

# Compucraft Quality Requirements

Latest Revision – 7/14/2008

## SCOPE

The following sections of this document form the requirements for conducting business with Compucraft Industries, Inc.

This document serves as a supplement to existing requirements derived from end deliverable contractors, Primes, i.e. Boeing, Lockheed, Northrop Grumman, Vought, and Goodrich as examples.

## Contents

- Documentation
- Supplier Quality Performance and Delivery
- Calibration / Testing
- Record Retention
- Corrective Action
- Engineering Data Control
- Control of Special Processes
- Key Characteristics
- First Article Inspection
- Compucraft Returned Material
- Indication of Inspection Status
- Certified Supplier Quality Requirements

## **DOCUMENTATION**

This section details the supplier's obligations regarding the handling and delivery of required quality assurance documentation.

The supplier shall use the appropriate section of the matrix below to determine the necessary documents to supply with each shipment.

There are 6 different opportunities for material purchases Compucraft may require, blue print parts, special hardware i.e. BAC type fasteners, standard parts AN/MS type parts, chemicals, raw material and outside processing.

## Requirements:

Review the purchase order requirements and determine the appropriate category for the material delivered.

The blocks containing “**Deliver**” indicate that the noted documentation is to be delivered with the hardware. Deliver a copy and retain the original on file.

Blocks containing “**File**” indicate the documentation is to be maintained on file at the supplier’s facility. Retain documentation as required in the Record Retention section.

Documentation requirements specified within engineering specifications or special purchase order requirements shall supersede the requirements of this section.

## Raw Material Documentation Requirements

The following documentation must be created and maintained by suppliers delivering Raw materials / hardware. Deliver: Copy of the required documentation with the material / hardware.

Raw Material	Supplier	
Document type	Inspection at Compucraft	Drop Shipped
Material Certs.	Deliver	Send to Compucraft
Non Destructive Test	Deliver	Send to Compucraft
Inspect / Accept Report	Retain	File
Certification of Conformance	Deliver	Send to Compucraft
Shipping Document	Deliver	Send to Compucraft

## Build to Print Requirements

The following documentation must be created and maintained by suppliers delivering “**Build to Print**” hardware.

Deliver: Deliver a copy of the required documentation with the hardware.

Build To Print	Supplier	
Document type	Inspection at Compucraft	Drop Shipped
Material Certs	Deliver	Send to Compucraft
Non Destructive Test	Deliver	Send to Compucraft
Inspect Acceptance Report	Retain	File
Certificate of Conformance	Deliver	Send to Compucraft
Shipping Document	Deliver	Deliver to supplier shipped to
First Article Inspect Report	Deliver	Send to Compucraft
MRB Issues	Deliver	Send to Compucraft

## Standard Hardware Documentation Requirements

The following documentation must be created and maintained by suppliers delivering “**Standard Hardware**” hardware. Deliver: Deliver a copy of the required documentation with the hardware.

Document type	Inspection at Compucraft	Drop Shipped
Material Certs	Deliver	Send to Compucraft
Inspection Acceptance report	Deliver	Send to Compucraft
Certificate of Conformance	Retain	File
Shipping Document	Deliver	Send to Compucraft

Any entry on the supplier's documentation, which requires correction shall be lined through, initialed, and dated by the supplier, leaving the item in a readable condition.

EXAMPLE: ~~This is a correction.~~ JWS 9/5/03

**Note:** If the person deleting the item does not have an entire signature elsewhere on the document, an entire signature is needed. (Use of correction fluid/tape is not acceptable.)

### SUPPLIER QUALITY PERFORMANCE AND DELIVERY RATING

Quality performance is an assessment of the supplier's ability to meet Compucraft quality and delivery expectations. Quality performance is measured strictly on an accept vs. reject basis. The report is updated monthly and measures performance to date.

### RECORD RETENTION

All documentation (e.g., inspection records, contracts, purchase orders, process and material certifications, test reports, nonconforming material records) for materials supplied to Compucraft shall be retained and are not to be destroyed for a period of ten (10) years from the project completion date on Compucraft's purchase order, or with written approval from Compucraft's Quality Department.

### CALIBRATION / TESTING

Calibration / Testing suppliers must furnish calibration/test reports to the purchase order requirements. All equipment used as a transfer standard must be traceable to the National Institute of Standards and Technology (NIST) in accordance with the requirements contained in ISO 10012, ISO 9001:2000, ISO 17025, NADCAP testing, ANSI Z540, and/or NAVLAP, as applicable.

### CORRECTIVE ACTION

The supplier will be notified from Compucraft purchasing, of supplier non-conformances on Material Deficiency Report provided. If Corrective Action is required, the supplier will

receive a rejection notice with a specific due date for the Corrective Action to be completed by.

## **ENGINEERING DATA CONTROL**

Materials or parts shall be manufactured/processed to the material or process specification revision in effect at the time the manufacture/process commences. Material or parts may also be inspected to any subsequent revision to which the material or part conforms.

Any specifications or standards referenced or referred to in the documentation provided by Compucraft to Supplier will be provided to the Supplier upon request. Absence of Compucraft not providing reference documents does not absolve Supplier from compliance to said documents. Where Compucraft did not provide reference documents, Supplier shall ensure said reference document are of latest revisions. Any commercially available specifications or industry standards are expected to be seller's sole responsibility.

For Lockheed approved materials and processes ensure compliance to the EPS website requirements. To obtain access to the Lockheed website please follow the instructions noted below. This applies to already approved Lockheed suppliers.

1). The person requesting the account MUST be listed as a "contact" for their company in PQN. The Lockheed Buyer accomplishes this. Their email address is what the system matches on to create the accounts. This email address must match EXACTLY what they submit on their account request.

2). The person requesting the account must visit the LM Aeronautics Material Management website and obtain the "request for account" form. The form is found under "Quality Requirements", then "Corrective Action". The form should be filled out, printed, and faxed to the number on the bottom of the form.

For suppliers who are not Lockheed approved, Compucraft must be notified of any necessities or additional information that shall be required to adequately manufacture the part in compliance with Lockheed requirements.

Note: Be aware of the Lockheed specification changes. What is found on the drawing is not always the latest specification to affect the part. Reference Lockheed web-site for specification change history. If password availability is not available please notify Compucraft and the proper documentation will be supplied.

## **CONTROL OF SPECIAL PROCESSES**

Suppliers may only perform those special processes for which the supplier is listed in the Prime contractors approval list found in the website for which the parts are ultimately to be used. Use of listed sources does not relieve the supplier's responsibility for the quality of purchased materials and services. Qualification of a Supplier to perform a customer special process (e.g., BAC, DPS, RPS) requires prior customer approval.

## **KEY CHARACTERISTICS**

Supplier shall have a system supported by written procedures to systematically reduce variation of key characteristics. A system based on the Boeing Advanced Quality System (AQS) D1-9000 concept is the preferred way of reducing variation. Other systems such as GEAE S1000 may be used.

The supplier shall determine the most suitable system to achieve reduction in variation. The system may be key characteristic oriented, part oriented or process oriented. Attribute data or variable data may be utilized as appropriate. Supplier's process and documentation to reduce variation shall include, but is not limited to:

- a. Supplier's own identification of key characteristics.
- b. Collecting and maintaining appropriate SPC documentation such as control charts, process database, defects per unit (DPU), etc.
- c. Performing gage variation study (reproducibility & repeatability (R&R)) when appropriate.

The supplier shall have an SPC system approval prior to the acceptance of a purchase order in which key characteristics are identified.

When key characteristics are identified to the supplier on the engineering and/or purchase order, the supplier shall implement SPC procedures to the extent necessary to ensure that process variation and controls are properly measured and documented. Supplier must take corrective action on any processes that are not capable. ( $Cpk < = 1.33$ )

## **FIRST ARTICLE INSPECTION**

The requirements by which a supplier shall conduct a First Article Inspection (FAI). The supplier shall complete the Detail and Assembly FAI Record (Form No. AS9102) and Detail and Assembly FAI Record Supplement (Form No. AS9102), per the requirements listed herein.

Supplier F.A.I. forms may be used provided that all the requirements of AS9102 are met.

## **REQUIREMENTS**

All material shall be subject to a FAI at the point of manufacture, whenever one or more of the following conditions occur:

- a. The first parts are produced
- b. Engineering change affects the part
- c. Purchase order change affects the part
- d. Tool, pattern, or mold is changed, reworked or remade
- e. Processing techniques are changed
- f. Manufacturing methods are changed
- g. Manufacturing location is changed (as required by MQA)
- h. Previous FAI revealed a nonconformance

- i. As requested by Compucraft.

First article inspection shall be performed for all materials consumed within the supplier's deliverable end-item.

Industry, Government, customer standard parts (e.g., AN, NAS, MS, BAC, S700), supplier standard parts, metallic and non metallic raw materials consumed within an enditem may be accepted based on the original equipment manufacture's certificate of conformance, or FAI documentation.

The FAI document shall include:

- a. 100% of all dimensions, with actual results recorded

NOTE: All features verified using an approved Compucraft inspection tool shall be identified as such, and both the "should be" and "is" shall be recorded. The serial number of the tool shall be noted.

- b. All engineering notes
- c. All Bill of Material items
- d. Any planned deviations from engineering
- e. Material certifications or test reports
- f. Special process certification test reports

Parts that can be inspected by conventional means (calipers, height gages, CMM) will be inspected. Those parts or features of parts that cannot be inspected by conventional means will be inspected to tooling that has verification of acceptability to engineering requirements. Those features inspected using tools shall be noted on the FAI, including the tool type and serial number. Tools used to accept product shall be calibrated and traceable to NIST.

**Note:** Compucraft or its customer will maintain Inspection records of Customer supplied tools. If a FAI has already been performed, and one or more of the conditions listed above occurs, the updated FAI report shall consist of at least those characteristics affected by the changes.

## **FAI ON PARTIALLY-DIMENSIONED CATIA DRAWINGS**

This section details the requirements by which a supplier shall perform FAI on parts defined on partially dimensioned CATIA generated two-dimensional drawings. These requirements are in addition to those listed herein for conventionally dimensioned engineering drawings.

The supplier FAI shall provide evidence of trace ability to the dataset provided by Compucraft for those features that are inspected using data found only in the CAD model, e.g., surfaces and non-dimensioned elements.

CATIA drawings that have the note "For features not shown see electronic 3-D database", or words to that effect, will be considered "partially dimensioned" CATIA

drawings, and shall fall under the guidelines of this section. Similarly Compucraft Quality may identify dimensioned drawings that do not have this note as partially dimensioned CATIA drawings and the supplier will be notified by Compucraft that the following guidelines are in effect for that drawing.

- a. All "hard" dimensions identified on the 2-D drawing shall be included.
- b. For all features that are not explicitly dimensioned on the 2-D drawing, the FAI shall include actual recorded measurements for each of the features and identify by sketch, marked-up drawing, or similar graphical means where the measurements were taken.

The sketch or drawing mentioned in item (b) above should have inspection points identified so that an obvious correlation can be made between the inspection points and the measurements recorded on the FAI.

The supplier's FAI will ensure that every feature of the part is checked to ensure conformance to both the 2-D (paper) and 3-D (electronic data file) drawings, illustrated planning.

#### **COMPUCRAFT RETURNED MATERIAL**

The supplier shall maintain traceability of all materials returned to the supplier by Compucraft. Supplier shall rework or replace materials per Compucraft purchase order requirements (no repair may be performed without prior written authorization from Compucraft).

When these materials are returned to Compucraft, accompanying documentation shall meet the minimum requirements of the original purchase order and include notation on the packing slip that material is "Returned material from rework or replacement", as applicable.

In the event the supplier re-inspection does not verify reason for rejection, or returned material is found to be in conformance with original purchase order requirements, the supplier shall coordinate clarification with Compucraft Quality through Compucraft Purchasing before returning material in question. After clarification has been obtained, the material shall be returned with documentation noting "no work done".

#### **INDICATION OF INSPECTION STATUS**

Material shall be identified per the purchase order. Parts that do not have an adequate feature to attach a tag, or to apply a stamp, shall be individually packaged, unless otherwise directed by specification, with one visible tag per package.

The part marking, where applicable, will be applied on the tag. The supplier shall not apply an acceptance stamp to the product prior to shipment to Compucraft; final acceptance shall be based on a certification statement on suppliers C of C.

There is not a requirement on industry standards e.g., AN, MS, NAS etc., unless otherwise mandated by the purchase order or engineering drawing.

## **CERTIFIED SUPPLIER QUALITY REQUIREMENTS**

### *SCOPE*

This addendum defines supplier quality requirements for Certified Suppliers.

Designation as a certified supplier recognizes the supplier's capability for ensuring the quality of delivered product by use of documented systems, methods and controls. Certified Suppliers are eligible to appoint their own employees as Designated Supplier Quality Representatives (DSQR). DSQRs have the privilege of accepting hardware on behalf of Compucraft.

### *QUALIFICATION*

Certified suppliers are evaluated for Quality Performance over a twelve-month period. Suppliers are considered for certified status based on their Quality Performance Measurement (QPM) with a minimum score of 90 or by ratings achieved by their customer base.

Compucraft will evaluate the supplier's performance, and the current status of the supplier's Quality Management System to determine eligibility. Suppliers may request a certification eligibility review by contacting Compucraft QA or buyer.

### *SUPPLIER RESPONSIBILITIES*

A Designated Supplier Quality Representative (DSQR) is required to have an annual eye examination per the following requirements. The eye exam results can be mailed to Compucraft Ind. Inc. 8787 Olive Lane Santee Ca. 92154 or faxed to (619) 448-0766.

If copies of annual eye examinations are not received by Compucraft prior to their expiration date, Compucraft shall terminate the DSQR certification and recall the stamp.

Compucraft reserves the right to rescind the supplier certification at any time.

The DSQR shall be assigned to a function with authority to accept or reject materials and services.

The DSQR shall have experience, knowledge and sufficient training in inspection/acceptance techniques related to the type of product produced for Compucraft.

The DSQR must have training in the working methods and application of SPC.

The DSQR will be held responsible and accountable for the quality of the product and paperwork.

### *DSQR RESPONSIBILITIES*

The DSQR will be required to complete the Controlled Stamp Requisition and Agreement, Form No. 7938 for issuance of a DSQR acceptance stamp.

All stamps are traceable to the supplier and individual DSQR. No person, other than the individual assigned the stamp, shall use the DSQR Stamp.

The DSQR stamp will be affixed to all accompanying documents as required.

The DSQR will perform inspection adequate to assure compliance to engineering and purchase order requirements.

When a First Article Inspection is required, the DSQR will audit the First Article Inspection Report to assure that all requirements are met per the requirements above.

The DSQR shall indicate approval or disapproval of the First Article Inspection Report (FAI). If not approved, the DSQR shall indicate the reason for disapproval. Another first article on the next lot of parts is performed until an acceptable part is produced. Data related to nonconforming material shall be recorded on a Materiel Deficiency Report or non-conforming document used by the supplier and submitted to Compucraft for disposition.

Note: Compucraft does not hold MRB authority with any customers and would then have to submit that discrepancy to the end user for disposition.

### *IMPOSED INSPECTION*

Compucraft quality reserves the right to impose inspection on any Certified Supplier shipment.

### **RIGHT OF ENTRY**

Compucraft Industries Inc., Compucraft's customer's, relevant government agency and/or their designated representative reserves the right to conduct surveillance at seller's facility to determine item status, process conformity, and that seller's quality system meets Compucraft quality system requirements.

### **PACKAGING, CRATING AND SHIPPING**

The packing slip and invoice are the documents required for receipt/payment processing. In order to facilitate processing of the receipt and subsequent payment, the following information must be referenced on every pack slip:

- Suppliers name, address and phone number
- Compucraft purchase order number
- Date parts shipped
- Total quantity shipped and the quantity in each container
- Part number
- Description shown on the purchase order
- Bill of lading
- Legible pack slip number
- Multiple boxes with same pack slip must reference 1 of 3, 2 of 3, 3 of 3, etc.
- Pack slip required on the outside of #1 box and inside each individual box Unit of

- measure
- Sold to
- Certification data
- Rejection tag number if applicable.

## Forms:

FAI Form AS9102

Quality Compucraft Supplier Questionnaire

Corrective Action Form

## Prime Contractor Links:

Goodrich Boeing D1-4426

Northrop

Grumman

Lockheed