Introduction to IEEE Standards Association and IEEE Conformity Assessment Program (ICAP)

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IEEE-SA provides a framework of solutions to support rapid introduction of new technologies to market.
Standards Development is our Core
IEEE-SA Standards Drive Markets

Evolution of traditional country-based models for standards development to *market-driven models*

- **Open Process**
  - Open membership
  - Open participation

- **Consensus-based**
  - Based on WTO core principles
  - Collaboration

- **eTools**
  - Facilitate remote participation, lessening travel costs

- **Global Community**
  - Participation from around the world

*Standardization is borderless:*

Global standards sustain products and services for implementation and use by customers in a globalized world.
IEEE-SA’s Complete Business Lifecycle

IEEE-SA provides a framework of solutions to support rapid introduction of new technologies to market
Industry Connections (IC) Program – Pre-Standard Incubation

- An efficient, economical, safe-harbor environment for building industry consensus
  - Develop shared roadmaps
  - Produce shared results
- Minimal effort, time and expense to begin collaborative work
- Respected, neutral, third-party home for activities and results
- Efficient path toward prestigious IEEE publication/standardization
- Flexible options for evolution, transition & conclusion of activities

- Complements IEEE-SA “formal” standards activities
Possible Outputs of IC Activities

- Proposals for standards
- White papers
- Peer-reviewed guides and position papers
- Conferences, workshops, and other events
- Databases and registration services
- Software, tools and web services
- Other jointly developed results as agreed by the group
Initiation of IC Activities

- A group of companies or individuals interested in starting collaborative work submits an Industry Connections Activity Initiation Document (ICAID), which includes:

- During the initial meetings, IEEE-SA helps each group establish its leadership structure, policies and procedures

- IEEE-SA provides a basic level of support to all IC activities at no charge to participants, including (as needed):
  - Additional support services are available for a fee through IEEE-SA Professional Services

- For entity-based activities, after the first year of the activity the participants are required to be Corporate Members of IEEE-SA
Expected Evolution of IC Activities

- IC activities typically focus on the initial collaborative work in a technical area
  - Then transition into something more permanent, or dissolve, often within a year or two

- Some possible transition paths for an IC activity:
  - Start a standards project
  - Remain in IEEE-SA as a new standing committee or Standards Sponsor
  - Integrate into an existing IEEE Society or Council
  - Become a new IEEE Society or Council
  - Become a new IEEE-ISTO Industry Program (Alliance/Consortium)
  - Dissolve, after completing its work
IEEE-SA’s Complete Business Lifecycle

IEEE-SA provides a framework of solutions to support rapid introduction of new technologies to market
Understanding Conformity Assessment
Understanding Conformity Assessment

What is Conformity Assessment?
- Conformity Assessment is defined as the process or processes that are used to demonstrate that a product or service meets specified requirements (set forth in Standards, Test Plans, etc.)

Conformity Assessment
- Provides assurance and confidence a product or service meets requirements
- Empowers the user to make better purchasing decisions
- Benefits the supplier as products may gain market acceptance

Conformity Assessment Activities Include:
- Conformance, Interoperability, Inspection, Accreditation
- “Catch-all” term to address range of test-related activities
Types of Conformity Assessment

- **1st Party / Suppliers Declaration of Conformity (SDOC)**
  - Self Declaration; Companies conduct their own testing

- **2nd Party Conformity Assessment**
  - Conformity assessment conducted by the end purchaser of products (e.g., Service Providers) to ensure purchased products are deemed compliant or interoperable

- **3rd Party Conformity Assessment**
  - Conformity assessment being determined by an independent body.

Related International Standards

- **Accreditation Bodies** – ISO/IEC 17011
- **Certification Bodies** - ISO/IEC 17065
- **Test Labs** – ISO/IEC 17025
Pillars to a successful program

- Demand Driver
- Standard
- Test Specification
- Test Labs/Tools
- Vendors/Products
- Education/Outreach
Benefits of Implementing a Conformity Assessment Program

- Benefits of conformance test before deployment implementation
  - Early identification of non-conformances
  - Exact functionality of the protocol is identified
  - Multi-vendor solutions will have interoperability issues – helps identify such issues
  - New offerings will have bugs – helps to catch them
- Reduces the vendor’s cost / need for re-tests for different end-users
- Establishes a baseline for performance expectation
- Eases interoperability
- Transparency based on common implementation / Test Authority
ICAP Introduction
IEEE Conformity Assessment Program

- IEEE Conformity Assessment Program (ICAP) is a critical component of IEEE SA’s Standards Implementation services.
- ICAP started in 2008 as a joint initiative of IEEE SA and IEEE-ISTO and as of October 2014 is wholly operated by IEEE SA.
- ICAP provides an industry support and operational structure that bridges standards development activities with the conformity assessment activities.
- ICAP is an important initiative in achieving IEEE SA’s strategic objectives and will have ongoing support from SA and IEEE.
- Successful ICAP programs will accelerate market acceptance and enable new products and technologies in support of IEEE Standards.
Values of ICAP Certification

**Convenience**
- Intrinsic connection with IEEE-SA working groups and supporting staff
- Enable certification programs based on converging technologies that covers multiple technologies IEEE-SA works on

**Credibility**
- Only ICAP certifications come with the IEEE Certification mark
- IEEE maintained Certified Product Registry

**Full-spectrum Service**
- Turnkey Certification Management program, including Conformance, Interoperability, Inspection, Accreditation
- ICAP strategically aligns with global expert test labs to provide the best level of testing and field evaluation support
- Legal and operational umbrella for testing & conformity assessment programs
- Test Suite & Specification Development
- Self-Validation Suite Development
- Inspection and Verification
Certification Program Development Timeline
Standard → Test Specs → Program Launch

- Standard Developed
- Test Specifications Developed
- Product Availability and Readiness
- Conformity Assessment Program Launch

<table>
<thead>
<tr>
<th>Timeframe</th>
<th>Milestones</th>
</tr>
</thead>
<tbody>
<tr>
<td>9 months – 2 Years</td>
<td>Standard Approved</td>
</tr>
<tr>
<td>6 months – 1 Year</td>
<td>Test Specifications Developed</td>
</tr>
<tr>
<td>6 months+</td>
<td>Program Launch</td>
</tr>
</tbody>
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Initiation of ICAP Activities

- A workgroup or main stakeholders interested in starting a conformity assessment program establish a steering committee

- ICAP will assist in creating a preliminary business case and structure proposal
  - Submitted for approval by ICAP Steering Committee (A committee of the BoG) to move into active development

- During the initial meetings, IEEE-SA helps each group establish its leadership structure, policies and procedures and roadmap

- IEEE-SA provides conformity assessment consultation and a basic level of support to all ICAP activities
ICAP Business Models

WORKING GROUP CERTIFICATION PROCESS

1. IEEE Std. completed
2. Test Specification submitted to ICAP
3. ICAP distributes test spec to selected labs
4. Vendor submits equipment to one of the selected labs for testing
5. Lab submits test report to ICAP
6. ICAP issues a certificate, grants logo usage rights, and adds device to a registry
Conformity Assessment Certification Scheme – Single Scheme

ISO/IEC 17025 + Competency requirements
ISO/IEC 17065 + competency requirements
ISO/IEC 17011 + Competency requirements

Products

Certification Body(ies)

Laboratory(ies)

Accreditor(s)

Scheme Owner harmonizes technical requirements

Oversight & Communication

Agreement

Courtesy of G.Gillerman @ NIST
Programs Under Active Development
ICAP Programs

- Launched
  - IEEE 1588 Telecommunications Certification Program (ITU G8265.1)

- Active Development
  - Synchrophasor (IEEE C37.118.1)
  - SIEPON (IEEE 1904.1)
  - IEEE 1588 Power (IEEE C37.238)
  - Camera Phone Image Quality (CPIQ) – IEEE P1858
  - COMTRADE (IEEE C37.111)

- Pending Active Development
  - Interconnection, Distributed Resources - IEEE 1547
  - Substation Cybersecurity – IEEE C37.240
### Mission
- The IEEE SIEPON Working Group currently focuses on developing the standard as well as the test procedure.
- The goal is to provide Industry a developed and recognized test that provides SIEPON certification globally.
- Market demand will dictate the next set of geographical test labs to conduct tests.

### Model
- **Build test around the SIEPON standard**
- Driven by Industry through the IEEE working group.
- Marketing Committee – provides marketing outreach, communication and market awareness.
- **Industry recognized – Technical Experts** provide integrity to test spec development, documents and overall certification.
- Develop test requirement documents, test case templates, test setup documents.
- Formal review processes to ensure highest integrity of test suite.
- ICAP Manages testing and certification, functioning both as the certification authority and process auditor to maintain test lab integrity.

### Drivers
- Mitsubishi Electric
- Broadcom
- RITT
- MIIT
- Huawei
- China Mobile
- iol
- ZTE
- PMC
- ARRIS
- NEC
- NTT
- Sumitomo Electric
- Marvell

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**IEEE STANDARDS ASSOCIATION**
### Mission
- The SCASC currently focuses on developing the test suite specification and the certification program.
- The goal is to provide Industry a developed and recognized certification program that provides Synchrophasor certification globally.
- Market demand will dictate the next set of geographical test labs to conduct tests.

### Model
- **Build test around the Synchrophasor standard**
- Driven by Industry through the IEEE working group.
- **Marketing initiatives** – provides marketing outreach, communication and market awareness.
- **Industry recognized** – **Technical Experts** provide integrity to test spec development, documents and overall certification.
- Develop test requirement documents, test case templates, test setup documents.
- Formal review processes to ensure highest integrity of test suite.
- ICAP manages testing and certification, functioning both as the certification authority and process auditor to maintain test lab integrity.

### Participants
- Symmetricom
- FLUKE
- NIST
- ABB
- SEL
- ISO New England
- RTDS Technologies
- Doble
- OMICRON
- Electric Power Group
- Quanta Technology
- Arbiter Systems

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**IEEE STANDARDS ASSOCIATION**
IEEE Certification Mark
Certification Mark Defined

- A certification mark is any word, phrase, symbol or design, or a combination thereof owned by one party who certifies the goods and services of others when they meet certain standards. The owner of the mark exercises control over the use of the mark; however, because the sole purpose of a certification mark is to indicate that certain standards have been met, use of the mark is by others.
The IEEE Certification Mark – (draft examples)
IEEE Certification Mark

- Artwork has been finalized
  - Customizable for individual programs by standard number and/or a short program description, i.e. Telecom, SIEPON, Synchrophasor, etc.
  - Allows to keep maintenance cost of mark at a minimum
- Certification mark is in final stages of trademark process by IEEE Legal

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IEEE Certified
IEEE 1588™-2008
Telecom Profile
Thank You for your participation

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