CFD Research Corporation

Prevention of Counterfeit Product Process

APPROVAL

Department Point of Contact	Department	Date
Corporate Quality	**Operations**	**1/25/2024**

Table of Contents

1. Purpose

The purpose of this process is to protect CFD Research Corporation, herein known as CFD Research, its supply chain, and the customer from the infiltration of counterfeit or suspect counterfeit products. These products include but are not limited to electrical, electronic, electromechanical, and mechanical products and software applications.

2. Scope

This process applies to the purchasing of electrical, electronic, and electromechanical materials, such as raw materials, hardware, fasteners, bearings, castings, and consumables, herein known as "products."

External providers are required to purchase products from an original equipment manufacturer (OEM), original component manufacturer (OCM), or authorized distributor for the OEM or OCM. The OEM and OCM are exclusive sources, unless otherwise directed by contract, for all products delivered or drop shipped to a subcontractor for CFD Research. All records related to these items must be maintained and retained to include Certification of Conformances (C of Cs), inspection and test reports, material reports, and the like per contractual requirements.

Additionally, all records shall be made available upon request in compliance with applicable terms and conditions and in compliance with AS9100 requirements.

Non-authorized external providers shall not be utilized without written consent by the CFD Research procurement or contracts agent or when not permitted by contract.

3. Roles and Responsibilities

Purchasing Requestor: Any person with a need to purchase products, processes, or services and has the following responsibilities:

- Complete a purchase request (PR) for product from an external provider on the Approved Supplier List (ASL).
- Ensure external provider is an OCM, OEM, or authorized distributor for the OCM/OEM.

Purchasing Agent: Procures the product and has the following responsibilities:

- Verify the supplier is on the ASL and in good standing.
- Provide external provider with the latest terms and conditions (T&Cs) and this process.
- Verify external provider is an OCM, OEM, or authorized distributor for the OCM/OEM
- Notify requestor of counterfeit or suspect counterfeit receipt
- Review and understand AS5553 and AS6174.

Material Receiver: Works for procurement and has the following responsibilities:

- Verify product meets purchase order (PO) requirements.
- Immediately report counterfeit or suspect counterfeit product to quality, procurement, and contracts.
- With Quality Inspection's assistance, identify and quarantine counterfeit or suspect product.
- Review and understand AS5553 and AS6174.

Quality Inspection: Works for quality and has the following responsibilities:

- Verify product meets PO requirements.
- Review vendor documentation to include, C of C and inspection/test reports.
- Visually inspect product for correct configuration, part marking, lot identification, and

when required, serialization.
- Identify product using labels or tags as required to ensure lot/item traceability.
- Generate a *FM-QA-0002, Nonconformance Report*.
- Quarantines and identifies counterfeit or suspect counterfeit product.
- Review and understand AS5553 and AS6174.

External Provider: A distributor, OEM, OCM, etc. with the following responsibilities:
- Verify product meets requirements and is not of or from any counterfeit or suspect counterfeit product or other external provider.
- Use only authorized external providers.
- Notify buyer of any counterfeit or suspect counterfeit product
- Identify and quarantine counterfeit or suspect counterfeit product until directed how to proceed.
- Implement and enforce a written *Counterfeit Parts Prevention and Control Plan* designed to preclude, detect, and remove any counterfeit or suspect counterfeit product from entry back into the supply chain.
- Maintain a database of counterfeit or suspect products received and applicable source data.
- Implement this process to eliminate counterfeit products.
- Communicate this process to similar roles and leadership throughout the organization and to its external providers and sub-tier providers.
- Review and understand AS5553 and AS6174.

4. Procedure

Use of Non-Authorized External Providers

The use of non-authorized external providers is strictly prohibited without written consent from CFD Research's respective agent and Quality representative. In the event a sound business reason—obsolescence, cost, lead time, commitments, etc.—necessitates the use of a non-authorized external provider, the following steps shall be adhered to:

1. Notify the CFD Research agent in writing with justification for needing to utilize a non-authorized source.
2. Provide specific details regarding the suggested source, the known details on product pedigree, date code, and use of suggested verification/test plan to verify the product meet specified requirements.
    a. Electronic parts not available through an OCM, OEM, or other authorized distributor may be procured without a C of C only after receipt of approval from CFD Research's respective agent and product authenticity verification as specified in the **Product Verification** section and Appendix A.
        i. External provider must have an active counterfeit part detection program. CFD Research and its interested parties reserve the right to review relevant databases such as Government-Industry Data Exchange Program (GIDEP) and Electronics Retailers Association International (ERIA) to evaluate the selected external provider's history of supplying counterfeit parts prior to approval.
        ii. The external provider shall notify the respective CFD Research agent to request design activity for product replacement or change in design.
3. Provide all details in writing to include a customer sign-off and approval section.
4. CFD Research's agent and quality representative must review the request form and will either

approve, reject, or return with comments to include but not limited to additional or alternative verification requirements. Visual inspection, part marking inspection, and C of C inspection shall be included as a critical verification step in all cases.

5. Upon CFD Research's approval, a C of C, verification documentations, and test results shall be promptly provided.
6. The external provider is not approved to deliver parts to CFD Research or drop ship parts to CFD Research's customer until signed approval is provided. Additionally, C of C and test results must be provided and confirmed to be compliant to the details agreed upon in the PO.

Product Verification

All inspection, testing, and other forms of verification shall be performed to the OEM's/OCM's specifications and parameters in order such as A, B, C, D, E, F, and G (see Appendix A). If a nonconformance is found, the inspection, test, or other form of verification must immediately stop followed by rejecting the entire lot—generating an NCR, identifying, and quarantining—and notifying the procurement or contracts agent. All testing must be performed by a pre-approved, competent Design, Quality, or Test Engineer.

All counterfeit or suspected counterfeit products are subject to its applicable forms of verifications, inspections, and test. For the purposes of this process, a product is defined as but not limited to raw materials, hardware, fasteners, bearings, castings, epoxies, paints, chemical conversation, and electrical and electronic components.

Visual Inspection (A)

Each delivered lot shall be visually inspected at an Acceptance Quality Level (AQL) of 1.0 or tighter per Appendix B. 100% of the remaining lot shall be visually inspected to include but not limited to lot, batch, or date codes against the OEM/OCM database, correct English spelling, OEM/OCM striking/markings, OEM/OCM logo, evidence of component remarking, damaged or bent leads, porosity, chip-outs, scratches, cracks, finish inconsistency per OEM/OCM specification, any discrepancies product components, and inconsistencies within and between products.

Authenticity Verification (B)

Each delivered lot shall be inspected at an AQL of 1.0 or tighter per Appendix B. Testing shall include verification of the product's physical attributes to the OEM/OCMs specifications, swabbing, and any other means to verify authenticity. Follow all Safety Data Sheets (SDSs), cautions, and warnings while handling and using solvents to ensure proper safety protocol and personal protective equipment (PPE) is adhered to.

X-Ray Inspection (C)

Each delivered lot shall be inspected at an AQL of 1.0 or tighter per Appendix B. X-ray inspection shall include inspecting for the presence of die, coating deformations and adhesive, verifying wire bonds, product or OEM/OCM markings detectable via X-ray, etc. within the same lot, batch, or date code.

Electrical Testing (D)

Each delivered lot shall be tested at an AQL of 1.0 or tighter per Appendix B. Testing shall include verifying electrical specifications from the OEM/OCM technical data sheet, approved by a CFD Research Corporation cognizant engineer. Testing must be performed at the specified OEM/OCM temperatures.

Destructive Inspection and Analysis (E)

Each delivered lot shall be subjected to a destructive and physical analysis (DPA) inspection of 2% to a maximum of 30 units per lot, date, or batch code. Inspection and analysis shall include verification of authenticity of the die and any other verifiable internal feature shown on the OEM/OCM technical data sheet.

Plating Inspection (F)

Each delivered lot shall be verified that the plating meets the designed or OEMs/OCMs specification using the appropriate methodology such as visual, X-ray, or fluorescent penetrant.

Mechanical Inspection (G)

Each delivered lot shall be subjected to mechanical testing to verify authenticity at an AQL of 1.0 or tighter per Appendix B. These inspections shall meet OEM/OCM specifications. If a nonconformance is found, the inspection must immediately stop followed by rejecting the entire lot—generating an NCR, identifying, and quarantining—and notifying the procurement or contracts agent. Remaining inspections and tests must be performed by a pre-approved, Design, Quality, or Test Engineer or Manager.

Quarantining, Reporting, and Dispositioning

Nonconforming parts shall be identified, quarantined, reported, and dispositioned per this process. All confirmed or suspect counterfeit product shall be prevented from re-entry to the aviation, space, and defense supply chain. Confirmed and suspected counterfeit product shall be documented in accordance with the *QSP-QA-0002, Control of Nonconforming Material Process* and communicated to the CFD Research agent and quality representative. The agent and quality representative will then notify the cognizant design engineer, quality manager, production manager, inventory manager, program/project manager, and the like.

The project/program manager must notify all interested parties such as the customer without undue delay in the event an escape may have or has occurred. All occurrences of counterfeit or suspect counterfeit product shall be documented and reported to external organizations such as GIDEP and ERIA via their applicable website. Outside of CFD Research's process, the customer's counterfeit protocol must be adhered to.

External providers will be held liable for any counterfeit or suspect counterfeit products entering CFD Research's supply chain up to and including all costs incurred by CFD Research resulting from the counterfeit or suspect counterfeit product.

5. References

- QSP-QA-0001, Corrective and Preventive Action Process
- QSP-QA-0002, Control of Nonconforming Material Process
- General Terms and Conditions
- Purchase Package (PRs, POs, Invoices, Packing Lists, Certifications, etc.)
- Subcontract Package (Subcontract, Invoices, Approvals, Reports, Certifications, etc.)
- Approved Supplier List
- AS5553, Counterfeit Electronic Parts, Avoidance, Detection, Mitigation, and Disposition
- AS6174, Counterfeit Material; Assuring Acquisition of Authentic and Conforming Material
- AS9120, Quality Management Systems – Requirements for Aviation, Space, and Defense Distributors
- GIDEP URL: GIDEP

- ERIA URL: ERIA
- Appendix A – Inspection, Test, and Analysis by Product Type
- Appendix B – AQL Sampling Plan

6. Quality Records

- FM-QA-0001, Corrective and Preventive Action Request
- FM-QA-0002, Nonconformance Report
- FM-PUR-0001, Purchase Request Form
- Purchase Order

7. Change Log

Document Revision	Effective Date	Revised By	Description
A	1/25/2024	Corporate Quality	Initial release.

8. Appendix A – Inspection, Test, and Analysis by Product Type

Product Type	Visual Inspection (A)	Authenticity Verification (B)	X-Ray Inspection (C)	Electrical Testing (D)	Destructive Inspection & Analysis (E)	Plating Inspection (F)	Mechanical Inspection (G)
Cabling/Wiring	X	X				X	X
Capacitor	X			X		X	
Connector	X	X				X	X
Diode	X			X		X	
Fuse	X			X		X	
Heatsink	X	X				X	X
Integrated Chip	X	X	X	X	X	X	
Inductor	X	X		X		X	
LED	X			X		X	
Mechanical Product[1]	X	X	X			X	X
Potentiometer	X			X		X	
Relay	X	X		X		X	
Resistor	X			X		X	
Speaker	X			X			
Switch	X	X					
Transformer	X	X		X		X	
Transistor	X			X		X	

[1]X-ray inspection on critical weldments, castings, and forgings shall occur when contractually required, specified on the drawing, or to meet a specification.

9. Appendix B – AQL Sampling Plan

TABLE 2 SINGLE SAMPLING PLANS FOR *NORMAL* INSPECTION (MASTER TABLE)

Sample size code letter	Sample size	Acceptable Quantity Levels (normal inspection)																	
		0.10		0.25		0.40		0.65		1.0		1.5		2.5		4.0		6.5	
		Ac	Re	Ac	Re	Ac	Re	Ac	Re	Ac	Re	Ac	Re	Ac	Re	Ac	Re	Ac	Re
A	2																	0	1
B	3																		
C	5													0	1	0	1		
D	8											0	1					1	2
E	13									0	1					1	2	2	3
F	20							0	1					1	2	2	3	3	4
G	32					0	1					1	2	2	3	3	4	5	6
H	50			0	1					1	2	2	3	3	4	5	6	7	8
J	80							1	2	2	3	3	4	5	6	7	8	10	11
K	125	0	1			1	2	2	3	3	4	5	6	7	8	10	11	14	15
L	200			1	2	2	3	3	4	5	6	7	8	10	11	14	15	21	22
M	315			2	3	3	4	5	6	7	8	10	11	14	15	21	22		
N	500	1	2	3	4	5	6	7	8	10	11	14	15	21	22				
P	800	2	3	5	6	7	8	10	11	14	15	21	22						
Q	1250	3	4	7	8	10	11	14	15	21	22								
R	2000	5	6	10	11	14	15	21	22										

↓ = Use first sampling plan below arrow. If sample size is equals, or batch size, do 100% inspection
↑ = Use first sampling plan above arrow
Ac = Acceptance number
Re = Rejection number

Mil-Std-105E