



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

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SAE Aerospace G-19

Counterfeit Electronic Parts Committee

- Chartered in 2007 to address the aspects of preventing, detecting, responding to and counteracting the threat of counterfeit electronic parts/components.
Participants included:
 - US Government,
 - Defense/Aerospace manufacturers
 - Industry Groups
 - Testing Laboratories
 - And report suspect and confirmed fraudulent/counterfeit parts to the other potential users and Authority having jurisdiction.
- April 2009 SAE International released aerospace standard AS5553, Counterfeit Electronics Parts; Avoidance, Detection, Mitigation, and Disposition
- August 2009 United States DoD adopted AS5553.
- May 2012 AS6174 is published
- June 2013 United States DoD adopted AS6801.



SAE Aerospace Standards 5553A vs. 6174 vs. 6081

The numerous standards on counterfeit parts avoidance

1

AS5553A applies to manufacturers procuring and integrating electronic components

2

AS6174 applies to organizations procuring non-electronic parts and assemblies (Broker Distributor and Independent Distributor)

3

AS6801 applies to distributors procuring and selling electronic components

SAE AS5553A what should I know?

- This standard was initiated by aerospace and defense industry.
- Created in response to a significant and increasing volume of counterfeit electronic parts entering the aerospace supply chain posing significant performance, reliability, and safety risks.
- This SAE standard standardizes practices to:
 - Maximize availability of authentic parts,
 - Procure parts from reliable sources,
 - Assure authenticity and conformance of procured parts,
 - Control suspect or confirmed fraudulent/counterfeit EEE parts,
 - And report suspect or confirmed fraudulent/counterfeit EEE parts to other potential users and Authority Having Jurisdiction.
 - And assess, mitigate, control, and report parts which have been used, refurbished, or reclaimed, but represented as new product.



SAE AS6174

- This standard is recommended for use by all contracting organizations that procure material, whether such material is procured directly or integrated into assemblies or equipment. This standard standardizes practices to:
 - Maximize availability of authentic material,
 - Procure material from reliable sources,
 - Assure authenticity and conformance of procured material, including methods such as certification, traceability, testing and inspection appropriate to the commodity/item in question,
 - Control material identified as fraudulent/counterfeit,
 - And report suspect or confirmed fraudulent material to other potential users and Authority having jurisdiction.

SAE AS6174

- For all “high performance, high reliability” applications.
 - Preference for purchase from original manufacturer or licensed/franchised distributors.
 - Extra documentation/testing for other distributors/brokers.
- Is in line with the Office of the Secretary of Defense and the White House Policy for avoiding counterfeits with all material.

SAE AS6801 purpose?

Aviation Parts Distribution

- This standard defines the practices and requirements for use by distributors of electrical, electronic and electromechanical parts. This standard standardizes practices to:
 - identify reliable sources to procure parts,
 - Assess and mitigate risk of distributing fraudulent/counterfeit parts,
 - Control suspect or confirmed fraudulent/counterfeit parts,
 - And report suspect and confirmed fraudulent/counterfeit parts to the other potential users and Authority having jurisdiction.
- Intended Audience is Electronic Components Distributors
- Uses
 - Requirements for a Counterfeit Mitigation program
 - Intended to be used for certification of Distributors

SAE AS6801 what should I know?

Why now?

- This standard was initiated by aerospace and defense industry.
 - To fill a need for a trusted supply base of independent distributors that will procure material in a consistent and safe manor.
 - The rate of counterfeit material has seen explosive growth in the past 5-10 years and continues to rise.
 - The Committee of Armed Services report of May 21, 2012 documents in “Conclusion 1 – China, United Kingdom and Canada are the #1, #2, and #3 sources for counterfeit electronic parts infiltrating the defense supply chain. Conclusion 6 - identified approximately 1,800 cases of suspect counterfeit parts in the defense supply chain. Those parts were supplied by more than 650 companies, each of which relied on their own network of suppliers. See more at:
http://www.levin.senate.gov/newsroom/press/release/senate-armed-services-committee-releases-report_on-counterfeit-electronic-parts/#sthash.Q40aEvw7.dpuf
- Counterfeit/Fraudulent parts plague numerous industries and pose a serious risk within the aerospace, defense and aviation sectors.



SAE AS6801

Applicability!

- This standard is for distributors of electrical, electronic and electromechanical parts that are:
 - purchased and sold from the open market/unauthorized sources, including purchased excess/surplus and purchased returns.
- This standard is not for:
 - aerospace integrators, OEMs, nor to Authorized (Franchised) Distributors and Aftermarket Manufacturers when supplying parts obtained directly from the Original Component Manufacturer's (OCM) or the OCM Authorized (Franchised) Distributor for whom they are authorized.

SAE AS6801 purpose?

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 - identify reliable sources to procure parts,
 - Assess and mitigate risk of distributing fraudulent/counterfeit parts,
 - Control suspect or confirmed fraudulent/counterfeit parts,
 - And report suspect and confirmed fraudulent/counterfeit parts to the other potential users and Authority having jurisdiction.
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SAE AS6801 Aerospace Standard

Six Things to know about Certification

1. Alignment with a Quality Management System – An organization must implement its Counterfeit Electronic Parts Avoidance Program in conjunction with a Quality Management System (QMS) certification (e.g. ISO 9001, AS9100, AS9120, etc.) The QMS certification may pre-exist or be a new certification granted at the same time as the AS 6081. In addition the QMS need not be certified by the same certification body, however certain benefits may exist by aligning these certifications and audits.
2. Appendices to 6081 – The six appendices within AS 6081 provide valuable guidance and interpretive detail to the requirement statement within the ‘auditable’ section 4 of the standard. In particular Appendix A through E should be used by any organization implementing AS 6081 in order to develop a program suitable for certification.

SAE AS6801 Aerospace Standard

Six Things to know about Certification continued.

3. Purchasing impacts – AS 6081 requires several controls within Purchasing in order to mitigate counterfeit components including a preference for Original Component Manufacturer procurement, assessment of risks in using given suppliers, maintenance of an approved electronics component suppliers register with defined criteria and scope of approval, documentation of supplier status (i.e. franchised, broker, independent), along with detailed purchase order provisions.
4. Traceability Requirements – As expected in a ‘chain-of-custody’ type standard an emphasis is placed on the traceability to the Original Component Manufacturer or aftermarket manufacturer along with any supply chain intermediaries. Where such traceability is not available customer acceptance may supersede this requirement.



SAE AS6801 Aerospace Standard

Six Things to know about Certification continued.

5. Verification requirements – AS 6081 defines inspection, testing and verification of components is required with the intent of detecting any suspect or counterfeit components. Appendix C of AS 6081 outlines a continuum of verification expectations from documentation and visual inspection to x-ray and decapsulation testing; such techniques would be employed commensurate with the potential risks of the given component / supplier profile.
6. Exclusions – There are no allowable exclusions to the requirements of AS 6081.



SAE AS6801 Aerospace Standard

Counterfeit Electronic Parts; Avoidance Protocol, Distributors

- Quality Management System
 - Counterfeit Mitigation Policy
- Counterfeit Electronics Parts Control Plan
 - Customer Related Contract Review, Agreement and Execution
 - Purchasing
 - Purchase Order Requirements
 - Supply Chain Traceability
 - Verification of Purchased Product
 - Material Control
 - Reporting
 - Personnel Training and Certification

SAE AS6801 Aerospace Standard

Counterfeit Electronic Parts; Avoidance Protocol, Distributors

- OEMs can specify their suppliers comply with AS6081 to meet selected flow-down requirements of AS5553
- DLA Land & Maritime invoked AS6081 in the QTSL Program
- The United States DoD adopts AS6081 in June 2013
- AS6081 requirements are intended to be applied/flowed down to distributor's suppliers
- Independent, third –party certification bodies also known as CBs verify compliance to AS6081
- Accreditation of CBs will be through the Americas National Accreditation Body also known as ANAB, ANAB will ensure impartiality and competence of each CB.

SAE AS6081 and AS6174 Definitions:

- **Suspect Material**

- A part in which there is an indication that it may have been misrepresented by the supplier or manufacturer and may meet the definition of fraudulent part or counterfeit part provided below.

- **Fraudulent Material**

- Any suspect part misrepresented to the Customer as meeting the Customer's requirements.

- **Counterfeit Material**

- 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.



Advisory Circular 21-29C Definitions:

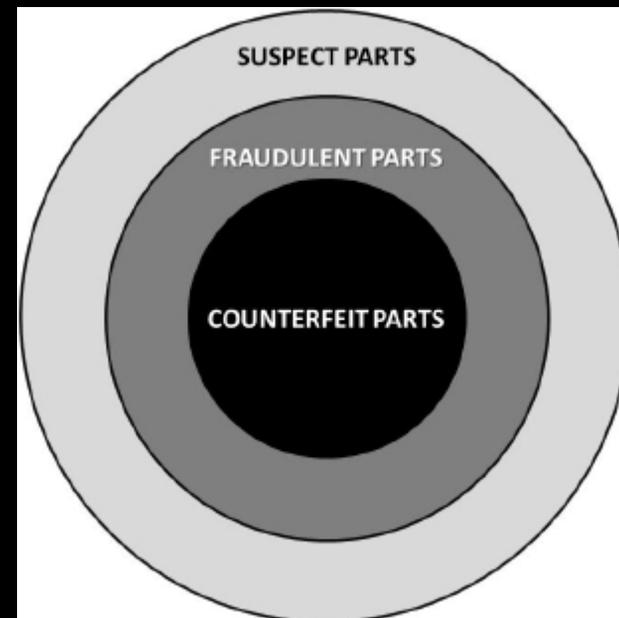
Counterfeit Part

- The FAA Advisory Circular 21-29C, Detecting and Reporting Suspected Unapproved Parts defines counterfeit part at 3(d): A part made or altered to imitate or resemble an “approved part” without authority or right, and with the intent to mislead or defraud by passing as original or genuine.

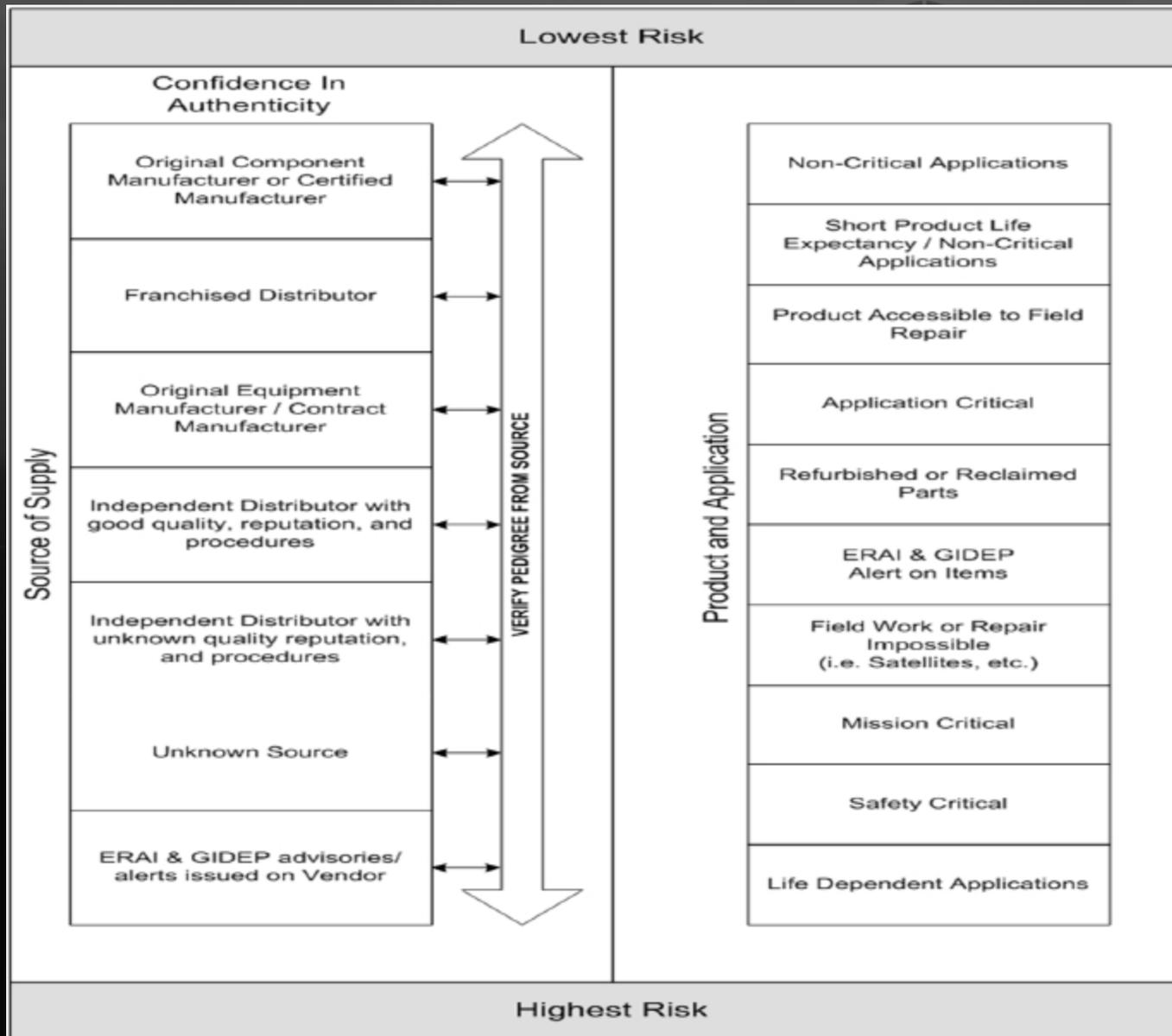
AS6081 and AS6174

Interrelationship between Suspect Parts, Fraudulent and Counterfeit Parts

- Suspect Parts may be found to be Fraudulent or Counterfeit through further evaluation and testing.
- All Counterfeit Parts are Fraudulent Parts
- But not all Fraudulent Parts are Counterfeit Parts



Risk Stack Chart



Detection of Counterfeit Material Documentation Review

- When required, the supplier should provide an unbroken chain of documentation (certifications, packing slips, etc.) tracing the movement of the material back through supply chain to origin, and certification that the material has not been salvaged, reclaimed, otherwise used, or previously rejected for any reason.
- Any Certificates of Conformance or other documentation should be examined for authenticity and applicability to the delivered material, including:
 - Lot and/or date codes on the packaging match the lot and/or date codes on the parts.
 - Review of logos, trademarks and other identifying marks to ensure they match manufacturers' marks as applicable.
 - Changes to or irregularities in the documentation and/or paper trail.
 - Part number marked on the material does not match the part number on the PO and Certifications.
 - Materials are inconsistent with the description on the supplied docs.
 - Serial number issues or duplication of UII (Unique Item Identifier)



Detection of Counterfeit Material Visual Examinations

- Examples of suspect counterfeiting include, but are not limited to:
 - Altered or unexplained markings, stampings, moldings, and engravings.
 - Improper surface treatment or signs of refurbishment without being identified as refurbished material.
 - Re-marked, smeared or illegible bar codes (Item Unique Identification/IUID or Unique Item Identifier/UII)
 - Faceplates and nameplates showing signs of removal and re-installation
 - Altered labels and tags
 - Signs of re-painting or re-coating
 - Other signs of re-used material such as oil stains, overheated areas, signs of disassembly and reassembly, erosion, wear, dents and scrapes, etc.



Discovery and Control of Confirmed Counterfeit Parts

- 1** Physically ID the parts as suspect/fraudulent/counterfeit
- 2** Segregate from acceptable non-suspect parts and place in quarantine
- 3** Notify supplier of findings & provide opportunity to verify findings
- 4** If supplier requests the parts be returned, organization and supplier shall establish a mutually agreeable sample of suspect parts and send to one or more mutually agreeable independent 3rd party test laboratories for evaluation and testing
- 5** The contractual agreement between the parties will dictate the outcome, however in any case, suspect counterfeit parts shall not be returned to the supplier for refund, credit or replacement.

Control of Material

- Return Material
 - In order to mitigate the risk of counterfeit material returning to the supply chain through supplier acceptance of returns, steps should be taken to maintain traceability/authenticity. The following information should be provided to the supplier at time of return:
 - Part/lot/heat/item/date code/number of material to be returned.
 - Name of manufacturer.
 - Purchase order number under which material was supplied
 - Quantity to be returned

Advisory Circular 21-29C

Detecting and Reporting Suspected Unapproved Parts

PURPOSE: This advisory circular (AC) provides updated information and guidance to the aviation community for detecting suspected unapproved parts (SUP) and reporting them to the Federal Aviation Administration (FAA). Appendix 1 contains FAA Form 8120-11, Suspected Unapproved Parts Report, which serves as a standardized means of reporting.

PRINCIPAL CHANGES: This change updates AC 21-29C, Detecting and Reporting Suspected Unapproved Parts. Also included is information regarding who to contact with questions regarding the information in this AC and where to obtain a copy.



Advisory Circular 21-29C

When counterfeit parts are reported to the FAA's Suspected Unapproved Parts Program,⁵⁶ the FAA investigates the SUP and the result of the investigation is made available as an Unapproved Parts Notifications (UPN) on the FAA website.⁵⁷ SUP reports can also be submitted through the Aviation Safety Hotline Office.⁵⁸ Advisory Circular AC 21-29C, "Detecting and Reporting Suspected Unapproved Parts," provides guidance as to what is a "suspected unapproved part," and "counterfeit part." AC 21-29C also provides information and the form on how to report a SUP.



In civil aviation, 14 CFR § 43.10 governs disposition of life-limited aircraft parts.⁶⁴ The FAA has also published a Best Practice Scrap or Salvageable Aircraft Parts and Materials.⁶⁵ The Best Practice recommends mutilation of scrap parts and materials to prevent misrepresentation. Mutilation includes grinding, burning, removal of a major integral feature, permanent distortion of parts and materials, cutting a significant size hole with a cutting torch or saw, melting, sawing into many small pieces and removing manufacturer identification, part, lot, batch and serial number. Removing the identification and part markings without rendering the part useless is not an acceptable option and increases the opportunity for counterfeiting.

If a part has been reported in a UPN, potential consumers are advised to quarantine the product to prevent installation until a determination can be made regarding their eligibility for installation, or removed and replaced to prevent failure during installation or returned to the company for disposition. As part of the UPN, the FAA has a section in which they ask for “any information on the discovery of the above referenced parts from any source, the means used to identify the source, and the actions taken to remove them from the aircraft and/or parts inventories.”⁶⁶ Holders of a UPN may not have a contractual right to scrap or mutilate a part – repair stations do not own the part that they work on.





**Do You Have
Any Questions?**