IEC Conformity Assessment

David Hanlon

Secretary, IEC Conformity Assessment Board (CAB)

UNECE 23rd WP6
Geneva, Switzerland
20 November, 2013

INTERNATIONAL ELECTROTECHNICAL COMMISSION

IEC Conformity Assessment

- background

Standards development

Conformity Assessment activities

IEC

Like two sides of a coin

Standards = knowledge

Conformity Assessment = application of knowledge

Standards + Conformity Assessment = Value

Value Creation

- IEC international Standards support all three types of CA
  - 1st party CA – performed by manufacturers
  - 2nd party CA – performed by end users
  - 3rd party CA – performed by independent party
- However, the IEC's CA activities support only 3rd party CA.
- IEC creates a framework for global certification by qualified, commercial test laboratories & certification bodies and international valorization of those certificates through a mutual recognition arrangement.
- One standard, one test performed anywhere, one certificate accepted everywhere.

IEC Conformity Assessment

- current activities

IEC Conformity Assessment

CAB - Conformity Assessment Board

IECEE
System of Conformity Assessment Schemes for Electrotechnical Equipment and Components

- CB Scheme
- CB-FCS Scheme
- PV Programme
- E3 Energy Efficiency
- Hazardous Substances

IECEx
System for Certification to Standards Relating to Equipment for use in Explosive Atmospheres

- Ex Equipment
- Ex Services
- Ex Personnel

IECQ
Quality Assessment System for Electronic Components

- Active & Passive components
- Processes
- HSPM
- Avionics

IECEE → CB-scheme

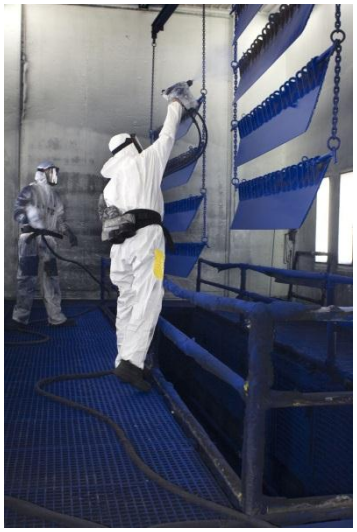
Schemes for conformity testing and certification of electrotechnical equipment and components

IECEE covers

- IT and office equipment
- Electronics, entertainment
- Electrical equipment for medical use
- Installation accessories and connection devices
- Safety transformers and similar equipment
- Lighting
- Switches for appliances and automatic controls for electrical household appliances
- Industrial Automation
- Portable tools
- Photovoltaics
- Household and similar equipment
- Measuring instruments
- Low voltage, high power switching equipment
- Installation protective equipment
- Capacitors as components
- Batteries
- Cables and Cords

IECEx

Worldwide system for certification to standards relating to equipment for use in explosive atmospheres



IECEx

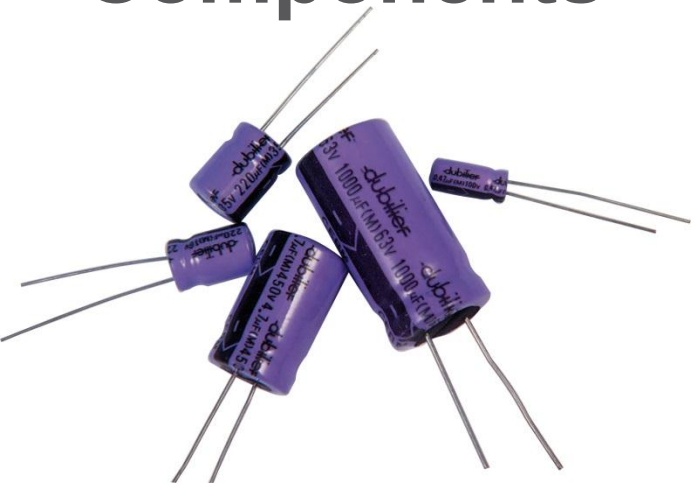
- Automotive refuelling stations and petrol stations
- Oil + gas extraction
- Oil refineries, rigs and processing plants
- Gas pipelines and distribution centres
- Chemical processing plants
- Printing industries, paper and textiles
- Hospital e.g. operating theatres
- Aircraft refuelling and hangars
- Surface coating industries
- Textiles
- Mining
- Sewerage treatment plants
- Grain handling and storage
- Woodworking areas
- Sugar refineries, storage , packaging + distribution
- Metal surface grinding, especially aluminium dusts and particles.
- Transportation
- Pharmaceuticals
- Food processing
- Furniture manufacturer
- + many others …

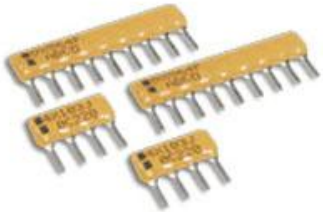
IECEx

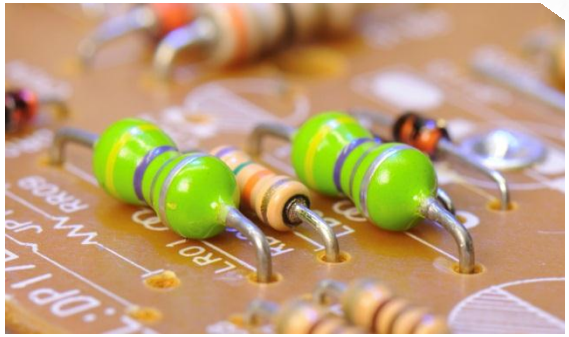
World best practice
based on
IECEx best practice.

IECQ

Quality Assessment System for Electronic Components

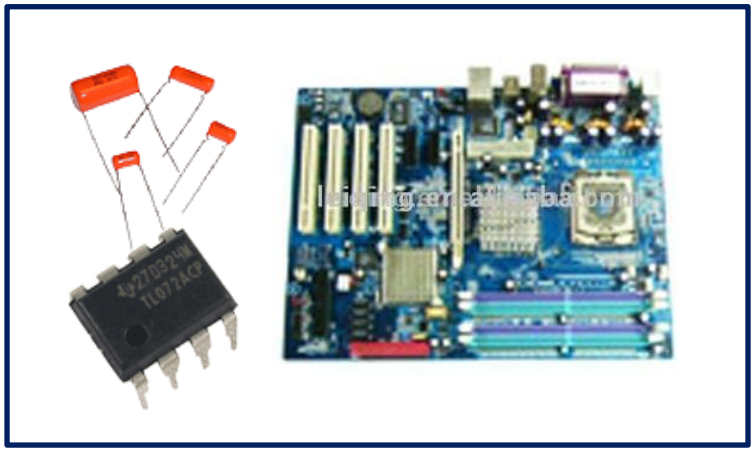






IECQ

that these **comply with these**



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Technical Specifications Approved by IECQ

and/ or

Relevant Standards

Replaces multiple 2nd Party assessments of suppliers with One "IECQ Supplier Assessment".

<u>Benefits to Industry</u>

- Cost Savings
- Savings in Resources
- Consistency in Supplier assessments
- Confidence in Supply Chain
- "On-Line" Certificates

IECQ

IECQ AP – CAP:
Approved Process – Counterfeit Avoidance Programme

- Avoid and detect fraudulent or counterfeit electrical / electronic parts entering the supply chains: aerospace, avionics, military, telecommunications, biomedical, automotive, railway and high tech consumer electronics.

IECQ HSPM:
Hazardous Substance Process Management (ex: lead / mercury)

- Process based management of hazardous substances

IEC Conformity Assessment

- recent developments 1

New Renewable Energy CA System

CAB - Conformity Assessment Board

IECEE
System for Conformity Testing and Certification of Electrotechnical Equipment and Components

IECEx
System for Certification to Standards Relating to Equipment for use in Explosive Atmospheres

IECQ
Quality Assessment System for Electronic Components

IEC RE
IEC General System for Certification to Standards relating to plant, equipment and services associated with Renewable Energy Systems

- **IEC Wind Systems WT-CAC**
- **IEC Solar Energy Scheme**
- **IEC Marine Energy Scheme**

Wind Turbines

Stakeholders

- OEMs
- Systems Integrators
- Utilities
- Technology developers
- Certification Bodies
- Engineering Consultants
- Industry Associations
- Financiers
- Insurers

Marine Energy

Diving force
→ Risk reduction for financiers & insurers

PV Plants

Some questions

- How to do systems-approach conformity assessment ?
- How to do CA in the absence of some standards ?

Some more questions

- Is a sum-of-parts approach sufficient ?
- Is a black-box approach necessary ?
- Would a risk management approach be sufficient ?

Systems-Approach to CA

System Stage / Component	Conformity Assessment Needed?	Needs / Scope/ Inclusions	Outcomes / Certifications
• Definition Stage	√	• ISO Standards	• Statements of Compliance
• Design Basis	√	• IEC Standards	• Type (Prototype) Certificates
• Design Manufacturing & Assembly	√	• Certification Plans	• Personnel Certificates
• Transportation	√	• Certificates	• Maintenance Certificates
• Installation	√	• Test Reports	
• Commissioning (dry & wet)	√	• Inspection Plans	
• Maintenance & Repair	√	• Commissioning Plans	
• Decommissioning	?	• Maintenance Plans	

MARINE ENERGY EXAMPLE

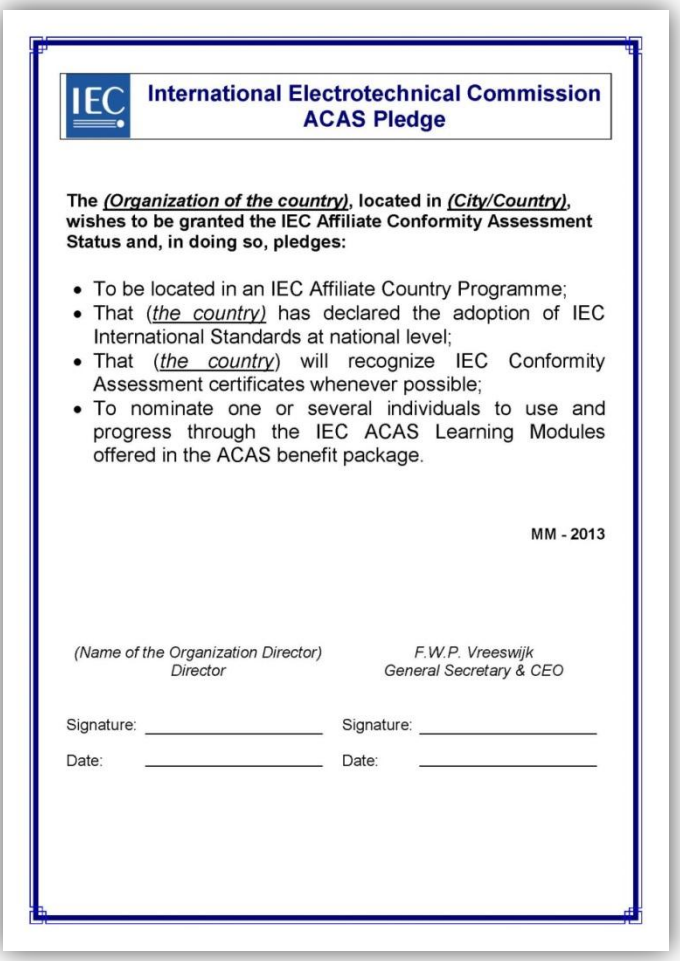
IEC

IEC Conformity Assessment

➢ recent developments 2

ACAS what is it ?

Affiliate Conformity Assessment Status



IEC International Electrotechnical Commission
ACAS Pledge

The *(Organization of the country)*, located in *(City/Country)*, wishes to be granted the IEC Affiliate Conformity Assessment Status and, in doing so, pledges:

- To be located in an IEC Affiliate Country Programme;
- That (*the country*) has declared the adoption of IEC International Standards at national level;
- That (*the country*) will recognize IEC Conformity Assessment certificates whenever possible;
- To nominate one or several individuals to use and progress through the IEC ACAS Learning Modules offered in the ACAS benefit package.

MM - 2013

(Name of the Organization Director) *Director*	*F.W.P. Vreeswijk* *General Secretary & CEO*
Signature: _____	Signature: _____
Date: _____	Date: _____

- Status → Pledge
  - Be an IEC Affiliate Country
  - Officially declared the adoption of IEC Int. Standards as national standards
  - Willingness to recognize IEC CA certificates
  - Made the commitment to use the ACAS Learning Modules
- Status → objective
  - Train to use IEC Standards
  - Benefit from IEC CA activities

ACAS history

Affiliate Conformity Assessment Status

- F2F at IEC General Meeting in Oslo, Oct. 2012
- Dialogue 16, Affiliate Country survey, end 2012
- First results January 2013
- Proposal to CAB in April 3013
- Decision by CAB in June 2013
- ACAS launched, August 2013

ACAS package benefits

- Regional awareness events
- Documentation and guides on Conformity Assessment at the IEC
- Webinars (upon request)
- Learning modules on IEC website and CD-ROMs (under development)
- A resource database (under development)
- Active participation in each system, based on prerequisite training conditions

Thank you!

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