



IECQ Scheme for LED Lighting

**A valuable qualification and supply chain management tool
for LED lighting manufacturers**



→ **Fact**

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Urban lighting relies on LEDs

LEDs lead the way

Demand for the use of solid state technology for general and specific lighting applications continues to grow. Light-emitting diodes or LEDs in particular, on the market since the early 1960s, have been very successful in recent years. Mostly used as indicator lamps for electronic devices in the early days, recent developments have seen them used increasingly in domestic, commercial and industrial applications.

LEDs are up to 90% more efficient than incandescent bulbs and use the light emission properties of specific semiconductor materials. Initially they were expensive to produce so found their market in commercial use. Now improved technology and economies of scale have seen prices fall, making them increasingly attractive to domestic consumers.

In the industrial and commercial environments, LED lighting solutions are now found widely in shops. They are also making inroads in urban and airport lighting, automotive headlamps, traffic signals and advertising. LEDs have often been described as the light source of the future, as they can be used in almost any kind of applications.

LEDs have many advantages over incandescent or compact fluorescent lamp (CFL) light sources, including:

- low energy consumption
- long lifetime
- robustness, i.e. reduced cost of maintenance and replacement
- easy control
- fast switching

Quality and reliability

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As an outcome of the recent success of LED lighting solutions for domestic and industrial use, the risk of having the market flooded by a large number of manufacturers making unverifiable claims about their products' quality and reliability has increased exponentially along with the huge number of differing package and engine formats.

It is clear that mass production of LED lighting systems cannot be made at the expense of quality and reliability. All electronic components, parts, modules and assemblies must work satisfactorily together. One faulty component can result in poor performance or even worse, the overall failure of the LED lighting system.



↘ Fact

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LEDs have a long lifetime and reduced cost of maintenance and replacement

Fact ↙

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The automotive industry has also switched to LEDs



Meeting requirements and specifications

There are many International Standards, IEC International Standards in particular, which address safety requirements, including interoperability. Then there are approval and certification schemes that aim to provide assurance that these requirements are met. However, manufacturers of components and assemblies need to address issues that are much broader than those covered by today's International Standards when controlling their supply chain manufacturing processes.

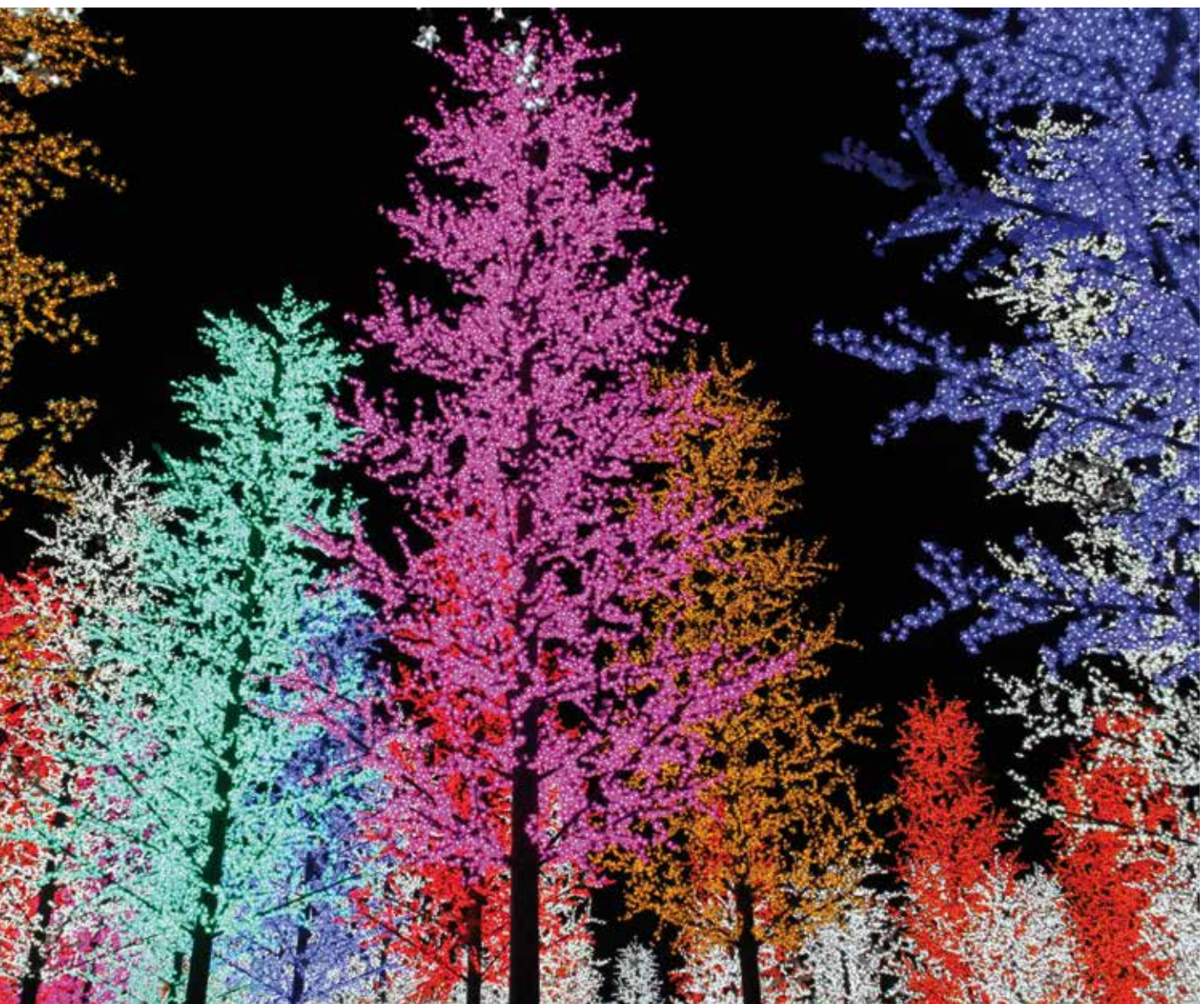
The IECQ solution

IECQ, the IEC Quality Assessment System for Electronic Components, has the solution that gives manufacturers, suppliers and buyers the confidence that the products they sell or purchase have been independently verified and meet all requirements and specifications.

The IECQ Scheme for LED Lighting, under the umbrella of the generic IECQ Approved Component (AC) Scheme, offers a valuable qualification and supply chain management tool that provides for the identification and

verification of compliance with component and process specifications.

In line with the approved scope of the IECQ System, the IECQ Scheme for LED Lighting can be applied to certify manufacturers and suppliers of electronic components, modules and assemblies used in the production of LED packages, engines, lamps, luminaires and associated LED ballasts/drivers.



Fact

Low energy consumption makes LEDs ideal for outdoor decorations

Fact

↗ LEDs can play a major role in interior decoration



High level of confidence

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LED components and systems covered by an IECQ LED Lighting Certificate provide the assurance that:

- safety and interoperability Standards and industry specifications are met
- specific performance criteria associated with the component are met
- environmental criteria are met
- material and component traceability are met

They ensure that:

- manufacturing and process controls are in place
- material and supply chain controls are in place
- Initial qualification of designs and design change control are in place
- production samples are constantly being checked and tested

Fact ↙

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The IECQ Scheme for LED Lighting helps prevent poor-quality LED systems from entering the market

How does IECQ Certification benefit industry?

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The IECQ Scheme for LED Lighting provides a “standardized way” of evaluating suppliers and is used as a powerful supply-chain management tool when assessing and monitoring the various tier-level suppliers.

This removes the cost burden of monitoring and controlling the supply chain, from the original equipment manufacturers (OEMs) to their suppliers, while also protecting the OEM brand name in the market. This also helps prevent poor-quality LED systems from entering the market.

For component and module suppliers, the benefit is the on-going assessment/evaluation conducted by a single organization – IECQ – as opposed to multiple second-party assessments and criteria made by each of their OEM customers. A structured approach to the supply chain management such as IECQ also brings with it inherent efficiencies and cost savings by reducing non complying items, eliminating discarded items and wasteful scrapping during production.



Fact

- IECQ certification ensures safety, quality, reliability and cost-efficiency of LED products



Cooperation between IEC CA Systems

Some aspects of LED lighting unit testing may be beyond the scope of the IECQ Scheme. The IECEE CB Scheme in particular can be drawn upon to provide test reports and certificates for the safety and performance requirements of these units. These reports and certificates will be used by the IECQ CB when conducting assessments and audits of the LED lighting unit manufacturer and will form an integral part of the manufacturer's compliance dossier.

IECEE is the IEC System of Conformity Assessment Schemes for Electrotechnical Equipment and Components.

How does the consumer benefit?

Purchasing LED products from companies whose suppliers are covered by IECQ certification gives consumers the assurance of their reliability, safety and cost-efficiency while also strengthening their confidence in this new and exciting technology.

Benefits for governments and regulators

With the ever-increasing use of IECQ certification among the electronic component and assembly supply chain, there is no need for governments and regulators to introduce

complex and costly regulatory approval regimes at the country level, rather they can work in harmony with IECQ.

In summary, it is a win-win situation for both industry and consumers.

How to check that a manufacturer is IECQ-certified?

All IECQ International Certificates are publicly available for instant checking on the IECQ website at www.iecq.org

Simply said: If the certificate is not on the IECQ website, it does not exist.

About IECQ

More information?

For further information, please visit the IECQ website www.iecq.org or contact IECQ at info@iecq.org

About IECQ

IECQ, the IEC Quality Assessment System for Electronic Components, is a worldwide approval and certification system that covers the supply, assembly, associated materials and processes of a large variety of electronic components that are used in millions of devices and systems.

The IECQ Certification System provides manufacturers with independent verification that IEC International Standards and other specifications were met by suppliers who hold an IECQ certification.

The avionics and increasingly other industries depend on the IECQ Electronic Component Management Plan to assess suppliers and safely manage their components' supply chain also to avoid counterfeit merchandise. IECQ also allows manufacturers to more easily comply with increasingly strict hazardous substances regulations.

IECQ operates the following Schemes:

- IECQ AP (Approved Process)
 - IECQ AP-CAP (Counterfeit Avoidance Programme)

- IECQ AC (Approved Component)
 - IECQ AC-TC (Technology Certification)
 - IECQ AC-AQP (Automotive Qualification Programme)

- IECQ Scheme for LED Lighting

- IECQ Avionics

- IECQ HSPM (Hazardous Substances Process Management)

- IECQ ITL (Independent Testing Laboratory)

IEC Quality Assessment System for Electronic Components (IECQ)

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