



Global Efficient Lighting Centre

Shuming Hua

23 April 2014



**Global
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Lighting
Centre**

UNEP Collaborating Centre for Energy Efficient Lighting



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Global Efficient Lighting Centre

Who is GELC

What is our vision?

Projects and activities



nLTC National Lighting Test Centre
China



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Creation of GELC

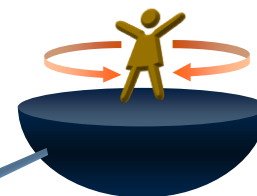


MEMORANDUM OF UNDERSTANDING
was signed in Kenya, 2011



Opening
Ceremony of
GELC was hold
on 31 Oct. 2012
in Beijing

NLTC become the Partner of
UNEP/GEF en.lighten initiative and
the member of Steering Committee.





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Our Vision



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Projects and activities



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Global CFL lamp quality checking Test

Region	Country
Central America	Costa Rica
	Dominican Republic
	Panama
South America	Chile
	Uruguay
West Africa	Guinea-Bissau
North Africa	Tunisia
Middle East	Lebanon
West Asia	Azerbaijan
South Asia	Tonga

86% of Samples identified as
manufacturing Chinese



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Global CFL lamp quality checking Test

Safety test

- IEC 60968

- Interchangeability (Item 6)
- Protection against electric shock (Item 7)
- Insulating resistance (Item 8.1)
- Electric strength (Item 8.2)
- Mechanical strength (Item 9)
- Resistance to flame and ignition (Item 12)

Performance test

- IEC 60969

- Lamp Power
- Power factor
- Initial Lumen Flux
- Initial efficacy
- Color tolerance
- Color Rendering Index
- 2000hrs Lumen maintenance

Mercury content test

- IEC 62554

- Format of Mercury
- Mercury content



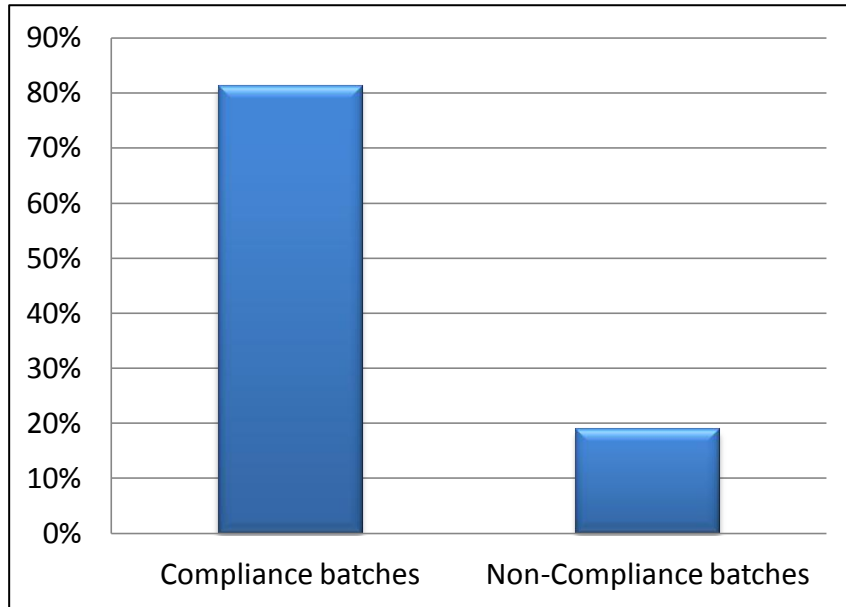
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Compliance rate of Safety Test



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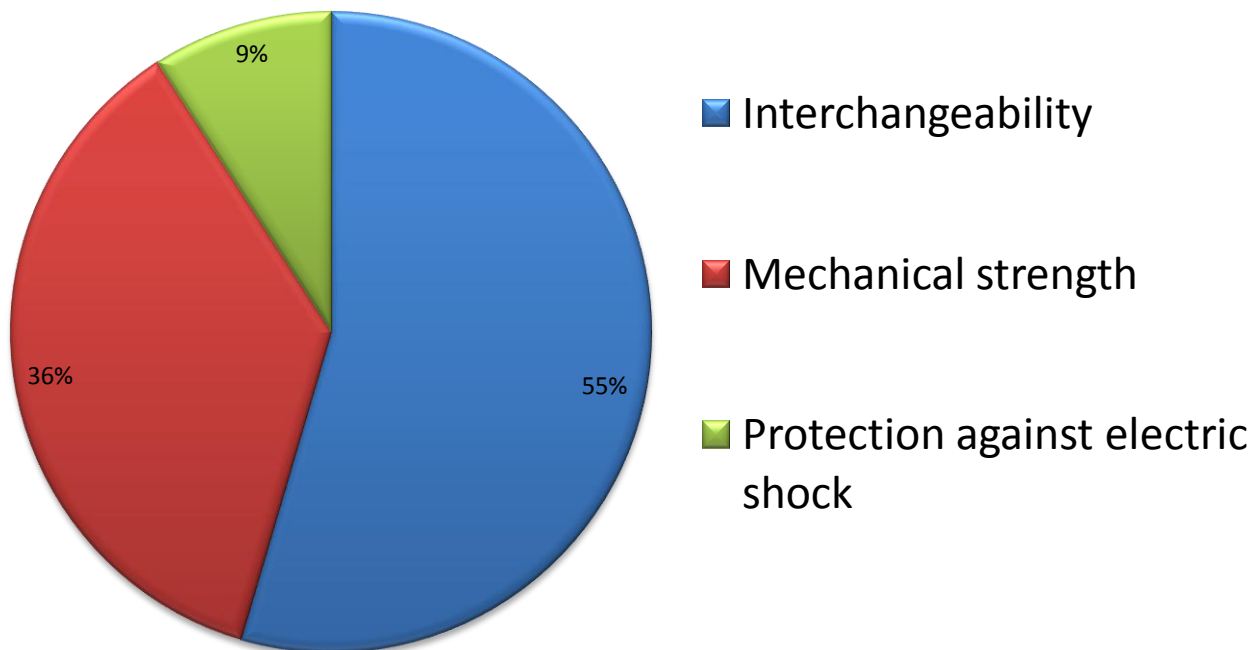


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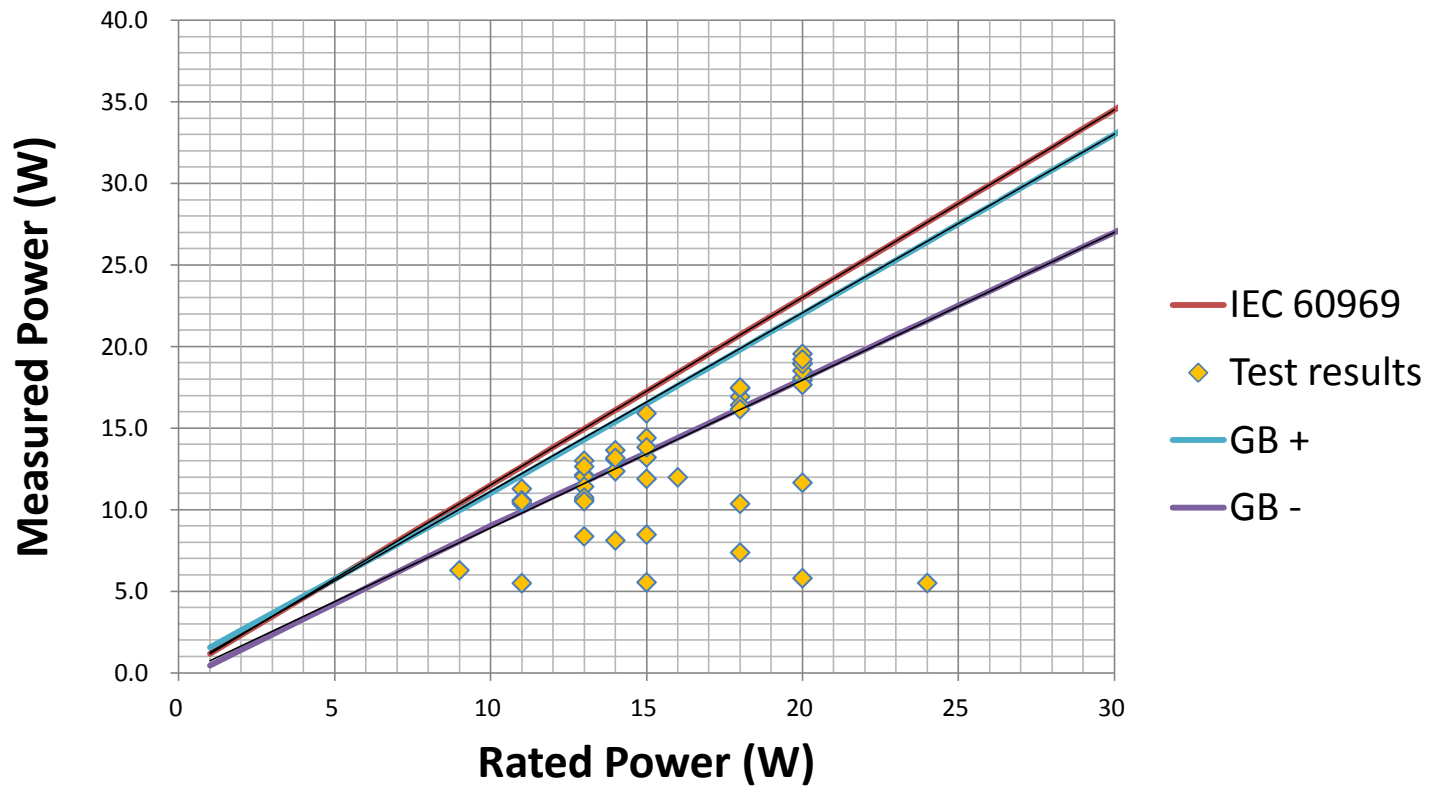
Non-compliance of safety test items



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Lamp power



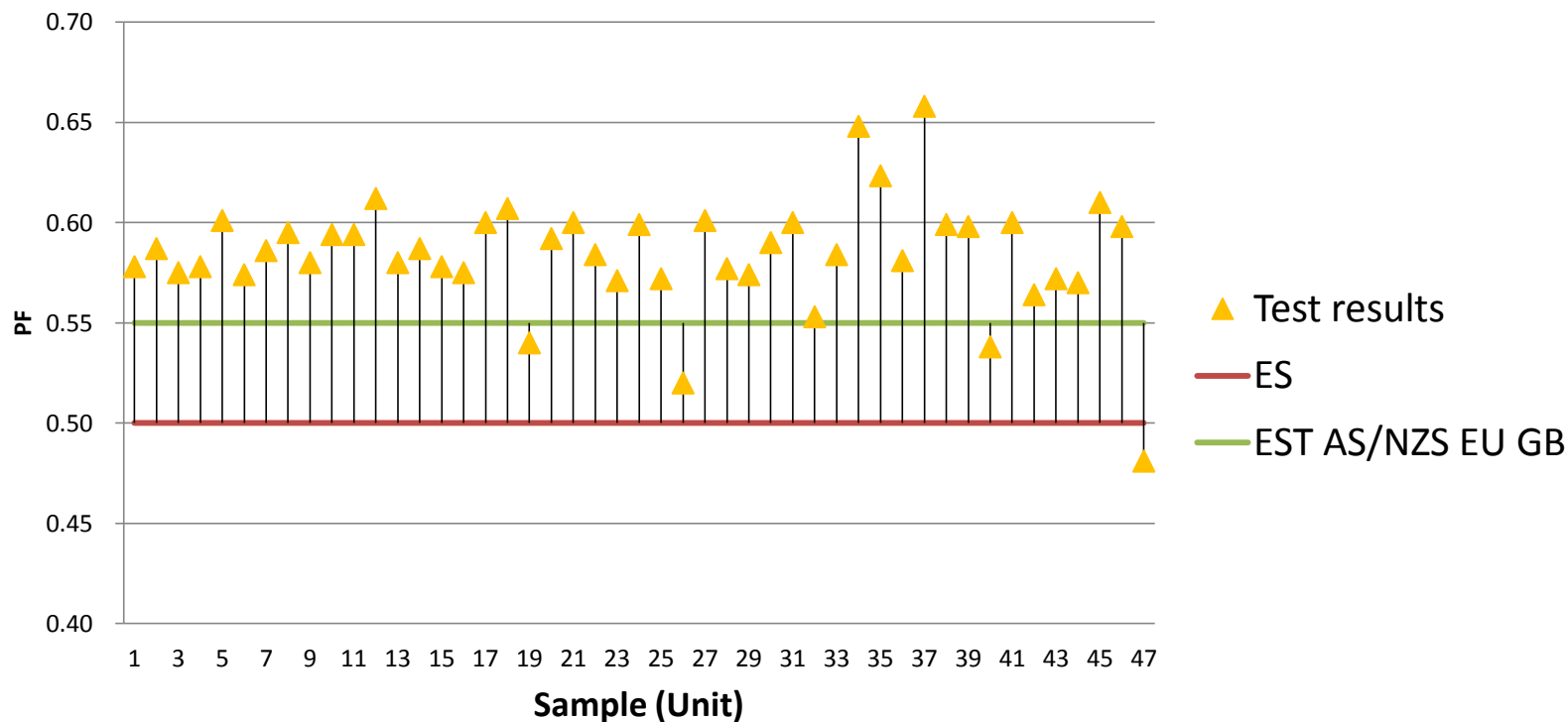


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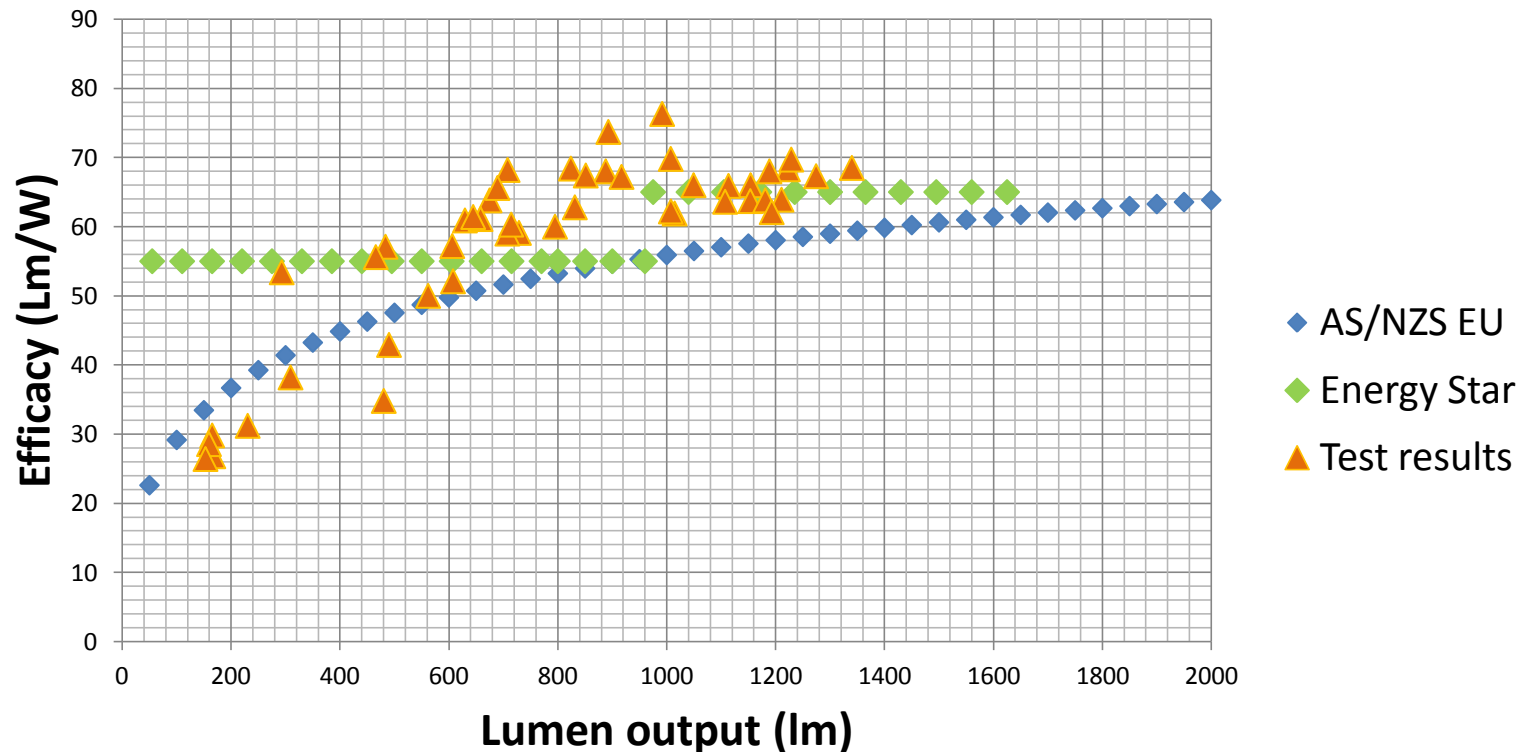
Power factor



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Efficacy 1)



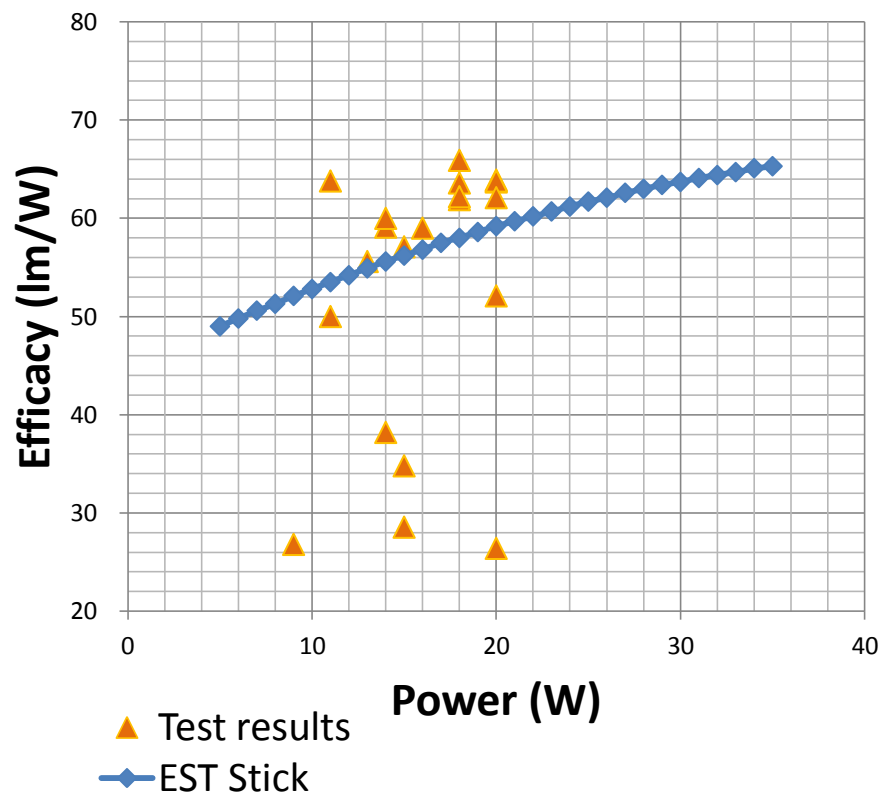
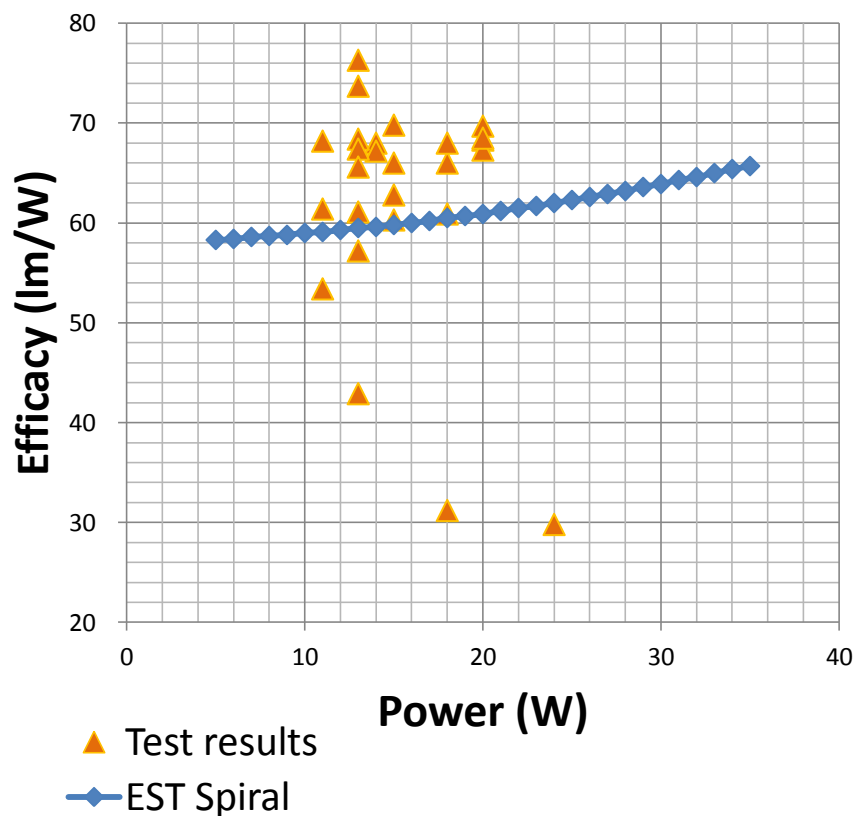


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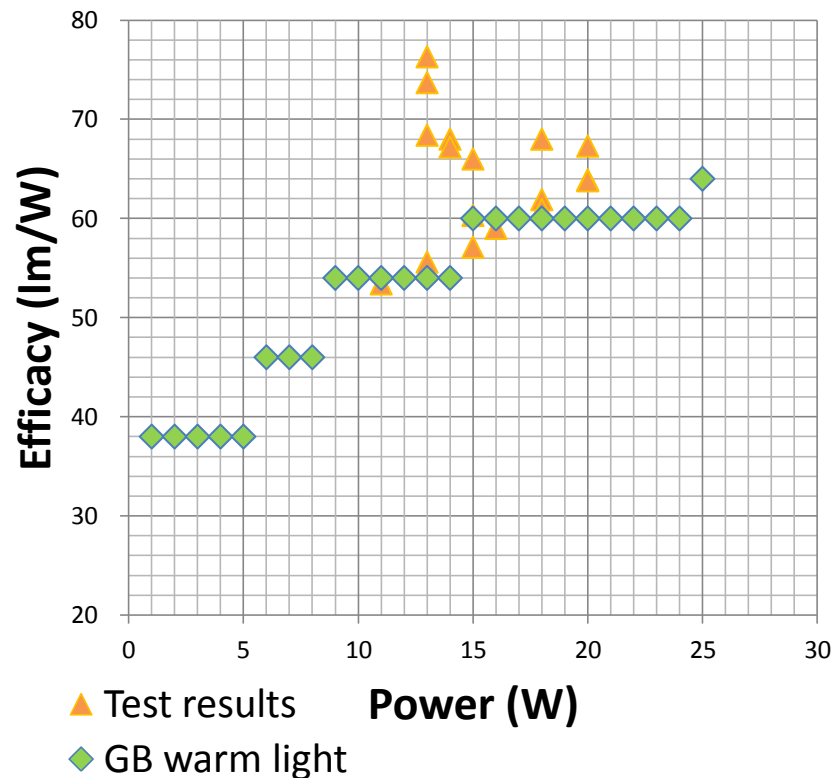
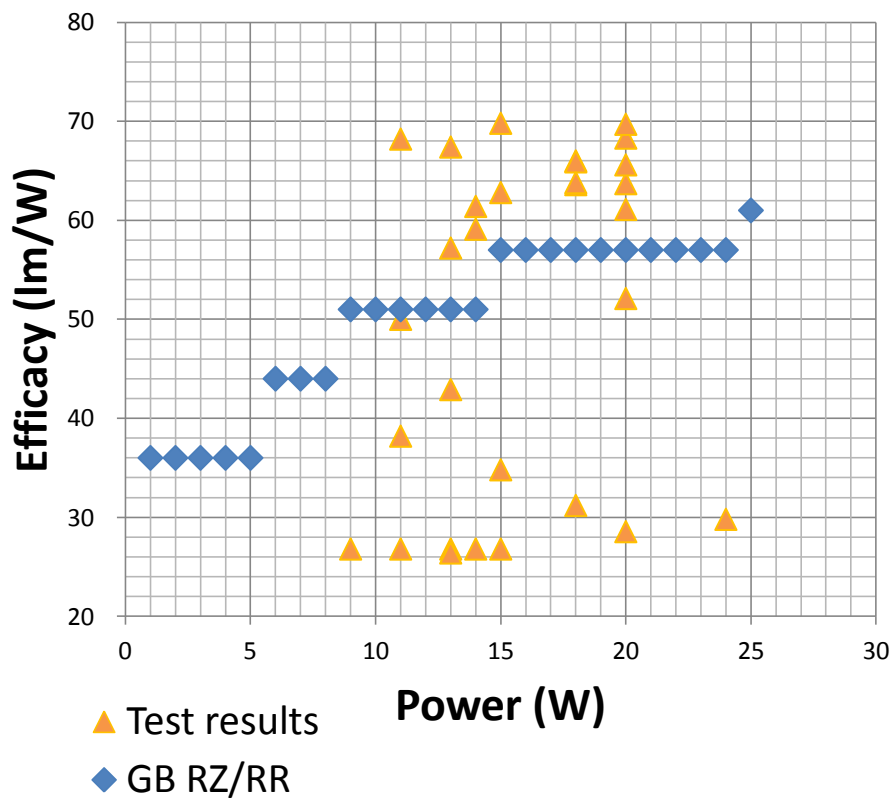
Efficacy 2)



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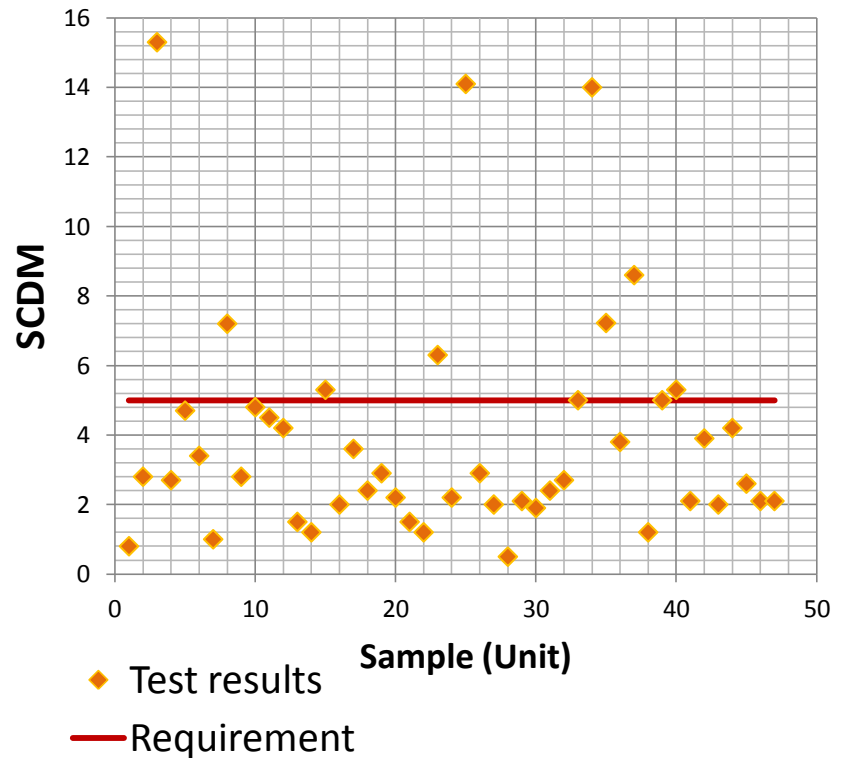
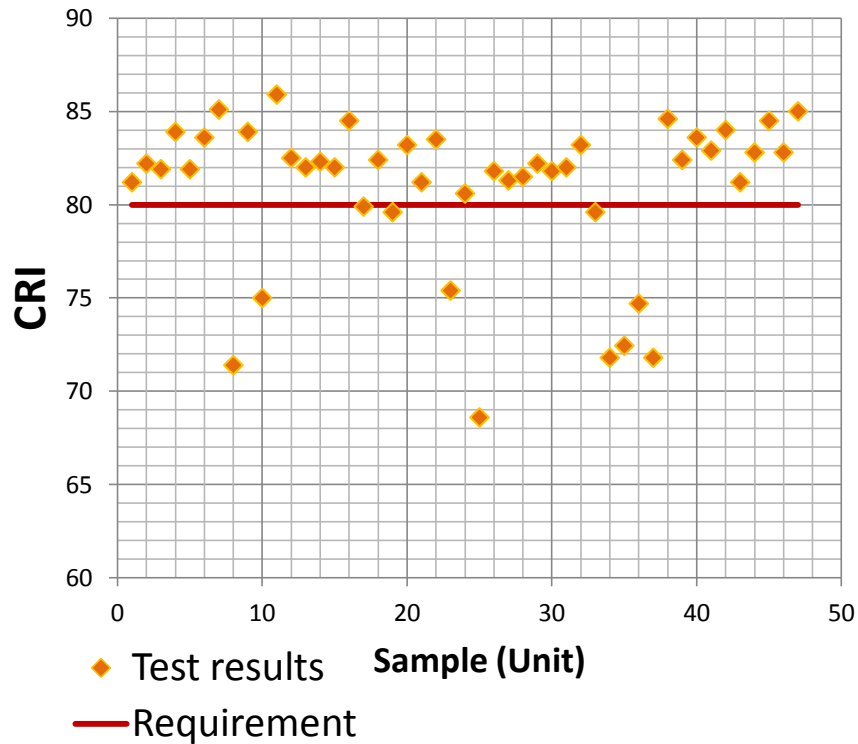
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Efficacy 3)



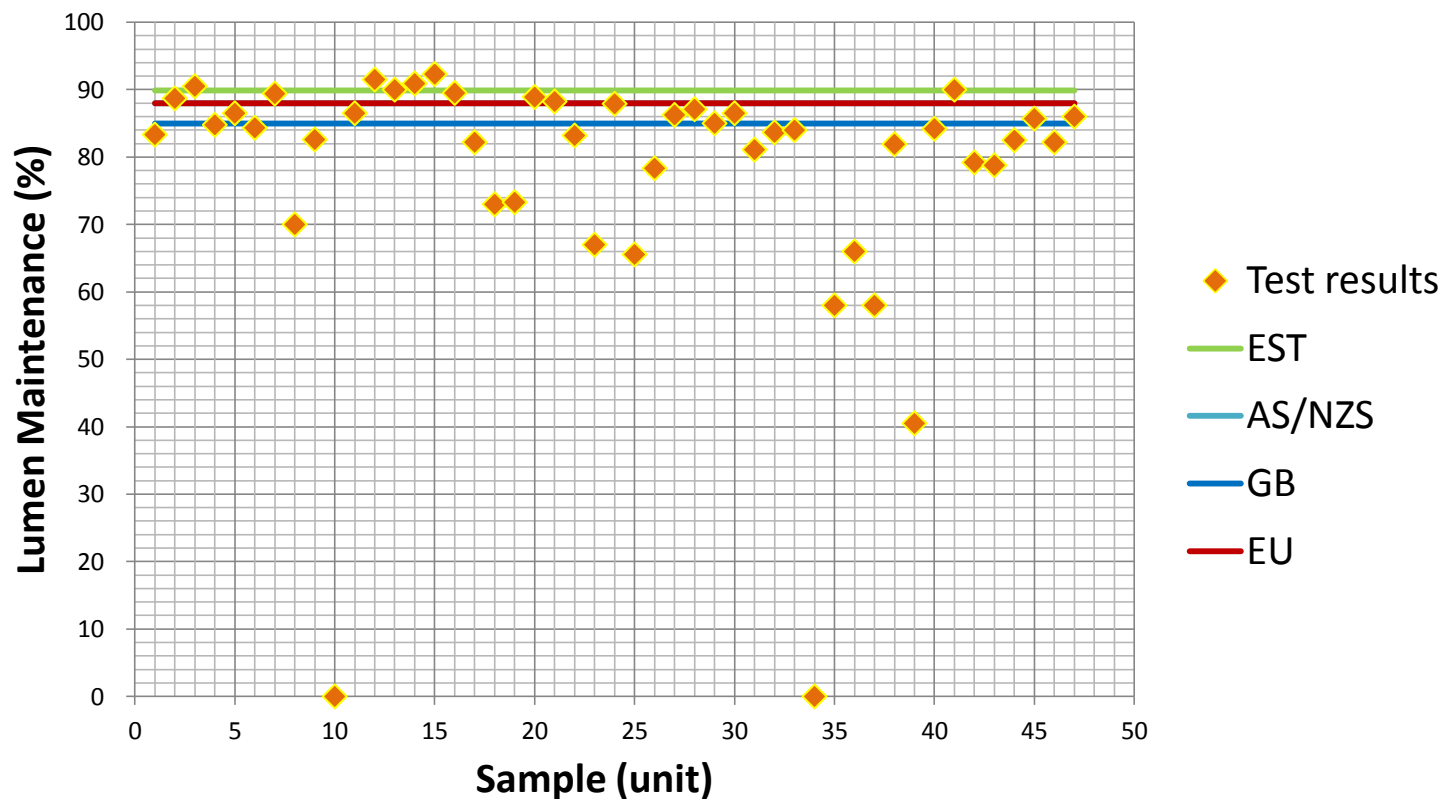
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Color Characteristic



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Lumen maintenance @2,000hrs



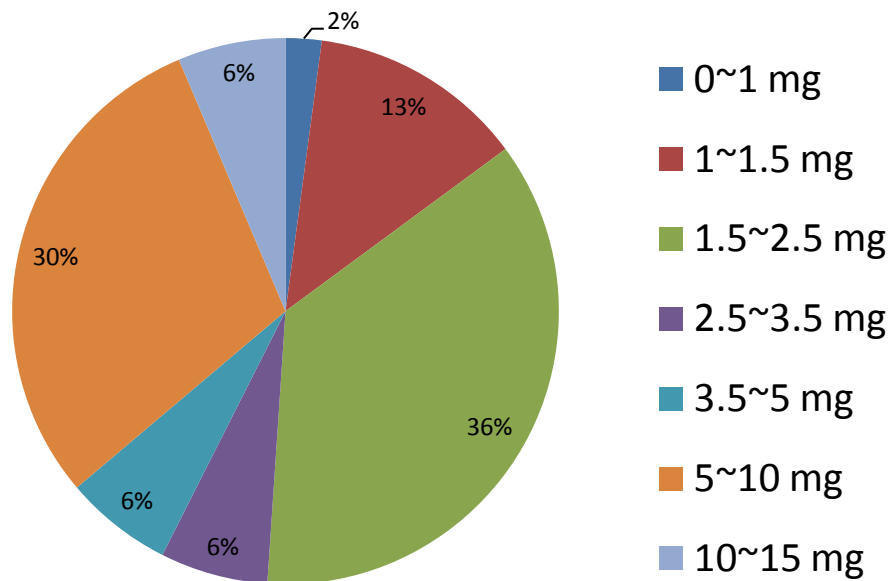
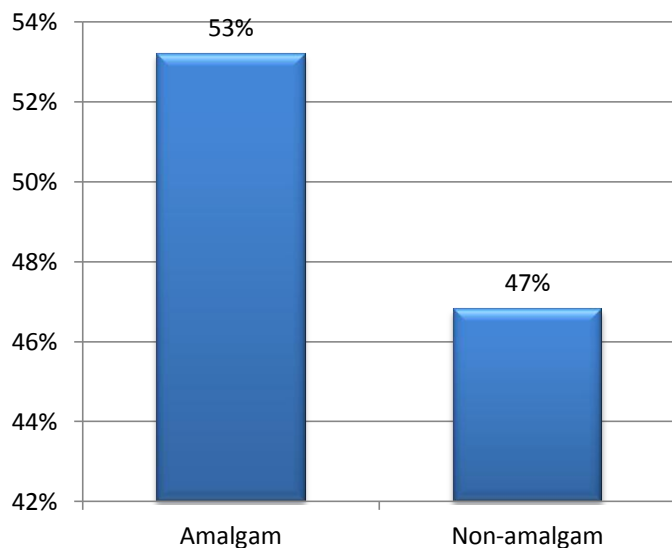


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Global CFL lamp quality checking Test

Mercury content



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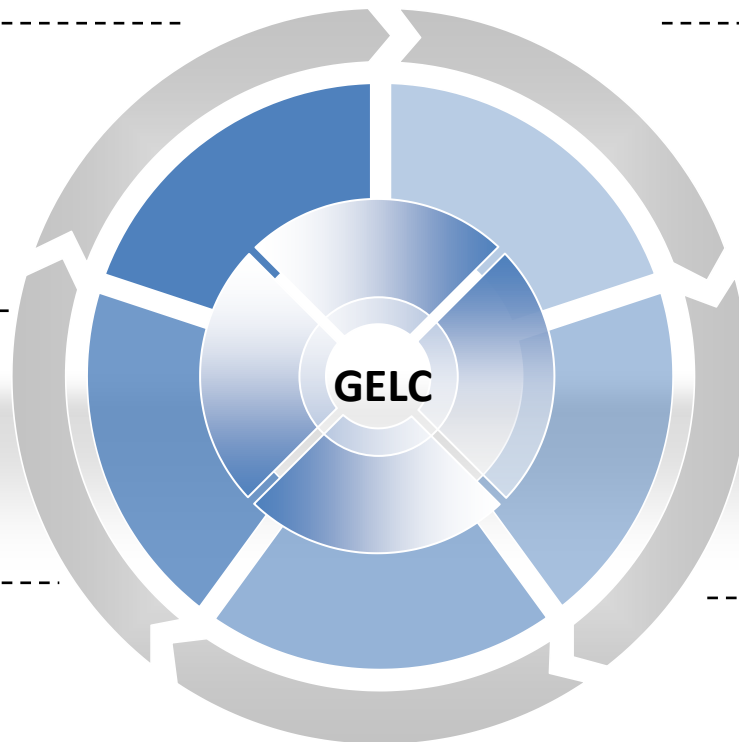
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Laboratory Capacity Building

**APLAC Proficiency
Testing program**

**IEA Inter-laboratory
Comparison**

**Round Robin Test
With 4 Russian
laboratories**



**Establishment of
Swedish national
lighting laboratory**

**Vietnam National
Laboratory Training**

**Tunisia National
Laboratory
cooperation**



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APLAC Proficiency Testing Program

APLAC T088

APLAC Proficiency Testing Program Photometric measurement of Solid State Lighting Products

A total of 29 laboratories from 19 Accreditation Bodies enrolled in the program and 28 laboratories from 18 Accreditation Bodies returned results.

Testing according to the “ZT007-APLAC Proficiency Testing Program -Measurement Method for the Proficiency Testing Program

- (a) Total luminous flux (lm);
- (b) RMS Voltage (V) and Current (A);
- (c) Electrical active power (W) ;
- (d) Luminous efficacy (lm/W);
- (e) Chromaticity coordinates x, y;
- (f) Correlated Colour Temperature (K);
- (g) Colour Rendering Index (CRI) Ra;
- (h) Power factor (PF).



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APLAC Proficiency Testing Program

En number		Number of Participants (Percentage)								
NLTC-IDC	Total luminous flux	Voltage	Current	Power	Luminous efficacy	x	y	CCT	Ra	Power Factor
≤ 1.0	24 (89%)	20 (71%)	28 (100%)	19 (68%)	21 (78%)	22 (85%)	23 (88%)	23 (88%)	23 (96%)	28 (100%)
> 1.0	3	8	0	9	6	4	3	3	1	0
Total	27	28	28	28	27	26	26	26	24	28



En number		Number of Participants (Percentage)								
NLTC-OD	Total luminous flux	Voltage	Current	Power	Luminous efficacy	x	y	CCT	Ra	Power Factor
≤ 1.0	24 (92%)	26 (96%)	21 (78%)	27 (100%)	25 (96%)	24 (96%)	25 (100%)	25 (100%)	25 (100%)	21 (78%)
> 1.0	2	1	6	0	1	1	0	0	0	6
Total	26	27	27	27	26	25	25	25	25	27



En number		Number of Participants (Percentage)								
NLTC-D	Total luminous flux	Voltage	Current	Power	Luminous efficacy	x	y	CCT	Ra	Power Factor
≤ 1.0	21 (81%)	26 (96%)	22 (81%)	26 (96%)	21 (81%)	25 (100%)	24 (96%)	25 (100%)	23 (96%)	25 (93%)
> 1.0	5	1	5	1	5	0	1	0	1	2
Total	26	27	27	27	26	25	25	25	24	27



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APLAC Proficiency Testing Program

En number		Number of Participants (Percentage)								
NLTC-HCCT	Total luminous flux	Voltage	Current	Power	Luminous efficacy	x	y	CCT	Ra	Power Factor
≤ 1.0	22 (85%)	26 (96%)	20 (74%)	27 (100%)	24 (92%)	23 (92%)	23 (92%)	23 (92%)	22 (92%)	23 (85%)
> 1.0	4	1	7	0	2	2	2	2	2	4
Total	26	27	27	27	26	25	25	25	24	27



En number		Number of Participants (Percentage)								
NLTC-LPF	Total luminous flux	Voltage	Current	Power	Luminous efficacy	x	y	CCT	Ra	Power Factor
≤ 1.0	23 (88%)	26 (96%)	19 (70%)	21 (78%)	24 (92%)	23 (92%)	25 (100%)	25 (100%)	24 (100%)	23 (85%)
> 1.0	3	1	8	6	2	2	0	0	0	4
Total	26	27	27	27	26	25	25	25	24	27



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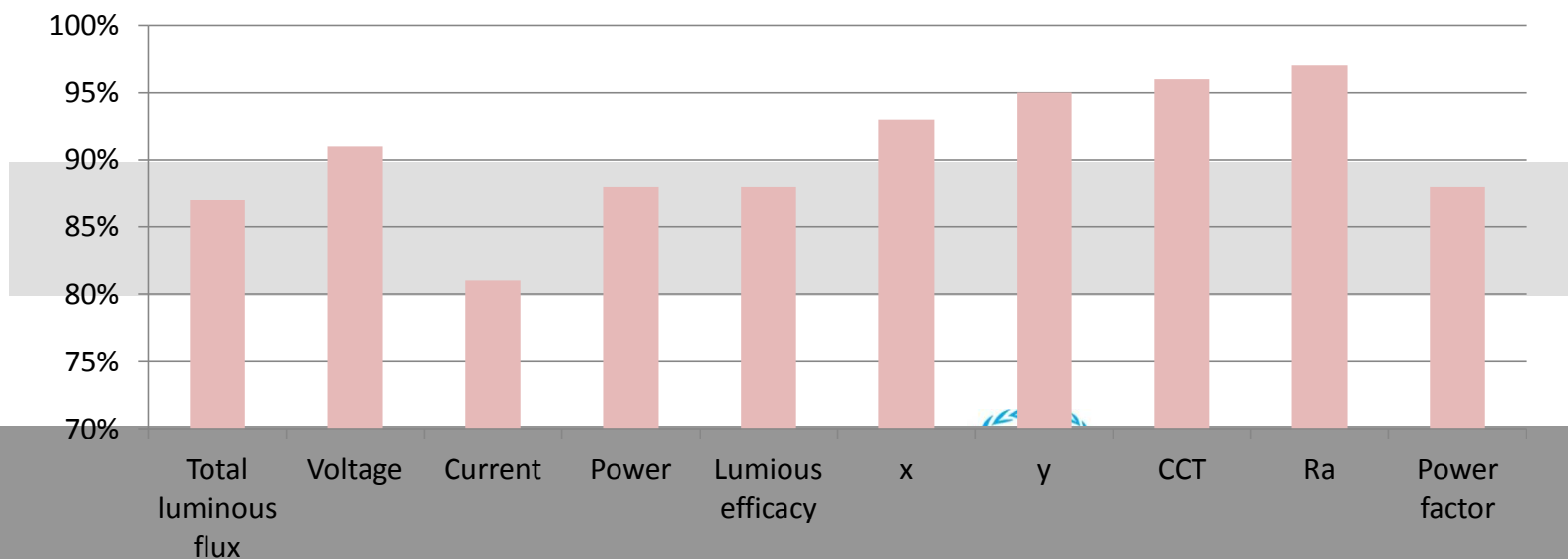


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APLAC Proficiency Testing Program

En number		Number of Participants (Percentage)								
All type lamps	Total luminous flux	Voltage	Current	Power	Luminous efficacy	x	y	CCT	Ra	Power Factor
≤ 1.0	114 (87%)	124 (91%)	110 (81%)	120 (88%)	115 (88%)	117 (93%)	120 (95%)	121 (96%)	117 (97%)	120 (88%)
> 1.0	17	12	26	16	16	9	6	5	4	16
Total	131	136	136	136	131	126	126	126	121	136





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IEA Inter-laboratory Comparison

The IC was designed in compliance with ISO/IEC 17043:2010,
Conformity Assessment – General Requirements for Proficiency
Testing

14 laboratories participated in the IEA Inter-laboratory Comparison



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IEA Inter-laboratory Comparison

Summary of the findings

- Most laboratories have acceptable agreement with the assigned values
- some laboratories have larger deviations from assigned values, especially for LED artifacts.
- The (relative) expanded uncertainties reported by a few of laboratories appear to have a larger difference than the suggested one, either too small or too big.



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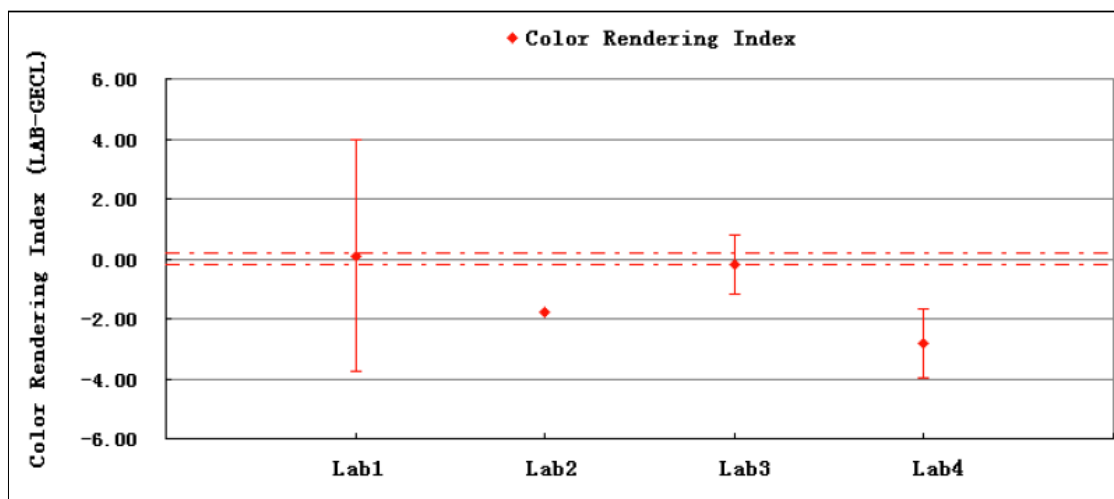
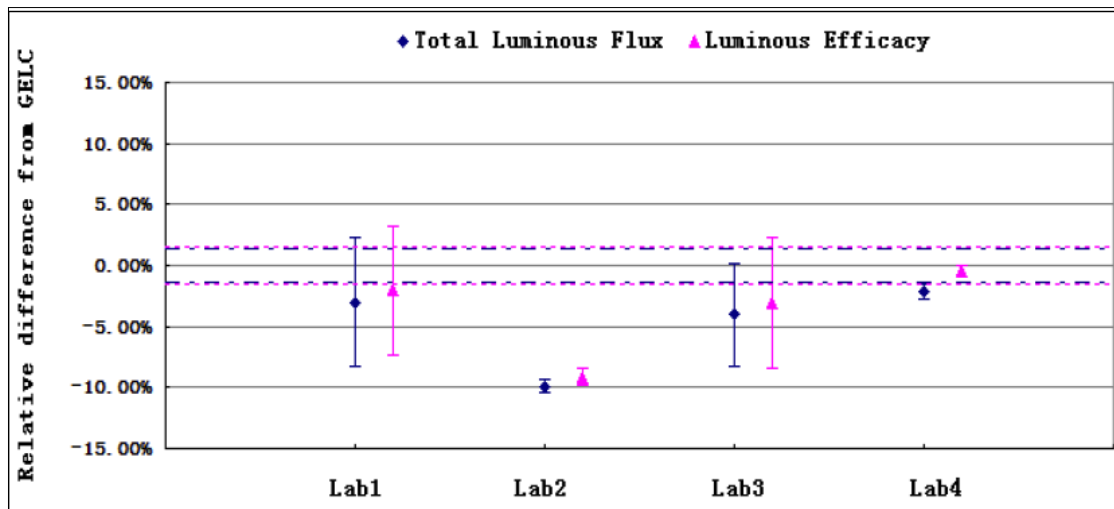


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Round robin test with 4 Russian Laboratories

Lamp I



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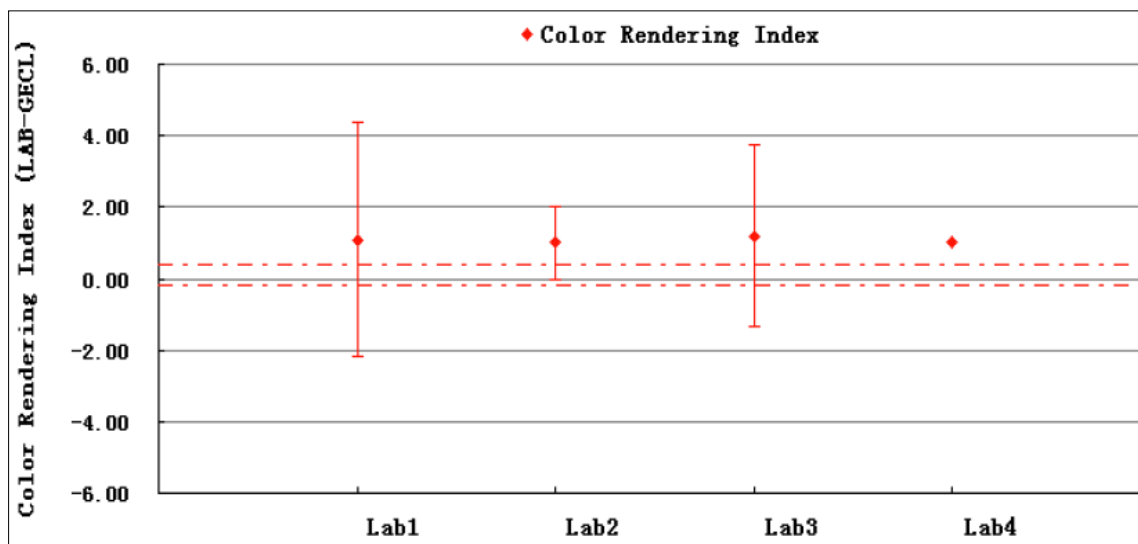
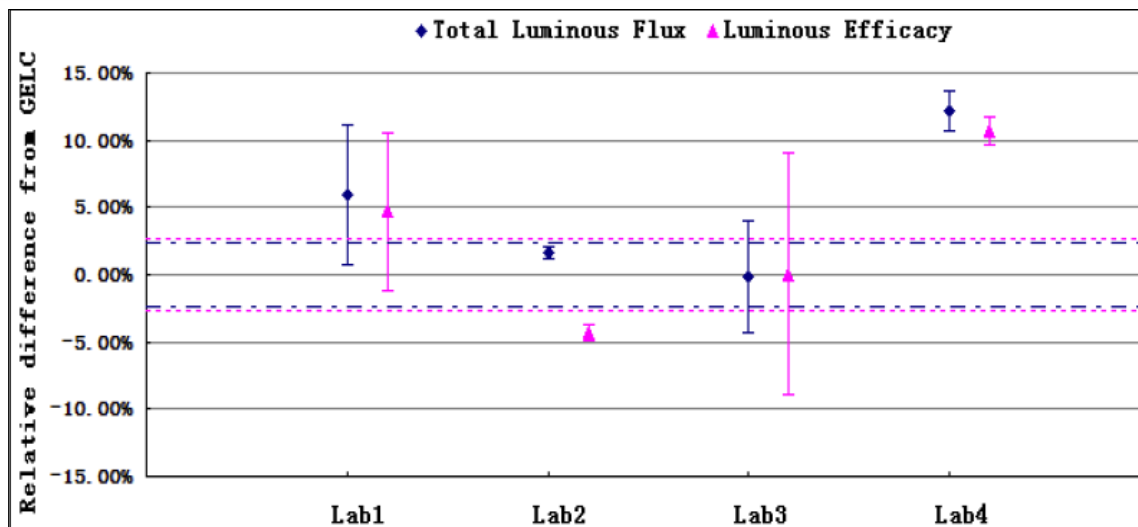


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Round robin test with 4 Russian Laboratories

Lamp II

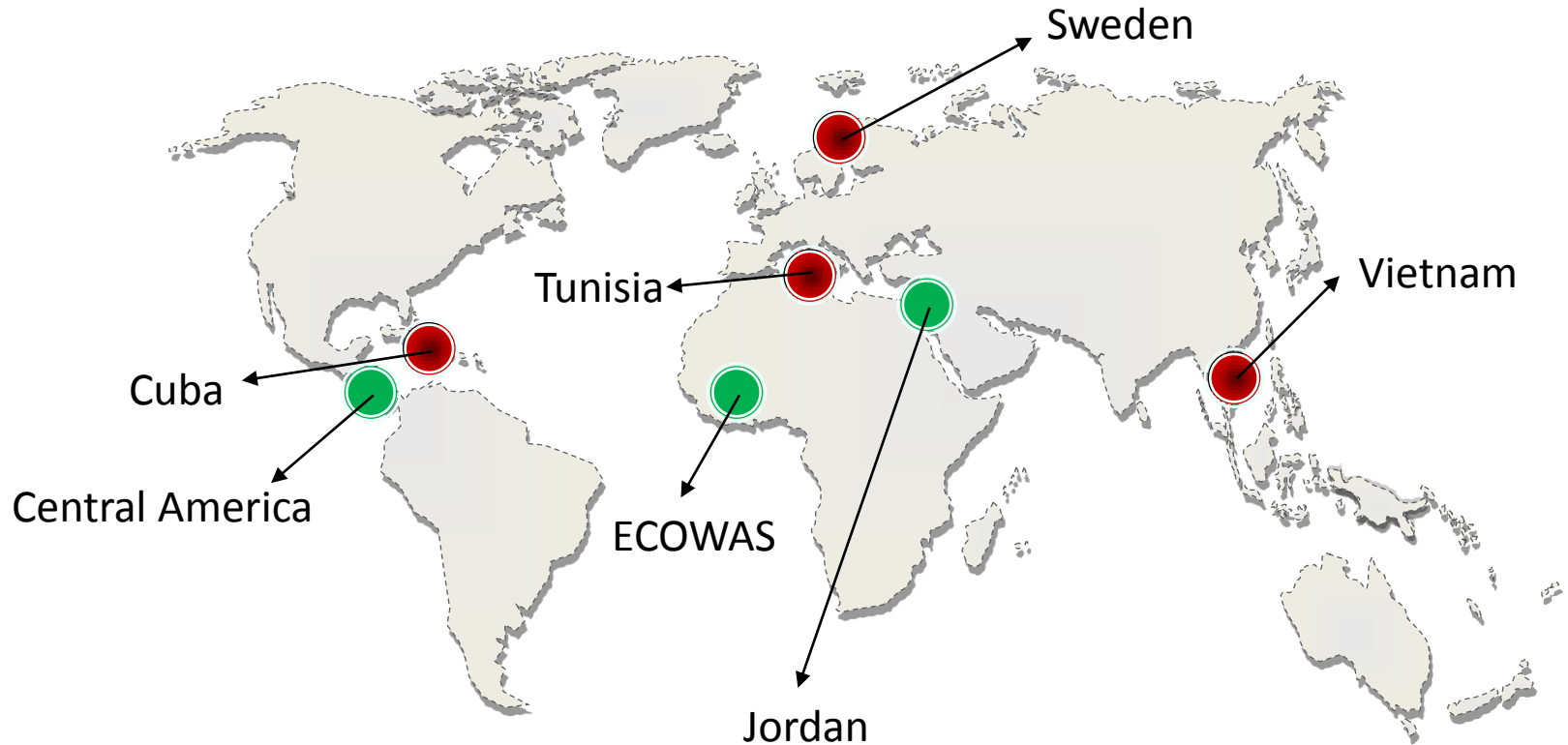




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Laboratory Capacity Building



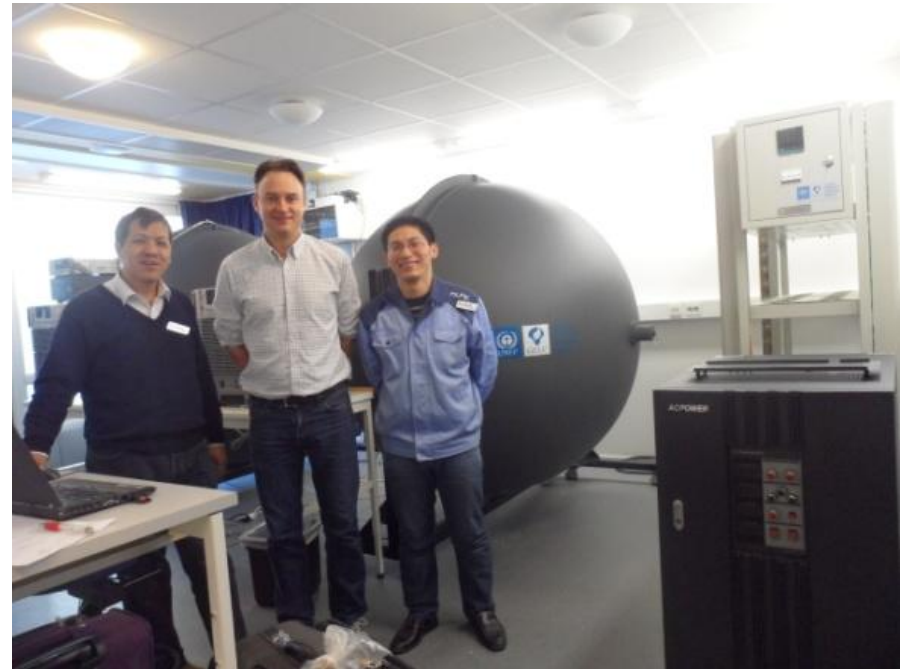
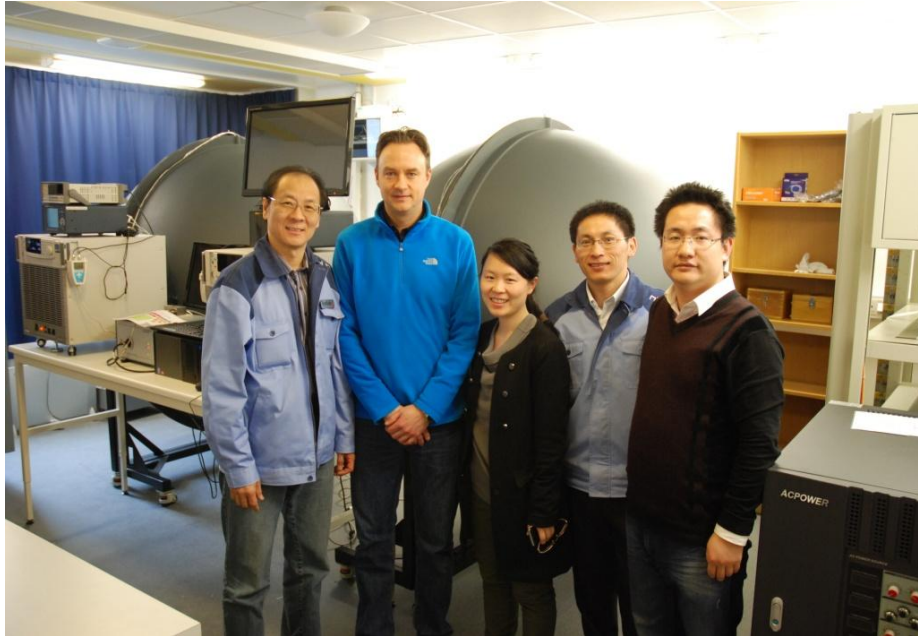
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Establishment of Swedish national lighting Laboratory



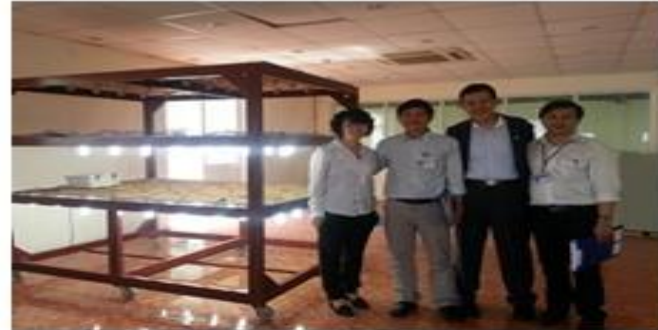
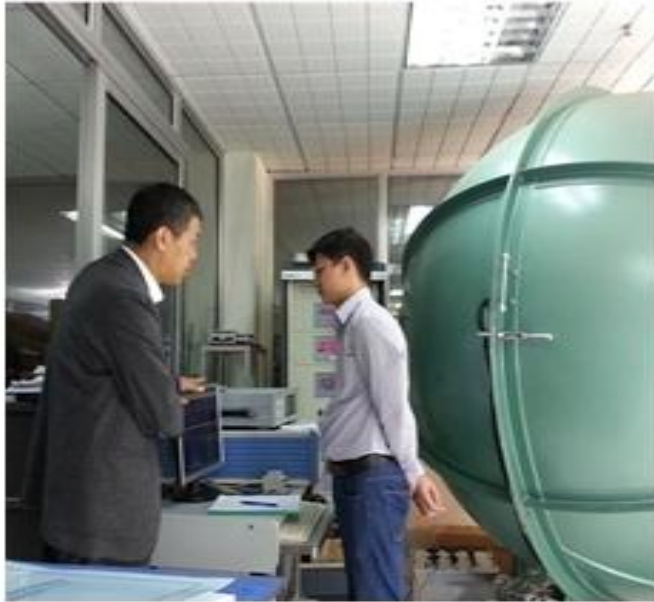
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Training for Vietnam National Lighting Laboratories



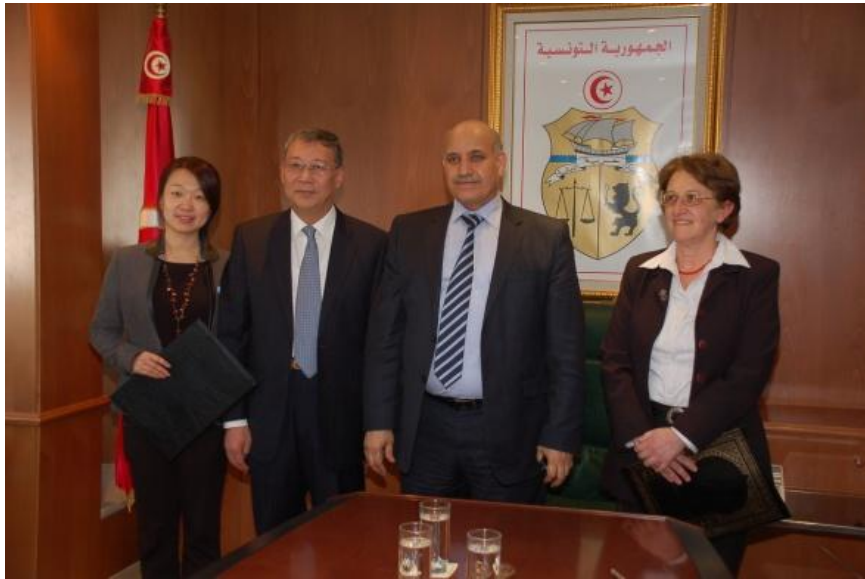
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Cooperation with Tunisia National Lighting Laboratory



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Technical Trainings in Vietnam lighting manufacturers



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Lighting Training tour in China





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Technical Trainings at GELC



Training: South-South
Cooperation Project

Training on promotion of
testing level & quality
management



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Applied Research



Subjective Evaluation Research

OLED Research lab



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Applied Research



Photometric Research lab

SSL Reliability Research lab



LED Module Lifetime Research lab



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Quality Information Release Platform

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About GELC

The National Lighting Test Centre (NLTC) is a key partner of the UNEP/GELC en.lighten initiative collaborating to accelerate the global phase-out of inefficient incandescent lamps and encourage their replacement with energy efficient, high quality products. In September 2011, the Global Efficient Lighting Centre – UNEP Collaborating Centre for Energy Efficient Lighting (GELC), was launched in partnership between UNEP and the NLTC at a formal ceremony at the UNEP Headquarters in Nairobi, Kenya.

The Global Efficient Lighting Centre is located in Beijing, China. GELC is a non-profit organization running as an independent third party. It is a specialized and accredited facility that provides lighting testing, training, advice, quality control and capacity building support to the developing and emerging countries. It has been established to promote the rapid development of the energy efficient lighting technologies around the world.

[read more](#)

GELC Services

Whether to implement the global phase out of inefficient lighting products or transform the lighting market, promoting the high quality, energy efficient lighting products is one of the most significant elements to successfully achieve the potential energy saving goals. As a professional technical lighting organization, the GELC does this by offering the service of providing lighting testing, training, advice, quality control and capacity building support, especially to the developing and emerging countries.

- Quality Control
- Laboratory Capacity Building
- Training
- Applied Research
- Technical Advisory and Information Sharing

GELC Projects

- Global Lamp Testing
- Technical support - Vietnam
- Round Robin Testing - Russia
- Lighting Lab Project - Sweden

[read more](#)

About en.lighten

Directly for lighting is responsible for approximately 10% of total and use electrical consumption and 2% of global greenhouse gas (GHG) emissions. Switching to efficient lighting technologies would cut the world share of electricity used for lighting by over one-third which would save enough electricity to power more than 200 coal-fired power plants worldwide. Few actions can cut carbon emissions more easily than the phase-out of inefficient lighting, making it one of the most effective and economically advantageous means to bring climate change.

The en.lighten initiative addresses the challenge of accelerating global market transformation to environmentally sustainable lighting technologies by developing a coordinated global strategy and providing technical support.

[read more](#)

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The Quality Information Release Platform for the Energy Efficient Lighting Products

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受大陆节能补贴政策到期影响, 晶电亿光6月营收锐减...

LZD 2013年9月29日 星期日

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Workshops

ECOWAS Regional Workshop



Central America Regional Workshop



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Discussion

Southeast Asia and Pacific MVE Project

- Testing
- Laboratory capacity building
- Training
- MVE
- Information sharing framework



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Thank you

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