RATIONALE

There has been a significant and increasing volume of fraudulent/counterfeit electronic Parts entering the aerospace supply chain. This poses significant performance, reliability and safety risks for end users. By its nature, the Authorized Distribution Channel has proven to be effective in mitigating the risk of fraudulent/counterfeit electronic Parts entering the aerospace supply chain. To enhance the effectiveness of the existing practices and procedures within the Authorized Distribution Channel, this document establishes requirements, practices, and methods to mitigate the risk of Fraudulent/Counterfeit Parts entering the supply chain.

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1. SCOPE

This SAE Aerospace Standard (AS) identifies the requirements for mitigating counterfeit products in the Authorized Distribution supply chain by the Authorized Distributor. If not performing Authorized Distribution, such as an Authorized Reseller, Broker, or Independent Distributor, refer to another applicable SAE standard.

1.1 Purpose

This SAE Standard delineates practices to:

a. procure Parts from authorized sources,

b. provide authenticity and traceability of procured Parts,

c. control Parts identified as counterfeit,

d. report Counterfeit Parts as appropriate.

e. minimize the risk of Counterfeit Parts entering the supply chain.

1.2 Application

This standard is recommended for use by Authorized Distributors purchasing and selling electronic components, supplies and equipment which were acquired directly from the Manufacturer for which they are authorized or from another Authorized Distributor.

This document shall not supersede any agreement between the Manufacturer and their Authorized Distributors.

2. REFERENCES

2.1 Applicable Documents

The latest issue of SAE publications shall apply. The applicable issue of other publications shall be the issue in effect on the date of the purchase. In the event of conflict between the text of this document and references cited herein, the text of this document takes precedence.

The requirements of this document are intended to supplement the requirements of a comprehensive quality management system standard (e.g., AS9100, AS9120, ISO 9001, or equivalent). They are not intended to stand alone, supersede, or cancel requirements found in other quality standards, requirements imposed by contracting authorities, or applicable laws and regulations unless an authorized exemption/variance has been obtained.

2.1.1 SAE Publications

Available from SAE International, 400 Commonwealth Drive, Warrendale, PA 15096-0001, Tel: 877-606-7323 (inside USA and Canada) or 724-776-4970 (outside USA), www.sae.org.

AS5553 Fraudulent/Counterfeit Electronic Parts; Avoidance, Detection, Mitigation, and Disposition

AS6081 Fraudulent/Counterfeit Electronic Parts: Avoidance, Detection, Mitigation, and Disposition - Distributors

AS9100 Quality Management Systems - Requirements for Aviation, Space and Defense Organizations

AS9120 Quality Management Systems - Requirements for Aviation, Space and Defense Distributors
2.1.2 ISO Publications


ISO 9000 Quality Management Systems - Fundamentals and Vocabulary
ISO 9001 Quality Management Systems - Requirements

2.2 Related Publications

The following publications are provided for information purposes only and are not a required part of this SAE Aerospace Technical Report.

2.2.1 ANSI Publications


ANSI/ESD S20.20 Protection of Electrical and Electronic Parts, Assemblies and Equipment (Excluding Electrically Initiated Explosive Devices)
JESD 31 General Requirements for Distributors of Commercial and Military Semiconductor Devices

2.2.2 Military Standards


MIL-STD-790 Established Reliability and High Reliability Qualified Products List (QPL) Systems for Electrical, Electronic, and Fiber Optic Parts Specifications

2.3 Terms and Definitions

For the purposes of this document, the terms and definitions listed in ISO 9000 and the following apply:

“Organization” in the context of this document refers to Authorized Distributors that supply electronic Parts directly from the Supplier (Manufacturers or from the Manufacturer’s Authorized (Franchised) Distributors).

AUTHORIZED AFTERMARKET MANUFACTURER: A Manufacturer that meets one or more of the following criteria:

1. The Manufacturer is authorized by the original Manufacturer or IP holder to produce and sell Parts, usually due to an original Manufacturer or intellectual property rights (IP) holder’s decision to discontinue production of a Part. Parts supplied are produced from material that has been:
   a. Transferred from the original Manufacturer or IP holder to the Aftermarket Manufacturer (usually in the form of die/wafer and test program(s)), or
   b. Produced by the Aftermarket Manufacturer using original Manufacturer or IP holder tooling and/or intellectual property.
2. The Manufacturer produces Parts using semiconductor dice or wafers, manufactured by and traceable to an original Manufacturer or IP holder, that have been properly stored until use, and are subsequently assembled, tested, and qualified using processes that meet original Manufacturer or IP holder’s technical specifications without violating the original Manufacturer or IP holder’s intellectual property rights and authorized by the original Manufacturer or IP holder.

3. The Manufacturer produces Parts through reverse-engineering that match all of the original Manufacturer or IP holder’s specifications and satisfy Customer needs without violating the original Manufacturer or IP holder’s rights and with the original Manufacturer or IP holder’s authorization.

AUTHORIZED DISTRIBUTION: Transactions conducted by a Manufacturer-Authorized Distributor distributing product within the terms of a Distribution Agreement. Franchised Distribution is considered synonymous with Authorized Distribution.

AUTHORIZED DISTRIBUTION CHANNEL: Sales conducted by the Manufacturer or their Authorized Distributor which carry the Manufacturer’s rights of warranty with the product.

AUTHORIZED (FRANCHISED) DISTRIBUTOR: A distributor that performs Authorized Distribution. A Franchised Distributor is considered synonymous with an Authorized Distributor.

AUTHORIZED INVENTORY: The Organization’s inventory purchased through the Authorized Distribution Channel.

AUTHORIZED RESELLER: An entity that is granted permission by the Manufacturer to resell its Parts. Some Authorized Resellers purchase directly from the Manufacturer while others obtain Parts directly from an entity authorized by the Manufacturer. For the purposes of this document, the Authorized Reseller is not an Authorized Distributor.

AUTHORIZED SUPPLIER: Authorized Aftermarket Manufacturers, as defined above, and Manufacturer-authorized sources of supply for a Part (i.e., Franchised Distributors, Authorized Distributors). NOTE: Some Authorized Suppliers will provide other services which are not authorized by a Manufacturer (e.g., Independent Distribution).

AUTHORITY HAVING JURISDICTION: A statutory authority can differ between countries. The term is used to refer to the governmental organization at the federal, national, state, or local entity having statutory authority to respond to, enforce, or prosecute laws. Examples are Customs and Judicial bodies.

BROKER: In the Independent Distribution market, Brokers are professionally referred to as Independent Distributors. See definition for “Independent Distributor.”

COUNTERFEIT PART: A fraudulent Part that has been confirmed to be a copy, imitation, or substitute that has been represented, identified, or marked as genuine, and/or altered by a source without legal right with intent to mislead, deceive, or defraud.

NOTE: The following diagram (Figure 1) depicts the interrelationship between Suspect, Fraudulent and Counterfeit Parts. A Suspect Part may be determined to be Fraudulent or Counterfeit through further evaluation and testing. All Counterfeit Parts are fraudulent, but not all fraudulent Parts are counterfeit.
CUSTOMER: An entity that the Organization sells Parts to.

DISTRIBUTION AGREEMENT: A specific, written contract between the Manufacturer and the Organization that authorizes the distributor to resell the Manufacturer’s Parts. Contractual terms include, but are not limited to, distribution region, distribution products or lines, and warranty flow down from the Manufacturer. These agreements often include failure analysis support, return privileges and product change notifications as well.

FRANCHISED DISTRIBUTION: For the purposes in this standard, Franchised Distribution is considered synonymous with Authorized Distribution (see “Authorized Distribution” definition above).

FRAUDULENT PART: Any Suspect Part misrepresented to the Customer as meeting the Customer’s requirements.

INDEPENDENT DISTRIBUTION: Transactions conducted outside the context of the Authorized Distribution Channel.

INDEPENDENT DISTRIBUTOR: A distributor doing independent (unauthorized/non-franchised) distribution. See AS6081 for more information.

MANUFACTURER (MFG): An organization that produces and sells products with legal right or authority under the organization’s name or contracts with another to do so; includes Original Component Manufacturer and Original Equipment Manufacturer.

MASTER DISTRIBUTOR: A Master Distributor, also known as a Wholesale Distributor, is a distributor whose primary business is to sell to other distributors. A Master Distributor may or may not be an Authorized Distributor.

ORGANIZATION: Authorized (Franchised) Distributors when purchasing and selling Parts within the Manufacturer’s Authorized Distribution Channel.

ORIGINAL COMPONENT MANUFACTURER (OCM): An entity that designs and/or engineers a Part typically with the intellectual property rights to that Part.

1. The Part and/or its packaging are typically identified with the OCM’s trademark.

2. OCMs generally manufacture the Part but may contract out manufacturing and/or distribution of their product.
ORIGINAL EQUIPMENT MANUFACTURER (OEM): A company that manufactures or contracts to manufacture products that it has designed or contracted to design from Parts and sells those products under the company’s brand name.

PART: For the purposes of this document, Part will mean electronic components, assemblies, supplies and equipment produced by the Manufacturer.

SUPPLIER: Within the context of this document, the Manufacturer, or Authorized (Franchised) Distributor that provides product to the Organization for sale to the Customer.

SUPPLY CHAIN TRACEABILITY: Documented evidence of a Part’s supply chain history. This refers to documentation of all supply chain intermediaries and significant handling transactions, such as from Manufacturer to distributor, distributor to distributor, or from excess inventory to Broker or distributor. Traceability does not constitute authorized distribution.

SUSPECT PART: A Part which may indicate by visual inspection, testing, or other information that it may be counterfeit and/or fraudulent.

3. REQUIREMENTS

3.1 Counterfeit Mitigation Policy

The Organization’s top management shall define and document its policy intended to prevent the purchase, acceptance, and distribution of Fraudulent/Counterfeit Parts. The policy shall also state the Organization’s policy regarding the disposition and reporting of Parts determined to be suspect, fraudulent, and/or confirmed counterfeit. The Organization’s top management shall ensure that its policy is communicated, understood, implemented, and maintained at all levels of the Organization and accessible with a written request by the Customer.

3.2 Counterfeit Electronic Parts Control Plan

The Organization shall develop and implement a Counterfeit Electronic Parts Control Plan that documents its processes used for risk mitigation, disposition, and reporting of suspected and confirmed Counterfeit Parts. The control plan shall be applied to all purchases or Customer returns of electronic Parts and shall include the minimum processes described in 3.1 through 3.11.

3.3 Customer Related Processes

3.3.1 Disclosure of Non-Authorization

The Organization shall disclose in writing at the time of quotation if it is not authorized for the item(s) being quoted. If an authorization is terminated prior to the performance of the Customer contract, the Customer shall be notified.

3.3.2 Provision of Manufacturer’s Warranty

The Organization (when providing Manufacturer authorized Parts) shall provide the full Manufacturer’s warranty support to the Customer in accordance with the warranty terms of the Manufacturer Purchasing.

3.3.3 Distribution Agreements

The Organization shall have a Distribution Agreement with the Manufacturer they represent as an Authorized Distributor. Such agreements are considered proprietary and not subject to review by third parties unless mutually agreed upon by both the Organization and Manufacturer. Objective evidence of the existence of the current Distribution Agreement shall be made available for review.

3.4 Register of Suppliers

The Organization shall maintain a register of Suppliers that includes authorization status, approval status, and the scope of the approval.
3.4.1 Purchase Restriction

The Organization shall purchase Parts for resale only from the Manufacturer or the same Manufacturer’s Authorized Distributor where the Organization is authorized. When buying from another Authorized Distributor, authorization shall be verified on the Manufacturer’s website or directly with the Manufacturer. When purchasing from a Master Distributor, authorization shall be verified on the Manufacturer’s website or directly with the Manufacturer.

3.4.2 Purchasing Preference

The Organization’s process shall specify a preference to purchase Parts for resale directly from the Manufacturer.

NOTE: This is intended to keep the supply chain as short as possible.

3.4.3 Purchases Outside of a Distribution Agreement

Parts purchased which are not covered by a Distribution Agreement shall not be offered for sale to a Customer in a manner suggesting such authorization exists. In such cases, the Organization is acting as an Independent Distributor.

3.4.4 Counterfeit Electronic Part Control Plan Requirement

The Organization purchasing Parts from Authorized Distributors shall confirm that these distributors have a Counterfeit Electronic Part Control Plan that adheres to this standard or has a plan compliant to AS6496 through their quality management system.

3.5 Traceability, Record Retention and Retrievability

The documented processes shall require the retention of records providing Supply Chain Traceability. The records shall provide traceability to the Manufacturer or the Manufacturer’s Authorized Distributor, including the certificate of conformance if provided with the Parts.

3.5.1 Military Parts

Military Parts delivered by the Organization shall be accompanied by a copy of the Manufacturer’s certification and the Organization’s certificate of conformance, normally on the Organization’s pack list, in compliance with the applicable military standard (i.e., QML/QPL).

3.5.2 Commercial and Industrial Parts

Commercial and Industrial Parts delivered by the Authorized Distributor shall be accompanied by an Organization’s certification or Organization’s certificate of conformance, normally on the Organization’s pack list.

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<th>TABLE 1 - TRACEABILITY DOCUMENTS AT TIME OF SHIPMENT</th>
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<td>Military Parts</td>
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<td>Commercial and Industrial Parts</td>
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3.5.3 Commercial and Industrial Part Documentation

For commercial and industrial devices, Manufacturer’s documentation (certification/pack list) shall be maintained on file by the Organization for the period noted (see 3.5.5). Such documents are not required to be delivered with product.

3.5.4 Provision of Traceability

When requested by the Customer or imposed upon the Customer due to special circumstances such as, but not limited to, Regulatory Audits or Traceability Audits, the Organization shall provide Manufacturer’s certification of conformance or pack list on commercial and industrial Parts in a reasonable amount of time.

NOTE: When traceability to the Manufacturer for industrial/commercial product is necessary, Customer(s) will request such in the RFQ. When agreed to by contract, the traceability shall be provided in accordance with the terms of the contract.

3.5.5 Retention Period

The Organization shall document and maintain applicable records of traceability for at least 3 years for commercial and for the period specified per the applicable military specification (i.e., MIL-PRF-19500, MIL-PRF-38535, MIL-PRF-38534) for military grade devices.

3.5.5.1 The records shall be suitable in format, accuracy and detail to permit analysis by the Organization’s internal quality, Manufacturer auditor, and government organizations.

3.5.5.2 When a Customer contract requires longer retention periods, the Organization shall maintain a system to retain and access records for periods in excess of 3 years for commercial product or the governing military specification for military product.

3.5.6 The Authorized Distributor’s Certificate of Conformance

The Organization’s certificate of conformance shall be provided with each order confirming that the Organization is authorized for the Parts and that the Parts were procured directly from the Manufacturer or a Manufacturer’s Authorized Supplier, and documented evidence of traceability is on file.

Organization’s certificate of conformance statements shall be printed on packing slips or provided as a supplementary document. Certificate of conformance data content shall include:

a. The name and address of both the Organization and the Customer
b. The Manufacturer’s name
c. Manufacturer’s part number
d. Quantity
e. Date code (if provided by the Manufacturer and required by the Customer)
f. Lot code (if provided by the Manufacturer and required by the Customer)tg. Customer purchase order number
h. Ship date to Customer
i. Authorized Distributor Statement of Conformance
3.6 Control of Suspect, Fraudulent and Confirmed Counterfeit Parts

The Organization’s counterfeit electronics control plan shall include a process to evaluate and minimize the risk associated with potential counterfeit product infiltrating into their inventory.

3.6.1 Customer Returns

3.6.1.1 Return Policy

a. The Organization shall maintain a Return Policy based on risk and fairness to the Customer and the Authorized Distributor, and in accordance with the Manufacturer’s policy.

b. When the Organization elects to accept a return, The Organization shall issue RMA (return material authorization) to Customers for the return of products.

c. The RMA (return material authorization) shall require that the Parts returned by the Customer were the same Parts purchased directly from the Organization. If Parts are returned that were not sold to the Customer by the Organization, and the Organization agrees to accept the Parts, then those Parts shall not be co-mingled in inventory, nor sold to any other entity, as authorized product.

d. The Organization shall consider products returned from Independent Distributors or Brokers as Suspect Parts.

3.6.1.2 Return Verification

The Customer return process shall provide for verification that Parts returned by the Customer to the Organization were purchased directly from the Organization and not through another source.

a. Verification shall require validation of the returned Parts against the Organization’s traceability records, including the date/lot code of Parts returned when available. If the date/lot codes do not match the shipped product, the Organization shall disposition the Parts based upon the Organization’s determination of whether the Parts are Suspect.

b. Parts returned to an Organization from a Customer shall be inspected for any evidence of alteration, mishandling, improper packaging or repackaging. The Organization shall disposition the Parts based upon the Organization’s determination of whether the Parts are Suspect.

c. If the Organization chooses not to verify a return based on economic considerations, the returned material shall not be restocked or returned to the supply chain.

3.6.2 Supplier Shipments

When receiving Parts, the Organization shall verify that the shipment was shipped by the intended Supplier.
3.6.3 Disposition of Parts Deemed Suspect, Fraudulent or Counterfeit

Suspect, Fraudulent or Counterfeit Parts shall be quarantined pending disposition by the Organization in accordance with the Organization’s documented policies and procedures.

a. Records of the dispositions shall be maintained.

b. Suspect Parts may be returned to the Manufacturer for analysis and disposition to confirm their status as counterfeit or not counterfeit.

c. Confirmed Counterfeit Parts shall not be returned to the Customer and may be retained for investigative or training purposes. The Organization shall quarantine the Parts for 5 years, or longer, if required by legal requirements.

d. After 5 years or when legal requirements allow, the confirmed Counterfeit Parts shall be scrapped per 3.8.

3.6.4 Re-stocking Prohibition

Suspect, Fraudulent or confirmed Counterfeit Parts shall not be reintroduced into the supply chain, restocked nor returned to the Manufacturer in a stock rotation.

The Organization shall not restock product into its Authorized Inventory that was not purchased from the Authorized Distribution Channel.

3.6.5 Packaging and Repackaging Parts Sold to Customers

3.6.5.1 The Organization shall send Parts in Manufacturer sealed packaging whenever possible.

3.6.5.2 If Manufacturer packaging cannot be sent, the Organization shall package in accordance with Manufacturer requirements, Customer requirements and/or the Organization’s Quality Management System. When repackaging, the Organization shall maintain traceability information on the repackaged material.

NOTE: Traceability information may include Manufacturer, Manufacturer Part Number, Quantity, Date code, lot code, etc. See 3.5.6 of this document or JEDEC 31 for more information.

3.7 Training

The Organization shall train applicable employees on counterfeit awareness including detection and mitigation as appropriate.

3.8 Scrap Control in Authorized Distribution

Because the source of some counterfeits is material scrapped by entities in the supply chain, the Organization shall maintain scrap control in accordance with their QMS procedures and the following requirements.

3.8.1 Scrap Records

If Parts are scrapped by the Organization, the Organization shall keep records of the scrapped Parts for a minimum of 5 years from the date of destruction or as required by contract.

3.8.2 Outsourced Destruction of Scrap Parts

If the Organization outsources the destruction of Scrap Parts, the Organization shall ensure control over the process and obtain Certificates of Destruction from the sub-contractor. The Certificates of Destruction shall be maintained for 5 years from the date of destruction.
3.8.3 Proper Destruction

Proper destruction is the mutilation of the Parts so as to render the Parts including the internal elements as physically unusable.

3.9 Inventory Control Plan

The Organization shall have a system for controlling its inventory. The inventory control system shall provide for traceability of customer returned Parts. Records shall be maintained in accordance with the Organization’s retention policy.

3.9.1 Segregation of Product

The inventory control system shall provide for segregation of authorized Parts from unauthorized Parts. The Organization shall have documented processes for this segregation.

3.9.2 Inventory Access

The inventory shall be maintained in a secured area.

3.9.3 Traceability of Returned Parts

The inventory control system shall provide for traceability of customer returned Parts. Records shall be maintained in accordance with the Organization’s retention policy.

3.10 Reporting

The documented processes shall assure that all occurrences of Counterfeit Parts are reported, as appropriate, to internal organizations, affected Customers, Authority Having Jurisdiction, and government reporting organizations (e.g., GIDEP). External reporting shall include the Manufacturer’s response if provided.

3.11 Audits

The Organization’s internal audit program required by their QMS shall include periodic internal auditing to assess compliance to AS6496 requirements and shall be subject to third party QMS audits.

4. NOTES

4.1 A change bar (l) located in the left margin is for the convenience of the user in locating areas where technical revisions, not editorial changes, have been made to the previous issue of this document. An (R) symbol to the left of the document title indicates a complete revision of the document, including technical revisions. Change bars and (R) are not used in original publications, nor in documents that contain editorial changes only.