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| AEROSPACE STANDARD | AS6496™ | REV. A |
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| Superseding AS6496 | | |
| (R) Counterfeit Electronic, Electrical and Electromechanical Parts: Avoidance, Detection, Mitigation, and Disposition - Authorized Distribution | | |

RATIONALE

The significant volume of counterfeit Electrical, Electronic, and Electromechanical (EEE) parts entering the aerospace supply chain results in significant and persistent 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 counterfeit EEE parts entering the aerospace supply chain. This SAE Aerospace Standard (AS) establishes requirements to mitigate the risk of Counterfeit EEE parts in the Authorized Distribution Channel.

Revision A reflects the alignment of this standard to others under the G-19 committee and other changes to clarify requirements. The revision removes references to *fraudulent parts* and amends the scope from *electronic parts* to *EEE parts*. It removes definitions that are now covered by the common definitions document, AIR6273. To ensure a shared understanding amongst users, *COTS*, *Military Parts*, and *Packing List* were specifically defined. Requirements to disclose non-authorization were clarified to include geographic scope, and counterfeit risk was added as a criterion for the addition and removal of suppliers. Traceability for COTS parts was expanded to reflect the nature of the documents often provided by the manufacturers. And throughout the document, grammatical improvements were made to clarify and simplify the language.

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For more information on this standard, visit
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1. SCOPE

This SAE Aerospace Standard (AS) identifies the requirements for mitigating Counterfeit EEE parts in the Authorized Distribution Channel. If an organization is not performing Authorized Distribution but acting as another seller (such as an Authorized Reseller, Broker, or Independent Distributor), then only 3.3.1 applies.

1.1 Purpose

This standard establishes practices to:

- a. Obtain parts from Authorized Suppliers.
- b. Provide authentic and traceable 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 EEE Parts acquired directly from the Manufacturer for which they are authorized or from another Authorized Distributor also authorized by the Manufacturer.

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

2. REFERENCES

2.1 Applicable Documents

The following publications form a part of this document to the extent specified herein. 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 order. In the event of conflict between the text of this document and references cited herein, the text of this document takes precedence. Nothing in this document, however, supersedes applicable laws and regulations unless a specific exemption has been obtained.

The requirements of this document supplement the requirements of a comprehensive quality management system standard (e.g., AS9003, 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 +1 724-776-4970 (outside USA), www.sae.org.

| | |
|---------|---|
| AIR6273 | Terms, Definitions, and Acronyms, Counterfeit Materiel or Electrical, Electronic, and Electromechanical Parts |
| AS5553 | Counterfeit Electrical, Electronic, and Electromechanical (EEE) Parts; Avoidance, Detection, Mitigation, and Disposition |
| AS6081 | Counterfeit Electrical, Electronic, and Electromechanical (EEE) Parts: Avoidance, Detection, Mitigation, and Disposition - Independent Distribution |
| AS9003 | Inspection and Test Quality Systems, Requirements for Aviation, Space, and Defense Organizations |

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

Available from International Organization for Standardization, ISO Central Secretariat, 1, ch. de la Voie-Creuse, CP 56, CH-1211 Geneva 20, Switzerland, Tel: +41 22 749 01 11, www.iso.org.

ISO 9000 Quality Management Systems - Fundamentals and Vocabulary

ISO 9001 Quality Management Systems - Requirements

2.1.3 JEDEC Publications

Available from JEDEC, 3103 North 10th Street, Suite 240S, Arlington, VA 22201, <https://www.jedec.org/>.

JESD 31 General Requirements for Distributors of Commercial and Military Semiconductor Devices

2.1.4 U.S. Government Publications

Copies of these documents are available online at <https://quicksearch.dla.mil>.

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

MIL-PRF-19500 Performance Specification: Semiconductor Devices, General Specification For

MIL-PRF-38534 Performance Specification: Hybrid Microcircuits, General Specification For

MIL-PRF-38535 Performance Specification: Integrated Circuits (Microcircuits) Manufacturing, General Specification For

2.2 Related Publications

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

2.2.1 ANSI Accredited Publications

Copies of these documents are available online at <https://webstore.ansi.org/>.

ANSI/ESD S20.20 Protection of Electrical and Electronic Parts, Assemblies and Equipment (Excluding Electrically Initiated Explosive Devices)

2.3 Definitions

For the purposes of this document, the terms and definitions listed in ISO 9000, AIR6273, and the following apply:

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

- a. The Manufacturer is authorized by the Original Manufacturer or intellectual property (IP) holder to produce and sell Parts, usually due to an Original Manufacturer's or IP holder's decision to discontinue production of a Part. Parts supplied are produced from material that has been:
 1. Transferred from the Original Manufacturer or IP holder (usually in the form of die/wafer and test program[s])
 2. Produced using the Original Manufacturer's or IP holder's tooling and/or intellectual property.

- b. The Manufacturer produces Parts using semiconductor die 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 the Original Manufacturer's or IP holder's technical specifications without violating the Original Manufacturer's or IP holder's intellectual property rights and authorized by the Original Manufacturer or IP holder.
- c. The Manufacturer produces Parts through reverse-engineering that match all of the Original Manufacturer's or IP holder's specifications and satisfy Customer needs without violating the Original Manufacturer's or IP holder's rights and with the Original Manufacturer's or IP holder's authorization.

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

AUTHORIZED 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 SUPPLIER: Authorized Aftermarket Manufacturers, as defined above, and the Manufacturer-authorized sources of supply for a Part (i.e., Authorized Distributors).

NOTE: Some Authorized Suppliers will provide other services that are not authorized by the Manufacturer (e.g., Independent Distribution).

COMMERCIAL-OFF-THE-SHELF (COTS) PARTS: Commercially available item intended by design to be procured and utilized without modification (e.g., common electronic components). Any part or assembly meeting all of the following requirements:

- a. Defined by industry, manufacturer, or recognized commercial specifications or standards.
- b. Without design modification specifically for a Customer.
- c. Customarily used by the public or industry.
- d. Offered for sale to the public, through catalogs, price lists, brochures, stores, or websites.
- e. Does not qualify as a Military Part per this standard.

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 or Authorized Aftermarket Manufacturer. These agreements often include failure analysis support, return privileges, and product change notifications.

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.

MILITARY PART: Part built, identified, labeled, and tested as required, according to military specifications.

NOTE: Some Military Parts are referred to as high reliability or space-grade parts. In the U.S., these parts are listed on military Qualified Parts Lists (QPL) or the manufacturer is listed on the Qualified Manufacturer's List (QML).

ORGANIZATION: Authorized Distributors when purchasing and selling parts within the Manufacturer's Authorized Distribution Channel. See Figure 1.

NOTE: "Organization" in the context of this document refers to Authorized Distributors that supply EEE parts directly from the supplier (manufacturers or from the manufacturer's Authorized Distributors).



Figure 1 - Relationship of the organization in the supply chain

PACKING LIST: The document provided by the Supplier to the Customer that details the shipment and the contents of the shipment. It normally includes the quantity, part number, Customer purchase order number, name of supplier and recipient, and other contractual requirements.

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

3. REQUIREMENTS

3.1 Counterfeit Mitigation Policy

The Organization's top management shall define and document its policy to prevent the purchase, acceptance, and distribution of Counterfeit Parts. The policy shall also state the Organization's policy regarding the disposition and reporting of Parts determined to be Suspect Counterfeit or 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 to the Customer upon a written request.

3.2 Counterfeit EEE Parts Control Plan

The Organization shall develop and implement a Counterfeit EEE Parts Control Plan that documents its processes used for risk mitigation, disposition, and reporting of Suspect Counterfeit EEE and confirmed Counterfeit EEE Parts. The control plan shall be applied to all purchases or Customer returns of EEE Parts and all parts included in the Organization's control plan. The control plan 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 or for the geography of the Customer. If an authorization is terminated prior to the performance of the Customer's contract, the Customer shall be notified.

3.3.2 Provision of Manufacturer's Warranty

The Organization shall provide the full Manufacturer's warranty support to the Customer in accordance with the warranty terms of the Manufacturer whose parts were purchased.

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. The Organization shall include counterfeit risk in the criteria for adding or removing suppliers from the register. This counterfeit risk assessment shall be documented.

3.4.1 Purchase Restriction

The Organization shall purchase EEE Parts for resale only from the Manufacturer or its Authorized Aftermarket Manufacturer with whom it has an authorization agreement or from the same Manufacturer's Authorized Distributor. When buying from another Authorized Distributor or a Master Distributor, authorization shall be verified through the Manufacturer.

Procuring directly from the sources listed above using the organization's higher-level quality standard is considered low risk that such EEE Parts would be suspect counterfeit or counterfeit and does not normally warrant additional tests or inspections to detect counterfeits.

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 to minimize the number of transactions and improve traceability.

3.4.3 Purchases Outside of a Distribution Agreement

Parts purchased that 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 EEE Part Control Plan Requirement

The Organization purchasing Parts from Authorized Distributors shall confirm that these distributors have a Counterfeit EEE Part Control Plan that adheres to this standard or has a plan compliant to AS6496 through their Quality Management System (QMS).

3.5 Traceability, Record Retention, and Retrievability

The Organization's documented processes shall require the retention and retrievability 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 (C of C) 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 C of C, normally on the Organization's Packing List, in compliance with the applicable military standard or specification (e.g., QML/QPL).

NOTE: The use of an Organization's C of C is not equivalent to the use of the C of C as defined by U.S. FAR 52.246-15 in that it does not relieve the organization of government source inspection when the U.S. government requires such inspection.

3.5.2 COTS Parts

COTS Parts delivered by the Authorized Distributor shall be accompanied by the Organization's certification or Organization's C of C, normally on the Organization's Packing List. See Table 1.

Table 1 - Traceability documents at the time of shipment

| Type of Parts | Manufacturer's certification | Organization's certification |
|----------------|------------------------------|------------------------------|
| Military Parts | Yes | Yes |
| COTS Parts | No | Yes |

3.5.3 COTS Parts Documentation

For COTS Parts, documentation (for example, certifications/Packing Lists) for the purchased parts shall be maintained on file by the Organization for the period noted (see 3.5.5). Such traceability documents for COTS Parts are not required to be delivered with the parts unless otherwise contractually agreed upon between the Organization and the Customer.

3.5.4 Provision of Traceability

When requested by the Customer (for example, when imposed upon the Customer due to special circumstances such as regulatory audits or traceability audits), the Organization shall provide objective traceability documentation or Packing Lists for COTS Parts in a mutually agreeable time frame.

NOTE: When traceability to the Manufacturer for COTS product is necessary, Customer(s) should request such in the request for quotation.

3.5.5 Retention Period

The Organization shall document and maintain applicable records of traceability for at least 10 years for commercial and for the period specified per the applicable military standard or specification (e.g., MIL-PRF-19500, MIL-PRF-38535, MIL-PRF-38534) for Military Parts.

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

3.5.5.2 When a Customer contract requires longer retention periods, the Organization and Customer shall negotiate an agreement to develop and maintain a system to retain and access records for periods in excess of 10 years for COTS products or in accordance with the governing military specification for military products.

3.5.6 The Authorized Distributor's Certificate of Conformance (C of C)

The Organization's C of C shall be provided with each order confirming that the Organization is authorized for the Parts for that transaction and that the Parts were procured directly from the Manufacturer, Authorized Aftermarket Manufacturer, or a Manufacturer's Authorized Distributor, and documented evidence of traceability is on file.

The Organization's C of C statements shall be printed on Packing Lists or provided as a supplementary document. C of C data content shall include:

- a. The name and address of both the Organization and the Customer.
- b. The Manufacturer's name.
- c. The 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).
- g. Customer purchase order number.
- h. Ship date to Customer.