Module I

International Standardization

Introduction and Overview

First edition: June 2005

This training material has been developed with content provided by the USNC/IEC Communications and Continuing Education Committee and the ANSI Education and Training Services Team
Module I: Learning Objectives

- This module provides a general overview of international standardization including:
  - Definition of basic terms and concepts
  - An overview of the benefits of participation in international standardization
  - An introduction to the
    - key international standards organizations
    - key regional standards organizations
    - role of the U.S. National Committee of the International Electrotechnical Commission (USNC/IEC)
Module I: Disclaimer

- The information contained in this self-taught learning module is intended as a summary of documents and procedures frequently used within the IEC and the USNC/IEC.

- The topics that follow are presented in summary format only. For additional information about content addressed in this module, please contact the USNC/IEC staff.

- Additional information is also available via ANSI Education and Training Services.

The “Question Mark” icon indicates that optional supplemental information is available for review. The additional text will only be displayed if the user clicks directly on the “Question Mark” icon.
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See, we told you it would work!

This is an example of the pop-up box that will appear if you click on the "Question Mark" icons that appear on the following slides.

Click elsewhere on the page and you'll advance to the next slide.
Reference Materials and Source Documents

  Procedures for the technical work
  Rules for the structure and drafting of International Standards
- ISO/IEC Directives, IEC Supplement:2004
  Procedures specific to IEC
- IEC Statutes and Rules of Procedures
  IEC membership and participation procedures
- USNC Rules of Procedure
- USNC Statutes
- USNC Operating Procedures for USNC/IEC TAGS
- Guide for U.S. Delegates to meetings of ISO and the IEC
Standardization is a global activity encompassing a myriad of interests:

- **Standards Developers and Conformity Assessment Bodies**
  - e.g. NEMA, UL, ASTM

- **Commercial Interests**
  - e.g. NEMA members

- **Consumers, Educational Institutions, and General Interests**

- **Government Interests**
  - (Federal, State and Local)
Premise
One Standard : One Test : One Acceptance

In a global marketplace, the objective of the standardization process must be a single, technically valid and globally relevant standard with a single test of conformance to that standard. This will allow products to be distributed for worldwide commerce without change or modification.
Definitions

- **Standards**
  - Formal technical documents for generally accepted products, processes, procedures and policies.

- **Standardization**
  - Use of common products, processes, procedures, and policies to facilitate attainment of business objectives.

- **Conformity Assessment**
  - A process whereby a product, process, service or system is evaluated against a standard.
Definition

- **Consensus**
  - General agreement, characterized by the absence of sustained opposition to substantial issues by any important part of the concerned interests and by a process that involves seeking to take into account the views of all parties concerned and to reconcile any conflicting arguments

  Source: ISO/IEC Guide 2

**IMPORTANT NOTE:** Consensus does *not* imply unanimity
Roughly 80 percent of global merchandise trade is affected by standards and by regulations that embody standards.

Source:
National Institute of Standards and Technology
Testimony before the U.S. House of Representatives – Committee on Science, Subcommittee on Technology
September 13, 2000
Did you know . . .

In accordance with the World Trade Organization’s Technical Barriers to Trade Agreement, *International Standards* are:

- developed within procedures intended to ensure global consensus
- developed and applied on a voluntary basis, but are increasingly adopted or referenced by governmental bodies

These standards shall not “give preference to characteristics or requirements of specific countries or regions when different needs or interests exist in other countries or regions.”

The World Trade Organization (WTO) fosters international trade based on, among others, *conformity assessment practices* that balance regulated public protection and heightened industrial competition.
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*DID YOU KNOW . . . ?*

**World Trade Organization**

Second Triennial Review of the Operation and Implementation of the Agreement on Technical Barriers to Trade

Annex 4, Paragraph D. 10

In order to serve the interests of the WTO membership in facilitating international trade and preventing unnecessary trade barriers, international standards need to be relevant and to effectively respond to regulatory and market needs, as well as scientific and technological developments in various countries. They should not distort the global market, have adverse effects on fair competition, or stifle innovation and technological development. In addition, they should not give preference to the characteristics or requirements of specific countries or regions when different needs or interests exist in other countries or regions. Whenever possible, international standards should be performance based rather than based on design or descriptive characteristics.
Q: Why should one participate in the development of international standards?

- To facilitate the adoption of globally-accepted standards that will promote **interoperability** and **commercial acceptance** across the electrotechnical industry

- To **gain** access to foreign markets, to **improve** safety and health and promote the protection of consumers, to safeguard the environment, etc.

- To **anticipate** emerging standards and their impact on technology and global markets
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- To anticipate emerging standards and their impact on technology and global markets.

DID YOU KNOW . . . ?

"Even if you don’t care whether or not IEC standards include US practices, participation in IEC standards activities is essential to stay tuned into the state of the art practices in your industry."

Jack Wells
VP Corporate Development
Pass & Seymour/Legrand
Chairman, USNC Communications and Continuing Education Committee

International Standardization: Introduction and Overview
Provided by the U.S. National Committee of the IEC
Q: Why participate . . .

- Standards are strategic business tools which help develop new global markets for electrical and electro-technology-related products and services.

- U.S. participation helps ensure foreign market access to U.S. technology and helps to eliminate non-tariff trade barriers.

- International standards are frequently adopted as, or used as the basis for, national and regional electrotechnical standards.

- Participation keeps one on the cutting edge of current technology and market trends.

- and countless more reasons . . .
The purpose of IEC (founded in 1906) is to promote international cooperation on all questions of standardization in the fields of electricity, electronics and related technologies.

The purpose of ISO (founded in 1947) is to facilitate the internationalization and unification of standards and related activities over almost the entire range of technology (except that covered by IEC).

The purpose of ITU (founded in 1865) is to promote international cooperation on all questions of standardization in the fields of telecommunications and radio communications.
The International Electrotechnical Commission (IEC), based in Geneva, Switzerland, is a global non-governmental organization that prepares and publishes international standards for all electrical, electronic and related technologies.

Through its national committee members, the IEC promotes international cooperation on all questions of electrotechnical standardization and related matters, including the assessment of conformity to standards.
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DID YOU KNOW . . . ?
The USNC and its members participate in 92% of the IEC Technical Committees and Subcommittees and administer 16% of the IEC TC and SC Secretariats. Additional information will be provided in the modules that follow.
The IEC’s sister organization, ISO, is a non-government organization and network of the national standards institutes of countries, one member per country, with a Central Secretariat in Geneva, Switzerland, that coordinates the system.

ISO acts as a bridging organization in which a consensus can be reached on standards and conformity assessment solutions that meet both the requirements of business and the broader needs of society, such as the needs of stakeholder groups like consumers and users.
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DID YOU KNOW . . . ?

The Joint Technical Committee on Information Technology (JTC 1), is the first -- and at present only -- Joint Technical Committee of the two parent organizations, IEC and ISO.
International Telecommunications Union

- ITU is a world-wide organization which brings governments and industry together to coordinate the establishment and operation of global telecommunication networks and services.

- ITU is responsible for standardization, coordination and development of international telecommunications including radiocommunications, as well as the harmonization of national policies.

- The ITU differs from ISO and IEC in that it was founded on the principle of cooperation between governments and the private sector.
Guiding Principles

- International standards should meet societal and market needs and should not be developed to act as barriers to trade

- ISO and IEC follow globally accepted principles of standards development
  - Transparency
  - Openness
  - Impartiality
  - Effectiveness and relevance
  - Consensus
  - Performance-based
  - Coherence
  - Due process
  - Technical Assistance
Guiding Principles

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  - Performance-based

DID YOU KNOW . . . ?

Many U.S. interests also strongly agree that the international standards-setting process must be flexible, timely and balanced.
Examples of National Standards Committees Participating in the IEC

- CANADA SCC
- U.S. National Committee (USNC)
- U.K. BSI
- GERMANY DIN / VDE
- FRANCE AFNOR / UTE
- JAPAN JISC
- BRAZIL COBEI
- AUSTRALIA SAA
The U.S. National Committee (USNC), a committee of the American National Standards Institute (ANSI), is the official U.S. member of the IEC and related regional standardization bodies.

The USNC mission is to:
- provide strategy to effectively participate in the development of IEC standards to facilitate international trade for the benefit of the U.S. industry in the fields of all electrotechnologies.
- provide a framework to the U.S. industry which serves as the focal point, conduit and advocate for U.S. interests in international and regional electrotechnical standards, conformity assessment, and other related matters.
The U.S. National Committee (USNC/IEC)

- Represents the U.S. in the development, promulgation and use of globally-relevant standards for the electro-technical industry
- Facilitates the assessment of conformance to standards via mechanisms such as testing, certification and accreditation as outlined in the IEC schemes
- Serves as a conduit to the global standards-setting community
- Is a totally integrated committee of the American National Standards Institute (ANSI)
  - ANSI provides administrative support to the USNC
USNC/IEC Scope of Work

- Electrotechnologies
  - electronics
  - magnetics and electromagnetics
  - electroacoustics
  - multimedia
  - telecommunication
  - energy production and distribution

- Associated general disciplines
  - terminology and symbols
  - electromagnetic compatibility
  - measurement and performance
  - dependability, design and development
  - safety and the environment.
Standards Coordination on a Regional Basis

European Standards Organizations (CEN, CENELEC, ETSI)

The Americas (CANENA) (COPANT)

Pacific Rim (PASC)
Regional Standards Bodies

- **Pacific Area Standards Congress (PASC)**
  - Countries of the Pacific Rim
  - Does not set standards, rather coordinates on standards issues

- **Pan American Standards Commission (COPANT)**
  - Promulgates the development of technical standards and related initiatives in its Active Member and Adherent Member countries
  - Promotes industrial, scientific and technological development in support of trade in goods and services
  - Facilitates cooperation in intellectual, scientific and social fields

- **Council for Harmonization of Electrotechnical Standards of the Nations of the Americas**
  - Fosters harmonization of electrotechnical product standards, conformity assessment test requirements, and electrical codes between all countries of the Western Hemisphere
Standardization Bodies of the EU

- **European Committee for Standardization**
  - Harmonizes technical standardization except electrotechnical and telecommunications

- **European Committee for Electrotechnical Standardization**
  - Harmonizes all areas of standardization and conformity assessment in electrical, electronic and allied fields

- **European Telecommunications Standards Institute**
  - Sets telecommunications standards for Europe
Established in 1973 - based in Brussels
Composed of 28 EU and 3 EFTA countries
Harmonizes all areas of standardization and conformity assessment in electrical, electronic and allied fields
Scope of work is similar to that of IEC
  - In 2003, 71.5% of all CENELEC-approved standards were identical to IEC standards and another 12.2% were based upon IEC texts
The USNC is recognized as the primary U.S. liaison to CENELEC and can provide comments on draft standards
- ANSI is the U.S. liaison to CEN (ISO)

U.S. individuals may be granted access to CELELEC work via provisions of the Dresden Agreement
- CEN through provisions of the Vienna Agreement (ISO)
THE DRESDEN AGREEMENT for technical cooperation between IEC and CENELEC

- Goal is to ensure the equivalence (whenever possible) of IEC and European electrotechnical standards
- Guides coordination and harmonization of standards of the national committees of IEC and CENELEC
- Grants to IEC the “Right of First Refusal”
  - CENELEC will first offer new work to IEC
  - If IEC accepts the project, CENELEC will cease working on the project within Europe
- Became effective September 1996
  - Supersedes the Lugano Agreement of 1991
Importance of global cooperation and collaboration

- Active participation in both international and regional standards-setting activities provides U.S. electrotechnical industry experts with an . . .
  - opportunity to influence domestic and international policy
  - opportunity to benefit from unique networking opportunities and learn from international colleagues
  - forum for the presentation of U.S., corporate or, perhaps, personal positions
  - opportunity to comment upon proposals submitted by others
Internet resources: International

ISO/IEC Information Center

International Electrotechnical Commission

IEC Technical Information Support and Services

International Organization for Standardization
Internet resources: Regional Organizations

Americas
- CANENA - Council for Harmonization of Electrotechnical Standards of the Nations of the Americas
- COPANT - Pan American Standards Commission

Europe
- CENELEC - European Committee for Electrotechnical Standardization
- ETSI - European Telecommunications Standards Institute

Pacific Rim
- PASC - Pacific Area Standards Congress
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Self-test Questions

- Does one test permit alternative methods as long as there is equivalency in safety and performance? Yes

- Does “Consensus” require unanimous agreement? No

- Participation in standards development is important because:
  1. Standards can help prevent technical barriers to trade.
  2. Standards are strategic business tools for market access.
  3. Travel to meeting sites is fun. Not 3
  4. Participation helps keep in tune with emerging technologies.
  5. Standards help ensure maintenance of minimum safety and performance levels

- USNC stands for United States Noodle Company
  No, it stands for United States National Committee of the IEC
Self-test Questions

- IEC is responsible for standards addressing:
  1. Telecommunications
  2. Electrical appliances and tools
  3. Pasteurization processes
  4. Information Technology Equipment
  5. Steel and Aluminum specifications
  6. Plastics and concrete
  7. Fire Safety

  IEC = 2 + 4; ISO = 3 + 5 + 6 + 7; ITU = 1

- CENELEC is responsible for developing standards for South America

  No, it is responsible for IEC equivalent standards for the full European Union
Module I - Complete.

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