

A Guide to UNBS Certification for Locally Produced Solar Modules in Uganda

A Factual Guide for Manufacturers Entering the East African Market

Content Partner: J. v. G. technology GmbH

Turnkey solar module production lines — since 1997

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Technical Overview: UNBS Certification for Solar Modules in Uganda



Created as part of the PVKnowHow Knowledge Network



Prepared by J.v.G. Technology GmbH



European specialists in turnkey solar module production lines

Key Project Data

UNBS

Certification Authority

Uganda National Bureau of Standards — mandatory Q-Mark permit required

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Key Standards

US IEC 61215 (Performance) and US IEC 61730 (Safety) — adopted as Ugandan Standards

\$15K

Certification Cost

Estimated initial cost: \$5,000–\$15,000 USD per product family

9mo

Typical Timeline

4–9 months from application to Q-Mark permit issuance

 Region: Uganda / East Africa · Certification authority: UNBS · Key standards: IEC 61215 / IEC 61730 · Source: PVKnowHow / J.v.G. Technology GmbH

The Problem: Market Access Without Certification

The Regulatory Reality

- Without UNBS approval, solar modules **cannot be legally sold or installed** in Uganda
- Mandatory certification applies to all PV modules placed on the Ugandan market
- Enforcement includes fines, seizure of goods, and forced shutdowns
- Operating without a permit exposes manufacturers to significant legal liability

The Market Opportunity

- Uganda's solar market is growing rapidly — driven by off-grid and rural electrification demand
- Government and large-scale private tenders require UNBS-certified modules
- Certification is the foundation of a sustainable, reputable solar business in the region
- Non-certified competitors face disqualification from formal procurement channels

Why Certification Matters Strategically

Legal Compliance

- Mandatory under Ugandan law — not optional
- Products without a valid permit are subject to seizure
- Annual renewal required to maintain market access

Tender Eligibility

- Government procurement invariably requires UNBS certification
- Large-scale private projects follow the same requirement
- Q-Mark is a prerequisite for bidding on public solar contracts

Consumer & Investor Trust

- Q-Mark signals verified performance and safety
- Reduces risk of field failures and warranty claims
- Builds credibility with financiers, distributors, and end-users

What Is UNBS and the Q-Mark?

The Institution

- Uganda National Bureau of Standards (UNBS) — government agency
- Mandate: develop and enforce standards protecting public health, safety, and environment
- Established under the Ministry of Trade, Industry, and Co-operatives
- Operates an E-Portal for inspection and clearance of goods

The Q-Mark Permit

- Official UNBS Quality Mark — the target outcome for manufacturers
- Permit is **valid for one year**; maintained through annual renewal
- Periodic surveillance audits verify continued compliance
- Applies to a **specific module design** — new designs require separate certification

The UNBS Certification Process

1

1 — Application & Documentation

Submit formal application to UNBS with full technical documentation package

Documents include module design specifications, bill of materials, and quality manual

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2 — Factory Audit

UNBS inspector visits the manufacturing facility on-site

Assesses quality management system, production processes, and traceability

3

3 — Laboratory Testing

Module samples submitted to accredited laboratory for IEC 61215 / IEC 61730 testing

Tests cover electrical performance, safety, and environmental durability

4

4 — Technical Committee Review

UNBS committee evaluates audit findings and lab test results

Compliance determination: approval or corrective action required

5

5 — Q-Mark Permit Issued

Compliant manufacturers receive permit to use the Q-Mark on certified module type

Non-compliant manufacturers receive a detailed failure report and must reapply

Technical Standards: IEC 61215 & IEC 61730

US IEC 61215 — Performance Standard

- Tests design qualification and type approval of PV modules
- Asks: *"Does the module perform reliably over its expected lifetime?"*
- Covers: power output degradation, hot spot resilience, UV exposure, thermal cycling
- Simulates long-term field exposure through controlled laboratory conditions
- Applies to crystalline silicon (c-Si) and all flat-plate PV technologies

US IEC 61730 — Safety Standard

- Defines construction requirements and safety qualification for PV modules
- Asks: *"Is the module safe from electrical shock, fire, and other hazards?"*
- Evaluates electrical insulation, construction design, and hazard protection
- Revised 2016/2023 editions include updated fire testing and material requirements
- Compliance is required across regulated markets globally, including Uganda

Design-Specific Scope

- Certification applies to the **specific module design** tested (cell type, size, materials)
- New models with significant design differences require a separate certification
- Ongoing production surveillance ensures the certified design is maintained in manufacturing

Cost Structure of UNBS Certification

Cost Component	Description	Notes
Application Fee	Formal submission to UNBS	Payable at submission
Factory Audit Fee	On-site inspection by UNBS inspector	Travel costs may apply
Laboratory Testing Fee	IEC 61215 / 61730 tests at accredited lab	Largest cost component
Annual Renewal Fee	Permit renewal + surveillance audit	Required every 12 months
Total (estimated)	\$5,000–\$15,000 USD per product family	Initial certification only

 Exact figures vary by lab, module design complexity, and travel requirements. Budget figures are indicative only. Source: PVKnowHow / J.v.G. Technology GmbH

Key Challenges for New Manufacturers

Documentation Complexity

- Technical dossier requires detailed material traceability and QMS documentation
- Bill of materials must align precisely with the tested module configuration
- Any post-certification design change may trigger re-certification

Laboratory Access

- UNBS-accredited lab capacity in East Africa is limited
- Testing may require shipping samples to international accredited laboratories
- Lead times for lab slots can extend the overall certification timeline

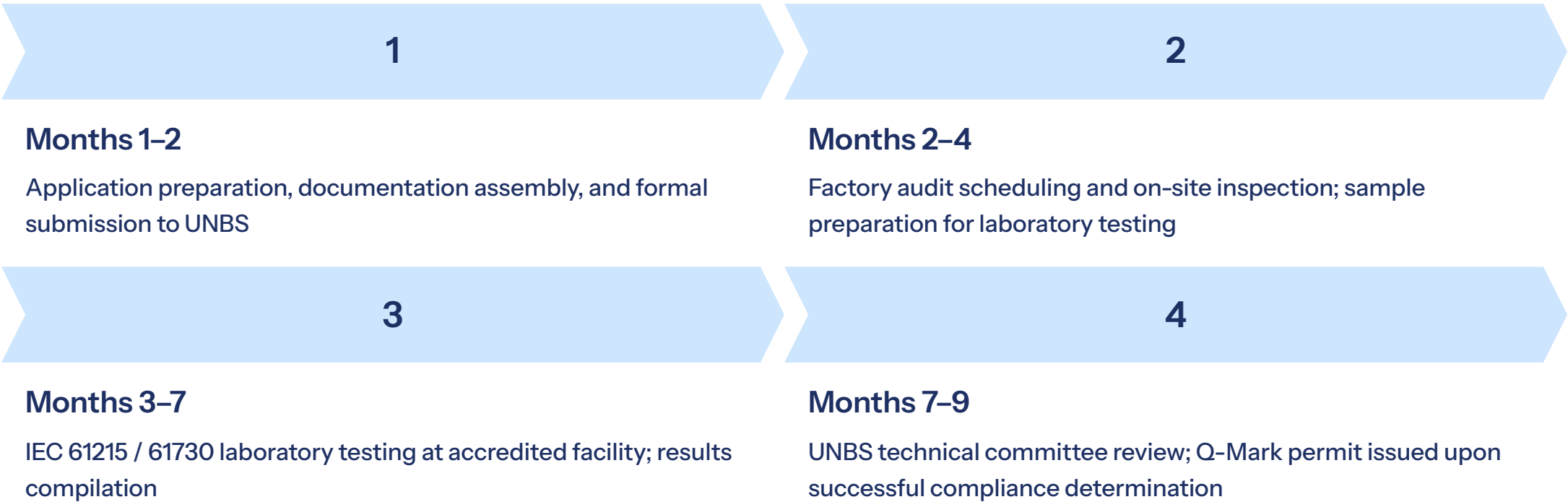
Process Control Readiness

- Factory audit evaluates actual production quality systems, not just documentation
- Lamination, soldering, and encapsulation processes must meet consistent standards
- Working with an experienced turnkey manufacturing partner reduces audit risk significantly

Non-Compliance Consequences

- Failed audit results in a corrective action plan — process restarts
- Re-testing adds cost and delays market entry by months
- Selling uncertified modules is illegal and risks permanent reputational damage

Certification Timeline: 4–9 Months



 Timeline assumes no corrective action is required. Non-compliant results at any stage extend the process and may require re-testing. Early preparation of documentation and factory readiness is the most effective way to minimize total elapsed time.

Frequently Asked Questions

Can I sell modules before receiving UNBS certification?

No. It is illegal to place products under mandatory certification on the Ugandan market without a valid UNBS permit. Doing so can result in product seizure and other legal action.

Does one certification cover all module models?

No. Certification applies to the specific module design tested — cell type, dimensions, and materials. New models with significant design differences require a separate certification or a formal extension of the existing one.

How long is the Q-Mark permit valid?

The permit is typically valid for one year. Renewal requires a fresh application and periodic surveillance audits by UNBS to confirm ongoing production compliance.

Does prior IEC certification from another country help?

Existing IEC 61215 / 61730 test reports from accredited international laboratories may be accepted as part of the UNBS process, potentially reducing testing costs and time. This should be confirmed directly with UNBS at the application stage.

Strategic Conclusion

1

Certification Is Non-Negotiable

UNBS certification is a legal prerequisite — not a competitive differentiator. Every serious manufacturer must plan for it from day one

2

Early Preparation Reduces Risk

Factory readiness, documentation quality, and process control maturity determine audit outcomes. Investing in these before applying shortens the timeline significantly

3

Partnership Accelerates the Path

An experienced European turnkey manufacturing concept integrates certification-readiness into the production line design — reducing learning curves for new manufacturers entering the market

- ✔ **Key takeaway:** UNBS certification is the gateway to Uganda's solar market. Manufacturers who plan for it strategically — with robust documentation, compliant production processes, and an experienced turnkey partner — are best positioned to succeed in East Africa's growing solar sector.

Sources & Reference Data

Primary Sources

- PVKnowHow Knowledge Network — UNBS Certification Guide for Uganda
- Uganda National Bureau of Standards (UNBS) — official certification body
- IEC 61215:2021 — Design qualification and type approval for PV modules
- IEC 61730:2023 — Safety qualification of photovoltaic modules
- J.v.G. Technology GmbH — European turnkey solar manufacturing specialists

Key Data Summary

- **Authority:** UNBS (Uganda National Bureau of Standards)
- **Standards:** US IEC 61215 / US IEC 61730
- **Cost range:** \$5,000–\$15,000 USD (initial, per product family)
- **Timeline:** 4–9 months (no corrective action)
- **Permit validity:** 1 year, renewable
- **Region:** Uganda / East Africa

❏ These case studies are based on real figures but are composite scenarios. All cost and timeline data are indicative estimates. Manufacturers should verify current requirements directly with UNBS before initiating the certification process.

About the Content Partner

J. v. G. technology GmbH — The DESERT Company

Founded in 1997 in Bavaria, Germany. Family-owned engineering company specializing in turnkey solar module production lines.

More than 90 factory projects delivered worldwide.

On-site team training included — no prior manufacturing experience required.

Key areas:

Turnkey PV manufacturing lines | DESERT Technology® |
TÜV-certified module designs | Factory planning to production

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