

Rockwell Collins

RC-9000

Supplier Quality System Requirements

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1.0 SCOPE

This document defines quality systems that are required for those suppliers, vendors, and subcontractors (here after referred to as the "Seller") providing materials/products/services to Rockwell Collins (here after referred to as the "Buyer"). Revisions to this document are furnished to all active Sellers when the change is deemed significant, and warrants re-issue.

The provisions of Buyer's subcontract, purchase order or purchase agreement (hereafter referred to as Order) titled "Additional Provisions", "Inspection and Acceptance" or "Quality Requirements" are supplemented by this document which is hereby incorporated by reference into the Order. Seller shall comply with establishing and maintaining quality systems required by this document whether the Order is received by the Seller in paper form or by electronic data interchange.

Seller shall flow down applicable product specifications, descriptions and requirements to sub-tier suppliers, including key characteristics as required.

2.0 PURPOSE

The purpose of this document is to identify the Seller's quality requirements. Also it is intended to aid the Seller in determining which quality level is required, relative to the complexity of the product/service that is being procured.

3.0 REFERENCES

Quality Management System – Requirements	ISO 9001:2000
Quality Systems – Aerospace - Model for Quality	AS9100
Assurance in Design, Development, Production, Installation, and Servicing	
Requirements for Handling Electrostatic-Discharge-Sensitive (ESDS) Devices	EIA JESD-625
Requirements for Soldered Electrical and Electronic Assemblies	J-STD-001
Acceptability of Printed Board Assemblies	ANSI/IPC A-610
Inspection and Test Requirements for Key Characteristics of Components	839-8031-001
Software Suppliers Process Requirements	074-8432-552
U.S. Department of Transportation, Conducting workplace drug and alcohol testing.	49 CFR PART 40
FAA Drug Testing Program	14 CFR PART 121, Appendix I
FAA Alcohol Misuse Prevention Program	14 CFR PART 121, Appendix J

4.0 ACRONYMS

CFR	Code of Federal Regulations
C of C	Certificate of Conformance
COTS	Commercial off-the-shelf
DOD	Department of Defense
FAA	Federal Aviation Administration
ISO	International Organization for Standardization
NASA	National Aeronautics and Space Administration
OEM	Original Equipment Manufacturer
QPL	Qualified Products List
RC	Rockwell Collins
TBD	To Be Determined
SPC	Statistical Process Control

4.1 DEFINITIONS

4.1.1 RC Manufacturing

Fit - Physical size, interconnection, and mounting requirements of an item.

Function - The attribute of an end item equipment or assembly pertaining to operation or performance (e.g. safety, accuracy, testability, compatibility, reliability, maintainability, etc.)

Form - Internal structure (composition material) and the external outline (shape) within the limits set forth in the equipment specification

Interchangeability - Ability of a part to replace or be replaced in the existing end item equipment, irrespective of part number, wherever installed. The replacing part must meet all physical, functional, and structural requirements of the part it replaces and be installed by the application of normal means of attachment.

Performance - The quantitative specification of an item's characteristics which may include the operating range, limits and values.

Repair - The subjection of nonconforming material to an approved process designed to reduce but not completely eliminate the nonconformance

Rework - All work performed on articles with known deficiencies so as to cause such articles to fully comply with documented requirements

Use as is - Material with minor nonconformances dispositioned by formal MRB where authorized, when the material is determined to be satisfactory for its intended use.

4.1.2 Maintenance

Repaired – Product or component part which has been restored to a serviceable condition in conformance with data acceptable to the FAA or other regulatory agencies as applicable.

Overhaul – A product or component part is overhauled when using methods, techniques and practices acceptable to the FAA and has been disassembled, cleaned, inspected, repaired as necessary and reassembled. In addition, it has been tested in accordance with approved standards and technical data acceptable to the FAA or other regulatory agencies as applicable.

Modified – A product of component part which has been altered in conformity with approved data acceptable to the FAA or other regulatory agencies as applicable.

Inspected – A product or component part which has been examined by means of visual inspection and/or functional testing, utilizing approved data acceptable to the FAA or other regulatory agencies as applicable.

5.0 REQUIREMENTS

5.1 GENERAL

During the performance of this Order, the Seller shall perform a self assessment and determine the applicable Supplier Category (Refer to Table 1) The Seller shall maintain a quality system compliant with the applicable Quality System Requirements Matrix (Refer to Table 2). All requirements specified in the Quality System Requirements Matrix (identified with an "X") under the applicable Supplier Category apply to this Order. The Buyer may assess a different Supplier Category and the Seller shall meet the requirements of a new Supplier Category assessment. RC uses various methods, which may include an on-site survey, to verify that these requirements are being met.

NOTICE:

In the event that the Seller's quality system is non-compliant, or if the Seller's ISO registration is suspended or expires during the performance of the Order, the Seller shall notify the Buyer in writing. Notification shall be within ten (10) working days of the revocation, suspension, or expiration.

5.2 MATERIAL REVIEW AUTHORITY

Material review authority shall not extend to "repair" or "use-as-is" for supplier specified or customer specified requirements without prior documented approval from the customer. Seller shall submit to Buyer all requests for variance from Contract, Purchase Order, specification or drawing requirements

5.3 ELECTROSTATIC DEVICE PROTECTION

Devices identified as electrostatic discharge sensitive shall be handled, stored, packaged and shipped in such a manner as to preclude damage from electrostatic discharge. Electrostatic protection process shall be modeled after EIA JESD-625 "Requirements for Handling Electrostatic-Discharge-Sensitive (ESDS) Devices". Electrostatic protection requirements specified on the component specification/drawing or elsewhere on the Order take precedence over this paragraph.

5.4 BUYER DEFINED CHARACTERISTICS

Devices having one or more characteristics identified as "Critical" or "Key" or by the symbols " ", shall be inspected and/or tested in accordance with RC 839-8031-001 "Inspection and Test Requirements for Key Characteristics of Components". Optional methods may include 100% inspection and/or test. The Seller's may submit an alternate SPC plan to the Buyer for consideration and approval. Approval in writing must be received from the Buyer prior to product acceptance. Unless otherwise specified, inspection/test reports or SPC data shall be submitted with each lot for part numbers that contain key characteristics

5.5 WORKMANSHIP

The Seller shall establish workmanship plans and acceptance standards in accordance with the performance and reliability requirements of the Buyers specifications. The plans and acceptance standards shall be modeled after J-STD-001 "Requirements for Soldered Electrical and Electronic Assemblies" and ANSI/IPC-A-610 "Acceptability of Printed Board Assemblies". Workmanship requirements specified on the component specification/drawing or elsewhere on the Order take precedence over this paragraph.

5.6 UNIQUE PART NUMBER CONTROL

The Seller shall maintain a documented process to assure published data and specifications maintain a unique part number. The Seller shall change the Seller's part number when introducing changes which affect the performance, form, fit, function, or interchangeability of the Seller's product.

5.7 RIGHT OF ENTRY

The Buyer, Buyer's customer, and cognizant government agencies (such as FAA, DOD, NASA, etc.) shall have the right to visit the Seller's facilities to inspect products, witness inspections and tests, and to evaluate the quality/inspection system(s). This right shall also extend to the Seller's subcontractors. Seller shall be notified within a reasonable amount of time (typically no less than five working days) by the Buyer to host such events.

5.8 BUYERS SOURCE INSPECTIONS AND PROCESS VERIFICATIONS

Buyer's source inspections or process verifications shall not absolve the Seller of the responsibility to provide acceptable product nor shall it preclude subsequent rejection. Use of a Buyer's subcontractor shall not be considered by the Seller as evidence of effective control of quality by the subcontractor.

5.9 CHANGES IN FACILITY OR QUALITY MANAGEMENT SYSTEM

The Seller shall notify the Buyer in writing of any change in management/ownership, facility relocation, significant sales expansion or reduction, or any changes to Seller's product, manufacturing processes or quality management system that could affect the Seller's ability to meet the requirements of this specification or Order prior to the change. In cases of significant change as determined by the Buyer, continual approval of the Seller's quality system shall be subject to Buyers review of those changes.

5.10 SUBCONTRACTING OF THE ORDER

The Seller shall not subcontract in whole, or substantially in whole, performance of this Order without prior written consent of the Buyer.

5.11 RECORDS

Records shall be established and maintained per clause 4.2 as referenced in Table 2 of this document. Records shall provide evidence of conformity to requirements and to the effective operation of the quality management system. Records shall be available for review by customers and regulatory authorities in accordance with contract or regulatory requirements. Unless otherwise indicated, the Seller shall retain records for a minimum of three (3) years after Order completion. All requested information shall be provided in the language required by the contract.

5.12 SHIPMENT CONFORMANCY

5.12.1 Seller's shipment of articles to Buyer shall constitute certification that the articles were manufactured, processed, and inspected to the requirements of the Buyer's Order. Specific certificates of conformance may be required.

5.13 NOTICE OF DISCREPANT MATERIAL

5.13.1 In the event of delivery of discrepant material, the Seller is subject to the receipt of a Supplier Corrective Action Request. Per requirements of the Supplier Corrective Action process, the Seller is required to provide a Containment Statement in three working days; a root cause corrective action response within ten working days; and be subject to an elevation of notification for delinquent response. An extension may be granted with agreed upon business case.

5.13.2 Failure to comply with the rules of this Supplier Corrective Action process requirement may jeopardize compliance to the contract requirements. In the event Seller fails to remedy discrepancies as required by the Supplier Corrective Action Request, or if Seller fails to make progress so as to endanger the performance of this agreement with its terms, Rockwell Collins may exercise its rights and remedies under the Cancellation/Termination section of the contract between Rockwell Collins and your company.

5.13.3 The Seller shall notify the Buyer when the Seller determines that previously shipped product is noncompliant.

5.14 Maintenance of Avionics and In-Flight Entertainment Products (Commercial - Non-Government)

5.14.1 Maintenance applies to products returned from service for repair, overhaul, modification, or Inspection.

5.14.2 U.S. Suppliers, including all Sub-tiers, performing maintenance of products shall have an approved DOT Drug & Alcohol testing program that is compliant with the 49 CFR PART 40 for all applicable FAA regulated customers. Refer to FAA 14 CFR PART 121, Appendix I (Drug Testing) and Appendix J (Alcohol Misuse Prevention) for aviation program requirements.

5.14.2 All contract suppliers shall provide records of service work performed including the following information as applicable:

- Preliminary Inspection – Determine state of preservation (functional test, if applicable) and record obvious defects, damage, or contamination.
- Hidden Damage Inspection – Catastrophic damage, contamination, sub-par workmanship or questionable configuration discovered in preliminary inspection.
- Statement of Work Performed – Detailed description of work performed, including a description of parts replaced, adjustments performed, modifications installed and inspection and test results as applicable.

Table 1 - Supply Category Definitions

Supplier Category	Category Title	Description	Part Categories that may be supplied
1	Rockwell Business System	Any Rockwell Business System	Any product manufactured or service offered
2	Rockwell Licensee	A producer of material of services under license from Rockwell	Any product manufactured or service offered under license from Rockwell
3	Major System or Subsystem	A producer of major system or subsystem with or without design responsibility. This Category includes system integration, maintenance and/or overhaul services	Any software or product manufactured or service offered
4	Build-to-print component	A supplier of build to print component, assembly, minor system or subsystem for which the supplier has less than total design responsibility	Build to print or COTS product, basic material or standard services/processes/software
5	Off-the-shelf (Industrial)	A supplier of Off-the-shelf Industrial products for which the supplier has total design authority	Off-the-shelf product or standard services and software
6	Retail commercial	A supplier of retail commercial products offered to the public	Retail commercial products
7	Basic materials	A supplier of basic and raw materials	Basic materials, retail commercial product
8	Distributor	A distributor or OEM representative	Off-the-shelf product
9	Contract processes & services except inspections and testing	A processor or service provider that performs specific tasks with the exception of inspection and testing services	Services not including inspection and test or retail commercial product
10	Contract processes & services inspection and testing	A processor or service provider that performs inspection and testing services	Inspection and testing services, other services, retail commercial product
11	Broker	A supplier of specific commodities which are not typically available because of OEM discontinuance or obsolescence	Obsolete or discontinued product
CAS5	Contract Maintenance	Maintenance performed by a contractor that meets all applicable contract and regulatory requirements.	Repaired, Overhaul, Inspected, Modified, Return to Service

Table 2 - Quality System Compliance Matrix

ISO 9001:2000 Paragraph		Supplier Category											CAS5
		1	2	3	4	5	6	7	8	9	10	11	
4.1	General Requirements	X	X	X	X	X		X	X	X	X		
4.2	Documentation Requirements	X	X	X	X	X		X	X	X	X	X	X
5.1	Management Commitment	X	X	X	X	X		X		X	X		
5.2	Customer Focus	X	X	X	X	X		X	X	X	X		
5.3	Quality Policy	X	X	X	X	X		X		X	X		
5.4	Planning	X	X	X	X	X		X	X	X	X		
5.5	Responsibility, Authority, and Communication	X	X	X	X	X		X		X	X		
5.6	Management Review	X	X	X	X	X		X		X	X		
6.1	Provision of Resources	X	X	X	X	X		X		X	X		X
6.2	Human Resources	X	X	X	X	X		X	X	X	X		X
6.3	Infrastructure	X	X	X	X	X		X		X	X		X
6.4	Work Environment	X	X	X	X	X		X		X	X		X
7.1	Planning of Product Realization	X	X	X	X	X		X		X	X		X
7.2	Customer-Related Processes	X	X	X	X	X		X	X	X	X		X
7.3	Design and Development	X	X	X		X		X					
7.4	Purchasing	X	X	X	X	X		X	X				X
7.5	Production and Service Provision	X	X	X	X	X		X	X	X	X	X	X
7.6	Control of Monitoring and Measuring Devices	X	X	X	X	X		X		X	X		X
8.1	General	X	X	X	X	X		X			X		
8.2	Monitoring and Measurement	X	X	X	X	X		X	X	X	X		
8.3	Control of Nonconforming Product	X	X	X	X	X		X	X	X	X		X
8.4	Analysis of Data	X	X	X	X	X		X			X		
8.5	Improvement	X	X	X	X	X		X	X	X	X		
	Additional Appendices Requirements												
		1	2	3	4	5	6	7	8	9	10	11	CAS5
A1	C of C - Special Processor				X					X	X		X
A2	Physical and Chemical Test Reports							X	X			X	
A3	Source Traceability								X			X	X
A4	Software 074-8432-552	X	X	X	X	X				X	X		
A5	EP-1 489-0073-001	X		X	X								
A6	AS9100	X	X	X									
A7	TBD												
A8	TBD												
A9	Requirements 5.1 - 5.12	X	X	X	X	X		X	X	X	X	X	X
A10	Requirements 5.12 only						X						

Appendices

A1	<p>CERTIFICATE OF CONFORMANCE - SPECIAL PROCESSOR</p> <p>A COMPLETED COPY OF THIS CERTIFICATE OR COPIES OF PROCESSOR CERTIFICATES MUST ACCOMPANY EACH SHIPMENT.</p> <p>When the drawing reflects the requirement for subjecting product(s) to a Buyer defined special process, Seller may utilize Buyer certified special processors, or opt to use a processor approved by the Seller. When requested, Seller shall provide Rockwell with documented evidence and rationale for processor approval. The Buyer defined special processes are:</p> <table style="width: 100%; border: none;"> <tr> <td style="width: 33%;">1) Welding/Brazing</td> <td style="width: 33%;">2) Anodizing/coating</td> <td style="width: 33%;">3) Plating/Electrodeposition</td> </tr> <tr> <td>4) Encapsulating/Potting</td> <td>5) Ultrasonic inspection</td> <td>6) Dry film lube</td> </tr> <tr> <td>7) Chemical Cleaning/Milling</td> <td>8) Bonding/Lamination</td> <td>9) Radiographic inspection</td> </tr> <tr> <td>10) Impregnation/Passivation</td> <td>11) Leak testing</td> <td>12) Eddy current inspection</td> </tr> <tr> <td>13) Heat Treatment/Annealing</td> <td>14) Penetrant inspection</td> <td>15) Vibration/Qualification test</td> </tr> <tr> <td>16) Magnetic particle insp.</td> <td></td> <td></td> </tr> </table> <p style="text-align: center;">CERTIFICATION</p> <p>Seller certifies that the special processes required by this order were performed by the processor listed below, and that the document(s) appended hereto in the form of processing certifications or listed below, is/are evidence of performance of Seller or processor in accordance with applicable specifications.</p> <p>Rockwell purchase order number _____</p> <p>Rockwell part number _____</p> <p>Number of items in shipment _____</p> <p>Processor name _____</p> <p>Processor address _____</p> <p>Process specification and revision _____</p> <p>Other _____</p> <p>_____ Quality Manager</p> <p>_____ Seller's Name</p> <p>_____ Seller's street address</p> <p>_____ City, State, Zip Code.</p> <p>_____ Date</p>	1) Welding/Brazing	2) Anodizing/coating	3) Plating/Electrodeposition	4) Encapsulating/Potting	5) Ultrasonic inspection	6) Dry film lube	7) Chemical Cleaning/Milling	8) Bonding/Lamination	9) Radiographic inspection	10) Impregnation/Passivation	11) Leak testing	12) Eddy current inspection	13) Heat Treatment/Annealing	14) Penetrant inspection	15) Vibration/Qualification test	16) Magnetic particle insp.		
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A2	<p>PHYSICAL AND CHEMICAL TEST REPORTS IDENTIFIED TO SPECIFIC LOTS</p> <p>When the applicable specification(s) establishes requirements for chemical and/or physical properties, Seller shall include with the packing sheet for each lot in each shipment, test reports, or copies thereof, which provide quantitative evidence that the materials shipped possess the chemical and/or physical properties required by the applicable specifications. Reports must provide, at a minimum the manufacturer's name, manufacturer's part number and the Buyer's Order number. In the case of raw aluminum alloys it is not necessary to report chemical analysis results provided the chemical properties are certified to be within the limits of the applicable specification(s).</p>
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A3	<p>CERTIFICATION OF CONFORMANCE TO SOURCE TRACEABILITY</p> <p>This Order provision requires Seller to submit a "Certificate of Conformance" attesting compliance as follows:</p> <p>MANUFACTURERS OR DISTRIBUTORS:</p> <p>QPL ITEM</p> <p>The Seller shall provide certification as required in the Buyer's procurement specification and/or military specification.</p> <p>DISTRIBUTORS ONLY:</p> <p>CONTROLLED SOURCE ITEM</p> <p>The Seller shall provide certification that the item(s) was manufactured by a source listed on the Buyer's procurement Specification.</p> <p>CONTROLLED SOURCE QPL ITEM</p> <p>The Seller shall provide certification as required in the Buyer's procurement specification and/or military specification, and certification the item was manufactured by a QPL source listed on the Buyer's specification.</p>
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A4	Requirements for Software Suppliers 074-8432-552
A5	Engineering Provision-1 EP-1 489-0073-001
A6	Quality Systems AS9100
A7	TBD
A8	TBD
A9	Requirements paragraphs 5.1 through 5.12 herein
A10	Requirement 5.12 herein