

QRS-01_Appendix 4

Counterfeit Electrical, Electronic, and Electromechanical Parts

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CHANGES LOG

Issue	Approval Date	Main changes	Interested Paragraphs
00	June 2020	First Issue	All

ACRONYMS AND ABBREVIATIONS

COTS:	Commercial Off The Shelf
GIDEP:	Government-Industry Data Exchange Program
EEE:	Electrical, Electronic, and Electromechanical
ERAI:	Electronic Retailers Association International
OCM:	Original Component Manufacturer
OEM:	Original Equipment Manufacturer
LH:	Leonardo Helicopters
PO:	Purchase Orders

See QRS-01 and IAQG-SCMH for definitions.

INTRODUCTION

The Aerospace industry is increasingly affected by the use of parts that are not what they claim to be. Therefore a growing concern has led companies to develop specific programs to mitigate the risks of counterfeit parts. If this issue is not adequately addressed, counterfeit items have the potential to seriously compromise safety and operational effectiveness of products.

A special focus is reserved on avionics applications due to the amount of counterfeit EEE parts that have affected the aerospace industry over the years.

The purpose of this document is to provide LH Suppliers and Sub-tiers specific rules to be followed in order to mitigate the risk of introducing counterfeit EEE articles in their production flow.

The relevant International Standard of reference is AS5553 "Counterfeit Electrical, Electronic, and Electromechanical (EEE) Parts Avoidance, Detection, Mitigation, and Disposition".

All Suppliers are FULLY Liable for ALL costs associated with the use of Counterfeit Parts (including loss of end item), whether intentional or not.

The implementation of IAQG SCM section for Counterfeit parts prevention is also recommended.

TRAINING

The Supplier relevant personnel, including those involved in the management of programs, projects, purchasing, quality assurance, inspection, receiving, production and engineering activities shall be adequately trained regarding their role in relation to awareness, avoidance, discovery, and mitigation provisions regarding suspicious/fraudulent/counterfeit electronics parts. The Supplier should also ensure that any Sub-tiers have understood and implemented the applicable requirements of this document.

PARTS AVAILABILITY AND OBSOLESCENCE

The Supplier shall have a process in place to prevent upstream the risk of receiving counterfeit EEE parts, starting from proposal and design & development phase. The process shall consider the adequate choice of EEE components considering their availability throughout the product life cycle, including the management of their obsolescence.

Therefore, LH Supplier shall proactively manage the life cycle of their products through the use of an Obsolescence Management Plan or Diminishing Manufacturing Sources and Material Shortage (DMSMS) management plan.

During Design, Proposal and Program Planning, the Supplier shall perform a risk assessment about EEE parts availability. When the assessment reveals risks over a defined level, the LH Supplier will take the steps necessary to reduce exposure to fraudulent/counterfeit parts, including:

- a. Lifetime
- b. System re-design
- c. Alternate/multiple sources
- d. Substitutions
- e. Planning for adequate procurement lead times

PURCHASING PROCESS AND PROCUREMENT APPROACH

The risks of receiving counterfeit parts is based on the supplier entity providing the parts. The scheme below is a frame of reference for understanding the counterfeit risk hierarchy:

Risk Level	Type of Source
Very Low	OCM/ OCM Authorized Aftermarket Manufacturer
Low	OCM Authorized/ Franchised Distributor
Medium	Independent/ Stockist Distributor
High	Broker Distributor
Very High	Uknown Source

Whenever possible, LH Suppliers and Sub-tiers shall procure directly from Original Component or Equipment Manufacturer (OCM/OEM) to provide parts with the lowest risk. OCM Authorized/Franchised Distributors (as the next lowest risk) have documented sales agreements with manufacturers including provisions that protect the user by ensuring product integrity and supply chain traceability, such as:

- Original manufacturer warranty
- Proper handling, storage and shipping procedures
- Failure analysis and corrective action support
- Certificates of conformance and acquisition supply chain traceability.

Where LH Suppliers and Sub-tiers use OCM Authorized/Franchised Distributors sources, before issuing a PO they shall verify Authorized Distributor status with the relevant Original Manufacturer.

LH strongly recommends its Suppliers (and Sub-tiers) to use only OCMs or their authorized sources for articles that will be delivered to LH.

Other sources (not approved by OCM) such as Independent/Unauthorized Distributors and Broker Distributors result in a higher risk of obtaining counterfeit EEE articles and shall not be used unless a risk assessment and risk mitigation process has been performed.

The risk assessment shall address:

- The likelihood of receiving a suspect counterfeit or counterfeit EEE part from the source;
- The consequences of a suspect counterfeit or counterfeit EEE part being installed (e.g. human safety, mission success, additional cost) where such consequences are known.

The risk mitigation process shall document inspections and/or tests that are utilized commensurate with the risk including acceptance and reject criteria (see the section below).

It is also recommended that checking Independent Suppliers and part numbers against **GIDEP** and/or **ERAI** (counterfeit reporting systems) can help the evaluation that a given part or supplier may be a high risk for counterfeit.

Other Counterfeit Parts Reporting and Monitoring Agencies are listed in the IAQG SCMH.

In any case, the Supplier shall require a documented, unbroken chain of custody from the original source of manufacture for all components provided to LH either directly or indirectly as parts included in assemblies.

The Supplier shall provide OCM/OEM traceability documentation when requested by LH, which include OCM/Authorized suppliers:

- Certificates of Conformance
- Shipping and Receiving Documents
- Packing Slips

The Supplier shall flow-down counterfeit avoidance strategies through supply chain, including requirement to use OCM/OEM authorized sources, and formally assess sources of supply for compliance.

DETECTION OF COUNTERFEIT PARTS

The Suppliers shall ensure that counterfeit EEE items are stopped before entering in their production flow. In the case where the Supplier procures from other than authorized suppliers, or there is reason to doubt a component’s/part’s authenticity, additional tests and inspections shall be performed, as necessary, to detect parts. The following mitigation methods can be applied to reduce the risk of receiving fraudulent/counterfeit parts:

Highest Level of Testing		
Level of testing	Burn-in	100% of ALL Material Tested
	Electrical Testing	
	Hermeticity Testing	
	Thermal Cycle Testing	
	Destructive Physical Analysis	% of Parts Tested from each Date/Lot Code
	X-ray Fluorescence	
	X-ray	
	Marking Permanency	Small % of Population Tested
	External Visual Inspection	
Lowest Level of Testing		

The sample size to be selected depends on the risk and criticality of the product. The higher the product risk, the greater the sample size and the more definitive/invasive the testing techniques should be.

For “high risk” products, the Supplier should spend more time, effort, and expenditure on validating as it increases the level of confidence in authenticity.

Note: Tests, Inspections, and other risk mitigation methods may be also performed in accordance with recognized standards (e.g. AS6174, AS6081).

In the following list are reported some possible warnings/alerts (but not limited to) from sourcing, incoming inspection, testing to potential counterfeit materials. The more alerts the supplier detects, the more suspicion the Supplier should have and more investigation should be performed:

- Source other than OCM or authorized sources
- From suspect locations
- Price too low/significantly different from history
- Scarce items are suddenly available
- Chain of ownership unverifiable
- No certificate of conformance
- Obsolete item
- Unknown supplier
- Non-homogeneous lot
- Prohibited materials present
- Item marking issues:
 - ✓ Does not match similar items
 - ✓ Alterations/resurfacing

- ✓ Incomplete
- ✓ Wrong size/location/methods
- ✓ Quality difference
- ✓ Lot number/date code issue
- Package/construction issues
 - ✓ Size/shape/color/finish/materials
 - ✓ Evidence of rework/repair/refinishing/resurfacing
 - ✓ Poor quality

SUSPECT/CONFIRMED COUNTERFEIT PART - MITIGATION ACTIONS AND REPORTING

In the event that any suspect or confirmed counterfeit EEE articles are detected, the Supplier shall immediately quarantine the affected parts. In particular, the Supplier shall locate in a defined area with controlled access ensuring they are quarantined and clearly marked as nonconforming/counterfeit product pending a review by supplier's management (including legal, program and business operations) and disposition by appropriate authorities. The Supplier shall also identify any suspect items that may have left its facility.

Upon identification of suspect or confirmed fraudulent/ counterfeit parts, the Supplier shall provide timely (within 5 days) notification to LH Procurement Representatives and should also provide timely notification to the reporting service organizations (e.g. **GIDEP**, **ERAI**, FAA Suspected Unapproved Parts Programs, etc., as applicable) and to competent Authority, as applicable.

The Supplier will verify the item to confirm if it is or is not counterfeit by conducting additional testing and engaging the supposed manufacturer of the part for assistance.

The affected parts shall not be returned to the supplier for refund, replacement, etc. in such a way they could be reintroduced into the supply chain to be sold again. Legal authorities may be contacted to initiate an investigation into counterfeiting activity and the parts may be required as evidence.

If LH returned articles for rework or replacement, suspect components must not be disposed of until it is determined that legal authorities will not require the parts investigation.

The known counterfeit parts shall be scrapped or mutilated (using a method that prevents its re-use by others), after confirming that the agency/authority contacted does not require a sample of the material for legal proceedings.