



# Quality Assurance Manual



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**itl** *International  
Tower Lighting, LLC™*

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## **1 Organization and Management**

### **1.1 Organization Name and Location**

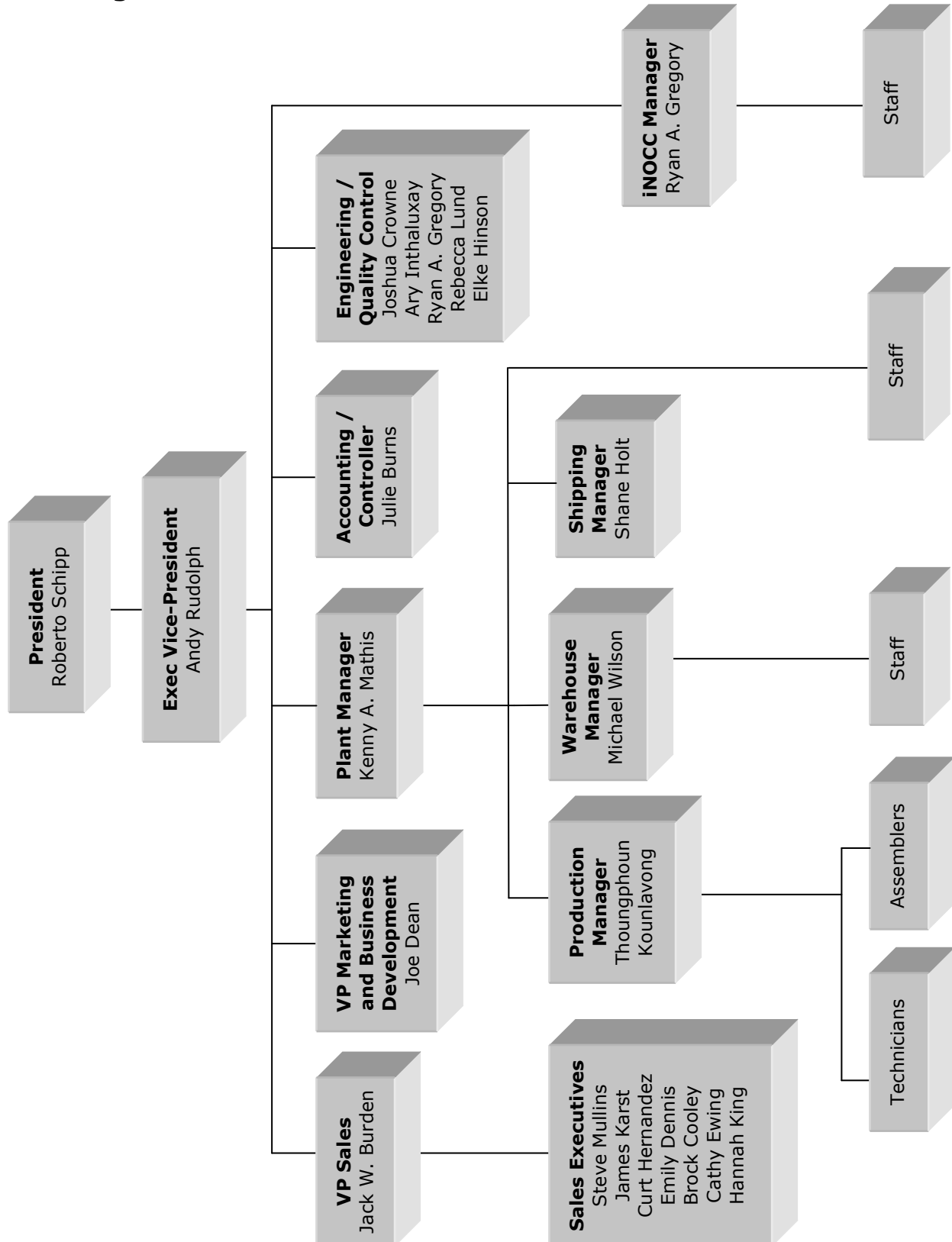
The legal name of our organization is "International Tower Lighting, LLC." The current operating location for International Tower lighting, LLC is:

International Tower Lighting, LLC  
1001 Centre Pointe Drive, Suite A  
La Vergne, TN 37086

### **1.2 Compliance**

International Tower Lighting management and personnel are committed to a Quality System that enables its products to meet the requirements of FAA Advisory Circulars AC 150/5345-43, AC 150 5345-53, and AC 70/7460-1 as appropriate.

## 1.3 Organization Chart



## **2 Quality Management System**

### **2.1 Policy**

International Tower Lighting, LLC personnel ensure that product and service quality conforms to requirements through an effective system of documented procedures that implement the requirements of this quality assurance manual. International Tower Lighting, LLC quality system is documented by three tiers of procedures:

#### **LEVEL I Quality Manual**

- This Quality Assurance Manual encompasses International Tower lighting, LLC's policy and guidelines for the Quality Management System.
- The objectives of this Quality Assurance Manual are implemented through all lower-level documentation.

#### **LEVEL II Standard Operating Procedures**

- Documented Standard Operating Procedures define and control the responsibilities, methods, and sequence of operations necessary to meet the requirements of this Quality Assurance Manual and any other requirements specified by customers, regulatory agencies, or by public law.

#### **LEVEL III Work Instructions**

- The third tier consists of specific work instructions such as Assembly Instructions and Drawings, Test Procedures and Repair Procedures.

**2.1.1** Work instructions are documented to the extent necessary to ensure the quality of our products and test and repair services.

**2.1.2** The range and detail of the work instructions that form part of the Quality System is dependent upon the complexity of the work, the methods used, and the skills and training needed by personnel involved in carrying out the tasks.

**2.1.3** The documented system is communicated to, understood by, available to, and implemented by our personnel.

Employees are trained and qualified on individual assembly, test, and repair procedures as well as the Quality Management System.

- 2.1.4** Changes to assembly, test, and repair procedures or the quality system are duly communicated to personnel.

### **3 Contract Review**

International Tower Lighting, LLC personnel review all customer orders to insure that specified requirements are adequately defined, documented and that International Tower Lighting, LLC has the capability to meet the specified requirements.

- Requests for quotes are reviewed for appropriate bid/no-bid decisions.
- Out-going quotes are reviewed for accuracy and capability before issue.
- In-coming contracts are reviewed against proposals and differences resolved.
- Records of contracts, amendments and contract reviews are maintained.

## **4 Design Control**

International Tower Lighting, LLC will design products using appropriate techniques including mechanical and electronic computer aided design. All designs shall conform to FAA Advisory Circulars where appropriate. Appropriate testing shall be conducted to verify design operation.

Each design should be reviewed for safety, robustness, serviceability, and manufacturability. Materials shall be selected from the standard inventory parts when possible. New parts shall be selected and qualified. All parts shall be multiple sourced except under exceptional circumstances.

Product design documents are controlled under the requirements of the Quality Assurance Manual.



## **5 Document Control**

International Tower Lighting, LLC personnel control the issue and revision of quality system documentation to ensure that only the correct documents are used within the quality management system.

- Controlled documents are reviewed and approved by authorized personnel for adequacy before their issue.
- Controlled documents are available at all locations where they are essential for the effective functioning of the quality system.
- Changes to controlled documents are reviewed and approved by the same individual/organization that performed the original review and approval unless specifically designated otherwise. The designated individual/organization shall have access to pertinent background information upon which to base their review and approval.
- Where practical, the nature of the change shall be identified on the document or on appropriate attachments.
- Obsolete documents are promptly removed from all points of issue or use.

## **6 Control of Procured Material**

International Tower Lighting, LLC ensures that procured material or components affecting finished product quality conform to specified requirements.

Procurement documents contain a clear description of the product or service ordered and include references to applicable drawings, catalog numbers, manufacturer part numbers, identification codes, process requirements, inspection instructions, applicable standards, specifications, and other relevant data.

Products are procured from qualified vendors and are verified by incoming inspection as required.

### **Reference**

SOP6: Control of Procured Material

## **7 Control of Customer-Furnished Material**

International Tower Lighting, LLC identifies, maintains, and appropriately handles customer-owned equipment and products. Any such product that is lost, damaged, or unsuitable for use will be recorded and reported to the customer.

## **8 Product Identification**

International Tower Lighting, LLC appropriately identifies material during all stages of the production process. Traceability is provided to the extent necessary to meet specified requirements.

### **Reference**

SOP8: Product Identification

## **9 Manufacturing Quality Controls**

International Tower Lighting, LLC personnel plan and document each manufacturing process that affects quality to ensure that it is performed under controlled conditions. Manufacturing documents are maintained by quality documentation control personnel.

Manufacturing documents shall include:

- Documentation defining the manner of manufacture.
- In-process inspections at regular intervals.
- Approved processes and equipment where appropriate.
- Supporting documentation traceable to the personnel responsible for the operation.
- Expected levels of workmanship and quality

### **Reference**

SOP9: Manufacturing Quality Controls

## **10 Final Inspection and Testing**

International Tower Lighting, LLC personnel inspect and test all finished products before delivery to the customer. Incoming material is verified to conform to specified requirements before use in the production process. Where appropriate, products are inspected at specific points throughout the production process to ensure conformance to quality system standards. No finished product is released to the customer before verifying that all production operations are complete.

### **Reference**

SOP10: Final Inspection and Testing

## **11 Control of Nonconforming Material**

International Tower Lighting, LLC identifies and controls the occurrence of nonconforming product to prevent its inadvertent use, shipment or inclusion in conforming items. Nonconforming product, once discovered, is promptly segregated from normal work operations. Clearly marked holding areas are provided for nonconforming materials. Written instructions are used for repair, rework, and disposition. Items that are reworked or repaired must be re-inspected for compliance with applicable test procedures.

### **Reference**

SOP11: Control of Nonconforming Material

SOP12: Corrective Action Program

## **12 Corrective Action Program**

International Tower Lighting, LLC investigates the cause of field returns, repairs, customer complaints and nonconforming products and applies effective corrective actions to prevent their recurrence. Corrective actions are also taken as a result of identification of trends.

- Corrective actions taken are appropriate to the magnitude of problems and commensurate with the risks encountered.
- Changes to procedures are implemented when required as a part of a corrective action.
- Records of corrective actions are maintained through the quality system documentation control system.

### **Reference**

SOP12: Corrective Action Program



## **13 Handling, Packaging, and Storage**

International Tower Lighting, LLC controls handling, packaging and storage of material in a manner that prevents damage, deterioration and loss.

- Adequate storage areas are designated to prevent damage and deterioration of material or product pending use.
- Handling precautions are used to prevent damage and deterioration with particular respect to ESD.
- The condition of product in stock is assessed at appropriate intervals to detect and prevent deterioration.
- All product packaging must ensure proper product protection during the specified shipping method.
- All steps are taken to ensure that product is protected from damage and deterioration.
- Product is shipped to the customer using standard shipping methods. Where specified by contract, special arrangements are utilized.

### **Reference**

SOP13: Handling, Packaging & Storage

## **14 Control of Quality Records**

International Tower Lighting, LLC maintains sufficient quality records to demonstrate conformance of finished product to specified requirements, and the effective operation of the quality management system.

- Required quality records are identified and maintained.
- Quality records include completed process and test procedure forms.
- Quality records are stored and maintained in such a way that they are readily retrievable in facilities that minimize deterioration, damage, and loss.
- Quality records are made available to customers as required by contract.
- Computerized databases are backed-up at appropriate intervals.

## **15 Equipment Calibration and Maintenance**

International Tower Lighting, LLC maintains adequate procedures for the control of calibration and maintenance of equipment used in the production process. Sufficient records are kept to ensure that equipment is maintained and recalled for calibration at necessary intervals.

## **16 Periodic Equipment Qualification**

International Tower Lighting, LLC maintains an ongoing Environmental/Reliability Testing Program and periodically resubmits certified equipment to approved testing laboratories for re-qualification as required by applicable FAA Advisory Circulars. The ongoing Environmental/Reliability Testing Program is performed according to documented procedures and is performed on a sample taken from each production batch. Any problems detected during environmental/reliability testing is handled through the Corrective Action Program.

### **Reference**

SOP12: Corrective Action Program  
Environmental Reliability Test Procedures

## **17 Collection & Analysis of Field Performance Data**

International Tower Lighting, LLC collects data on all certified products that are returned by customers. Data collected includes the reason for the return, defects found, and corrective action required. A Field Performance Audit is periodically conducted to review the reasons for product returns and evaluate the need for corrective action. Any problems detected during Field Performance Audit are handled through the Corrective Action Program.

### **Reference**

SOP12: Corrective Action Program

SOP17: Equipment Field Performance Audit

## **Equipment Field Performance Audit Procedure**

## 18 Quality Plan Review and Update

International Tower Lighting, LLC reviews and if necessary updates the quality plan at predetermined intervals. It is the responsibility of the V.P. Engineering/Quality Manager to ensure that the quality plan is reviewed at least once every two years. The plan will be reviewed and approved by management. Revisions and updates are documented below.

<b>Revision</b>	<b>Description of Change</b>	<b>Date</b>	<b>Preparer / Approval</b>
1	Initial Release	11/13/03	Prepared By: Andy Rudolph Approved By: Roberto Schipp
2	Revised for ETL initial quality audit	10/21/04	Prepared By: Andy Rudolph Approved By: Roberto Schipp
3	Added Equipment Maintenance & Calibration Section	1/23/06	Prepared By: Andy Rudolph Approved By: Roberto Schipp
4	Added Periodic Equipment Qualification & Collection and Analysis of Field Performance Data Sections	11/13/06	Prepared By: Andy Rudolph Approved By: Roberto Schipp
5	Updated physical address & reviewed	5/12/08	Prepared By: Andy Rudolph Approved By: Roberto Schipp
6	Updated Org Chart with new quality connections	5/20/08	Prepared By: Andy Rudolph Approved By: Roberto Schipp
7	Updated Org Chart & Section 6	5/21/10	Prepared By: Andy Rudolph Approved By: Roberto Schipp
8	Reviewed, updated cover	5/29/12	Prepared By: Andy Rudolph Approved By: Roberto Schipp
9	Reviewed, updated physical address, updated Org Chart.	10/26/2015	Prepared By: Elke Hinson Approved By: Andy Rudolph
10	Updated Org Chart.	3/11/2016	Prepared By: Elke Hinson Approved By: Andy Rudolph
11	Updated Org Chart. Updated wording at manufacturing quality controls & quality plan and review.	5/17/2017	Prepared By: Elke Hinson Approved By: Andy Rudolph
12	Updated Org Chart.	10/5/2017	Prepared By: Elke Hinson Approved By: Andy Rudolph
13	Updated Org Chart.	5/29/2019	Prepared By: Elke Hinson Approved By: Andy Rudolph
14	Updated Org Chart.	8/2/2019	Prepared By: Elke Hinson Approved By: Andy Rudolph