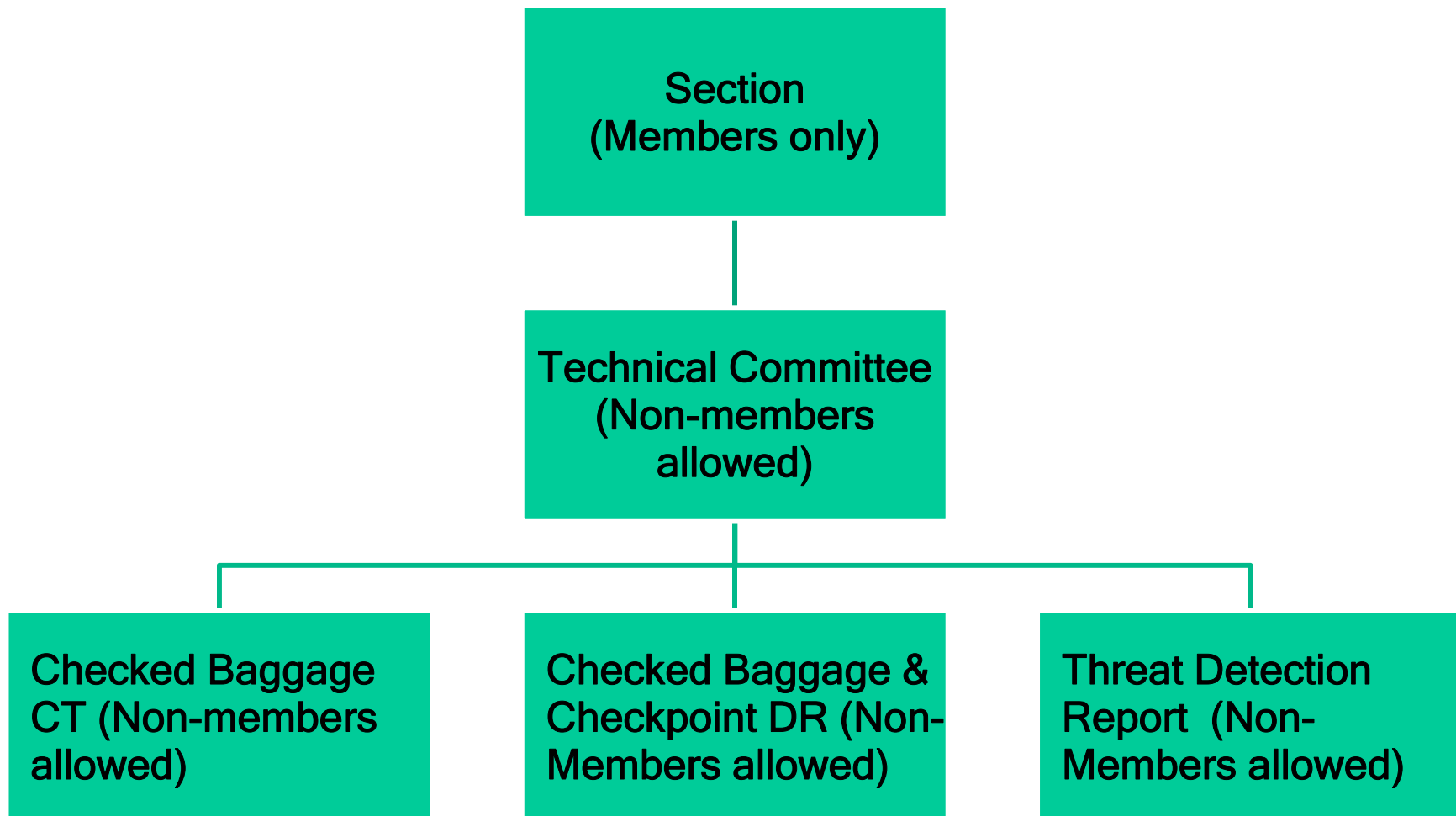
- Represents 450 electrical and medical imaging equipment manufacturers
- Manages 500 standards. About half are ANSI standards.

A NEMA standard defines a product, process, or procedure with reference to:

- Nomenclature
- Composition
- Construction
- Dimensions
- Tolerances
- Safety
- Operating characteristics
- Performance
- Ratings
- Testing
- The service for which it is designed

NEMA believes that standards play a vital part in the design, production, and distribution of products destined for both national and international commerce. Sound technical standards benefit the user, as well as the manufacturer, by improving safety, bringing about economies in product, eliminating misunderstandings between manufacturer and purchaser, and assisting the purchaser in selecting and obtaining the proper product for his particular need.

Industrial Imaging & Communications Section



Challenges

- Open standards development arena vs. security-sensitive/classified information
- Extensibility
- International implementation
- Group culture, speed and consensus

First, There Was DICOM

NEMA Medical Division, representing a majority of the medical imaging equipment manufacturers, developed a standard for digital imaging and communications in medicine-DICOM, which is successfully deployed in clinics, universities and hospitals throughout the world using equipment from different suppliers.

DICOS Builds on DICOM

- The medical industry standard for transferal of radiological images and other medical information between computers.
- Patterned after the Open System Interconnection of the International Standards Organization.
- Enable digital communication between diagnostic and therapeutic equipment and systems from various manufacturers.
- Includes x-ray, CT and ultrasound, among other modalities.
- Enables network and component integration in the sending and receiving digital images and related information.
- Covers most image formats for all of medicine.
- A specification for messaging and communication between imaging machines.

Top Issues/Priorities

- 💡 Provide technical leadership for DHS and TSA
- 💡 Connect industry and government resources.
- 💡 Influence the market to provide quality, innovative products.
- 💡 Potential future opps., such as other digital scanning-imaging security application that require transfer of imaging types, such as port security.
- 💡 Active participation by members, DHS, TSA in standard development.
- 💡 Technical “Vision”
- 💡 Operational “Insight” (Define In-Use Environment)

Current initiative-Smart Grid

- NEMA defines Smart Grid as the national electric grid enhanced with monitoring, analysis, control and communications capabilities.
- Such enhanced capabilities are intended to improve reliability, energy efficiency, capacity, security, consumer participation and the utilization of renewable resources and distributed generation.

As a policy, what is DICOS?

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Other Materials

Digital Imaging and Communications in Security (DICOS)

NEMA Developed DICOS Standard

- DICOS-conformant images can be evaluated using Automatic Threat Detection (ATD/ATR)
- Based on DICOM, the new standard facilitates interoperability of security-imaging equipment
 - DICOS also allows transfer of images for secondary inspection
- Supported by DHS and TSA

DICOM = Digital Imaging and Communications in Medicine

DICOS

Development of a Data Representation & Data Transmission Standard* for Checked Baggage and Checked Point applications

- CT: B and C Interface
- DR: B and C Interface
- AIT (Passenger)
- Threat Detection Report (TDR): Establishes common format for ATD results for above scenarios
- Other modalities: QR, THZ, MM Wave, etc.

Consensus Road Map for Phased Implementation per DHS Priorities

Technical Committee Deliverable

- 💡 Scope: DICOS provides a data interchange protocol and interoperable, extensible file format to facilitate data interchange (demographic information, X-ray radiographs, CT images, material specific information, trace detection signatures, threat assessment, etc.) of objects of inspection (checked or carry-on baggage, parcels, personnel, etc.) for security screening applications.
- 💡 Elements of Overall Hierarchy
 - From Aggregate Traveler through Scan Level
 - Excluding (but coordinated with) DR- , CT-, or other technology-specific objects
 - Coordinated with Threat Detection Reports (TDRs)

CT, DR Threat Detection Deliverables

- 💡 Data representation standard for CT scans of Checked Bags at B Interface
- 💡 CT modules and attributes below scan level (excluding Threat Detection)
- 💡 Data representation standard for DR scans of Checked Bags and Checkpoint at B Interface
- 💡 DR modules and attributes below scan level (excluding Threat Detection)
- 💡 Data representation standard for threat detection reports (TDRs), including both automated detection and operator on-screen resolution information, and compiling TDRs from multiple producers at multiple levels (see Worldview).
- 💡 Identifying the structure of TDRs associated with data from a producer, or multiple producers scanning the same object.