



Microwave Solutions, Inc.

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REVISIONS

Rev	Description	Date	Approval
B	CREATED PER ECO # 4158	03-01-17	R.H
C	CREATED PER ECO# 4241	11-09-17	R.H
D	CREATED PER ECO# 4248	11-20-17	R.H <i>JH</i>
E	CREATED PER ECO# 4318	08-28-18	<i>[Signature]</i>

Counterfeit Parts Prevention Procedure

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SEP 13 2018
User must verify Revision upon time of usage

Data base filename:

PRC-006229_E

Drawing No:

PRC-006229_E

1.0 Purpose

1.1 This procedure shall maximize availability of authentic, originally designed and/or qualified parts throughout the product's life cycle, including management of parts obsolescence. To prevent the purchase and/use of Counterfeit Parts and adhere to the requirements of the AS5553 Standard for Counterfeit Electronic Parts Avoidance, Detection, Mitigation and Disposition. It is the intent of the management of Microwave Solutions to procure electronic parts only from OEM, OCM and their authorized distributors. Procedures have been written for procurement from other source only as a last resort and only when directed by our customers.

- 1.1.1 Capitalize on the availability of authentic parts
- 1.1.2 Buy parts only from reliable sources
- 1.1.3 Assure authenticity and conformity of procured parts
- 1.1.4 Control parts identified as counterfeit
- 1.1.5 Report counterfeit parts to Government authorities

2.0 Scope

2.1 This procedure applies to all procurement of parts to be used for the manufacturing of products sold by Microwave Solutions Inc.

3.0 Definitions

- 3.1 Suspect Part- A part in which there is an indication by visual inspection, testing, or other information indicating the item may have been misrepresented by the external provider or manufacturer and may in turn meet the definition of a counterfeit part.
- 3.2 Counterfeit Part – A suspect part identified as a copy or substitute without the legal right or authority to do so or a part whose material, performance, or characteristics are knowingly misrepresented by an external provider in the Supply Chain. The Counterfeit Parts include but are not limited to:
- 3.2.1 Parts not containing the proper internal construction (die, manufacturer, wire bonding, etc.) consistent with the ordered part.
 - 3.2.2 Used, refurbished, or reclaimed parts represented as new product.
 - 3.2.3 Parts with a different package style, type, or surface plating/finish than the required or order product.
 - 3.2.4 Parts not successfully completing the full production and/or test flow of the Original Component Manufacturer (OCM) that is represented as completed product.
 - 3.2.5 Parts sold or delivered as up screened product that have not successfully completed the up screening process.
 - 3.2.6 Parts sold or delivered with modified labeling or markings intended to misrepresent the form, fit, function, or grade of the intended product.

Note: Refinished, up screened, or updated parts identified accordingly are not considered counterfeit product

- 3.3 Aftermarket Manufacturer – A manufacturer meeting one or more of these criteria:
- 3.3.1 A manufacturer authorized by the OCM to produce or provide replacement parts. The parts supplied originate from the OCM to the aftermarket manufacturer or an aftermarket using the OCM or intellectual property produces the parts.
 - 3.3.2 The manufacturer produces parts using tooling or equipment manufactured by and traceable to an OCM was properly stored until use. The parts are subsequently assembled, tested, and qualified using processes meeting the technical specifications without violating the intellectual property rights, patents, or copyrights of the OCM.
 - 3.3.3 The manufacturer produces parts by emulation, reverse engineering, or redesign using processes matching the OCM specification. The parts must meet the Customer needs without violating the OCM intellectual property rights, patents, or copyrights.
Note 1: The Aftermarket Manufacturer must label or otherwise identify a part to ensure the “as shipped” product is not mistaken for the product manufactured by the OCM.
- 3.4 Approved External Provider – external provider who are formally assessed and determined to have a low risk of providing counterfeit product.
- 3.5 Authorized External Provider – Aftermarket manufacturers (reference Section 4.3) and OCM authorized sources of supply for a specific part.
- 3.6 Broker – In the independent distribution market, brokers are professionally referred to as an Independent Distributor.
- 3.7 Broker Distributor- a type of independent distributor that operates in a “Just in Time” (JIT) situation. Customers contact the broker distributor seeking for availability of stated part number, quantity, target price and date. The broker distributor will then search the industry and locates parts that meet the customer requirements.
- 3.8 Destructive Physical Analysis (DPA): A methodical, and detailed assessment of parts during various stages of physical disassembly, conducted on a sample of completed parts from a given lot, wherein parts are examined in terms of design, workmanship, and /or processing problems. Gathered information from DPA may be used to:
- 3.8.1 Preclude installation of inauthentic part or parts having patent or latent defects
 - 3.8.2 Aid in disposition of parts that exhibit anomalies
 - 3.8.3 Aid in defining improvements or changes in design, materials or processes
 - 3.8.4 Evaluate external provider production trends
- 3.9 Disposition: Decisions made by authorized representatives within an organization concerning future treatment of non-conforming material. Disposition codes maybe to scrap, use as is (usually accompanied by a waiver), rework, or return to external provider for replacement.
- 3.10 ERAI: A privately held global trade association that monitors, and investigates reports and mediates

issues affecting the global supply chain of electronics, including supply of counterfeit and substandard parts.

- 3.11 GIDEP (Government- Industry Data Exchange Program): A cooperative activity between government and industry participants seeking to reduce or eliminate expenditures of resources by sharing technical information essential during research, design, development, production and operational phase of the life cycle of systems, facilities and equipment.
- 3.12 Franchised Distributor – A distributor with which the OCM has a contractual agreement to buy, stock, re-package, sell and distribute its product lines. When a distributor does not provide products in this manner, then for the purpose of AS5553, the distributor is considered an independent distributor for those products. Franchised distributors normally offer the product for sale with fully manufacturer flow-through warranty. Franchised contracts may include clauses that provide for the OCM's marketing and technical support inclusive of, but not limited to, failure analysis and corrective action, exclusivity of inventory, and competitive limiters.
- 3.13 Independent Distributors – A distributor that purchases new parts with the intention to sell and redistribute them back into the market. Purchased parts may be obtained from original equipment manufacturers (OEM's) or contract manufacturers (typically from excess inventories), or from other independent distributors. Re-sale of the purchased parts (re-distribution) may be to OEM's, contract manufactures, or other independent distributors. Independent distributors do not have contractual agreements or obligations with OCMs.
- 3.14 Certificate of Conformance (C of C) – A document provided by the external provider formally declaring the purchase order requirements are met. The document may include information relative to the manufacturer, distributor, Quantity, date code, inspection date that is signed by a responsible associate for the external provider.
- 3.15 Certificate of Conformance and Traceability (C of CT) - A certificate of conformance applicable to some military specifications requiring documented traceability of the product from the Qualified Parts List / Qualified Materials manufacturer through the product delivery to the Government.
- 3.16 IDEA: Independent Distributors of Electronics Association, a non-profit trade association representing independent distributors that have formally committed to adhere to prescribed quality and ethical standards. The stated purpose of IDEA is to promote the independent distributor industry through media advocacy; to improve the quality of products and services through a quality certification program, educational seminars and conferences; and to promote the study, development, and implementation of techniques and methods to improve the business of independent distributors.
- 3.17 Open Market: The trading market that buys or consigns primarily OEM and contract manufacturer's excess inventories of new electronic parts and subsequently utilize these inventories to fulfill supply needs of other OEMs and contract manufacturers, often due to urgent or obsolete part demands.
- 3.18 Organization: In the context of this document, it refers to procurement entities (government and contractor), and sub tier equipment external provider.
- 3.19 Original Component Manufacturer (OCM): An organization that designs and/or engineers a part and is pursuing or has obtained the intellectual property rights to the part.
 - 3.19.1 The part and/or its packaging are typically identified with the OCM's trademark.
 - 3.19.2 OCMs may contract out manufacturing and/or distribution of their product.

3.19.3 Different OCMs may supply product for the same application or to a common specification.

- 3.20 **Packaging (Component):** Component packaging refers to the manner in which electronic parts are packaged in preparation of use by electronic assemblers. The determination of packaging types is determined by product sensitivities such as moisture, physical (lead pitch, co-planarity), electrostatic discharge (ESD), as well as the method (manually, or by use of automated equipment) to be used to place parts on the printed circuit board. These are four main types of packing: bulk, trays, tubes, and tape and reel.
- 3.21 **Refinishing –** Using a plating process method after manufacture to alter the original plating composition on a parts lead or lead wire.
- 3.22 **Refurbished –** Subjecting parts to a process to brighten, polish, or renovate the item in an effort to restore the item to a “like new” condition. Refurbished parts may have the leads realigned and tinned.
- 3.23 **Stocking Distributor:** A type of independent distributor that stocks large inventories typically purchased from original equipment (OEMs) and contract manufacturer. The handling, chain of custody and environmental conditions for parts procured from stocking distributors are generally better known than for product bought and supplied by broker distributors.
- 3.24 **External provider:** Within the context of this document, a blanket description of all sources of supply for a part (e.g., OCM, franchised distributor, independent distributor, broker distributor, stocking distributor, aftermarket manufacturer, Government Supply Depot).
- 3.25 **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 OCM to distributor, or from excess inventory to broker to distributor.
- 3.26 **Unused (New Surplus):** electronic parts that have not been previously used (i.e., attached to a board or powered up since leaving the supply chain). A shipment of unused material can contain mixed date codes, lot codes or countries of origin, and should be received in unused factory or thirds party packaging. The material may have minor scratches or other physical defects as a result of handling, but the leads should be in good condition and should not be refurbished. The material should be guaranteed to meet the manufacturer’s full specifications. Unused programmable parts should be un-programmed.
- 3.27 **Up-rated:** Assessment that results in the extension of a part’s ratings to meet the performance requirements of an application in which the part is used outside the manufacturer’s specification range.
- 3.28 **Up screened –** Additional part testing performed to produce parts verified beyond the specification parameters of the manufacturer.
- 3.29 **Used (refurbished or Pulled) –** Electrically charged parts removed from a prior application. Parts should be examined for nonstandard packaging, mixed lots / dates, parts from various sites, scratches, bends, test dots, faded marking, chemical residue, or other signs of use. Used parts may be sold with a limited warranty. Programmable product may still contain partial or complete programming capability that may affect part functionality. Used parts marketed as such should be declared accordingly.

4.0 Responsibility

- 4.1 Management, purchasing, engineering, QA/ incoming inspection, document control and other associates as appropriate or required are responsible to comply with the requirements and processes identified in this document.
- 4.2 Purchasing is responsible to procure the correct part using the applicable drawing, specification, description, or other information to meet the intended use. Purchasing will work closely with document control and engineering for obsolescence management.
- 4.3 Engineering is responsible to specify and ensure the drawing, specification, or other description identifies the applicable type, class, style, part number, manufacturer, or other related information so the correct part or product is identified.
- 4.4 QA / Receiving Inspectors are responsible to examine, inspect, and/or maintain the parts to identify or mitigate the receipt and/or use of counterfeit parts.
- 4.5 Purchasing Manager is responsible for timely reporting of all occurrences of counterfeit part to proper authorities.

5.0 Procedure

- 5.1 During Quoting of products previously sold to customer, sales personnel will complete request for quote form FM7-006579-820 including a review of any identified obsolescence issues. If obsolescence is identified sales and or engineering will suggest alternative parts or redesign as first alternative. (Refer to AP-006581-840 5.5. Use form FM1-006229; Parts Replacement Form.) as required. Customer notification and approval of changes will be documented.
- 5.2 During the proposal and design phases, for new designs, sales and engineering shall consider the long-term availability of parts, and stage of parts life. Parts identification will stress long term availability from OCM, OEM, or authorized distributors. Assessments of potential parts and external providers will be done, and when risk is identified, steps to reduce exposure shall be taken; steps may include lifetime buys, alternate/multiple, and substitutions.
- 5.3 Purchasing must examine a potential external provider to assess the risk of receiving counterfeit parts. For a new part or sample evaluation use Evaluation Report: FRM-6581-840. Assessment may include quality questionnaire (use FM2-006581-840), facility visit (use FM5-006581-840), audit, review of product alerts from GIDEP and review of external provider's quality data including demonstrated adherence and, certification to higher level quality standards, and counterfeit avoidance procedures.

Purchasing shall maintain a list of approved external providers to minimize the risk associated with the supply and / or receipt of counterfeit parts. A copy of the checklist used to approve an external provider FM4-006581-840 shall be available to show scope of approval process. Purchasing shall in all cases possible procure EE parts from OEM, OCM, and authorized distributor.
- 5.4 During the RFQ to procure parts, Purchasing Manager shall send the RFQ form from Peach Tree Software or via email. A Provision is stated that: "By quoting the products, our company is stating that we are an authorized distributor/manufacturer of the product listed." Purchasing shall make every effort to buy only parts directly from an OCM, OEM, and approved distributor.
- 5.5 Purchasing will monitor the list of approved external providers. For those external providers with ISO and AS9100 certificate, MSI will monitor the expiration of the certificate to make sure an updated one is

on file. For those external providers that do not have any certification, MSI will send the (External Provider Quality Questionnaire FM2-006581-840) yearly to know the status of the company and other information regarding the parts being supplied to MSI. A yearly external provider performance quality report is sent to determine performance of the external provider

- 5.6 If the external provider sends Life Cycle information of parts leading to obsolescence, end of life or not recommended for new design, the purchasing department will notify the engineering and drafting departments. Part replacement form (FMI-006229) will be used at this point.
- 5.7 As a minimum requirement, the OCM, distributor or the aftermarket manufacturer is required to provide certificates of conformance and acquisition traceability to OEM/OCM. These certification requirements must be clearly identified on the purchase order document, or made available on company website. (Refer to the instruction on the PO.)

- 5.7.1 Purchasing must specify the flow down requirements applicable to the external provider or subcontractor to minimize the risk of receiving counterfeit parts. MSI will refer to Terms and conditions listed on company web-site stating: In order to minimize the risk of procuring fraudulent/counterfeit product the supplier shall have a counterfeit parts plan to ensure it does not receive counterfeit parts into inventory, use them in manufacturing, or inadvertently sell them to other parties. The plan shall meet the intent of AS5553 for electrical, electronic, electro-mechanical and electro-optical (EEE) parts, and/or AS6174 for material parts, assemblies or other procured items not covered by AS5553. Only new and authentic materials are to be used in the products delivered to Microwave Solutions Inc. No counterfeit or suspect counterfeit parts are to be contained within the delivered product. Parts shall be purchased directly from the OCM/OEM, or through the OCM/OEMS franchised distributors. Brokers shall not be used without written consent from Microwave Solutions Inc. If suspect/counterfeit parts are furnished under this purchase order and found in any of the goods delivered hereunder, buyer will impound such items. The seller shall promptly replace such suspect/counterfeit parts with parts acceptable to the buyer and seller shall be liable for all costs relating to the removal and replacement of said parts. Buyer reserves all contractual rights and remedies to address grievances and detrimental impacts caused by suspect/counterfeit parts. Buyer reserves all contractual rights and remedies to address grievances and detrimental impacts caused by suspect/counterfeit parts. (Refer to TC-006581-840, Purchase Order Terms & Conditions #16).

For Machined parts:

Per standard procedure of flow down of information, machine shop shall provide a C of C of the material from the supplier stating the lot/heat code. Machine shop shall state the heat/lot code of the material on their C of C for traceability.

All non-electrical standard parts, like fasteners, nuts, washers, springs, O-rings, inserts, and pins must have a C of C from the approved distributor stating the name of the source or manufacturer.

- 5.8 If Microwave Solutions Inc. is directed by its customer to purchase parts from other than an OCM, OEM, or authorized distributor Microwave Solutions will document on the purchase order an assessment of external provider, and complete FM2-006229- Loss of Traceability Risk Assessment form. This process will document requirements for the incoming inspector. Appendix B of AS5553 can be used as a guideline for risk assessment.
- 5.9 Purchasing shall work with Engineering, QA, and VP/Sales to utilize loss of traceability assessment form to create an acceptable documented purchasing and product acceptance plan for verifying authenticity of parts supplied. Plan shall be flowed down to supplier with specific requirements such as quality, test for the product identified on purchase order or attachment.
- 5.10 Verification of purchase product at Microwave Solutions shall institute strong incoming quality assurance on all raw materials. A test plan / inspection criteria for each part is established and maintained by incoming inspection. Refer to WI5-006581-840.

5.10.1 Persons receiving, inspecting, or processing parts and supplies must examine the product to ensure the drawing, specification, type, class, style, part number, manufacturer, Certificate of conformance or other related information must be available to detect or identify suspect or counterfeit parts. Strong attention shall be given to labels; misspelling, omission (missing sales order number, missing lot numbers), matching date codes on labels and date code on parts, inconsistent formatting, etc. Appendix E of AS5553 shall be used as a reference for product verification. Refer to WI5-006581-840.4.21.2

6.0 Material Control

- 6.1 Control of Suspect or Confirmed Counterfeit Parts. In the event that incoming product verification actions, in process/tests, or product failure experiences indicate that parts may be counterfeit, the following steps shall be implemented:
- 6.1.1 Physically identify the parts as suspect/counterfeit product (e.g. tag, label, mark).
- 6.1.2 Physically segregate the parts from acceptable, non-suspect parts and place in quarantine. Quarantine shall consist of physical barriers and controlled access.
- 6.1.3 Do not return the parts to the external provider for refund, replacement, etc except under controlled conditions, which would prevent resale of the suspect, counterfeit parts into the supply chain, and to allow the external provider to conduct internal investigation.
- 6.1.4 Confirm the authenticity of the parts. This may include further part-level testing; communications with the part's supposed OCM, third party analysis, etc.
- 6.1.5 Upon confirmation that a part is counterfeit, identify and place on "HOLD" all potential additional counterfeit parts in storage and installed in product pending disposition by appropriate authorities.
- 6.2 This procedure shall assure that all occurrences of counterfeit parts are reported, as appropriate, to internal organizations, customers, government reporting organizations (e.g., GIDEP), industry supported reporting programs (e.g., ERAI), and criminal investigative authorities. Information and guidelines for reporting counterfeit parts are provided in Appendix G, Reporting of AS5553, Counterfeit Electronic Parts; Avoidance, Detection, Mitigation, and Disposition Standard.

- 6.3 Once a month, MSI shall verify information regarding products and external providers from GIDEP data base. Reports and information from reporting organization such as GIDEP shall be reviewed for relevance and improvement potential.

7.0 Training

- 7.1 Awareness training for PRC-006229 will be for new employees, and on an annual basis. Awareness training will also be done for all affected by changes to the procedures and forms as changes are made. Refer to Training Database: FM10-006576-720 on the network. Training is recorded into Training Action Plan or Employee Training Record, including how training will be measured for effectiveness such as a quiz, sample work, etc.
- 7.2 Sales department will be trained in proper use of quotation forms, including identifying obsolescent parts before quotation of previously shipped model numbers. Purchase order review will be by sales manager and QA will train to identify
- 7.3 Engineering personal will be trained to check life status of parts when selecting new parts for new designs. Engineers will be trained in their contribution in the use of FM1-006229 parts replacement form, and FM2-006229 loss of traceability form.
- 7.4 Purchasing department will be trained to be aware of company requirements and procedures to minimize the risk of receiving counterfeit parts.
- 7.5 Training focused on counterfeit parts detection is provided for incoming inspection personnel.

8.0 Forms

- 8.1 External Provider Quality Questionnaire FM2-006581-840
- 8.2 Disqualifying an External Provider FM3-006581-840
- 8.3 Checklist to Approve an External Provider FM4-006581-840
- 8.4 External Provider's Facility Visit Report FR4-006581-840
- 8.5 Part Replacement FM1-006229
- 8.6 Material Inspection Plan FRM-000162
- 8.7 History Sheet FRM-002783
- 8.8 Disposition Notice FRM-000132
- 8.9 CPAR Corrective/Preventive Action Request FM1-006589-1020
- 8.10 Evaluation Report FRM-006581-840
- 8.11 External Provider Quality Questionnaire FM2-006581-840
- 8.12 Quoting form FM7-6572-820
- 8.13 Training Database: FM10-006576-720
- 8.14 Loss of Traceability Risk Assessment from FM2-006229

9.0 Associated Documents

- 9.1 Control of Externally Provided Process, Products & Services AP-006581-840
- 9.2 IC-000121 Inspection Criteria
- 9.3 Corrective/Preventive Action QP-006589-1020
- 9.4 Control of Non-Conforming Product QP-006588-870
- 9.5 Work Instruction for Incoming Inspection WI5-006581-840
- 9.6 Work Instruction for External Provider Management of MSI- WI3-006581-840
- 9.7 RFQ Work Instruction WI3-006579-820

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