

Introduction to IECEE PV Program



Liang Ji

liang.ji@us.ul.com

Underwriters Laboratories Inc. USA

San Francisco, USA

July 15-16, 2011

PV: from Standard to Certification

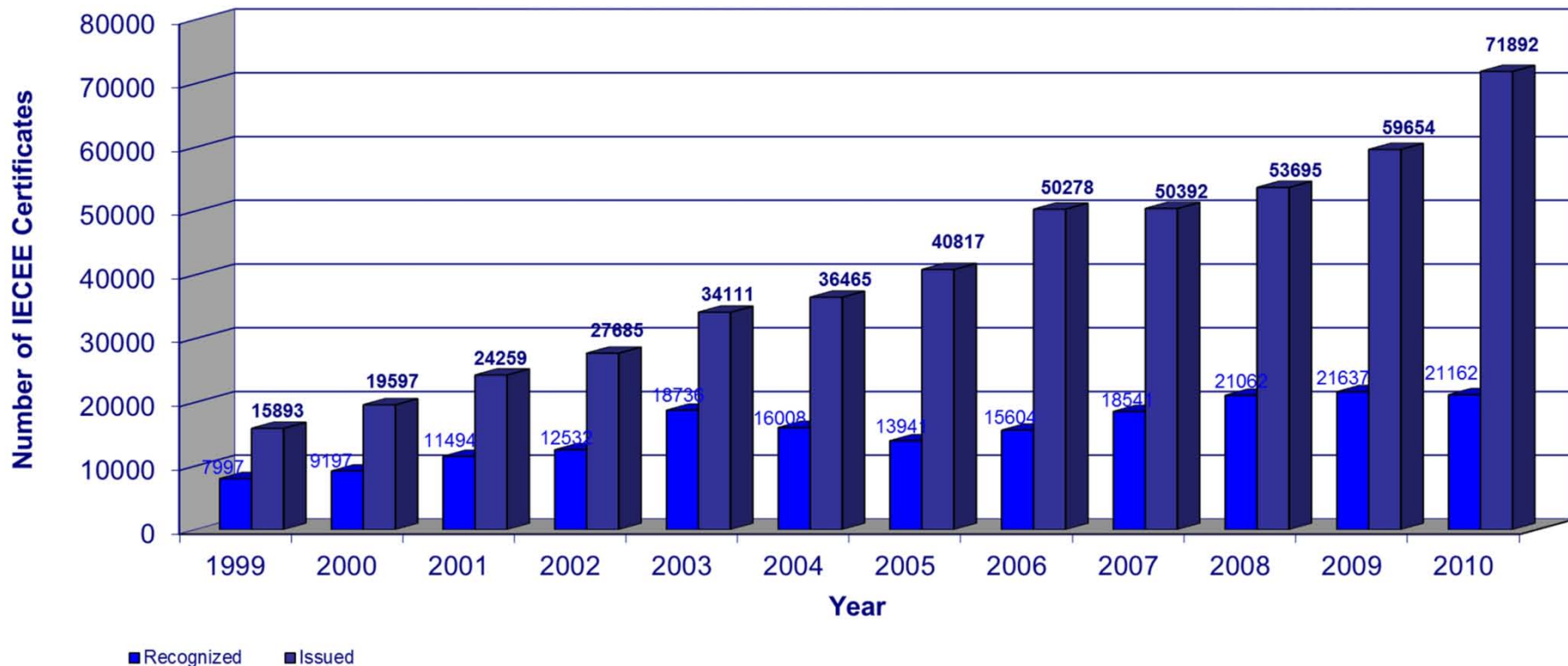
PV Performance and Safety, Ratings

Step	Example	Key Success Factor
Standard	IEC, CENELEC, UL ...	High quality
Test	CBTL, National Labs, Manufacturers...	Reproducibility Repeatability
Certification	IECEE-CB, NCB	Market acceptance mandatory requirement

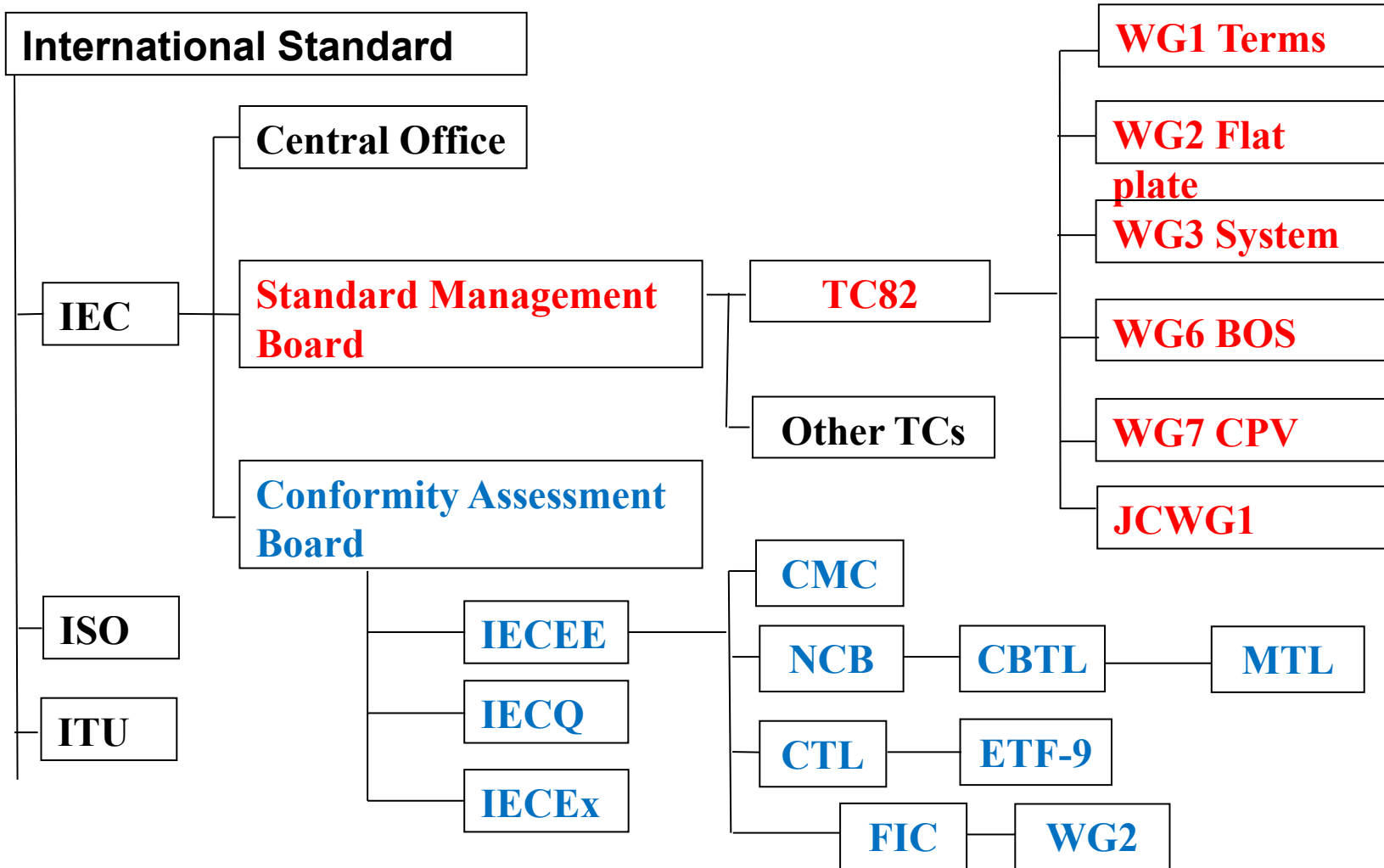
PV Quality Assurance

Steps	Example	Success Key Factor
Standard	General-ISO 9000s, PV?	High quality
Implementation	Manufacturers, ?	Traceability, ?
Certification	?	Market acceptance mandatory requirement

Market Acceptance



<http://www.iecee.org/cbscheme/pdf/2010-issuedandrecognized-yearlygraphic-web.pdf>





IECEE Terms



<http://www.iec.ch>

<http://www.iecee.org>

- International Electrotechnical Commission (IEC)**
- International Electrotechnical Commission System for Conformity Testing and Certification of Electrical Equipment (IECEE)**
- National Certify Body (NCB)**
- Certification Management Committee (CMC)**
- Committee of Testing Laboratories (CTL)**
- Certify Body Test Lab (CBTL)**
- Expert Task Forces (ETF)**
- Factory Inspection Committee (FIC)**



PV NCB and CBTL

Country	Member Body	NCB	CBTL
Belgium	SGS Belgium N.V. - Division SGS-CEBEC	SGS Belgium N.V. - Division SGS-CEBEC	SGS Germany GmbH CTS Microelectronics/Photovoltaics
France	LCIE by delegation from UTE	LCIE	LCIE China
Germany	Deutsches Komitee der IEC	VDE	VDE
		TÜV Rheinland LGA Products GmbH	TUV RH PS GmbH
			TUV RH Taiwan
			ITRI
		TUV SUD PS	TUV RH Shanghai
			PI Berlin
Eurotest Laboratori Srl			
TÜV InterCert GmbH	YOT		
India	BIS	STQC	TTC Taiwan
Italy	IMQ SpA	ICIM S.p.A	Eurotest Laboratori Srl
Japan	JISC	JET	ETDC
		TUV Rh Japan	JET Toyo
			TUV Rh Yokohama
Korea	KATS	NREC	TUV Rh Shanghai
			TUV Rh Taiwan
Spain	AENOR	AENOR	KTL
Singapore	Spring Singapore	ITS Singapore	KIER
USA	US National Committee of the IECEE	UL Inc.	Fundacion Cener-CIEMAT
			ITS Shanghai
			UL Inc.
			Exova Canada
			UL-CCIC
QSTC			
UL Int. Germany			
ITS USA	ITS Los Angeles		
TUV RH NA	TUV RH PTL		

As of 7/11/2011 on <http://www.iecee.org/pv/html/pvcntris.htm>

An **NCB** is a certification organization that grants nationally recognized conformity certificates.

To be accepted as a member of the CB Scheme, an NCB must meet specified requirements with regard to:

- internal quality system
- technical competence
- assessment against ISO/IEC Guide 65 and the IECEE Rules of Procedure

An NCB can qualify either as a **Recognizing NCB**, or as an **Issuing and Recognizing NCB**.

NCB may carry out any of the following activities:

- **Testing products and review TRF (Test Report Form)**
- **Test and review national differences**
- **Conducting factory surveillance**
- **Issuing CB test certificates**
- **Recognizing other CB test certificates**
- **Issuing its own certification and authorizing the use of its mark(s)**

What is CTL

CTL (Committee of Testing Laboratories)

To achieve **reproducibility** of test results and to promote a close collaboration between testing laboratories

- The technical branch of the IECEE
- The biggest forum of technical experts
- Represents **52 countries and 336 CBTLs**
- Operates under the responsibility of the relevant NCB members of the IECEE

Data as of 2011-07-12 from <http://www.iecee.org/ctl/aboutctl.htm>

Tasks of CTL

- Detail the way the tests have to be carried out;**
- Harmonize the design and use of the test equipment;**
- Make recommendations to the relevant TCs of the IEC for improvements of those standards;**
- Provide testing laboratories with a forum in which practical testing problems can be demonstrated and discussed.**
- “Two-months procedure” to answer enquiries to handle interpretation and uniform application of the IEC standards, and to harmonize testing procedures.**

Convenor: L. Ji (UL Inc.)
A. Roth (VDE)
J. H. Wohlgemuth (BP SOLAREX)
N. Wilmot (Murdoch University)
Y. Murakami (JET)
H. Barikmo (TC82)
S. Wu (Intertek Taiwan)
C. Hee (Intertek Singapore)
W. Kang (CQC)
C. Roversi(IMQ S.p.A.)
C. Pretavoine(BV LCIE China)
S. Poutissou (CSA International)
G. Bellenda (Eurofins)
G. Bogdan (TÜV Rheinland InterCert Kft., MEEI Division)
C. Flueckiger (UL, Inc)
J. Althaus (TUV Rheinland)

<http://www.iecee.org/ctl/CTL-ETF.htm#9>

DSH by ETF-9

ETF (Expert Task Force) for different categories

DSH – Decision Sheet

PDSH – Provisional DSH (before CTL approval)

- **Retest Guidelines for EC 61215, 61646, 61730-1/2, 62108, 62124**
- **Spray-on Insulation System,**
- **Surface Tension Requirement,**
- **Harmonize HF cycle profile and UV**

http://www.iecee.org/ctl/sheet/html/ctl_decisions_pv.htm

EL and TRF

EL - Equipment List, include:

“R” – Required

“S” – Subcontracting allowable

“STF” – Specialized Test Facility, more quality control than “S”

- **Recent discussion: Fire test from “R” to “STF”**

TRF – Test Report Form, developed with NCBs

Assessment Program

Assessment program is to evaluate whether the candidate NCB and/or CBTL is **capable and competent to test and/or certify products and operate in accordance with: IEC standards**, operate per ISO/IEC Guides 65 (for NCBs), ISO/IEC 17025 (CBTLs), IECEE Rules and Operational Documents.

Assessment program is also to **foster confidence among the members of the IECEE.**

NOTE: An assessment is a “sampling exercise”.

Assessment Types: Initial, Follow-up, Scope Extension, Re-Assessment.



Proficiency Testing Program



PTP (or round robin test) is an important way of meeting the requirements of ISO/IEC 17025.

IECEE requires all CBTLs to participate if applicable PTP is available.

Each participant is confidentially provided with a report to allow them to compare their performance with the other participants.

PV PTP is under development, and it also opens to manufacturer's labs. The problem is how to hand the module shipment.

<http://www.iecee.org/ctl/Proficiency.htm>





PV Uses CB-Scheme



Process Elements	CB-Scheme Certification Body	CB-FCS Scheme Full Certification Scheme
Registration of Test Results	Organization "A" issues a Test Report (T.R.)	Organization "A" issues a Conformity Assessment Report (CAR) +National Differences+Initial Assessment Report of Factories where the product is manufactured
Request of samples	Organization "B" may request additional samples for additional verification or testing (T.R.)	Organization "B" shall not request samples, unless: - National differences are not covered. - Tests are missing. - Etc...
Additional tests	Organization "B" may carry out additional tests	Organization "B" shall not repeat additional tests unless objectively speaking the T.R. contains mistakes or the National differences are not covered
Recognition of components	Body "B" may accept components if they are: - certified according to IEC standards. - tested according to Body's "B" requirements. - tested as integrated components.	Body "B" shall recognize components tested by Body "A" if the latter is recognized in the IECEE Scheme as an Issuing Body for that components
Bilateral agreements between the certification organizations	Not required	Required
Audits/ Inspections of Manufacturing Units	Not Regulated by the Scheme based on NCBs Procedures	Audits of Manufacturer's Q.S. based on CB-FCS 102 Equivalent to ISO 9001:2000

http://www.iecee.org/cb_fcs/default.htm#differences



Thank You!

Contact:

Liang Ji

Underwriters Laboratories Inc (UL)

<liang.ji@us.ul.com>