



QUALITY CLAUSES

Unless superseded by a separate agreement, these quality clauses, when referenced in a Regal Purchase Order, are considered contractual requirements, in addition to any Purchase Order Notes or Engineering Documents. If there is a conflict between these documents, the order of precedence is: 1st. Purchase Order, 2nd. Engineering Documents, and 3rd. Quality Clauses. A conflict is defined as a specific requirement that is addressed differently in two or more of the above documents. A specific requirement that is addressed in one document, but absent in another, does not constitute a conflict.

Copies of Regal's documentation are available through the Purchasing Department. The supplier through other sources shall obtain all other non-Regal documents, standards and specifications. **The latest revision in effect on the date of the order shall apply in all cases.**

1.0 STANDARD REQUIREMENTS

A. Supplier Evaluation

Approved suppliers are listed on an Approved Supplier List (ASL) maintained by the Purchasing Department. Purchase Orders will only be placed with approved suppliers. Suppliers with a quality rating below 80% for three consecutive months will be put on probation for evaluation and corrective action as required.

B. Quality System

The supplier shall have and maintain, throughout the life of the Purchase Order, a Quality System adequate to ensure compliance with Regal's Purchase Order requirements, including all referenced documents. The supplier has the ultimate responsibility to furnish acceptable products and/or services to Regal, regardless of their approved Quality System.

C. Right of Access

Regal Technology Partners, Inc. (Regal) has the right to access the subcontractors/supplier's facility and documented information for products and services procured by Regal. This right of access extends to Regal's customers, their customers and regulatory authorities and applies through any level of the supply chain. This is an AS9100 requirement and must be flowed down to any items procured for use on Regal's contracted products and/or services.

D. Configuration Control

The supplier shall maintain a suitable method for tracking product configurations and date of manufacture for all products shipped to Regal (examples: supplier ID, serial numbers, revisions, date codes, etc.) to facilitate rapid identification, traceability, and containment (when necessary).

E. Major Product Changes

Upon receipt of a Purchase Order, the supplier shall notify Regal of any major changes to the product, since Regal's last procurement, that have been implemented, or will be implemented, prior to delivery. Major changes include any change in the materials, processes or configuration that may affect form, fit, function, interchangeability or reliability of the product.

F. Facility Changes

The supplier shall not build or sub-contract any Regal or Regal customer designed products to a different facility (with similar capabilities) without first notifying the Regal Buyer for written approval.

G. Regulatory Body Status

The supplier will maintain all regulatory body approvals (UL, CSA, VDE, etc.) for products and/or services certified to these requirements. The supplier shall notify Regal immediately of any change (or pending change) in approval status.

H. Communications

All verbal communications between Regal and the supplier that will affect the configuration or delivery of a product currently on order shall be followed-up in writing within 24 hours by the party initiating the original request and coordinated with the Regal Buyer.

I. Mercury Exclusion

The supplier's product must be free of mercury contamination when possible. The supplier shall take every precaution to ensure that products sold to Regal are "Mercury Free". If the products do contain mercury, it shall be noted on the certification. This requirement shall be flowed down to the supplier's sub-contractors.

J. Product Certification: Compliance with Purchase Order Requirements

The supplier shall certify that the product shipped to Regal complies with all requirements of the Purchase Order (including all referenced documents). The certificate shall reference Regal's Purchase Order number, quantity, product description, part number, and revision, including all serial numbers (when applicable). The certification shall be signed and dated by an authorized representative. For age sensitive materials, the certificate shall also reference the manufacturer, expiration date, and special storage and handling requirements.

K. Quality Records/Retention

Quality Records such as Material/Process Certifications, Inspection Reports, Test Reports, and Microsection Reports from PCB's, First Article Reports, Product Configuration Data, Defect and Corrective Actions, Work Order Travelers etc. shall be maintained by supplier a minimum of fifteen-years, unless otherwise specified on the contract, and be available for review by Regal upon request. Deliverable data to be submitted with the product shall be as specified on the P.O. or Drawing/Specification.

L. Initial Product Acceptance

Regal's initial acceptance of product may be determined through source inspection, certification, sample or 100% inspection and/or test. Regal reserves the right to return, at supplier's expense, any, or all, of a batch containing non-conformances determined to be the supplier's responsibility. Regal's initial acceptance does not relieve the supplier of responsibility for non-conformances detected subsequently.

M. ESD Control

All electrostatic discharge sensitive (ESDS) devices shall be adequately protected against damage or degradation from electrostatic discharge during handling and shipment. All packages containing ESDS devices shall be appropriately packaged and labeled per ANSI/ESD S20.20.

N. Packaging for Shipment

Wrapping, cushioning or other means to prevent damage through shock or vibration during handling and shipment shall provide adequate protection for the product.

O. Non-Conforming Products/Disposition

Regal requires review/disposition of all "Use-As-Is" and "Repair" dispositions of non-conforming products. Non-Conforming products shall be presented to Regal for disposition on supplier's non-conformance request and must be completed and returned prior to shipment. If approved, the supplier is responsible for referencing the non-conformance request number on the applicable paperwork. In some cases, it is necessary for Regal to request one or more products for evaluation prior to disposition.

P. Repaired Products

Repaired products approved by Regal MRB process submitted to Regal must be identified and segregated from the balance of the shipment. The supplier's shipping documents and certifications (when required) must reference the quantity of these items and Regal's Non-Conforming Material Report (NCMR) number when they are part of a previous shipment originally rejected by Regal.

Q. Corrective Action

Prompt action shall be taken by the supplier to detect and correct unacceptable conditions, which have resulted or could result in the production of non-conforming products. The supplier's corrective action system shall cover all phases of manufacturing activities from material procurement through delivery of products to Regal, including corrective action with sub-contractors (when required). The supplier shall respond promptly to Regal's request for corrective action by describing action taken to eliminate the cause of the non-conformance and how to prevent recurrence on subsequent shipments. Prompt planning must be submitted to Regal within 5 business days for Major's and 10 business days for Minor's. Regal reserves the right of access to supplier facilities, and supplier subcontract facilities (when applicable) to assess the effectiveness of Corrective Actions. If supplier, or supplier's sub-tier suppliers receive a Government Corrective Action Request (GCAR), it is the supplier's responsibility to notify Regal's buyer for related goods or services provided to Regal.

R. Moisture Sensitive Parts

Moisture Sensitive Parts shall be handled, packaged and properly labeled to protect against moisture absorption in accordance with the requirements of IPC/JEDEC J-STD-033 and IPC/JEDEC J-STD-020.

Supplier is required to designate parts are:

- 1) Moisture Sensitive on the packing slip/Certificate of Conformance Documents.
- 2) Part package has tag that states parts are Moisture Sensitive; Package is vacuumed sealed, contains desiccant with humidity indicator.
- 3) Regal shall record and monitor the Moisture Sensitivity Level (MSL) for parts which have a level of 4 or above.

Table 1. IPC/JEDEC J-STD-20 MSL Classifications

Level	Floor Life		Soak Requirements			
			Standard		Accelerated	
	Time	Cond degC/%RH	Time (hrs)	Cond degC/%RH	Time (hrs)	Cond degC/%RH
1	unlimited	<=30/85%	168+5/-0	85/85	n/a	n/a
2	1 year	<=30/60%	168+5/-0	85/60	n/a	n/a
2a	4 weeks	<=30/60%	696+5/-0	30/60	120+1/-0	60/60
3	168 hours	<=30/60%	192+5/-0	30/60	40+1/-0	60/60
4	72 hours	<=30/60%	96+2/-0	30/60	20+0.5/-0	60/60
5	48 hours	<=30/60%	72+2/-0	30/60	15+0.5/-0	60/60
5a	24 hours	<=30/60%	48+2/-0	30/60	10+0.5/-0	60/60
6	TOL	<=30/60%	TOL	30/60	n/a	60/60

S. Control of Conflict Minerals

Supplier shall provide a list of any items being provided to Regal Technology Partners, Inc. that contain any of the following conflict minerals (Tin, Tantalum, Tungsten or Gold) in the products they manufacture or subcontract to manufacture. The supplier shall also provide disclosures about the origin of the conflict minerals and provide copy when requested by Regal.

T. Control of Material Provided by Regal

Supplier shall provide a system that contains the location of material located in their facility that is provided by Regal and is property of Regal's customer and/or is Government property. Supplier shall keep a detailed inventory record of this material and provide a copy when requested. Supplier is responsible for maintaining calibration of equipment while supplier is in possession and supply calibration certificates when recalibrated. Calibrations must meet ISO 17025 and Z540.1 calibration requirements and be traceable back to NIST.

U. Employee Contributions

Supplier must provide their employees, and applicable consultants, with awareness of how their actions contribute to product or service conformity and product safety. Employers must emphasize the importance of ethical behavior through the means of core values, employee handbook or where the employer deems fit.

V. Foreign Object Debris / Foreign Object Damage (FOD)

Supplier shall provide products that are free of foreign object debris and maintain a FOD program which conforms with AS9146 for the continuous training and prevention of migration of foreign object debris, potentially causing foreign object damage. This clause includes the prevention of FOD into Regal's manufacturing operations area for contracted services. All tools and equipment must be properly accounted for prior to entering and post delivery of services.

W. P.O. Requirements Flow Down

Supplier shall flow down all applicable requirements of the purchase order to their suppliers and sub-tiers to ensure conformance with all specifications, drawing requirements, quality systems requirements (i.e. AS9100, NADCAP, etc.), regulations, public laws and any other requirements that may be specified in the purchase order.

2.0 PRODUCT QUALITY WORKMANSHIP REQUIREMENTS
(As specified on P.O./Drawing/Specification).

A. Printed Circuit Board (PCB's) Class 3

Printed circuit boards shall be fabricated in accordance with IPC-6012, Class 3, qualification and performance specification; and acceptance shall conform to requirements of IPC-A-600, Class 3. A producibility analysis shall be performed on new board designs including First Article Inspection verification. Each PCB shall be 100% net list tested at 250 volts minimum unless otherwise specified. Solderability samples, Microsection reports, Test data and Inspection data shall be supplied with the order shipment.

Note: Microsections must represent PCB complexity including blind vias, etc.

B. Printed Circuit Board (PCB's) Class 2

Printed circuit boards shall be fabricated in accordance with IPC-6012, Class 2, qualifications and performance specification and acceptance shall conform to requirements of IPC-A-600, Class 2. A producibility analysis shall be performed on new board designs including First Article Inspection verification. Each PCB shall be 100% net list tested at 250 volts minimum unless otherwise specified. Solderability samples, Microsection reports, Test data and Inspection data shall be supplied with the order shipment.

Note: Microsections must represent PCB complexity including blind vias, etc.

C. Printed Circuit Boards (PCB's) Third Party Product Analysis

When required by Purchase Order, an outside test lab (third party) shall be used to (1) Perform analysis of micro sections and coupons and (2) Perform Destructive Physical Analysis (DPA) to verify plating integrity and metalgraphic analysis on one PCB from each production lot. Data analysis and reports shall be submitted to the buyer for each PCB lot furnished.

D. Printed Circuit Board Assemblies (PWA/CCA) Class 3

When specified on the Purchase Order, all (PWA/CCA) items shall meet the requirements of IPC-A-610 Class 3.

E. Printed Circuit Board Assemblies (PWA/CCA) Class 2

When specified on the Purchase Order, all (PWA/CCA) items shall meet the requirements of IPC-A-610 Class 2.

F. BGA X-Ray for Printed Circuit Board Assemblies:

All BGA's shall be X-Rayed perpendicular to and at a 45-degree angle to the PWA/CCA unless an alternate method has been previously approved by Regal. The Supplier shall submit the appropriate X-Ray photos for each PWA/CCA with written evaluation of BGA X-Ray results.

G. Cable/Harness Assy

When specified on the Purchase Order, all items shall be manufactured in accordance with and meet the requirements of IPC/WHMA-A-620. Requirements and Acceptance for Cable and Wire Harness Assemblies, Class 3 unless otherwise specified on P.O. or Drawing/Specification.

H. General Workmanship Requirements:

All commodities shall comply with best commercial practices or as specified on the Purchase Order, drawing/specification.

J. PWB Panel X-Out Requirements

Regal allows X-Out PWB's within a panel when the following criteria is met:

- 1) "X-Out" PWB's are sorted by similar-to and segregated from "Non-X Out" PWB's. X-Out's cannot be randomly dispersed within a batch of panels, potentially causing value-add suppliers within the Supply Chain to place components on X-Out locations.
- 2) "X-Out" locations are clearly marked with a sharpie, or equivalent high contrast marking. Regal is looking to prevent small X-Acto blade "X-Outs" which are hard to see, causing value-add suppliers within the Supply Chain to place components on "X-Out" locations.
- 3) Regal will only accept a maximum of $\leq 50\%$ "X-Out" PWB's within a given panel. Meaning: a 2-up panel has a maximum of 1 X-Out allowable, a 3-up panel has a maximum of 1 X-Out allowable, a 4-up panel has a maximum of 2 X-Out allowable, etc.

3.0 IDENTIFICATION/TRACEABILITY

A. Date Code

The supplier shall identify each lot of the provided product with a manufacturing date code (LDC). Note: A lot shall be defined as a batch of product produced by one manufacturer, in one unchanged process at one time, and in accordance with the same drawing and/or specifications. Electronic parts must be from a single lot date code for each Purchase Order and the LDC shall be less than 5 years from the date of shipment.

B. Fabricated Items Using Specialty Metals

Fabricated metal items shall meet the requirement of DFARS Clauses 252.225.7009 & 252.225.7014 preference for domestic specialty metals, AS71. Supplier shall provide Certificate of Compliance for all delivered fabricated metal items.

C. Lead Free Components

Lead Free components shall be appropriately marked as Lead Free to assist assembly, rework, maintenance and disposal. The Certificate of Conformance for ROHS compliance is required, per this quality clause.

D. Counterfeit Item Risk Control System

Seller shall maintain a Counterfeit Item Risk Control System in accordance with SAE AS5553. Seller is not authorized to deliver any item procured from source other than OEM's or OCM's, or their authorized distributors without prior written authorization from the Regal Technology Partners President.

E. Items Procured from an Independent Distributor

The supplier (distributor) shall assure in accordance with SAE AS5553 that electronic parts or electronic equipment being furnished to this Purchase Order are manufactured by the Original Component Manufacturer (OCM) or the Original Equipment Manufacturer (OEM) and supplier shall provide Material Traceability Data with each delivered material lot: (date code, lot code, manufacturing name/location, part number and serial number(s) as applicable).

F. Tape and Reel Required

Tape and reel packaging is required. This code is used on Surface Mount Devices, to ensure they are on reels for automated placement equipment. Items are to be purchased and provided in tape and reel packaging.

4.0 FIRST ARTICLE INSPECTION

A. First Article Evaluation

- All First Article Inspection Reports shall follow AS9102 industry format and be submitted for all first-time builds, delta first articles for revision changes, or be submitted if the last manufacturing period extends greater than 2-years.
- One unit (unless otherwise noted on P.O.) shall pass Regal's First Article Evaluation before the supplier is authorized to proceed with shipment.
- All First Article Inspection Reports shall be submitted through the online tool "Net-Inspect," along with all required documentation such as: materials and processes certifications, test reports, TDS (Technical Data Sheets), Regal's PO, and any other required documentation. Regal Technology Partners licensing allows access to this online tool with no expense to the supplier and includes all vendors through the Supply Chain. For additional details for gaining access to Net-Inspect and adding Regal as a customer, please reference the link below:

https://www.net-inspect.com/assets/help/Version%205%20User%20Guide_All%20Modules%20V3.pdf

For all suppliers that do not have an existing account, may contact Regal's QA department for general questions at quality@regaltechnology.com.

- All First Article Inspection Reports shall be approved prior to being authorized for shipment. Any and all deviations to this requirement, including paper-based submittals, must be approved in writing from Regal's Quality Assurance Representative.

5.0 SOURCE VERIFICATION

A. Source Inspection

Inspection by Regal and/or a Regal Customer Representative is required at the supplier's facility. The supplier shall notify Regal's Purchasing Department at least two (2) days prior to scheduled shipment. The supplier shall provide, at no charge to Regal, the facilities calibrated equipment and aid necessary for efficient source inspection. Evidence of source inspection must be indicated on the packing slip with each shipment.

B. Test Witness

Witnessing test by Regal and/or a Regal Customer Representative is required at the supplier's facility. The supplier shall notify Regal's Purchasing Department at least two (2) days prior to scheduled shipment. The supplier shall provide, at no charge to Regal, the facilities calibrated equipment and aid necessary for efficient source test verification. Evidence of test verification must be indicated on the packing slip with each shipment.

C. Inspection by Government – Quality Assurance Representative (QAR)

When Government inspection is required, the following statement shall appear on Regal's purchase order:

“Government inspection is required prior to shipment from your plant. Upon receipt of this order, promptly notify the Government Representative who normally services your plant so that appropriate planning for Government inspection can be accomplished.”

6.0 DOCK TO STOCK (DTS) – (Internal Regal Use)

- A. Material received at Regal to be routed directly to 000 Warehouse, with the packaging slip/certs filed with the P.O. in RI. Receiving owns the responsibility to verify packing slip to purchase order for part number verification, material count and condition and verify all DTS products have a Certificate of Conformance. If any one of these criteria are not satisfied, the Receiver is to consult with the purchase order buyer to remedy the discrepancy.