



# How Does A Lighting Laboratory Play Its Role In Quality Control

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Global Efficient Lighting Centre

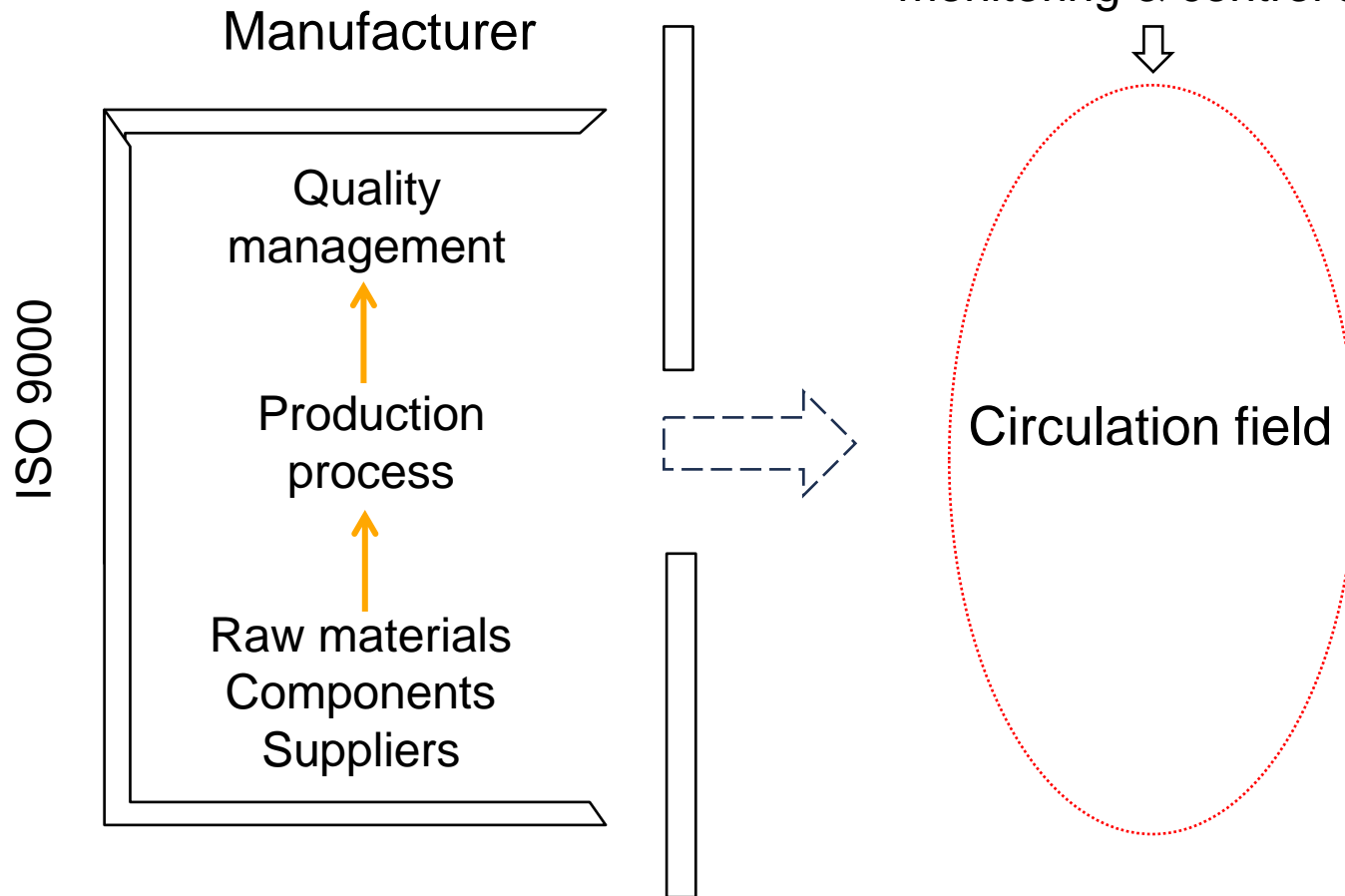


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# Product Quality Control

National product quality  
monitoring & control system



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# Product quality control

National product quality monitoring  
& control system



Legislations,  
policies

National  
standards



Laboratory

PRODUCT GOAL:

- ✓ Safety
- ✓ Environmental protection
- ✓ Functions (basic/high level)



ACHIEVE THE PRODUCT  
GOAL



HARDWARE SUPPORT  
PLATFORM



# International standard organization

## IEC

International Electrotechnical Commission(IEC) ,1906

Scope :International Standards for all electrical, electronic and related technologies  
TC 34: Lamps & related equipment

Characteristics of Products

## CIE

International Commission on Illumination

Scope: the science and art of light and lighting, colour and vision, photobiology and image technology.  
Division 1,2,3,4,5,6,8

Fundamental, including testing method

## ISO

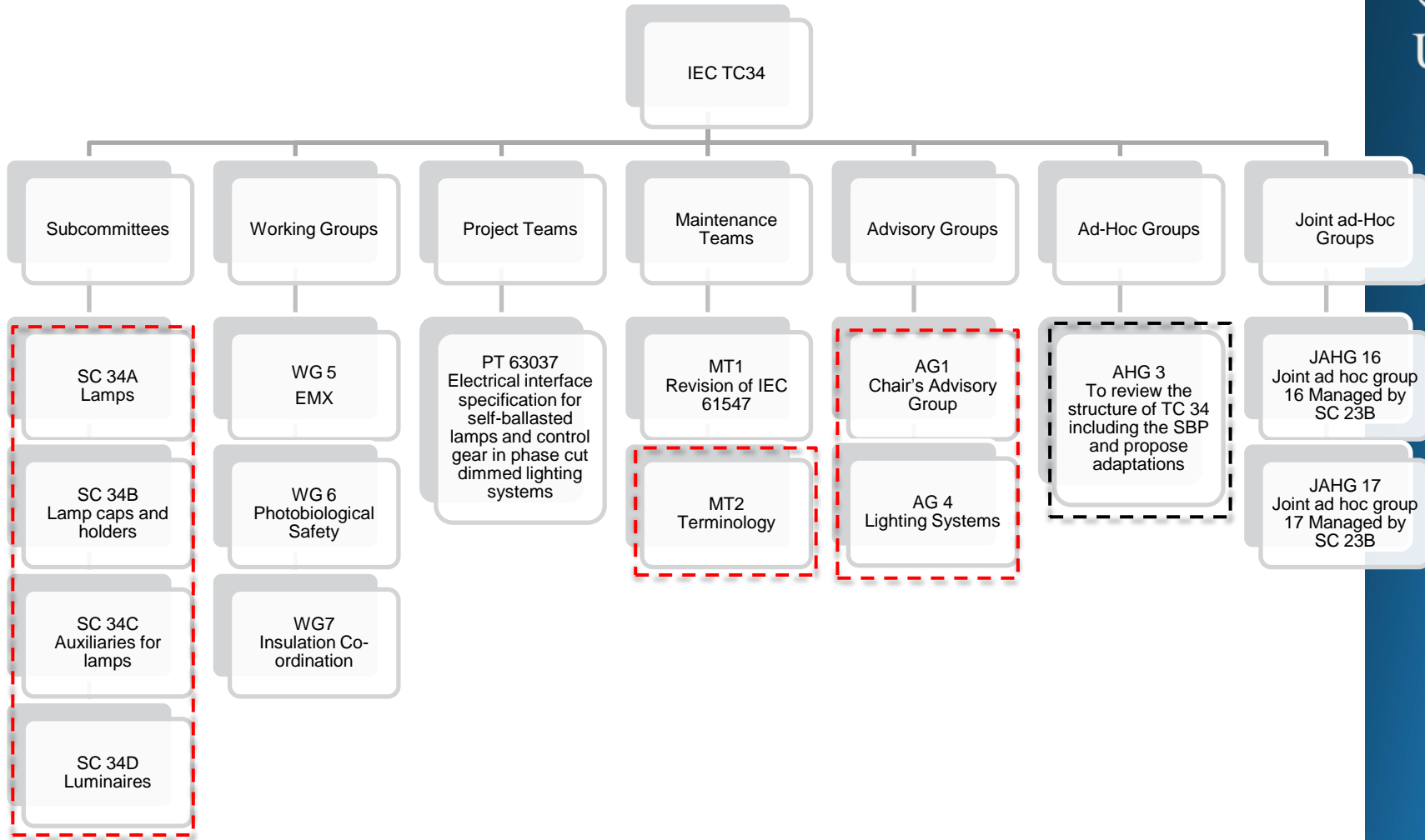
International Organization for Standardization

Scope: covering almost every industry, from technology, to food safety, to agriculture and healthcare.  
ISO TC 274 Light and lighting

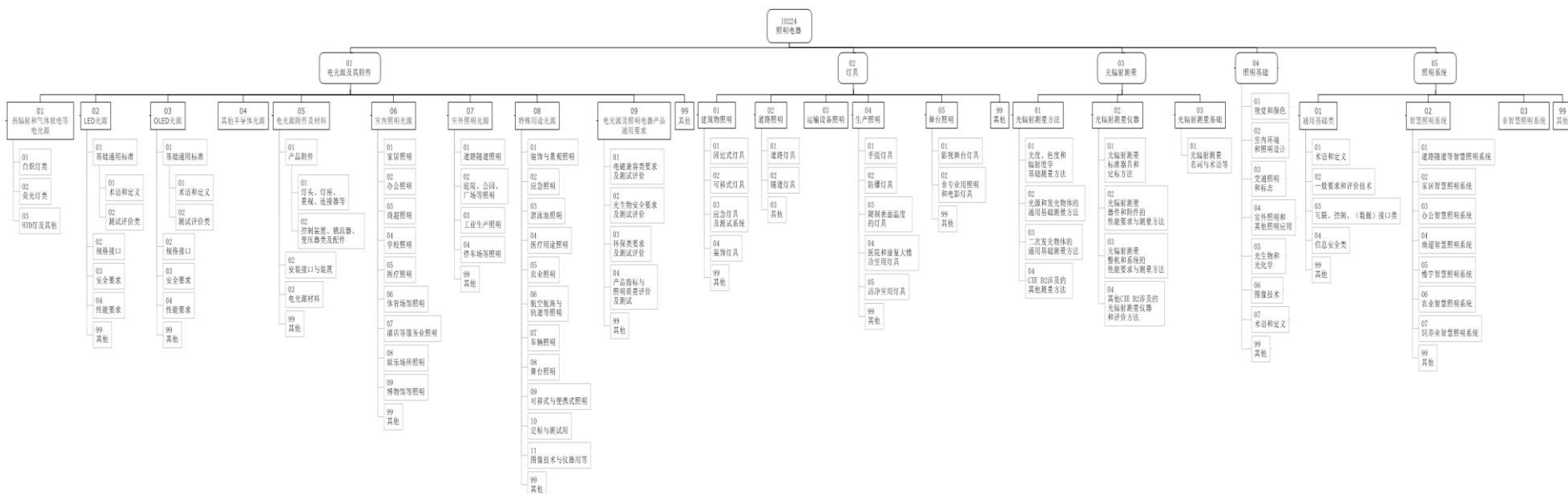
Application



# IEC lighting standardization



# China lighting standardization framework



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# Laboratory

## Hardware

### Equipments

- ✓ Integrating sphere
- ✓ Goniophotometer
- ✓ .....

### Facilities

- ✓ Buildings
- ✓ Electricity
- ✓ Water
- ✓ .....

### Environment conditions

- ✓ Temperature
- ✓ Humanity
- ✓ EMC environment
- ✓ Chemical environment
- ✓ Hygienic environment

## Software

### Technology knowledge

- ✓ Testing (equipment, testing, calibration)
- ✓ Standard
- ✓ Products
- ✓ Lighting application
- ✓ .....

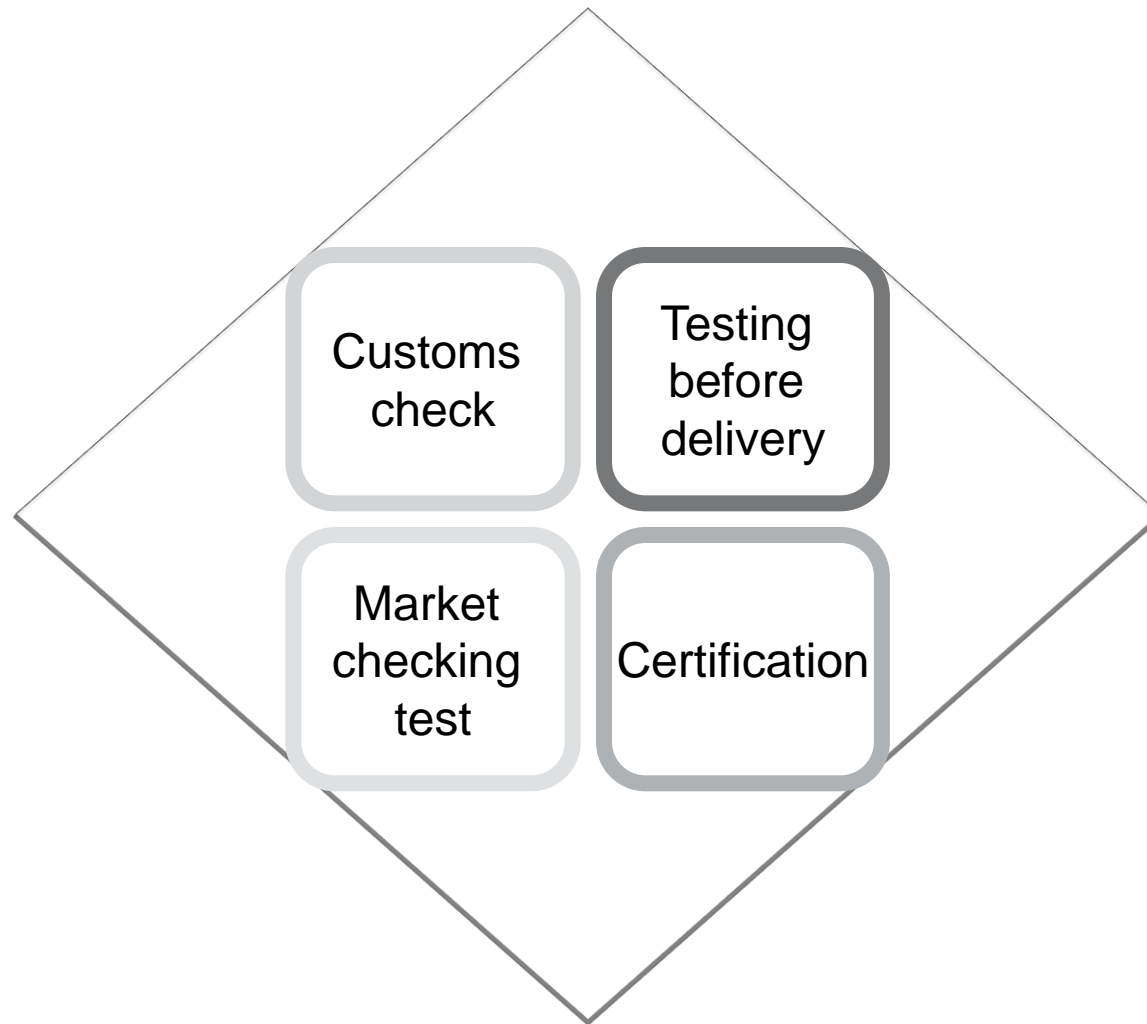
### Quality management

- ✓ ISO/IEC 17025





# Product quality control



# Customs check

- First protective screen
  - Random check
- 
- Lighting is a very small part but with different kinds of products
  - Technical issue? Testing issue?



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# Testing before delivery



Testing  
through  
an  
entrusted  
laboratory

- Develop sampling and conformity scheme
- Testing according to standards

A. Sampling by batch

B. Factory check



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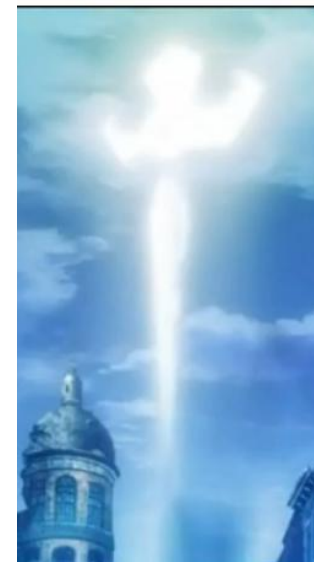
# Market checking test

The last checking before it goes to the consumers

Shows good effect

- Lots of brands
- Large coverage
  - City
  - Countryside
  - Remote area
- High cost
  - Travels, HRs
  - Rigorous testing
  - Procedure (legal, reasonable, strict)
- Risk

The sword of Damocles



# Market checking test

## The sword of Damocles



- Media release
- Economic punishment
- Recall
- Legal redress
- Criminal liability



# Market checking test --- CFL standards

China CFLs standards:

- Safety standard: equal to IEC 60968
- EMC standard: equal to IEC 61000-3-2, IEC 61547, CISPR15
- Performance standard requires
  - efficacy
  - luminous maintenance
  - colour characteristics
  - power factor
  - mercury content
- Energy efficiency standard



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# Market checking test --- LED standards

## IEC

- IEC 62504
- IEC 62031
- IEC 62717
- IEC 62560
- IEC 62612
- IEC 62776
- IEC 60050-845
- IEC 62663-1
- IEC 62663-2
- IEC 62722-2-1
- IEC 62838
- IEC 62931
- IEC/TS 62861
- IEC 63013

## China

- GB 7000.1
- GB/T 24907
- GB 7000.203
- GB 7000.202
- GB/T 29294
- GB/T 29293
- GB 24906
- GB/T 29296
- GB/T 31111
- GB/T 29295
- GB 24906
- GB/T 24908
- GB 30255
- GB/T 31112
- GB 19651.3
- GB 19510.14
- GB 24819
- GB/T 24823
- GB/T 24824
- GB/T 24825
- GB/T 24826
- GB/T 24909
- GB/T 30104.207
- GB/T 30413
- QB/T 4057
- QB/T 4146



# Certification

## A. System certification

ISO 9000  
ISO 14000  
ISO 18000

## B. Product certification

- a) Design qualification
- b) Type test (key components/materials and product structure fixed)
- c) Sampling test or inspection in the production field
- d) Sampling test or inspection in the market
- e) Product consistency check with product quality guarantee ability
- f) Follow up inspection after obtaining the certificate
  - Regular inspection
  - Non-regular inspection
  - Market inspection



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# Certification

## Safety certification

- GB 7000.1
- GB 7000.201
- GB 7000.202
- GB 7000.203
- GB 24906
- GB 16843
- GB 18774
- GB 16844
- GB 17743
- GB 17625.1

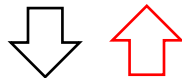
## Energy saving certification

- CQC 3147 (LED panel)
- CQC 3127 (LED street lighting & tunnel lighting)
- CQC 3128 (LED downlight)
- CQC 3129 (LED reflector)
- CQC 3148 (LED tube)
- CQC 3130 (LED bulb)
- GB/T 17263 (CFL)



# Product quality control

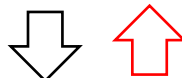
National product quality monitoring & control system



✓Improvement & strengthen

Legislations,  
policies

National  
standards



✓Technical people  
✓Testing data

Laboratory



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# Q&A

Thank you!



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