

# QinetiQ Supplier Quality Clause Guide

Document Number: 2010016461

Rev 5 06/08/23

# Purpose

1. Communicate expectations to Suppliers
2. Enhance Supplier understanding of Quality Clause requirements
3. Prevent rejections at QinetiQ Incoming Inspection

# Flow Down of Quality Clauses

- QinetiQ flows down Quality Clauses by listing discrete requirements on each purchase order line item
  - **It is imperative that the Supplier perform a robust contract review process of QinetiQ quality requirements to ensure all items are understood and incorporated at the beginning of the manufacturing process**

1	C	0401741445	1.00	(EA)	ASSEMBLY CABLE PSC W101
DPAS Rating: DO-A3					
Mfg Name / Part: /					
Job / Task #:		05DGAT.182083.PSC.MTL	Deliver by:		8/30/2021
Org. Code:		1.200.X641	Inspection Level:		FAB 1
Req ID / Line:		REQ-1820830606 / 1	Quality Clause(s):		GENERAL, J1, K1, K2, M1, P1, 300

- QinetiQ Quality Clauses flowed down on purchase orders consist of the following:
  - General Quality Clauses (A1-G2): Applied to all purchase orders and listed as “GENERAL”
  - Special Quality Clauses (H1-Z1): Specific to commodity and are listed as individual clauses. **In cases of conflict between Special and General Clauses, Special take precedence.**
  - GA-EMS Quality Clauses (201-303): General Atomics Quality Clauses listed as individual clauses
- Quality Clauses can be found here:
  - QinetiQ: <https://www.qinetiq.com/en-us/our-company/contracts-terms-and-supplier-quality-clauses>
  - GA-EMS: <https://www.ga.com/procurement/quality-assurance-requirements>

# Supplier Success is a QinetiQ Success

## Supplier Best Practices:

- Conduct a PO review to capture and understand all requirements prior to PO acceptance:
  - Ensure proper flow down of all requirements to sub-tier suppliers.
- When needed, engage QinetiQ:
  - Materials related questions/concerns are communicated to the Buyer for resolution.
  - Engineering clarification or alternative material requests can be submitted formally to QinetiQ on Supplier Deviation/Waiver Forms.
- Perform internal reviews of Objective Quality Evidence (OQE) documentation for conformance to all PO requirements prior to submission to QinetiQ-ARMS.
  - Submit OQE documentation in a timely manner through the proper channels.
  - Examples of OQE include:
    - Material Test Reports (MTRs),
    - Special Process Certifications (ex. Heat Treat Certs, Plating Certs, etc.)
    - Certifications of Conformance (CofC).
    - First Article Inspection (FAI), if applicable.

# General Quality Clauses

## B6. Documentation Legibility

- All documentation provided by the Supplier shall be legible at time of receipt and following scanning
  - All aspects of a document need to be legible, not just the portions we are verifying data from
- Any corrections made to records shall have a single cross out through the original text and be accompanied by initials of the authorized person making the change and dated
- Example of Scan not being clear:

\*Mercury Free Statement: This material was not knowingly exposed to mercury or mercury products while being processed at Hadco. \*No Weld Statement: This material was not welded while being processed at Hadco.  
We hereby do declare that to the best of our knowledge, ability and in earnest good faith,  
the material mentioned conforms to the specification above.

The above statements are made without prejudice and without liability on the part of Hadco Metal Trading Co., LLC

*[Signature]*  
Quality Assurance Hadco Metal Trading

Not clear and required rescanning of the document ↑

↓ All text is now legible after adjusting scanner settings

\*Mercury Free Statement: This material was not knowingly exposed to mercury or mercury products while being processed at Hadco. \*No Weld Statement: This material was not welded while being processed at Hadco.  
We hereby do declare that to the best of our knowledge, ability and in earnest good faith,  
the material mentioned conforms to the specification above.

The above statements are made without prejudice and without liability on the part of Hadco Metal Trading Co., LLC

*[Signature]*  
Quality Assurance Hadco Metal Trading

## B6. Documentation Legibility Continued

- Example of scan being clear, but handwriting is not legible

The "tail" of the two (2) makes the requirement appear to be 210, and not 20

Pull Test in lbs			
Requirements	Actual	Actual	Actual
210	31		
20	32		

This results now looks to be failing

## D2. Lot Date Codes

Lot Date Codes shall not exceed three years from date of receipt at QinetiQ. Lot Date Codes for individual piece parts used as part of an assembly for QinetiQ shall not exceed three years from date of assembly.

## D3. Electrostatic Discharge

- Appropriate handling and packaging is required for electrostatic sensitive material. The Supplier shall:
  - Have an ESD program in accordance with MIL-STD-1686, MIL-HDBK-263, ANSI/ESD-S20-20, or QinetiQ approved equivalent that provides protection of ESD sensitive devices during all phases of manufacture, test, storage and shipment.
  - Package ESD sensitive items in packaging materials specifically designed for use with ESD sensitive materials.
  - Label each package as “ESD SENSITIVE” (industry standard symbology is allowed).

## D5. Adhesives, Paints, Compounds, Raw Materials, Liquids, Thermal Insulating Fabrics

- The following documentation is required with the deliverable:
  - Date of manufacture
  - Shelf life / expiration date
  - Certificate of Conformance
  - Special storage and handling requirements, if applicable on package or container

## D6. Foreign Object Control

- A. The Supplier shall maintain a FOD Prevention Program: Whenever or wherever FOD (such as solder splashes, stripped insulation sleeving, metal shavings, paperclips, etc.) can be entrapped or migrate, sufficient FOD Controls shall be in place to prevent FOD from entering into the product.
- B. Prior to closing inaccessible or obscured areas and compartments during assembly, the Supplier shall inspect for FOD/Materials and ensure no protective devices (e.g., bags, caps, covers and plugs) remain embedded.
- C. Supplier shall ensure any tooling, jigs, fixtures and test or handling equipment are maintained in a state of cleanliness and repair sufficient to prevent FOD.
- D. If FOD prevention includes the use of dust caps on cable assemblies or supplied connectors, do NOT use Yellow colored dust caps unless yellow is specifically required on the drawing.

## D7. IPC Certification and Workmanship, Class 2

- Printed circuit boards, Electronic Assemblies, and Cable and Wire Harness Assemblies shall be built using J-STD and IPC **certified** personnel.
- Unless otherwise stated on the drawing or purchase order:
  - Soldering shall be performed by personnel certified to J-STD-001.
  - Printed Circuit boards shall have workmanship in compliance with IPC-6011 or IPC-6012, IPC-A-600 as applicable, Class 2 – Acceptability of Printed Boards
  - Electronic Assemblies shall have workmanship in compliance with IPC-A-610, Class 2 – Acceptability of Electronic Assemblies
  - Cable Assemblies shall have workmanship in compliance with IPC/WHMA-A- 620, Class 2 – Requirements and Acceptance for Cable and Wire Harness Assemblies

## D9. Counterfeit Part Mitigation

The Supplier shall have a formal program for the prevention of Counterfeit Parts being used in QinetiQ product. Report Possible or Confirmed issues to QinetiQ as soon as identified.

- **NOTE: Reference DFARS 252.246-7007 for requirements and guidance.**

## F1. Workmanship

Unless otherwise specified, material shall be free of pits, cracks, dents, scratches, burrs, sharp edges, foreign matter, or any other evidence of poor workmanship that shall render the unit unsuitable for its intended use.

## G1. Purchase Order Changes

- Once the PO is accepted, any supplier initiated change requests shall be initiated via e-mail to the buyer.
- QinetiQ initiated changes shall be communicated to the Supplier via a purchase order revision.
- At no time should the Supplier implement changes communicated by anybody from QinetiQ other than the buyer.
- Updated purchase orders are the only approved method for communicating changes to product. The Supplier shall not rely on verbal instructions, email or any other communication method to implement changes to QinetiQ specified product.
- Any implementation without the updated Purchase Order is at the Supplier's risk and QinetiQ inspection will reject any changes that are not documented on the latest revision of the Purchase Order.



# Specialty

# H1. QinetiQ Source Inspection / Shipment Pre-Approval

## Clause

QinetiQ Source Inspection / Shipment Pre-Approval is required prior to shipment from your plant. This may be an on-site source inspection or may involve a review of all supporting quality documentation prior to shipment.

- QinetiQ buyer shall be notified a minimum of one week in advance of the time the materials are ready for review.
- Supplier shall submit all supporting documentation, per the drawing and Purchase Order requirements. Documentation shall be electronically submitted to the Buyer. Documentation shall be submitted immediately after source inspection notification.
- Supplier shall have all inspection tools required for inspection available at time of source inspection.

## Notes

- On site inspection at supplier will require at least one QA Engineer, and the potential for a Mechanical and/or Electrical Engineer
- Support documentation per QinetiQ quality clauses shall be submitted after source inspection notification

## H4. QinetiQ - Authorization To Build

### Clause

Supplier is required to obtain "Authorization to Build" from the Buyer before starting production. Supplier is authorized to procure material however production shall not start until authorized by the Buyer in writing. Supplier shall submit defined pre-production deliverables to the Buyer for ATB consideration. The Quality Department will review documents and, if acceptable, notify the buyer to provide authorization to the Supplier to begin production.

### Notes

- Supplier must submit a copy of Material certification to QinetiQ prior to manufacturing part.
- Previous experience shows we received many parts with the wrong material certs
- Buyer will provide "Authorization to Build" following QinetiQ review and acceptance of material certs

## H6. CRITICAL SAFETY ITEMS/CRITICAL APPLICATION ITEMS

### Clause

All attributes/characteristics identified on the design documents as a critical or major characteristic require 100% inspection, by Supplier with actual inspection results of each characteristic recorded, documented, and provided with the shipment. Inspection sampling quantity is per line item quantity, not PO quantity, unless the full PO is produced in the same production lot. Provide documentation supporting 'same production' lot justification upon determination of production plan.

### Notes

- Supplier must perform 100% Inspection of all attributes and characteristics identified on the design documents as Critical or Major
- QinetiQ reserves the right to witness this inspection
- Supplier will document and record all the results plus make it available to QinetiQ upon request

## H7. CRITICAL SAFETY ITEMS - PROCESS AND OPERATION SHEETS

### Clause

The Supplier shall submit Process and Operation Sheets to Buyer for approval prior to the start of manufacturing. The Process and Operations Sheets shall identify a detailed step-by-step account of the procedures necessary in the proper sequence to manufacture the CSI. The Process and Operation Sheets must indicate operation number, description, tolerance (specification), location, and sub tier Suppliers, etc., necessary to control manufacturing operations. After Buyer's approval of the process and operations sheets, the Supplier shall complete the Process and Operations Sheets and have them be signed /stamped off by an in-process operator and/or inspector and delivered with the shipment of the item(s). Process and Operation Sheets may also include the Inspection Method Sheets noted in Clause H8.

### Notes

- The process and operation sheets shall identify a detailed step-by-step account of the procedures necessary, in the proper sequence, to manufacture the Critical Safety Item (CSI).
  - The process and operation sheets must indicate:
    - Operation number
    - Description
    - Tolerance (specification), location.
    - Sub-tier suppliers, etc., necessary to control manufacturing operations.

## H8. CRITICAL SAFETY ITEMS - INSPECTION METHOD SHEETS

### Clause

The Supplier shall submit Inspection Method Sheets to the Buyer for approval by Buyer prior to start of manufacturing. The Inspection Method Sheets shall identify the CSI characteristics to be inspected, special instructions, item, drawing zone, acceptability limits, inspection tooling/method, and frequency. The completed Inspection Method Sheets shall have the actual inspection results recorded with inspector's stamp/signature and date. Inspection Method Sheets may be included as an integral part of the Process and Operation Sheets noted in Clause H7.

### Notes

- The inspection method sheets shall identify:
  - The CSI characteristics (including minors) to be inspected
  - Special instructions
  - Item
  - Drawing zone
  - Acceptability limits
  - Inspection tooling/method, and frequency.

## H9. CRITICAL SAFETY ITEMS - MATERIAL IDENTIFICATION CODE MARK

### Clause

The Order is for the procurement of articles with CAI/CSI characteristics that require MIC Marking. The Supplier will submit all CSI documentation associated with the identified CSI feature to the Buyer for review and acceptance. The Buyer will review the applicable data package and upon acceptance issue the MIC Mark (s).

The MIC mark(s) will be in the form of QA-XX-XXXXX. The MIC mark(s) shall be located near, and in the method of part marking indicated on the applicable drawing (except when ink stamp and stencil are specified which for the purposes of traceability are not considered permanent). In these cases the MIC mark shall be metal stamp, laser etch, vibro-etch, or chemical etch (unless the use of such marking methods will cause damage to the functionality of the part). Deviation from any of these methods shall require prior Buyer approval. Application of the MIC marking will be verified by the designated Government representative.

### Notes

- The MIC marking(s) applied to the individual parts must also be identified on all associated documentation.

## H10. CRITICAL SAFETY ITEMS - INSPECTION FOR CRITICAL APPLICATION ITEMS INCLUDING CRITICAL SAFETY ITEMS

### Clause

All CAIs and CSIs shall undergo Critical/Major characteristics inspection, and as noted on design documents, non-destructive inspections to verify CAI or CSI items are within specifications. Actual inspection result for all Critical or Major characteristic's will be recorded by serialized part number, and shall be included in each document package. The Supplier shall perform quality conformance and lot sampling inspections for all associated features and characteristics that are present in the drawings and specifications. The inspection results (actual readings and/or measurements) will be recorded on the Supplier's CSI inspection and Material Certification reports. Features/attributes/requirements classified as Critical and Major on the drawing(s) or within the technical specification will be inspected 100%. Unless otherwise specified, attributes for plating, hardness, and NDT shall be inspected 100%. Class 3 threads, dimensions, and geometric feature controls with a tolerance range of .010 in. or less will be inspected using an AQL of 1.0 and the General Inspection Level II as defined by ANSI/ASQ Z1.4. All minor characteristics shall be inspected using an AQL of 4.0 and the General Inspection Level II as defined by ANSI/ASQ Z1.4.

## J1. Certification of Conformance (CoC)

### Clause

- Supplier shall submit a CoC that includes the following information at a minimum:
  - Conformance statement that product shipped complies with all requirements of the PO, drawings, and specifications.
  - The words “Certification of Conformance” or “CoC” clearly visible on the certificate.
  - Supplier’s name and address
  - Manufacturer’s name and address (If different than Supplier)
  - Purchase order number, order part number, revision level, and quantity shipped.
  - Serial number(s) for serialized article(s)
  - Lot number(s) for lot controlled article(s)
  - Printed name, date, signature or stamp, and title of Supplier’s authorized representative signing the CoC.
  - Applicable deviations and waivers
- If Supplier is an authorized distributor of deliverable material, CofC shall additionally confirm that the supplier is authorized for the Parts and the Parts were procured directly from the Manufacturer or a Manufacturer’s Authorized Supplier, and documented evidence of traceability is on file. In addition to the previous requirements, the CofC shall include the following information:
  - Manufacturer’s part number
  - Country of Origin

### Notes

- QinetiQ will not accept CofC unless all items listed to the left are included (as applicable)
- Common cause for rejection is serial number and deviations/waivers missing

## J4. Limited Shelf Life Items – For ‘Pass Through Material’

### Clause

- Materials furnished on this PO are age-sensitive. Age-sensitive material must have at least 80% of the shelf life remaining upon receipt at QinetiQ. The Supplier shall provide the following on the supplied certificate of conformance or additional certification:
  - Material cure date/date of manufacture or method of determining start of shelf life
  - Expiration date or calculation of expiration date
  - Note any special storage and handling requirements, if applicable on package or container
  - Printed name, date, signature or stamp, and title of Supplier’s authorized representative signing the certification

### Notes

- NOTE: This clause applies to bulk product only (e.g., paint, chemicals, adhesives, materials with adhesive backing) this does not apply to shelf life of items installed in delivered assemblies. For adhesive backing) this does not apply to shelf life of items installed in delivered assemblies. For delivered assemblies that have shelf life controlled product in them refer to Standard Clause D5.

## J5. Process and Special Process Certifications

### Clause

- Processes that require certification include but are not limited to conformal coating, EMI coating, painting, and powder coating.
- Special processes include, but are not limited to plating, coating, passivation, and heat treating.
- With each shipment of line items that requires special processing has been performed, the Supplier shall include certification stating that the process performed complied with an identified industry specification.
- Heat treat certifications shall be accompanied by time/temperature charts and a summary description of the heat treat time and temperature data indicating the furnace and heat treat lot number. The Certification shall state the name of the processor, date of processing, and the printed or typed name and signature of the responsible representative of the processor.
- All Process Certifications verifying conformance to the drawing requirements shall be submitted with each Order line item shipment. At a minimum, the Process Certification shall include a traceable order number, the part/drawing number, part/drawing number revision, the name and location of the processor, quantity of parts processed and the process being performed (must match drawing note including the specification, class, type and color where applicable).

### Notes

Examples of common issues on next slides

## J5. Process and Special Process Certifications (cont.)

- Example of a cert missing drawing information:

Drawing note requires FED-STD-595

2. FINISH: CHEMICAL CONVERSION COATING PER MIL-C-5541 CLASS 3. PRIME PER MIL-P-23377 TYPE I AND PAINT EXTERIOR SURFACES USING EPOXY PAINT COLOR NUMBER 26307 PER FED-STD-595. MASK INDICATED AREAS AND ALL TAPPED HOLES AND BORED HOLES PRIOR TO PAINTING.

That 4 pieces of part # 0401742221 have been processed to  
cleaned per TT-C-490 method 2  
primed per Mil-PRF-23377 type 1 batch: 130666 exp: 7-21  
paint per epoxy paint per F.S. #26307 batch: 128517 exp: 5-21

Original cert is missing "595"

That 4 pieces of part # 0401742221 have been processed to the fo  
cleaned per TT-C-490 method 2  
primed per Mil-PRF-23377 type 1 batch: 130666 exp: 7-21  
paint per epoxy paint per F.S. 595 #26307 batch: 128517 exp: 5-21

Updated cert includes "595"

## J5. Process and Special Process Certifications (cont.)

- Example of a common issue with certs from Key Supplier:

**We hereby certify that the finish applied on the following part number: 0401742219 was applied in accordance to the following spec:**  
*CHEMICAL CONVERSION COAT PER MIL-DTL-5541 / CLASS 3 / TYPE 1*

**Quantity: 5**  
**Number of Tests: 2**

First Test: 0.00000  
Second Test: 0.00000  
Third Test: 0.00000  
Fourth Test: 0.00000  
Fifth Test: 0.00000

Average Thickness: NA  
Minimum Thickness: 0.00000  
Maximum Thickness: 0.00000

Purchase Order #: 90011

**We hereby certify that the finish applied on the following part number: 0401742219 was applied in accordance to the following spec:**  
*CHEMICAL CONVERSION COAT PER MIL-DTL-5541 / CLASS 3 / TYPE 1*

**Quantity: 5**  
**Number of Tests: 0**

First Test: 0.00000  
Second Test: 0.00000  
Third Test: 0.00000  
Fourth Test: 0.00000  
Fifth Test: 0.00000

Average Thickness: NA  
Minimum Thickness: 0.00000  
Maximum Thickness: 0.00000

Purchase Order #: 90011

Original cert shows 2 tests were completed, but the results are all null

Updated cert now shows that 0 tests were completed, so the results being null makes sense

## J6. IPC Certification and Workmanship

*Formally 295/295a for PCBs*

### Clause

- Printed circuit boards, assemblies, and cables shall be built using J-STD and IPC certified personnel and workmanship shall comply with all necessary requirements.
- Unless otherwise stated on the drawing or purchase order:
  - Soldering shall be performed by personnel certified to J-STD-001.
  - Printed circuit boards (PCBs) shall comply with IPC-6011 Class 3 and IPC-6012 Class 3. PCBs with more than two (2) layers shall be net list tested and documentation of net list shall be provided. Coupons and/or cross-section coupons shall be available and provided upon request.
  - Flexible/rigid-flexible PCBs shall comply with IPC-6011 Class 3 and IPC-6013 Class 3. PCBs with more than two (2) layers shall be net list tested and documentation of net list shall be provided. Coupons and/or cross-section coupons shall be available and provided upon request.
  - Electronic Assemblies shall have workmanship in compliance with IPC-A-610, Class 3 – Acceptability of Electronic Assemblies
  - Cable Assemblies shall have workmanship in compliance with IPC/WHMA-A-620, Class 3 – Requirements and Acceptance for Cable and Wire Harness Assemblies. A report shall be submitted for testing to each of the applicable requirements in the standard.

### Notes

- For applicable IPC standards, Class III must be met
- Personnel built and inspecting material shall be certified to the applicable standards
- Next slides show additional details of acceptable documentation

# J6. IPC Certification and Workmanship (cont.)

Formally 295/295a for PCBs

- Certification of Net List Testing is required for PCBs. Two examples of acceptable reports are below:

**Certificate of Electrical Test**

\_\_\_\_\_ hereby certifies that the 6 pieces of Part Number **A34751** Revision **E** on your Purchase Order Number **302313-00**, with the following date codes:

Quantity	Date Code
6	20-40

Have been electrically tested using the following test parameters:

Test Parameters	
Specification Class:	IPC-6012 Class 3
≥ 150 VDC	Leakage Test Voltage
≥ 10.0 MΩ	Isolation Resistance
10.0 Ω	Maximum Continuity Resistance
Adjacency	0.050 In min per IPC-9252B

Sincerely,  
\_\_\_\_\_  
\_\_\_\_\_  
Director of Quality

**CERTIFICATE OF COMPLIANCE**

Customer Name	_____	File No.	E52131
Part No.	3890AS004305-01-RAW-BD / C	MO No.	228771-001
PO No.	101-QQ-470	QTY SHIPPED	4
		AQL QTY	3
Date Code	45-20	Qty.	4
Date Code		Qty.	
Date Code		Qty.	

\_\_\_\_\_ UL File Number E75394

- 1 ALL PCBs SHIPPED COMPLY WITH PURCHASING SPECIFICATIONS AND/OR DRAWINGS.
- 2 BOARDS ARE FABRICATED AND ACCEPTED IN ACCORDANCE WITH IPC-6011 AND IPC-6012 CLASS 3
- 3 LAMINATE AND PREPREG USED IN FABRICATION ARE IN COMPLIANCE WITH IPC-4101
- 4 **ALL FINISHED BOARDS HAVE BEEN 100% ELECTRICALLY TESTED TO SUPPLIED NETLIST OR GEBER EXTRACTED NETLIST AND PASSED.**
- 5 FINISHED BOARDS MEET ALL REQUIREMENTS OF UL 796, AND FLAMMABILITY RATINGS 94V-0 UL File Number E75394
- 6 ALL PCBs MANUFACTURED AT OUR \_\_\_\_\_ Facility
- 7 REACH DECLARATION: SUBMITTED PARTS MEET THE ECHA REACH requirements for all substances of very high concern (SVHC).
- 8 RoHS DECLARATION: SUBMITTED PARTS MEET THE European Union Directives 2002/95/EC (RoHS 1), 2011/65/EU (RoHS 2) and 2015/863/EU (RoHS 3).

**Material Lot Number 16190261**

## J6. IPC Certification and Workmanship (cont.)

Formally 295/295a for PCBs

- Cable test reports are required to list pass/fail criteria and the specification being tested to IAW QC K2

**Work Order Inspection Summary**

Termination No.	Pass/Fail	IL (db)
M144955-001-J4-1-TX3	Pass	0.07
M144955-001-J4-2-TX4	Pass	0.21
M144955-001-TX3-J4-1	Pass	0.14
M144955-001-TX4-J4-2	Pass	0.27
Selected Records: 4	"Count"	4
Total Records:	"Average"	0.173
	"Min"	0.070
	"Max"	0.270
	"StDev"	0.087

Report does not list pass/fail criteria or the specification the test is being conducted against

**M28876 Assembly Performance Results**

**Test Specification: MIL-STD-2042-6**

Page: 1 of 1      Drawing Number: 0401741515      Rev: G  
 Date: 16-Nov-20      FIS Blue Order #: 00009577  
 Customer: QinetiQ North America      Tested By: TG  
 QinetiQ PO #: VAL-003945      Pass/Fail Criteria: Max 0.75dB loss (Singlemode or Multimode)

**Cable Assembly Description:** Duplex Shipboard 62.5um Cable, LC -to- Mil-Spec ST, 4x Duplex sets at multiple lengths (+2" / - 0")

Below are the test results of all fiber optic assemblies pertaining to the above order number. All tests are performed using industry accepted standards and are quality control inspected to ensure required specifications are met on each product manufactured.

Serial Number: VAL-003945-9577-06	Wavelength: 1300nm	OPTICAL LOSS, dB							
		1	2	3	4	5	6	7	8
<b>Side A / Inside Leg</b>		J7A5-RX	J7A5-TX	J8A5-RX	J8A5-TX	J9A5-RX	J9A5-TX	J10A5-RX	J10A5-TX
LC (P1)		0.23	0.11	0.24	0.26	0.20	0.16	0.20	0.10
<b>Side B / Outside Leg</b>		FPP-1	FPP-21	FPP-2	FPP-22	FPP-3	FPP-23	FPP-4	FPP-24
ST (P2)		0.22	0.09	0.22	0.28	0.17	0.14	0.19	0.11

Report does list pass/fail criteria or the specification the test is being conducted against

## J7. Material Test Reports/Certification – Chemical and Physical Properties

### Clause

The Supplier shall provide to QinetiQ MTRs along with a certification by the mill or testing house that performed the tests certifying compliance to specified standards. The MTRs shall provide both chemical and physical properties that include lot/heat/melt number and actual inspection and test values. Any subsequent heat treatment processes shall require test reports and certifications from the testing house which shall include physical properties for the as-delivered condition. All MTRs shall include the printed name, signature, authority or title and shall be dated Supplier. Complete material traceability shall be maintained throughout the manufacturing processes with appropriate records maintained. Traceability records shall be available for review by QinetiQ, when requested. Part number shall be recorded on all MTRs. For Supplier proprietary materials, a CoC from the material supplier attesting the material meets its specification is acceptable.

### Notes

- Material certifications shall include both chemical and physical properties including lot/heat/melt number
- Include name, signature, title and dated
- Must be legible and capable of being reproduced for electronic storage
- If there are multiple certs for different part numbers, please note the applicable part number somewhere on the document

## J8. Certification of Fiber Cables

### Clause

- Workmanship for items delivered under on the Order shall comply with the requirements of IPC-D-640 Class 3 Requirements and Acceptance for Cable and Wire Harness Assemblies and/or MIL-STD-2042 Fiber Optic Topology Installation, unless otherwise specified on drawing, and shall meet the requirements specified on the assembly drawing.
- A report shall be submitted for testing to each of the applicable requirements in the standard.
- Unless otherwise stated on the drawing or purchase order: Fiber Cables shall be certified to Telcordia GR326 specification.

## J10. Country of Origin

### Clause

- This product requires that the country of origin must be identified and readily apparent upon receipt by QinetiQ. For example, a statement provided in the CoC, Packing Slip or other provided documentation.

## J13. Qualified Products List

*Formally 300 for PCBs & Cable Assemblies*

### Clause

- When the items delivered are required to be Qualified Parts List (QPL)/Qualified Manufacturers List (QML) parts, the following shall apply:
  1. Seller shall submit a certification identifying the supplier/original equipment manufacturer (OEM) of the material described herein has been granted qualification by the Qualifying Activity in accordance with the applicable military specification.
  2. The inclusion of products from the QPL shall not relieve Seller of its responsibility for providing items, that meet all specification requirements, or for performing the qualification, inspections, and tests specified for such items.
  3. Mil-Spec parts shall not be altered.

### Notes

- Qualified Parts Database can be accessed at the following link:  
<https://qpldocs.dla.mil/>
- Excel template below can be used to record information required to meet the clause:



QC 300 Template

## K2. Test Reports

### Clause

Articles on this PO require electrical, mechanical, environmental, functional, or other tests in accordance with either Supplier, QinetiQ, or Government specifications. Supplier shall furnish test reports containing at a minimum:

- QinetiQ Purchase Order Number
- Drawing/part number and revision (if known)
- Test specification description, number and revision as applicable
- Number of units tested
- Serial numbers of units tested as applicable
- Test requirement including the criteria for pass/fail
- Quantitative test results shall be used whenever possible
- Test/inspection stamp of the individual performing the task, or the printed/typed name, signature, title of the authorized representative test and date

## K9. Welding Requirements for Procedures, Repairs, and Material Records

### Clause

#### A. Weld Procedures

Weld procedures and personnel performing the welding shall be qualified in accordance with the requirements of the specification identified on the engineering drawing and/or Statement of Work, as applicable. Supplier shall provide, for review and approval by QinetiQ, copies of all weld procedures, weld procedure qualification records, and welder performance qualification records to be used in performance of the Order as part of the quote. Where the above needs to be developed, the Supplier shall inform the Buyer in writing.

#### B. Weld Repairs

Weld repair procedures for the removal or repair of material defects or weld metal defects shall be reviewed and approved by QinetiQ prior to making such repairs. Weld repair procedures shall be written as detailed instructions and as a minimum shall include:

- Method of removal of weld or base metal.
- Method used to ensure defect removal (MT or PT).
- Method for the re-welding, using qualified welders with an approved WPS (if different from the original).
- Extent, location and depth of the excavation shall be documented on an inspection report.

The re-welded area shall be re-examined and documented by the methods used for the examination of the original weld.

## K9. Welding Requirements for Procedures, Repairs, and Material Records (cont.)

### Clause

#### C. Weld Material Records

Weld filler materials shall be certified to the applicable specification and contain the manufactures certification or CoC with results of the chemical and mechanical tests identifiable to the specification or drawing and to the lot of material supplied.

## K10. Non-destructive Examination Requirements (all sections applicable)

### Clause

Supplier shall provide, for review and approval by QinetiQ, copies of NDE procedures and qualification records to be used in performance of the Order as part of the quote. Where the above needs to be developed, the Supplier shall inform the Buyer in writing.

#### A. Procedures

All nondestructive examinations, LT, MPT, LPT, RT, Ultrasonic, and VT shall be performed in accordance with detailed written procedures that meet the requirements of the applicable specifications called out on the drawings:

1. An NDE procedure and for each NDE method utilized (including a blank report form)
2. A Part Specific Inspection Method/Technique Sheets for LT, MPT, LPT, RT, and UT shall be submitted to Buyer for review and approval for each part to be inspected. Technique Sheets are not required for Visual Inspection of Welds. Revisions to Technique Sheets are not required unless a revision to the drawing or ECN changes the NDT requirements. All documents shall be submitted for review and approval by QinetiQ prior to use.

#### B. Personnel Qualifications

All nondestructive examination processes shall be performed and interpreted by personnel qualified/certified in accordance with a Written Practice developed by the Supplier to the requirements of SNT-TC-1A or equivalent. The recommended practices of SNT-TC-1A are mandatory as modified by specifications. The Supplier shall provide for review and approval by QinetiQ:

1. The Supplier's Written Practice
2. The NDE personnel certification and qualification records

## K10. Non-destructive Examination Requirements (all sections applicable), cont.

### Clause

#### C. Nondestructive Examination Reports

With each shipment of a line item(s), the Supplier shall submit nondestructive examination reports, which shall include:

- Company name
- The part/drawing numbers, revision (if known).
- Item serial numbers, quantity, lot number, heat number, or other appropriate identification (if applicable)
- NDE Procedure number and revision.
- The approved Part Specific Inspection Method/Technique number
- The method used
- Equipment and materials used
- Acceptance Criteria
- Date of Examination
- The test results
- Weld Map and/or Data Sheet (if used)
- The printed name, signature and NDE certification level of persons performing the test on each page
- The printed name, signature and NDE certification level of persons approving the test results
- Indication of acceptance by QinetiQ, if applicable (If QinetiQ witnessed the testing)
- All pages shall be numbered

## K10. Non-destructive Examination Requirements (all sections applicable), cont.

### Clause

#### D. Visual Inspection of Welds

All welds shall be visually inspected per drawing/specification requirements.

#### E. Low Halogen Penetrant Materials

Additional requirements; when liquid penetrant materials having low halogen content are required, the test report shall include the material manufacturer's lot/batch number used and a certification of chemical analysis showing the actual halogen content for the applicable lot/batch.

# M1. First Article Inspection Report (FAIR)

## Clause

The Supplier shall:

- Provide a FAIR in accordance with AS9102 Aerospace First Article Inspection Requirements. o QinetiQ reserves the right to witness the FAI at the Supplier's facility
- If the FAIR is on an assembly, include FAIRs for all lower level parts/subassemblies in the assembly
- COTS items that are modified must have a FAIR
- Provide a partial FAIR on revisions to a QinetiQ drawing or change in production process as prescribed in AS9102
- An FAIR is not required for CFM components but they should be listed on Form 1 if included in the assembly.
- A FAIR is required to be performed if there has been a lapse in production of two years per AS9102 requirements
- Be aware that QinetiQ recognizes that these FAIRs may occur on pre-production parts
  - QinetiQ may require a delta FAIR post implementation of production tooling and equipment
- Submit FAIRs to QinetiQ on AS9102 report forms 1,2 and 3
  - Use reports forms from current revision of AS9102
  - Use of forms other than those depicted in Appendix B of AS9102 may be used; however, they shall contain all "Required" and "Conditionally Required" information and have the same field reference numbers.
  - Contact QinetiQ Quality department if access to the SAE standard forms is needed.

## Notes

- Once a FAIR is completed, any re-order of the part at the same configuration level by the same Supplier and per the same process does not require performing another FAIR, the original (or current approved) report shall be provided. The intent of this clause being called out on the PO is to serve as a reminder that the particular Contact QinetiQ Quality department if access to the SAE standard forms is needed.
- FAI includes 100% verification of drawing dimensions and notes

# M1. First Article Inspection Report

Things to look for:

- There **should never** be reference to an e-mail for approval to deviate or not complete part of the FAIR

Characteristics / Accountability				Inspection /
5. Char No.	6. Reference Location	7. Char Desig	8. Requirement	9. Results
25	S1-F8	MINOR	.38	N/A DOES NOT APPLY PER E-MAIL

- Arrows **should not** be used to show things apply to multiple lines

Line #	Dim:	Tol:
1	R.25	±.010
2	R.13	
3	.38	
4	R.06	
5	3.00	
6	2.25	↓

- For multiplies you should either see a range, or discrete values for each item. **One value should not be listed**

# M1. First Article Inspection Report (cont.)

Things to look for continued:

- Tooling is required to be listed for dimensional results

1. Part Number 0401741444			2. Part Name Cable Assembly		
Characteristic Accountability				Inspection / Test R	
5. Char No.	6. Reference Location	7. Characteristic Designator	8. Requirement	9. Results	10. Designed /Qualified Tooling
1	NOTE 1		TERMINATE MIL-PRF-28876 CONNECTORS IAW MIL-STD-2042B-5 PER NOTE 1	COMPLY	
2	NOTE 2		TERMINATE ST CONNECTORS IAW MIL-STD-2042B-5 PER NOTE 2	COMPLY	
3	NOTE 3		IDENTIFY CABLE WITH THE APPROPRIATE ASSEMBLY NUMBER, W104 AND FSCM 30233 IAW MIL-STD-130M PER NOTE 3	COMPLY	
4	NOTE 4		IDENTIFY CABLE ENDS WITH REFERENCE DESIGNATOR PER NOTE 4	COMPLY	
5	NOTE 5		TEST COMPLETED ASSEMBLY FOR OPTICAL LOSS PER MIL-STD-2042B PER NOTE 5	COMPLY	
6	NOTE 6		IDENTIFY FIBER WITH APPROPRIATE NUMBER SHOWN ON SHEET 2 PER NOTE 6	COMPLY	
7	SHEET 1 A-5 SHEET 2 D5		18.0" +2.0 / -0.0"	19.875" ACCEPT	

1. Part Number: 0401741443			2. Part Name: CABLE ASSY, PSB W103		
Characteristic Accountability				Inspection	
5. Char No.	6. Reference Location	7. Characteristic Designator	8. Requirement	9. Results	10. Design / Qualified Tooling
1	D8	NOTE 1	TERMINATE MIL-STD-38999 CONNECTORS IAW MANUFACTURERS INSTRUCTIONS.	CONFORMS	N/A
2	D8	NOTE 2	TERMINATE RING TERMINALS IAW MANUFACTURERS INSTRUCTIONS.	CONFORMS	N/A
3	D8	NOTE 3	IDENTIFY CABLE WITH APPROPRIATE ASSEMBLY NUMBER, W103 AND FSCM 30233 IAW MIL-STD-130M.	CONFORMS	N/A
4	D8	NOTE 4	IDENTIFY CABLE ENDS WITH REFERENCE DESIGNATOR.	CONFORMS	N/A
5	D8	NOTE 5	USING AUTOMATED TEST EQUIPMENT (ATE) CONDUCT DIELECTRIC WITH STAND VOLTAGE (DWV), INSULATION RESISTANCE (IR) AND CONDUCTIVITY TESTS.	CONFORMS	N/A
6	D8	NOTE 6	IDENTIFY WITH APPROPRIATE WIRE NUMBER	CONFORMS	N/A
7	C8	NOTE 7	REMOVE CABLE JACKET TO EXPOSE 2" OF FREE CONDUCTORS.	CONFORMS	N/A
8	D5	N/A	12" (+2/-0)"	12-1/2"	N/A
9	D5	N/A	12" (+2/-0)"	12-1/2"	N/A
10	D7	LABEL	J1	CONFORMS	N/A
11	D7	LABEL	TB1-1	CONFORMS	N/A
12	D7	LABEL	TB1-2	CONFORMS	N/A
13	PAGE 3	N/A	MATERIALS PER BOM AS DOCUMENTED ON DRAWING	CONFORMS	N/A

The signature indicates that all characteristics are accounted for; meet drawing requirements or are pro

Tooling is not listed for the length dimension measured

QINETIQ