Supplier Quality Manual

01-20-2025

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1 Supplier Quality Requirements & Guidelines

1.1 INTRODUCTION

First Solar's VISION is Leading the World's Sustainable Energy Future. Our MISSION is to Provide Cost-Advantaged Solar Technology, Through Innovation, Customer Engagement, Industry Leadership, and Operational Excellence. To achieve this mission and vision, we must optimize our energy yield predictability with world class quality and reliability. You, as our Suppliers, are critical to our mission success, and will be held to the highest standards as you drive process control and continuous improvement within your organization.

First Solar expects that our direct suppliers will manage sub-tier suppliers with controls commensurate with those First Solar applies to direct suppliers.

NOTE: ACCEPTANCE OF A FIRST SOLAR PURCHASE ORDER (PO) CONSTITUTES ACKNOWLEDGEMENT THAT THE SUPPLIER HAS READ, UNDERSTANDS, AND WILL COMPLY WITH THE REQUIREMENTS SET FORTH IN THIS MANUAL.

1.2 PURPOSE & SCOPE

The First Solar Global Supplier Quality Manual is intended to communicate the minimum quality requirements, processes, and systems for material and component suppliers to ensure all members of the supply base meet or exceed the requirements and guidelines for providing world-class products. This manual outlines the strategy used by First Solar to ensure that First Solar's supply base is continually improving to prevent quality and delivery disruptions, provide the lowest cost, and top-level service.

Our suppliers are critical to our success and are expected to be knowledgeable in the content of the First Solar, Inc. Global Supplier Quality Manual. We ask that as a part of doing business with First Solar, the appropriate stakeholder(s) within your organization review the manual and maintain a working knowledge of its content.

This manual does not replace, substitute, nor override any requirements set forth in any supply agreement, contract, material specification, or drawing.

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1.3 SUPPLIER SYSTEM REQUIREMENTS

ISO Certification / Compliance

First Solar expects our suppliers' quality management systems to be certified to the latest version of ISO 9001, or a comparable quality management system. In cases where certification is not possible, compliance is required. It is the suppliers' responsibility to provide evidence of compliance.

It is also highly recommended that suppliers conform to ISO 14001: Environmental Management Systems; and ISO 45001: Occupational Health and Safety Management Systems.

1.4 ENVIRONMENTAL, SOCIAL, & GOVERNANCE (ESG)

Responsible Business Alliance (RBA) Compliance

The RBA is a coalition of the world's leading companies working together to improve social, ethical, and environmental responsibility in the global supply chain. First Solar suppliers must be compliant to the RBA Code of Conduct, which can be found online at https://www.responsiblebusiness.org/code-of-conduct/.

Fundamental to adopting the RBA Code is the understanding that a business, in all its activities, must operate in full compliance with the laws, rules, and regulations of the countries in which it operates. The Code also encourages Participants to go beyond legal compliance, drawing upon internationally recognized standards, in order to advance social and environmental responsibility and business ethics. In no case can complying with the Code violate local laws. If, however, there are differing standards between the RBA Code and local law, the RBA defines conformance as meeting the strictest requirements. In alignment with the UN Guiding Principles on Business and Human Rights, the provisions in this Code are derived from and respect internationally recognized standards including the ILO Declaration on Fundamental Principles and Rights at Work and the UN Universal Declaration of Human Rights.

First Solar suppliers shall adopt or establish a management system with a scope related to the content of the RBA Code. The management system shall be designed to ensure: (a) compliance with applicable laws, regulations, and customer requirements related to the participant's operations and products; (b) conformance with the Code; and (c) identification and mitigation of operational risks related to the Code. It should also facilitate continual improvement.

In addition, Suppliers may be required to complete the following RBA Self Audit Documents (SAQ) & upload them to the RBA website for tracking purposes.

- Corporate SAQ
- Site level SAQ(s)
- Surveys
- Other tools and Processes as deemed necessary for RBA Compliance.

Suppliers deemed to be High Risk by the RBA may be required to undergo a third-party Validated Assessment Program (VAP) audit. All Corrective Action Plans (CAP) must be certified by the RBA VAP lead auditor within the RBA system.

Suppliers have access and are encouraged to utilize relevant RBA training & resources at https://www.responsiblebusiness.org/training/resources/. The RBA e-Learning Academy is available

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to First Solar suppliers. Suppliers may be required to complete specific online RBA training content by First Solar.

Responsible Sourcing

First Solar has a long-standing commitment to conducting our business in compliance with applicable laws and regulations and condemn human rights abuses associated with the extraction, transport, or trade of minerals. Similarly, we have a no-tolerance policy with respect to corruption, money laundering, and/or bribery. We require all direct suppliers to agree to follow such principles. First Solar is committed to conducting due diligence on conflict minerals (tantalum, tin, tungsten, gold) and cobalt, where they are used in the manufacturing of our products, in accordance with the OECD Guidance for Responsible Supply Chains of Minerals from Conflict- Affected and High-Risk Areas and require our suppliers to do likewise. We commit to continue excluding deep sea mining minerals until scientific findings are sufficient to assess the environmental risks. First Solar expects our suppliers to cooperate in providing information to confirm our supply chain is free of conflict minerals or sourced responsibly in accordance with internationally recognized due diligence guidance.

Clean Energy Buyers Institute

Measuring and reducing Scope 3 GHG emissions

First Solar is a member of the Clean Energy Buyers Institute and supports its efforts to decarbonize the solar supply chain. First Solar has set science-based targets for greenhouse gas (GHG) emissions from its manufacturing facilities (Scope 1-2) and supply chain (Scope 3).

Recognizing confidentiality concerns, we encourage our suppliers to measure the carbon footprint of their products to provide First Solar with sufficient information for decision making. Approaches to collect and report product carbon footprints can include life cycle assessments and environmental product declarations.

We also encourage collaboration with our suppliers on mutually beneficial cost-effective actions to reduce GHG emissions, such as projects that increase energy efficiency, use of renewable energy and recycled content, or other sustainability measures.

At a corporate level, First Solar would like to stay informed of our suppliers' company-level reporting of GHG emissions and targets, such as using frameworks like CDP, TCFD, GRI, SBTi, RE100.

From a medium to long-term perspective, First Solar plans to reduce Scope 3 GHG emissions from purchased goods and services and use of sold products by 44% per megawatt (MW) produced by 2028 from a 2020 base year, and to reduce Scope 3 GHG emissions from purchased goods and services, capital goods, and use of sold products by 97% per MW by 2050 from a 2020 base year. After third-party validation by the Science Based Targets Initiative (SBTi), First Solar will publish the Scope 3 targets and track progress annually in collaboration with its suppliers.

1.5 SUPPLIER QUALIFICATION PROCESS

First Solar Change Management System (CMS)

First Solar has established the Change Management System (CMS), which uses a phase-gate process to manage and implement changes to First Solar products and processes, as well as components and products supplied to First Solar. (Ref. section 1.9 Change Notification)

- Supplier activities must be coordinated for timely and successful completion to support the overall CMS project timeline and objectives. The Production Part

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Approval Process (PPAP) process is used in conjunction with the part approval process.

The Production Part Approval Process (PPAP) Purpose: Production Part Approval Process (PPAP) defines generic requirements for production part approval, including production and bulk materials (a substance, such as adhesives or chemicals). The purpose of PPAP is to determine if all customer engineering design record and specification requirements are properly understood by the organization and that the manufacturing process has the potential to produce product consistently meeting these requirements during an actual production run at the quoted production rate. (refer from PPAP – AIAG)

The Production Part Approval Process (PPAP - AIAG) handbook is a standard that outlines the process to demonstrate engineering design and product specifications are met by the supplier's manufacturing process. Through PPAP, suppliers and customers agree upon the requirements needed to obtain approval of supplier manufactured parts. Applicable to all parts and commodities, PPAP principles help reduce delays and instances of non-conformance during part approval by providing a consistent approval process. (from AIAG)

PPAP Retention and Submission Requirements Table						
Requirements		**Level 1**	**Level 2**	**Level 3**	**Level 4**	**Level 5**
1. Design Record		R	S	S	*	R
	- for proprietary components/details	R	R	R	*	R
	- for all other components/details	R	S	S	*	R
2. Engineering Change Documents		R	S	S	*	R
3. Customer Engineering Approval		R	R	S	*	R
4. Design FMEA		R	R	S	*	R
5. Process Flow Diagrams		R	R	S	*	R
6. Process FMEA		R	R	S	*	R
7. Control Plan		R	R	S	*	R
8. Measurement System Analysis		R	R	S	*	R
9. Dimensional Results		R	S	S	*	R
10. Material, Performance Test Results		R	S	S	*	R
11. Initial Process Studies		R	R	S	*	R
12. Qualified Laboratory Documentation		R	S	S	*	R
13. Appearance Approval Report		S	S	S	*	R
14. Sample Report		R	S	S	*	R
15. Master Sample		R	R	R	*	R
16. Checking Aids		R	R	R	*	R

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17. Records of Compliance w/ Customer-Specific Requirements	R	R	S	*	R
18. Part Submission Warrant (PSW) | Bulk Material Checklist	S	S	S	*	R
S = Organization must submit to the customer and retain a copy of records or documentation items at appropriate locations. R = Organization must retain at appropriate locations and make available to the customer upon request. * = Organization must retain at appropriate location and submit to customer upon request.					

PPAP Levels of Submission
Level 1 – Part Submission Warrant (PSW) only submitted to the customer
Level 2 – PSW with product samples and limited supporting data
Level 3 – PSW with product samples and complete supporting data
Level 4 – PSW and other requirements as defined by the customer
Level 5 – PSW with product samples and complete supporting data available for review at the supplier's manufacturing location

By default, suppliers will be requested to submit PPAP level 3 unless they have received different instructions from First Solar.

There are additional documents by First Solar, refer to PPAP checklist (Doc # Global-QA-FORM-SUP-16121).

Supplier Deviation Requests

For any requirements the supplier cannot meet as defined by First Solar, a Supplier Deviation Request must be submitted. This includes but may not be limited to: terms and conditions; material specifications; drawings; PPAP requirements; and any other requirements of this manual.

- The Supplier Deviation Request will be reviewed by First Solar management and subsequently dispositioned. The supplier will be notified of the results of the disposition.
- Supplier Deviation Request Form: FS-4-310-000-W160. Suppliers may request a copy from First Solar Supplier Quality.

Safe Launch Plan (SLP) (Saleable products)

Definition: Safe Launch is a term used in manufacturing that refers to a set of processes and practices implemented to ensure the successful launch of a product while maintaining quality requirements. Safe launch is usually applied after the product is fully approved and during the initial ramp up period. Safe launch involves monitoring, analyzing, and adjusting product and process data to verify and improve stability.

Suppliers must implement additional activities per the above definition after production such as (away from production):

- 100% inspection,
- additional sampling plan,
- increased numbers of inspection steps,

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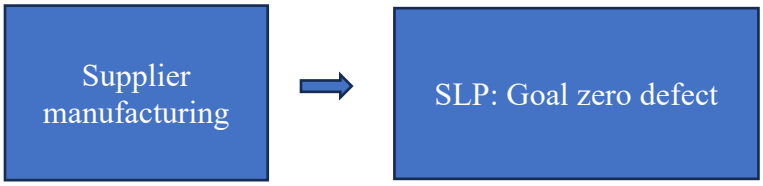
- stricter inspection/test criteria, on critical dimensions

Suppliers will be required to submit data to First Solar. SLP shall create a separate label placed on each container showing "Safe Launch Plan."

- SQE will propose the size of the Safe Launch Plan (duration and inspection sampling plan), SQ Manager, Quality Head need to approve the Safe Launch Plan.
- Suppliers must submit the SLP Control Plan to FSLR before the SLP to get approval. The SLP will restart if any defect occurs during SLP duration
- CMS level 1, 2, 3 will require SLP will start by MQ
    - Level CMS 4 may require SLP
    - Interim approval (duration, quantity) will be requested before PQ
    - Minimum requirement for SLP is 30 days of supplier manufacturing
    - SLP must be separated from manufacturer's line/process and a separated quality team from manufacturing will execute SLP.



- The "Safe Launch Plan" label must indicate drawing number and revision to each and individual shipping unit.

- Exit SLP Criteria:
    - No discrepancies detected by the Safe Launch Control Plan or NCP
    - Supplier can self-exit from the Safe Launch Process after SPL duration without issue – supplier must notify First Solar and review SLP results with First Solar SQE

1.6 PROCESS DEFINITION AND CAPABILITY REQUIREMENTS

Process/Product Definition and Risk Management

Suppliers are required to fully document their receiving, manufacturing and delivery process. Suppliers must establish a risk management process to effectively assess elements in various aspects of their business that could negatively affect the quality of the products, delivery, and services provided to First Solar. At a minimum, this includes:

- Design (product) and/or Process Failure Modes and Effects Analysis (FMEA)
- Control Plans
- Process Flow Diagram
- Suppliers will prepare a documented contingency plan which sets out the steps the Supplier will take to avoid and mitigate the effect of any reasonably foreseeable interruptions to the provision of the Parts or Services. (Inclusive of

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a commercial agreement with a third-party inspection service for each ship-to location)

Process Capability

First Solar will consistently provide superior quality products to our customers. To achieve this goal, all material suppliers will be expected to achieve target process capability levels and maintain control plans, as directed by First Solar.

- Key product or process characteristics (may also be referred to as Category 1 or 2 characteristics) may be outlined in First Solar drawings and/or specifications. If there are no First Solar key product characteristics defined, the supplier is responsible to identify key product and/or process characteristics and validate their capability. These must be documented in the supplier's control plan. The supplier's control plan must identify sampling method and frequency for all characteristics.

Statistical Process Control (SPC) must be applied to all First Solar-and/or supplier-identified key characteristics.

Real-time measurement and tracking with a statistical run chart are required as appropriate. Effective monitoring and timely reaction and documentation to out-of-control conditions are required.

Process Capability Description:

- Short-term Process Capability: Statistical capability of a process with common causes of variation only. This type of variation is also referred to as inherent process variation.
- Long-term Process Capability: Statistical capability of a process generally in-control but could include special cause variation experienced through an extended period of manufacturing time (i.e. tool wear, machine aging, lot-to-lot variations, shift changes, machine-to-machine differences, etc.).
- First Solar Process Capability Requirements: Because special causes of variation can be introduced into a process on a long-term basis, First Solar sets separate process capability targets as follows:

    - Short-term Process Capability: 1.67 Cpk or higher

    - Long-term Process Capability: 1.33 Cpk or higher

Specific timeframes defining a short-term and long-term production run will be determined based on the nature of the product and process involved.

At a minimum:

- Short Term: (Defined as within a specified lot of material or less than 6 lots of material)
- Long Term: (Defined as more than 6 lots of material)

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1.7 MEASUREMENT SYSTEMS ANALYSIS (MSA)

Measurement System Analysis (MSA) is required to be performed to determine if measurement/test equipment has sufficient accuracy, precision, or resolution to adequately provide information about process performance or the effects of process variation.

The recommended tool is Gage Repeatability and Reproducibility (Gage R&R). Gage R&R using variables data is preferred, although attribute MSA is allowed when applicable.

General Requirements:

- The supplier must develop or obtain appropriate measurement and test equipment (M&TE) to control their processes and/or to inspect material. These M&TE items must be shown in the control plan.

- Gages used to inspect parts should be variable gages, where possible. If variable gages are not available, then attribute gages ("go/no go") are acceptable for use with First Solar approval.

- For all measurement devices identified in supplier's control plan, a Gage R&R (variable or attribute) is required, unless directed otherwise by First Solar. If the supplier has a number of duplicate custom gages, a gage study to determine bias and correlation must also be completed.

The First Solar guidelines for acceptance of Gage R&R (% R&R) are:

% Error	Result
< 10%	The measurement system is acceptable.
10 – 20%	The measurement system is considered marginal. Supplier should take steps to improve, and/or to investigate alternate methods and have a documented continuous improvement plan and timeline.
>20%	The measurement system is not acceptable. Any gages with GR&R greater than 20% need First Solar approval. A deviation must be submitted and approved prior to any First Solar material being manufactured. Considerations will be based upon the importance of application, cost of gage, cost of repairs, etc.
	(3 Operators/10 Pcs/3 trials per part)

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1.8 MATERIAL CERTIFICATION

Supplier Material Certifications – First Solar Portal

Suppliers at a minimum will be required to submit a Certificate of Conformance (CoC) and may be required to submit a Certificate of Analysis (CoA) via the First Solar online "CoA/CoC Portal." The CoA/CoC Portal can be accessed electronically via First Solar Analytical Portal Link.

- Please contact a First Solar Supplier Quality representative to obtain login ID and password.
- At a minimum, each submission will require the following information: Location sent to (PBG, PGT1, PGT2, PGT3 / KLM, KMT1, KMT2 /DMT1, DMT2/ PMT Delivery Site, etc.), First Solar Part number, Purchase Order Number, Lot Number, Shipment Number (Bill of Lading, Date of Shipment, or Invoice Number).
- If not required to submit via the portal, the supplier may be required to submit a hard-copy certificate.
- The supplier's CoA or CoC documentation must be received by First Solar ***prior*** to receipt of material by First Solar, ***and no later than 24 hours after material shipment from the supplier***.

For specific information on how to use the portal, please contact the First Solar Supplier Quality representative.

First Solar CoA Portal Search and Data Entry Procedure: FS-3-310-000-W101. Suppliers may request a copy from First Solar Supplier Quality.

1.9 IDENTIFICATION & DELIVERY

Identification and Traceability

• First Solar suppliers are required to establish and maintain documented procedures for identifying products and materials used, from receipt of raw materials through all stages of production, packaging, storage, delivery, and installation to First Solar.

• Suppliers shall develop, document, and implement an appropriate system with the capability to correlate material lot traceability to corresponding sub-supplier lot traceability.

• First Solar may require greater degrees of traceability depending on product (I.e. Julian date, tool/cavity designations, etc.) Additional requirements may be defined in First Solar material specifications or drawings.

Packaging and Labeling

• Package and product labeling must conform to First Solar bar code requirements where stated.

• All packaging and transportation solutions must conform to any international, federal, state, and/or local statutory guidelines and requirements of the location that the material is being shipped to.

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• If no other specification exists, finished steel products should be packaged using ASTM A700: "Standard Guide for Packaging, Marking, and Loading Methods for Steel Products for Shipment." This includes, but is not limited to: stamped, rolled, formed, and tubular steel.

• First Solar Barcode Label Specification: FS-3-600-000-W9. Suppliers may request a copy from First Solar Supplier Quality.

Logistics Documentation

At a minimum, packaging lists must provide the following information:

- First Solar site name
- Delivery address
- Pack list number (number as referenced on supplier invoice)
- First Solar material master number or MM number
- Quantity being shipped
- Description of material
- Purchase order number
- Company contact person and number

At a minimum, the supplier must supply a packaging list in each shipping container

1.10 CHANGE NOTIFICATION

Change Notice Requirements

First Solar requires a minimum of ninety (90) days' advanced notification of intended changes by a supplier or sub-tier supplier. The supplier must obtain written approval for any of the following changes in advance of implementing any changes, including but not limited to:

- Changes from a sub-tier supplier
- Location of manufacture, including a change in location within the original site
- Equipment used to manufacture, monitor or measure
- Method of manufacture
- Materials used in manufacture, including type of, or source of materials
- Packaging or labeling configuration
- Storage conditions or storage locations
- Testing of material, including changes in the test method
- Any other change related to material supplied to First Solar

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• To submit a Change Request to First Solar, the supplier must use the Supplier Change Request (SCR) form.

• First Solar Supplier Change Request Form: FS-4-310-000-W23. Suppliers may request a copy from First Solar Supplier Quality.

1.11 PROBLEM SOLVING
Methodology: Effective Problem Solving and Root Cause Analysis

First Solar strives to clearly define the expectations we have of suppliers, to provide a process to deliver on these expectations, and to provide a method for corrective action when expectations are not met. To that end, First Solar requires suppliers to implement a formal (documented) problem solving and root cause analysis process. At a minimum, the steps shown below must be included in your problem solving and root cause analysis process. Problem solving and root cause analysis requires the use of data collection and analysis to validate that an effective and robust solution has been implemented. The steps are:

Identify Team Members

Identify a lead person who is accountable for the process, and any support team members

Problem Definition

Describe the symptoms of the problem that First Solar is seeing. Specify the problem by identifying – in quantifiable terms, i.e., who, what, when, where, how, how many – as applicable.

Containment Action(s)

Define and implement containment actions to isolate the non-conformance until a permanent corrective action is available. Containment is an immediate measure used to protect First Solar until the root cause is determined and the permanent correction can be implemented and verified. The supplier must provide the means to conduct containment activities throughout the entire supply chain, including locations where the product is used.

NOTE: In any case where the supplier is not capable of providing adequate containment of material, First Solar will take measures to contain product as needed, up to and including contracting a third party to execute containment.

Identify Root Cause(s)

Identify all potential causes that explain why the non-conformance occurred. Isolate and verify the root cause for: Occurrence, Detection, and Systemic aspects _ 3 WAYs approach

Occurrence: Why did this situation occur?

Detection: Why was this situation overlooked? and

Systemic: Why did the system allow it to occur?

Identify Permanent Corrective Action(s)

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Identify a corrective action(s) that will resolve the nonconformance and will not cause undesirable side effects. Define a contingency action, if necessary, based on the risk assessments. This step describes what you will do to address: **Occurrence**, **Detection,** and **Systemic root causes.**

Choose ongoing controls, including mistake-proofing methodology, such as the use of process or design features to prevent manufacture or shipping of nonconforming product/service.

Implement and Validate Permanent Corrective Action

Implement the permanent corrective action(s.) Define ongoing controls to ensure the root cause is eliminated. These controls must be documented in the control plan, FMEA, and process flow diagram as applicable. Once implemented, measure, monitor, and evaluate the effects. If necessary, implement contingency actions.

Identify Preventive Action(s)

Modify systems, practices and procedures to prevent additional or similar non-conformances. Choose on-going controls, including mistake-proofing methodology, such as the use of process or design features to prevent manufacture of nonconforming product/service.

Apply lessons learned to similar products, systems and/or manufacturing locations to prevent additional nonconformances.

Closure

The supplier must, at a minimum, review and revise control plans, FMEA, process flow diagram, and work instructions to document changes made as a result of corrective and preventive actions. The supplier must provide written evidence of closure to First Solar.

Required steps and closure times:

Initial Response is required within 24 hours of formal notification.

- The supplier must respond with a containment plan recommendation within 24 hours of initial First Solar notification of the nonconformance.

Containment plan must be implemented with 72 hours of formal notification.

Closure of the nonconformance is expected within 60 days of identification of its root cause.

The supplier is expected to provide periodic status updates during the corrective action process.

- The supplier must update First Solar upon identification of root cause and permanent corrective action.

- The supplier must provide updates to First Solar with the status of corrective measure(s) and implementation status.

The supplier must provide updates to First Solar upon closure of the issue. The supplier is requested to access and respond to the issue through the Oracle Supplier Portal using the 8D Response Report. A detailed guide for suppliers on how to use the system can be found in document Global-QA-WI-SUP-18056.

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Any newly qualified supplier needs to provide their contact information regarding quality matters to FSLR in order to create a user in the system.

1.12 SUPPLIER MONITORING & FEEDBACK

Performance
Supplier performance is monitored and measured based on a number of categories, including Commercial, Quality, Delivery and Technical performance. Suppliers may be asked to participate in a formal, proactive long-term improvement process, Supplier Quality Continuous Improvement (SQCI), in which improvement targets are set and results are measured over time.

Poor or inadequate performance by a supplier may lead to a supplier being placed on a performance improvement plan (PIP), and ultimately de-sourced if improvement targets are not met.

Supplier Audits: Supplier Quality Audit (SQA)

On-site quality audits will be conducted at the supplier location(s) on a periodic basis and/or as requested by the PPAP process. The audit may include sub-supplier locations as well. Frequency may be determined, in part, by the following factors:

- Criticality of product or service provided
- Supply base risk
- Quality performance
- Delivery performance
- Previous audit performance

Areas Audited/Evaluated

- Quality systems
- Production systems
- Materials systems
- Environmental Health & Safety systems
- Capacity analysis
- Control plan/process audit

Suppliers are required to generate and implement specific action plans to address any audit nonconformance identified by First Solar.

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1.13 CONTINUOUS IMPROVEMENT

Continuous improvement is fundamental to our business and meeting our customers' rising expectations in terms of quality, reliability, delivery, and cost controls. As a First Solar supplier, you are integral to our mission success and will be expected to continually strive to improve your products, processes, and systems.

Suppliers are required on an annual basis to provide documented evidence of conformance to all applicable First Solar requirements outlined on the Supplier Continual Conformance form.

Some common examples of Continuous Improvement programs are:

- Cost reduction projects (examples include the use of Six Sigma, Lean Six Sigma, Value Analysis/Value Engineering)
- Waste reduction projects (examples include the use of Kaizen events, Setup Reduction, Value Stream Mapping, Standardized Work, Process Flow)
- Variation reduction projects (examples include the use of Six Sigma, Standardized Work, Statistical Process Control (SPC))
- Factory reorganization projects (examples include the use of 5-S Programs, Single Unit or Cellular Manufacturing, Focused Factory, Kaizen events)
- Inventory reduction projects (examples include the use of Kanban systems, Single Unit or Cellular Manufacturing)
- Yield Improvement projects (examples include improvements to Equipment Uptime/Downtime, First Pass Yield, Rework reduction, Scrap improvement, On-Time Delivery)
- Non-manufacturing process improvement projects (examples include Customer Service, Accounting, Purchasing, Warranty returns, Quality Control)

First Solar is committed to developing a steady and healthy supply chain, and is therefore willing to engage with suppliers to develop best practices across supplier sites and to share First Solar methods of improvement.

Suppliers are expected to present and discuss their Continuous Improvement process and results with First Solar.

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1.14 COMMUNICATION STRATEGY

Effective and efficient communication is a key driver in a positive supplier-customer relationship. As a First Solar supplier, you are integral to our mission success and will be expected to provide a documented communication strategy that is inclusive of the following entities:

- Top Management Representatives
- Quality Representatives
- Manufacturing Representatives
- Engineering/Design Representatives
- Quality Representatives
- Supply Chain Representatives
- Logistics Representatives

First Solar manufacturing operations are a 24-hour, 7-day-a-week operation. As a First Solar Supplier, your communication strategy will need to include contacts that are available 24 hours a day, days a week

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2 Appendix A

2.1 FIRST SOLAR FORMS / DOCUMENTS

First Solar Supplier Quality Systems Audit: FS-4-310-500-W2

First Solar Advanced Supplier Readiness: FS-2-310-000-W24-2

Production Part Approval Process (PPAP) Checklist form: Global-QA-FORM-SUP-16121

First Solar Supplier Deviation Request: FS-4-310-000-W160

First Solar Supplier Change Request: FS-4-310-000-W23

First Solar Barcode Labeling: FS-3-600-000-W9

First Solar CofA Portal Search and Data Entry Procedure: FS-3-310-000-W101

Control Plan Template: Global-QA-FORM-SUP-16121

Process Failure Mode Effect & Analysis (FMEA) Template: Global-QA-FORM-SUP-16121

Supplier Qualification & Test Plan Template

Supplier Quality CAPA portal – external guide – Global-QA-WI-SUP-18056

Third Party Inspection Approved Vendor List (Region Dependent)

Supplier Capacity Verification FS-4-310-000-W25

Electronic copies are available upon request from your First Solar Supplier Quality representative.

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3 Appendix B
3.1 FIRST SOLAR ACRONYMS

PPAP - Production Part Approval Process

CIP – Continuous Improvement Plan

CMS – Change Management System

CoA/CoC – Certificate of Analysis, Certificate of Compliance

ETA – Engineering Test Authorization

FMEA – Failure Mode and Effects Analysis

ISO – International Organization for Standardization

MSA – Measurement System Analysis

M&TE – Measurement and Test Equipment

NCP – Non-Conforming Product

PIP – Performance Improvement Plan

Q&TP – Qualification & Test Plan

QCR – Quality Concern Report

SCR – Supplier Change Request

SCC – Supplier Continual Conformance

SDR – Supplier Deviation Request

SPC – Statistical Process Control

SQA – Supplier Quality Audit

SQCI - Supplier Quality Continuous Improvement

SQE – Supplier Quality Engineer

SQM – Supplier Quality Manual

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Revision History

1.1 Introduction	Updated First Solar's Vision Statement. Leading the World's Sustainable Energy Future. Our MISSION is to Provide Cost-Advantaged Solar Technology, Through Innovation, Customer Engagement, Industry Leadership, and Operational Excellence
1.3 Supplier System Requirements	Updated recommendations for: ISO 14001: Environmental Management Systems; and ISO 45001: Occupational Health and Safety Management Systems.
1.4 Environmental, Social, and Governance	ESG Section with RBA Requirements inserted. Clean Energy Buyers Institute inserted [Rev11] add Responsible Sourcing
1.5 Process Definition and Capability Requirements	Updated requirement: Suppliers will prepare a documented contingency plan which sets out the steps the Supplier will take to avoid and mitigate the effect of any reasonably foreseeable interruptions to the provision of the Parts or Services. (Inclusive of a commercial agreement with a third-party inspection service for each ship to location) [Rev10] Replace ASR by PPAP
1.5 Process Definition and Capability Requirements	Clarification of "Short Term" vs "Long Term": Short Term: (Defined as within a specified lot of material or less than 6 lots of material) Long Term: (Defined as over >6 lots of material)
1.5 Supplier Qualification Process	Updated Capacity Plan & Capacity Analysis: Capacity Plan and Capacity Analysis (Which meets the First Solar Annual Quoted Volumes) [Rev 11] Corrected 11.6 to 11.5
1.5 Supplier Qualification Process	Updated contingency plan requirements: Documented Contingency Plan Update Qualification process [Rev 11] Corrected 11.6 to 11.5
1.6 Process Definition and Capability Requirements	Clarification of "Short Term" vs "Long Term": Short Term: (Defined as within a specified lot of material or less than 6 lots of material) Long Term: (Defined as over >6 lots of material) [Rev 11] Corrected 11.5 to 11.6
1.6 Process Definition and Capability Requirements	Clarification of "Short Term" vs "Long Term": Short Term: (Defined as within a specified lot of material or less than 6 lots of material) Long Term: (Defined as over >6 lots of material) [Rev 11] Corrected 11.5 to 11.6
1.7 Measurement System Analysis	Clarification of GRR Requirements
1.8 Material Certification	Update of Minimum requirements for CoC with potential for CoA
1.8 Material Certification	Updated Location Sent: to (PBG, PGT1, PGT2 / KLM, KMT1, KMT2 /DMT1, DMT2 Delivery Site, etc.)
1.9 Identification & Delivery	Updated packaging solution requirements: must conform to any International, Federal, State, and or local statutory guidelines/requirements of the destination/location that the material is being shipped to.
1.9 Identification & Delivery	Updated packing list requirements: At a minimum, The Supplier must supply a packaging list in each shipping container

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1.11 Problem Solving	Update 3WAYs approach for problem solving technique; update 8D report template of FSLR [Rev11] Supplier to response the 8D through Oracle
1.12 Supplier Monitor & Feedback	
1.13 Continuous Improvement	Addition of "delivery": Continuous improvement is fundamental to our business and meeting our customers' rising expectations in terms of quality, reliability, delivery, and cost controls.
1.14 Communication Strategy	Formalization of Communication Strategy requirements
2.1 First Solar Forms/ Documents	Addition of Third-party Inspection Approved Vendor List (Region Dependent Supplier Continual Conformance Form FS-4-600-000-TMP2 Supplier Capacity Verification FS-4-310-000-W25
3.1 First Solar Acronyms	☐ SCC – Supplier Continual Conformance ☐ SQA – Supplier Quality Audit ☐ SQM – Supplier Quality Manual
Cover	Updated Cover Photo with S6 Module Photo

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