A Guide to UKCA and MCS Certification for Solar Module Manufacturers

A Regulatory & Market Entry Guide — United Kingdom

Content Partner: J. v. G. technology GmbH

Turnkey solar module production lines — since 1997

www.jvg-thoma.com

Technical Overview: UKCA and MCS Certification for Solar Manufacturers

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

6–9 mo	2	MCS 0…	FPC
Certification Timeline	**Core Standards**	**Product Standard**	**Factory Requirement**
Typical end-to-end duration for UKCA + MCS	IEC 61215 (performance) + IEC 61730 (safety)	Governing solar PV module certification under MCS	Full Factory Production Control audit mandatory

Topic: UK Solar Module Certification (UKCA + MCS) · Market: United Kingdom · Source: PVKnowHow / J.v.G. Technology GmbH

UK Solar Market Opportunity

Market Scale

- Installed capacity surpassed **20 GW** in 2025
- Government target: **45 GW by 2030**, **70 GW by 2035**
- ~5 GW of new capacity required annually to meet target
- 2025 additions tracking ~2.5 GW — gap remains significant

Market Entry Rationale

- High demand for locally certified modules
- MCS certification unlocks Smart Export Guarantee (SEG) eligibility
- UKCA mark: legal requirement for Great Britain market access
- Regulatory compliance = commercial viability

Regulatory Framework: UKCA vs. MCS

UKCA Mark — Legal Requirement

- UK Conformity Assessed — introduced post-Brexit
- Replaces the CE mark for Great Britain (England, Scotland, Wales)
- Applies to most products previously requiring CE marking
- Mandatory for legal sale in the UK market
- Issued by a UK-approved conformity assessment body

MCS Certification — Commercial Requirement

- Microgeneration Certification Scheme — established 2007
- UK quality assurance framework for low-carbon technology products
- Not legally mandatory — but commercially essential
- Prerequisite for SEG tariff eligibility and installer scheme access
- Covers both products (MCS 005) and installers

Relationship Between the Two

- Both are required to operate credibly in the UK market
- UKCA = market access; MCS = commercial viability
- MCS product listing requires prior IEC 61215 / IEC 61730 test evidence
- CE mark currently still accepted alongside UKCA in Great Britain

UKCA Certification Process

1

1 — Identify Applicable Standards

Confirm which designated UK standards apply to the module type

Core standards: IEC 61215 (performance) + IEC 61730 (safety)

2

2 — Engage a UK Approved Body

Select a conformity assessment body approved by UKAS

Body must be designated for the relevant product category

3

3 — Laboratory Testing

Submit module samples to an accredited test laboratory

IEC 61215: performance and durability · IEC 61730: electrical safety, fire resistance, mechanical integrity

4

4 — Technical File & Declaration

Compile technical documentation confirming standard compliance

Issue UK Declaration of Conformity; affix UKCA mark to product

5

5 — Ongoing Surveillance

Maintain compliance if module design or BOM changes significantly

Material changes (e.g. backsheet, encapsulant) may require re-testing

Core Technical Standards

IEC 61215 — Performance & Durability

- Tests whether a module will perform reliably over its expected 25+ year life
- Minimum 19 tests simulating years of environmental stress
- Includes: damp heat (1,000 hrs at 85°C/85% RH), thermal cycling, UV exposure, mechanical load
- Applies to crystalline silicon and thin-film module types
- Certification is type approval — applies to a specific design and Bill of Materials

IEC 61730 — Safety

- Assesses module safety for installers, users, and the public
- Covers: electrical shock hazard, fire resistance, mechanical strength, material suitability
- Verifies insulation adequacy and that no live parts are accessible
- Assesses flammability and fire spread risk
- 2023 edition includes updated fire testing (⩾815°C flame temperature) and new component requirements

Why Both Standards Are Required Together

- IEC 61215 alone confirms performance — not safety
- IEC 61730 alone confirms safety — not durability
- All commercial markets (UK, EU, Australia) treat them as a mandatory pair
- Financial institutions require both for project bankability

MCS Certification Process (MCS 005)

1

1 — Familiarise with MCS Standards

Review MCS 005 (Solar PV Product Standard), MCS 010 (Factory Production Control), MCS 011 (Acceptance Criteria)

2

2 — Select an MCS Certification Body

Appoint an accredited MCS certification body (e.g. BBA or equivalent)

Certification body manages the full assessment process

3

3 — Product Audit

Review of technical data files and end-of-line test records

Provides IEC test evidence from an accredited laboratory

4

4 — Factory Production Control (FPC) Audit

On-site factory audit: raw material intake → production → final QC

Confirms consistent, repeatable manufacturing to MCS standards

5

5 — Certification Decision & Listing

Non-conformities must be resolved within 45 days of audit

Certified products added to MCS Product Directory — visible to UK installers

Factory Requirements: FPC Audit

What the FPC Audit Covers

- Full production process: raw material receiving → finished module QC
- Staff competency, documented procedures, calibrated test equipment
- End-of-line test records — consistent with approved quality plan
- Root cause analysis processes for non-conforming product
- Ongoing surveillance: periodic re-audits required to maintain certification

Key Operational Implications

- A single "golden sample" is insufficient — every production module must comply
- Documented Quality Management System (QMS) is essential
- ISO 9001 certification can streamline the FPC assessment process
- BOM changes (e.g. new backsheet or encapsulant brand) require re-evaluation
- FPC is not a one-time event — it requires sustained operational discipline

Timeline & Cost Implications

1

Phase 1: Preparation (Weeks 1–8)

- QMS development, component pre-qualification, lab sample preparation
- Selection of UK Approved Body and MCS Certification Body
- Early engagement with labs prevents costly downstream delays

2

Phase 2: Testing (Months 2–5)

- IEC 61215 + IEC 61730 laboratory testing — allow 3–5 months
- Shipping, sample preparation, and test scheduling all add lead time
- UKCA technical file compiled in parallel

3

Phase 3: MCS Audit & Certification (Months 5–9)

- Product audit + FPC factory audit scheduled with certification body
- Non-conformities resolved (45-day window)
- Total end-to-end: typically **6–9 months** from start to MCS listing

Cost components: Laboratory testing fees · UK Approved Body assessment fees · MCS Certification Body fees · Factory audit costs (including auditor travel). Together these represent a substantial initial investment that should be planned as part of the business case.

Common Challenges

Underestimating the Timeline

- 6–9 months is a minimum under well-prepared conditions
- Lab scheduling backlogs and shipping delays extend actual timelines
- Certification must be planned in parallel with factory setup — not after

Bill of Materials (BOM) Instability

- Certification is type-specific: tied to a defined BOM and production line
- Switching suppliers for backsheet, EVA, or junction box triggers re-testing
- Pre-certifying components from reputable suppliers reduces downstream risk

Factory Readiness Gaps

- FPC audit failures are a common cause of certification delay
- Undocumented procedures, uncalibrated instruments, and missing test records are typical findings
- Internal mock audits before the formal FPC inspection are strongly advisable

Strategic Recommendations

1

Integrate Early

Begin certification planning at factory design stage — not at commissioning. Every week of delay costs market entry time.

2

Lock the BOM

Stabilise component selection before testing. Use pre-certified, high-quality components from established suppliers to minimise re-testing risk.

3

Build FPC Discipline

Treat Factory Production Control as an operational standard — not a one-time audit event. Consistent quality at scale is the strategic differentiator.

An experienced European turnkey provider integrates certification requirements into full-line process methodology from day one — reducing the learning curve for manufacturers entering the UK market.

FAQ Highlights

Do I need both UKCA and MCS?

UKCA is the legal minimum for market access. MCS is required for SEG tariff eligibility and commercial credibility. In practice, both are necessary for a viable UK market position.

Can I use existing CE / IEC certifications?

CE mark is currently still accepted in Great Britain alongside UKCA. Existing IEC test reports can be used as evidence for MCS product audit — but a new FPC factory audit is always required.

What triggers re-certification?

Any significant BOM change — new backsheet brand, different encapsulant, revised junction box — is considered a modification requiring re-evaluation and potentially full or partial re-testing.

How long does MCS product listing take after audit?

Once non-conformities are resolved (within the 45-day window), the certification body awards the certificate and adds the product to the public MCS Product Directory.

Conclusion: UK Market Entry Strategy

Regulatory Clarity

UKCA + MCS form a dual framework. Both are effectively required for a credible and commercially viable UK market position.

Market Opportunity

UK targets 70 GW by 2035. Annual additions of ~5 GW needed. Certified domestic production capacity has a structural advantage.

Execution Principle

Certification is not a final step — it must be embedded from factory design through to sustained production quality control.

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

www.jvg-thoma.com

Contact

J.v.G. Technology GmbH

Möningerberg 1a, 92342 Freystadt, Germany

info@jvg-thoma.de | www.jvg-thoma.com

Source: https://www.pvknowhow.com/countries/united-kingdom/ukca-mcs-certification-solar-modules/

Created with the support of JvGLabs — specialist for AI systems and AI-driven visibility. www.jvglabs.com