Lighting Global Quality Assurance

PowerPoint slides available upon request. Contact qa@lightingglobal.org.

LIGHTING GLOBAL
Catalyzing markets for modern off-grid energy

AN INNOVATION OF
WORLD BANK GROUP
THE WORLD BANK IBRD • IDA
IFC International Finance Corporation

Agenda

- What is Lighting Global Quality Assurance?
- Who is Lighting Global Quality Assurance?
- Why does quality matter?
- Lighting Global Quality Standards
- Benefits of quality-verification
- Testing & verification overview
- Market surveillance
- How to get in touch with the Lighting Global team

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What is Lighting Global Quality Assurance and What Does it do?

Lighting Global Quality Assurance catalyzes off-grid solar markets to power the world's poorest people.

Lighting Global Quality Assurance:

1. Develops and manages the test methods and quality standards that serve as a universal benchmark for product quality and performance
2. Offers manufacturers expert, unparalleled quality-verification services, product performance benchmarking, and guidance on how to improve their products
3. Provides technical assistance to national governments and other large institutions with a commitment to quality

What does success look like?

A competitive global market where quality products are the default option

↓

Consumers are satisfied with their purchases, so markets are not spoiled

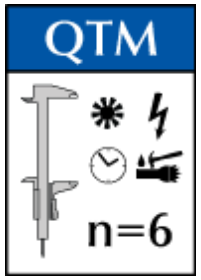
↓

More households achieve higher levels of energy access faster

Core Elements of Lighting Global Quality Assurance

Lighting Global QA Framework

Test Methods and Quality Standards



IEC Technical Specification 62257-9-5, Ed. 4.0

LIGHTING GLOBAL Quality Standards

Testing and Verification

SCHATZ ENERGY RESEARCH CENTER

Southern Africa Academy of Metrology & Quality Infrastructure SMQ

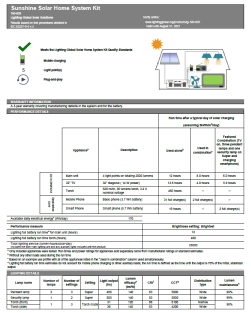
teri

Intertek

UNIVERSITY OF NAIROBI

ISO 17025 accreditation using ILAC affiliated organizations

Communicating Quality to the Market



Stakeholder engagement
Consumer awareness campaigns
Product listing on Lighting Global website

Who is Behind Lighting Global?

IFC International Finance Corporation WORLD BANK GROUP

THE WORLD BANK IBRD • IDA

- Created Lighting Global and continues to fund program
- Manages Lighting Global Business Development Services

clasp

- Headquartered in Washington, DC with offices in Kenya, India, and Europe
- Leading international voice and resource for appliance energy efficiency policy and market acceleration initiatives
- Manages Lighting Global Quality Assurance

Schatz Energy Research Center

- Located at Humboldt State University in California
- Providing technical and strategic support to Lighting Global Quality Assurance for more than 10 years
- Now under contract to CLASP

Why does Quality Matter?

- Off-grid solar markets lack strong consumer protection frameworks
- Poor quality products can lead to “market spoilage”
- Results from a recent Lighting Global study indicate that non-quality verified pico-solar products break more often, more quickly, and undermine consumer confidence and market health

Quality Matters – Understanding non-Quality Verified Products

Pico-solar products—lanterns or multi-light systems with a peak PV module power of up to 10 watts—make up the largest share of off-grid solar product sales.

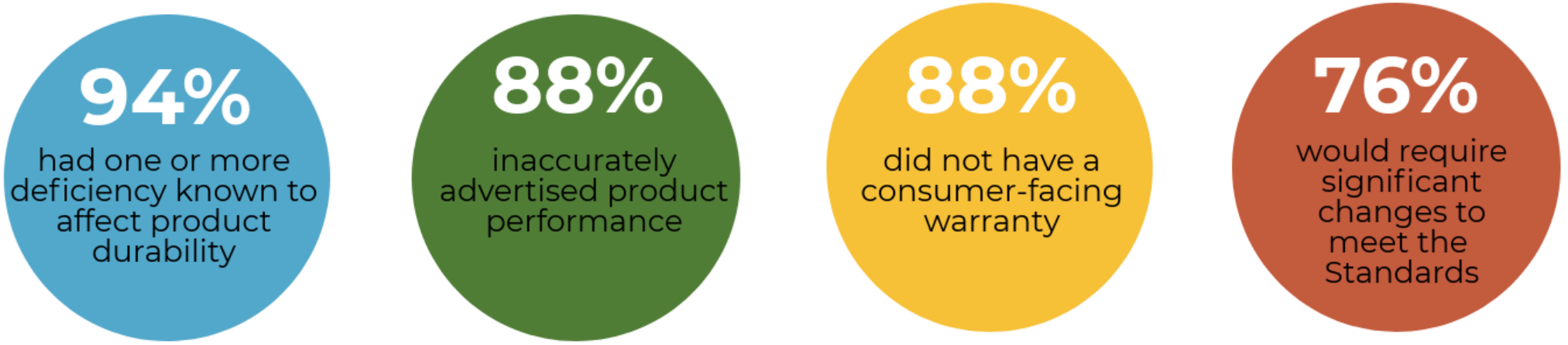
The global pico-solar market is dominated by products that have not yet been quality verified by Lighting Global or have failed to meet Lighting Global Standards.

To better understand the performance of these products, **Lighting Global tested 17 top-selling, non-Quality Verified pico-solar products** from retail stores in five markets: Ethiopia, Kenya, Myanmar, Nigeria, and Tanzania.

Quality Matters - Understanding non-Quality Verified Products

100% of the tested products failed to meet the Lighting Global Standards. Nearly all of the products lacked consumer-facing information, or had some combination of technical issues that would shorten product lifetime and contribute to consumer dissatisfaction, which may make them less likely to purchase other products.

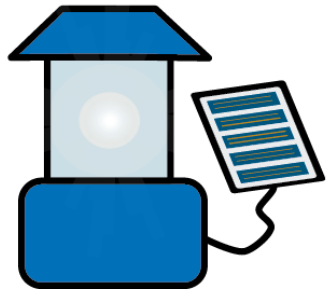
Access the full study at: www.lightingglobal.org/resource/quality-matters/



Lighting Global Quality Standards

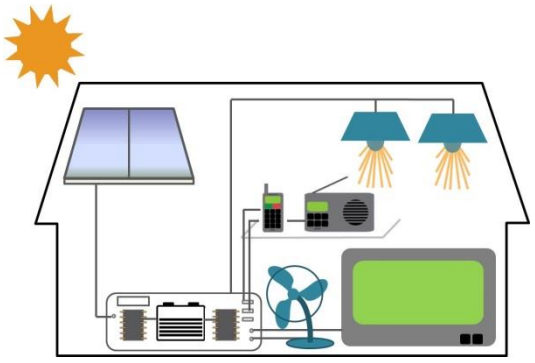
- The Quality Standards are benchmarks that set a baseline level of **quality, durability, and truth-in-advertising** to protect consumers of off-grid lighting products
- Conformance is evaluated based on results from **laboratory testing** according to International Electrotechnical Commission (IEC) Technical Specification 62257-9-5
- Tests are conducted at **third-party, approved test centers** that are ISO 17025 accredited
- The Lighting Global Quality Standards are the **only internationally recognized standards** for these products and are expected to be adopted by the IEC by the end of 2019

Pico-PV Quality Standards



($\leq 10\ W_p$)

SHS Kit Quality Standards



($10\ W_p$ - $350W_p$)

Lighting Global Quality Standards Core Elements

TRUTH IN ADVERTISING

Advertising and marketing materials accurately reflect tested product performance.

LUMEN MAINTENANCE AND DURABILITY

Product maintains consistent light output after 2,000 hours of operation. Product is appropriately protected from water exposure and physical ingress, has durable switches and connectors and, if portable, survives being dropped.

SYSTEM QUALITY AND SAFETY

Product passes a visual wiring and assembly inspection, and is safe to use.

WARRANTY

A consumer-facing warranty is available; the required warranty duration varies by product type.

Benefits for Manufacturers

- **Gain entry to markets** where Lighting Global quality verification and test reports can be used to demonstrate compliance with national standards
- **Signal product quality** to professional buyers and investors
- Have confidence that **products are tested correctly and test reports are accurate**
- **Compare products to competitors'** products through benchmarking services
- Get **help bringing products into compliance** with the quality standards

Benefits for Distributors

- **Qualify products** for bulk procurements, results-based financing schemes, and working capital facilities
- Quickly and easily **identify products that will meet customers' needs and expectations**
- **Reduce the financial and reputational risks** associated with guaranteeing products to end consumers

Benefits for Investors

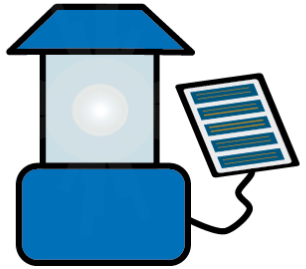
- **Reduce risk** by investing only in companies that trade in products designed to meet consumers' expectations for quality, performance, and durability

Benefits for Governments

- Use the **framework as a basis for tax and duty policies, voluntary market stimulation programs, and product regulations** to protect consumers.
- Aligning with international standards **reduces the time and resources needed** to develop and implement such policies
- Give consumers **expanded access to global product innovation**

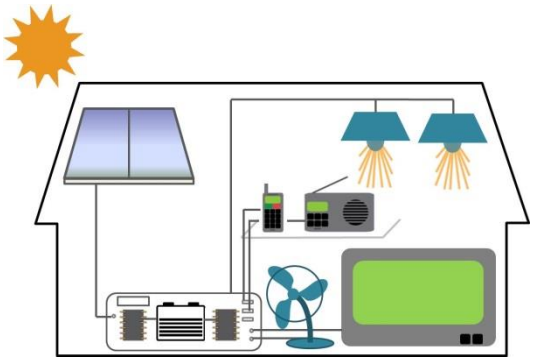
Lighting Global Quality-Verification Process

Pico-PV Products



(≤ 10 W_p)

Solar Home System Kits

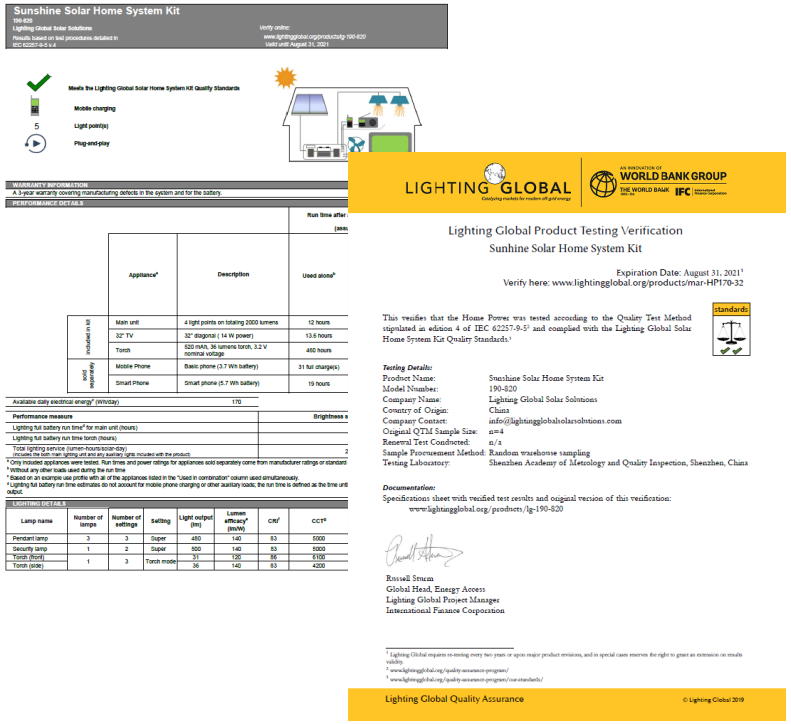


(10 W_p - 350W_p)

Random sampling and full testing at a test lab in the Lighting Global Lab Network

Test results are evaluated by the QA team against the standards and company receives results

A product that meets the Standards receives a Standardized Specification Sheet, Verification Letter, and a listing on the Lighting Global website



Sunshine Solar Home System Kit

Lighting Global Product Testing Verification

Sunshine Solar Home System Kit

Expiration Date: August 31, 2021[1]

Verify here: www.lightingglobal.org/products/mar-HP170-32

This verifies that the Home Power was tested according to the Quality Test Method stipulated in edition 4 of IEC 62257-9-5[2] and complied with the Lighting Global Solar Home System Kit Quality Standards.[3]

Testing Details:

Product Name:	Sunshine Solar Home System Kit
Model Number:	190-820
Company Name:	Lighting Global Solar Solutions
Country of Origin:	China
Company Contact:	info@lightingglobalsolarsolutions.com
Original QTM Sample Size:	n=4
Renewal Test Conducted:	n/a
Sample Procurement Method:	Random warehouse sampling
Testing Laboratory:	Shenzhen Academy of Metrology and Quality Inspection, Shenzhen, China

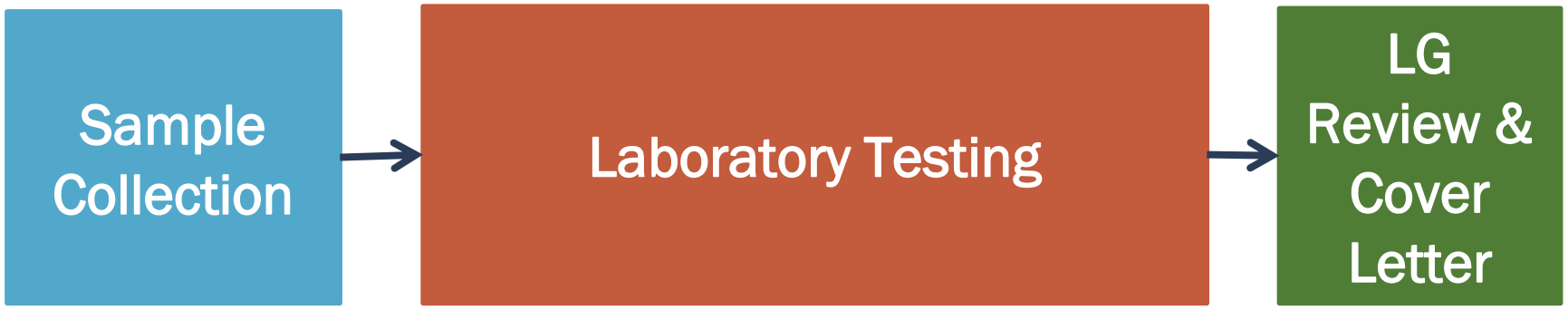
Documentation:

Specifications sheet with verified test results and original version of this verification:
www.lightingglobal.org/product/lg-190-820

Russell Strum
Global Head, Energy Access
Lighting Global Project Manager
International Finance Corporation

Lighting Global Quality Assurance

Testing Timeline Overview

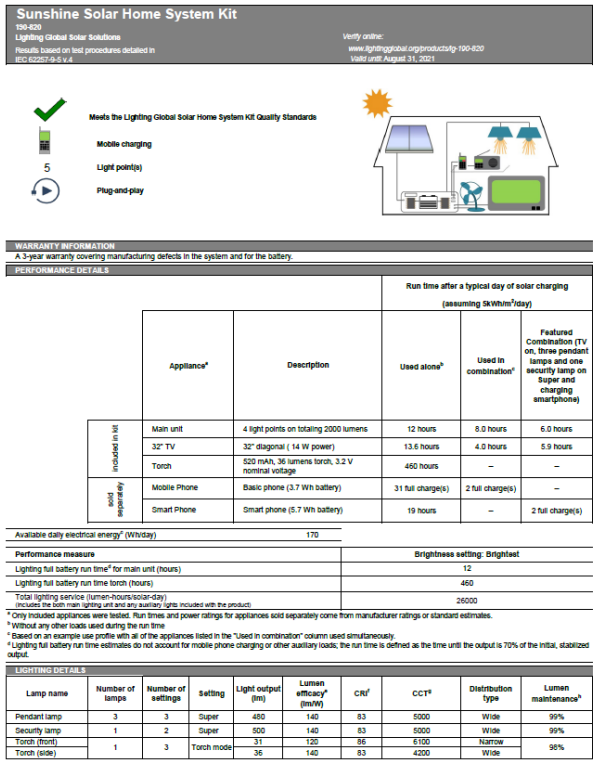


Manufacturer signs test agreement → Lab starts test → Lab completes test → Results sent to manufacturer

3-4 months →

Verification Documents

Standardized Specification Sheet & Verification Letter



Sunshine Solar Home System Kit

190-820
Lighting Global Solar Solutions
Results based on test procedures detailed in IEC 62257-9-5 V.4

Verify online:
www.lightingglobal.org/products/lg-190-820
Valid until August 31, 2021

Meets the Lighting Global Solar Home System Kit Quality Standards

Mobile charging

5 Light point(s)

Plug-and-play

WARRANTY INFORMATION
A 1-year warranty covering manufacturing defects in the system and for the battery.

PERFORMANCE DETAILS

	Appliance[a]	Description	Run time after a typical day of solar charging (assuming 5kWh/m²/day) Used alone[b]	Used in combination[b]	Featured Combination (TV on, three pendant lamps and one security lamp on Super and charging smartphone)
Included in kit	Main unit	4 light points on totaling 2000 lumens	12 hours	8.0 hours	6.0 hours
	32" TV	32" diagonal (14 W power)	13.6 hours	4.0 hours	5.9 hours
	Torch	520 mAh, 36 lumens torch, 3.2 V nominal voltage	460 hours	–	–
Appliance not included	Mobile Phone	Basic phone (3.7 Wh battery)	31 full charge(s)	2 full charge(s)	–
	Smart Phone	Smart phone (5.7 Wh battery)	19 hours	–	2 full charge(s)

Available daily electrical energy[c] (Wh/day)	170

Performance measure	Brightness setting: Brightest
Lighting full battery run time[d] for main unit (hours)	12
Lighting full battery run time torch (hours)	460
Total lighting service (lumen-hours/solar-day) (includes the both main lighting unit and any auxiliary lights included with the product)	26000

[a] Only included appliances were tested. Run times and power ratings for appliances sold separately come from manufacturer ratings or standard estimates.
[b] Without any other loads used during the run time.
[c] Based on an example use profile with all of the appliances listed in the "Used in combination" column used simultaneously.
[d] Lighting full battery run time estimates do not account for mobile phone charging or other auxiliary loads; the run time is defined as the time until the output is 70% of the initial, stabilized output.

LIGHTING DETAILS

Lamp name	Number of lamps	Number of settings	Setting	Light output (lm)	Lumen efficacy[a] (lm/W)	CRI[b]	CCT[b]	Distribution type	Lumen maintenance[b]
Pendant lamp	3	3	Super	480	140	83	5000	Wide	99%
Security lamp	1	2	Super	500	140	83	5000	Wide	99%
Torch (front)	1	3	Torch mode	31	120	86	6100	Narrow	98%
Torch (side)				36	140	83	4200	Wide	

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Lighting Global Product Testing Verification
Sunhine Solar Home System Kit

Expiration Date: August 31, 2021[1]
Verify here: www.lightingglobal.org/products/mar-HP170-32

standards

This verifies that the Home Power was tested according to the Quality Test Method stipulated in edition 4 of IEC 62257-9-5[2] and complied with the Lighting Global Solar Home System Kit Quality Standards.[3]

Testing Details:

Product Name:	Sunshine Solar Home System Kit
Model Number:	190-820
Company Name:	Lighting Global Solar Solutions
Country of Origin:	China
Company Contact:	info@lightingglobalsolarsolutions.com
Original QTM Sample Size:	n=4
Renewal Test Conducted:	n/a
Sample Procurement Method:	Random warehouse sampling
Testing Laboratory:	Shenzhen Academy of Metrology and Quality Inspection, Shenzhen, China

Documentation:
Specifications sheet with verified test results and original version of this verification:
www.lightingglobal.org/products/lg-190-820

Russell Sturm
Global Head, Energy Access
Lighting Global Project Manager
International Finance Corporation

[1] Lighting Global requires re-testing every two years or upon major product revisions, and in special cases reserves the right to grant an extension on results validity.
[2] www.lightingglobal.org/quality-assurance-program/
[3] www.lightingglobal.org/quality-assurance-program/our-standards/

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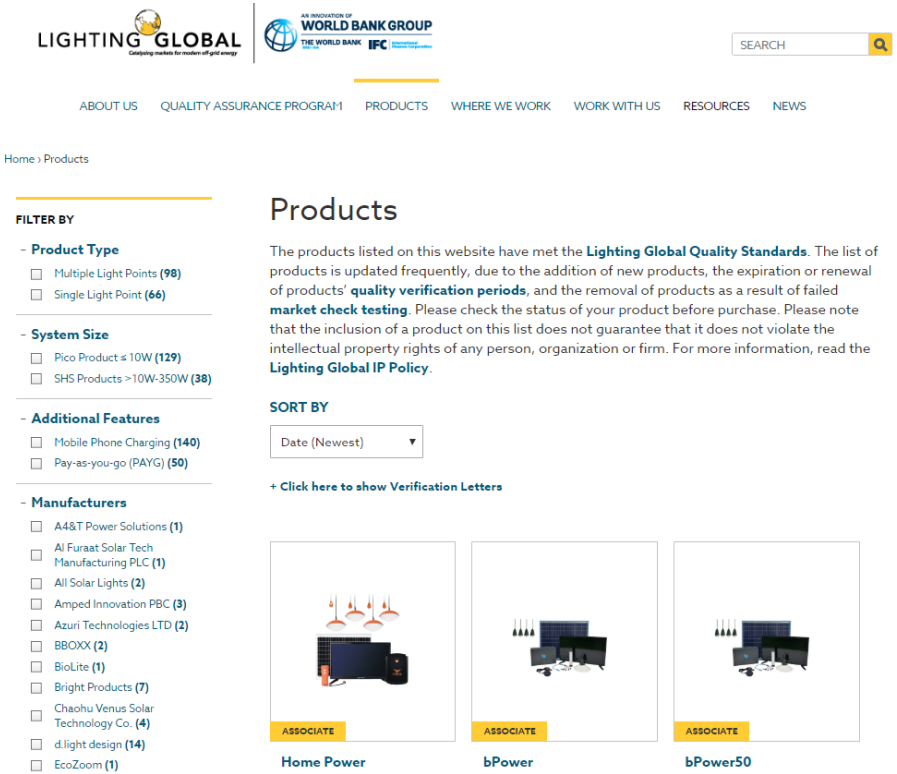
Public listing on Lighting Global website



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SEARCH

ABOUT US | QUALITY ASSURANCE PROGRAM | PRODUCTS | WHERE WE WORK | WORK WITH US | RESOURCES | NEWS

Home › Products

FILTER BY

- **Product Type**
  - Multiple Light Points **(98)**
  - Single Light Point **(66)**
- **System Size**
  - Pico Product ≤ 10W **(129)**
  - SHS Products >10W-350W **(38)**
- **Additional Features**
  - Mobile Phone Charging **(140)**
  - Pay-as-you-go (PAYG) **(50)**
- **Manufacturers**
  - A4&T Power Solutions **(1)**
  - Al Furaat Solar Tech Manufacturing PLC **(1)**
  - All Solar Lights **(2)**
  - Amped Innovation PBC **(3)**
  - Azuri Technologies LTD **(2)**
  - BBOXX **(2)**
  - BioLite **(1)**
  - Bright Products **(7)**
  - Chaohu Venus Solar Technology Co. **(4)**
  - d.light design **(14)**
  - EcoZoom **(1)**

Products

The products listed on this website have met the **Lighting Global Quality Standards**. The list of products is updated frequently, due to the addition of new products, the expiration or renewal of products' **quality verification periods**, and the removal of products as a result of failed **market check testing**. Please check the status of your product before purchase. Please note that the inclusion of a product on this list does not guarantee that it does not violate the intellectual property rights of any person, organization or firm. For more information, read the **Lighting Global IP Policy**.

SORT BY

Date (Newest)

+ Click here to show Verification Letters

ASSOCIATE
Home Power

ASSOCIATE
bPower

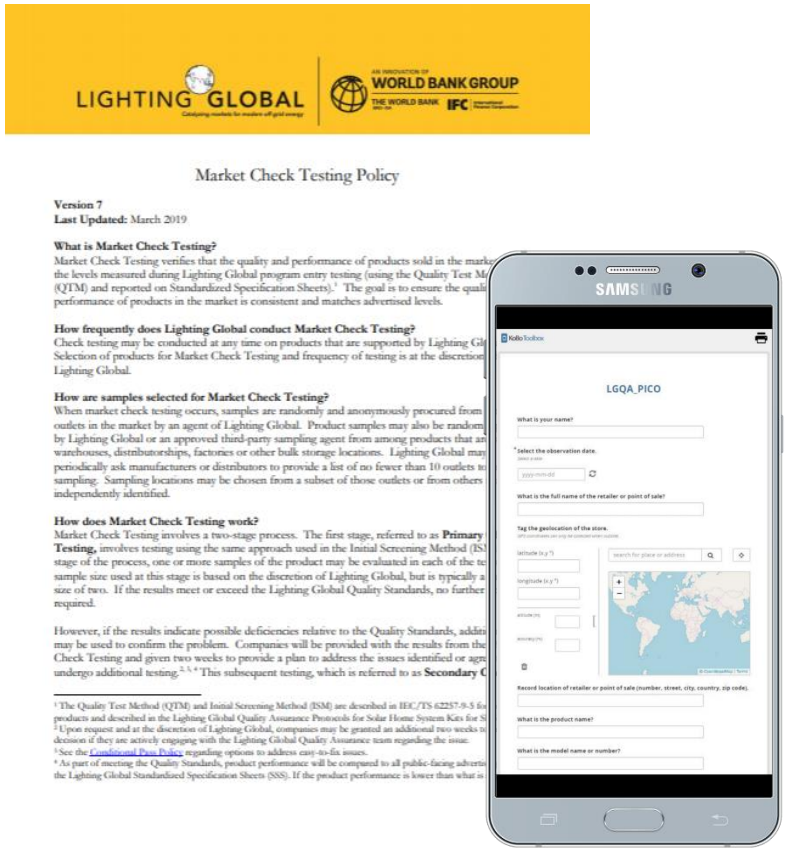
ASSOCIATE
bPower50

Market Surveillance Protects Consumers & Instills Trust in Program

Lighting Global conducts market surveillance through two pathways: market check test and market observations. If a product fails to meet the Standards and the manufacturer does not take action, it will lose verification status

Market Check Tests - randomly sample quality-verified products from retail shops and performs laboratory testing according to the Market Check Method (MCM) as described in IEC/TS 62257-9-5

Market Observations- use an app to evaluate consumer-facing information, such as packaging and warranty, of quality-verified products in retail shops



Next Steps

To find quality-verified products, visit: www.lightingglobal.org/products/

To get your products quality verified, contact: qa@lightingglobal.org

To learn more about Lighting Global Quality Assurance, visit: https://www.lightingglobal.org or contact the Lighting Global team for more information: qa@lightingglobal.org

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