



## Supplier Quality Requirements

**General Requirements** (Pages 1-7 are applicable to all Purchase Orders)

The Supplier Quality Requirements and specific Quality Codes, with all of their terms and conditions, become an integral part of EMI and EDEL Purchase Orders, in conjunction with EMI and EDEL Terms and Conditions. Where applicable, these requirements are to be flowed down to the supplier's sub-tier suppliers.

*Any deviations or modifications to existing Purchase Orders are to be transmitted through EMI/EDEL purchasing and will require a Change Order. Verbal or otherwise unofficial instruction to deviate from the Purchase Order is not allowed. Only a legible facsimile copy (fax) or electronic transmittal of the Change Order issued by EMI/EDEL purchasing is considered adequate authority to proceed.*

### Quality System Requirements

The supplier shall maintain a Quality System in conformance with the requirements of ISO 9001, AS9003 or AS9100. Suppliers identified by EMI/EDEL as "Critical", shall be ISO or 9100 certified or be able to successfully demonstrate compliance via an onsite assessment performed by EMI/EDEL representative.

### Calibration System Requirements

The Supplier shall meet and maintain a calibration system in conformance with the Calibration System Requirements of ISO 10012-1, ISO 17025 or ANSI Z540-1.

### Inspection System Requirements

Parts on this purchase order shall be manufactured with an inspection system that conforms to the requirements of ISO 9001 or AS9100.

### Design Review Requirements

Items on this purchase order may require supplier support of a detailed Design Review Meeting utilizing EMI/EDEL Engineering department. Contact the EMI/EDEL buyer to determine applicability.



## Supplier Performance

Engineered Magnetics Incorporated (EMI) and EDEL Engineering Development Corp. (EDEL) will evaluate suppliers based on the quality of their product, delivery to schedule, survey results, documentation errors, and timeliness of responses to requests for corrective action. A history of substandard ratings may be cause for removal of the supplier from the EMI/EDEL Approved Vendor List (AVL). The objective of EMI/EDEL is to receive defect-free parts and complete, error-free documentation, on or before scheduled delivery dates.

## Nonconforming Material, MRB, Variances and Requests for Deviation

The supplier shall maintain a system of material identification and segregation to ensure that non-conforming material is not intermingled with accepted material. ***The supplier is not authorized to perform material review board (MRB) actions or disposition of non-conforming material with the intent of delivering such material without the express written authorization of EMI/EDEL purchasing.*** Recommended dispositions or departures from drawings or specifications must be forwarded to EMI/EDEL for approval. The use of the email to [kathy@engineeredmagnetics.net](mailto:kathy@engineeredmagnetics.net) is the preferred method to transmit such requests. The EMI/EDEL Buyer must approve any departures from purchase order requirements.

Previous dispositions shall not be considered precedence for acceptability. EMI/EDEL may request supplier to submit cause and corrective action on discrepancies related to an order. Any material rejected by EMI/EDEL and resubmitted by supplier, shall be identified as resubmitted material and must reference the EMI/EDEL original rejection document and detail all actions taken to correct and prevent recurrence of the discrepancy.

## Corrective Action Requests

The supplier or the supplier's sub-tier suppliers shall respond to EMI/EDEL requests for corrective action within the timeframe specified and take timely and effective action to eliminate and prevent the root cause underlying deficiencies.

## Right of Access – Surveillance

The supplier shall furnish reasonable support and access to manufacturing facilities, by EMI/EDEL and its customers, regulatory and government entities. Access includes, but not limited to quality system documentation, quality records, third party audit reports, and personal responsible for implementing and maintaining the quality system. (Reference DFARS Clause 252.223-7002).

EMI/EDEL may periodically perform on-site audits of the supplier's quality system and related processes. The frequency and extent of these audits depends on the



supplier's applicable current certification status, the performance history of the supplier, and the criticality of the supplier's service or product to EMI/EDEL or its customers.

### **Records Retention and Material Traceability**

The supplier shall retain a complete set of all records required by this document, as specified in the PO, Statement of Work, or as defined by the applicable EMI/EDEL SQC. These records shall be made available to EMI/EDEL upon request. **All applicable material certifications shall be maintained and will be made available to EMI/EDEL upon request. Note: Supplier is to notify EMI/EDEL before disposing of these records regardless of specified retention time.**

#### **Material Traceability**

For all parts, materials, and assemblies with traceability identification such as serial numbers, lot numbers, batch numbers, and date codes, the supplier shall maintain the traceability data from procurement through fabrication, assembly, test and delivery. The traceability data shall provide for the ready identification of suspect lots when individual items are found discrepant. Multiple lot/batch/date codes of detail items may be kitted for a range of component builds provided the supplier maintains applicable records that identify which lot/batch/date codes are in a single traceable component (preferred) or in a limited range of traceable component builds.

#### **Supplier Documentation Control**

The supplier shall have a process to ensure that relevant versions of the applicable documentation furnished by EMI/EDEL (as well as those specified of external origin) are available at points of use. The supplier provide all required documentation with each shipment that is legible and complete. Whenever EMI/EDEL forms are utilized, the suppliers are to use only the current revision forms found on the EMI/EDEL website (or provided by EMI/EDEL at the time of use) and not retain hardcopies of forms or other documents that may become outdated. **Corrections or additions made to any documents provided to EMI/EDEL will require a single line-through the error with the correction next to it, along with the initials of the authorized individual and date it was corrected.** The use of write-overs, pencil, whiteout, or correction tape is not allowed. Additions or notations on sub-tier documentation (such as EMI/EDEL PO# added to sub-tier certs) are allowed if supplier includes initials (or stamp) and date of the authorized individual making the notation.

#### **Notification of Changes**



The Supplier shall notify EMI/EDEL prior to any changes to the Suppliers or any sub-tier changes that affect purchase order requirements. A Change is identified as any changes in company ownership, materials, configuration, process, sub-tier suppliers, inspection testing methods, techniques and/or facility changes/relocations/expansions/or downsizing prior to the start of fabrication (notification is defined as a minimum of ninety (90) calendar days prior to change). Such changes or events may negate all previous EMI/EDEL supplier qualifications, certifications, approval status, and may require requalification or re-submittal of a First Article. Supplier requests are to be [kathy@engineeredmagnetics.net](mailto:kathy@engineeredmagnetics.net).

### Quality System Requirements

Unless otherwise specified in the Purchase Order, the Supplier shall maintain a Quality System in conformance with the requirements at a minimum of ISO 9001.

### Counterfeit Parts Prevention

No supplier or distributor shall deliver (or use) any counterfeit parts or components to EMI/EDEL. A “counterfeit” part is defined as: “A part falsely represented in some manner. E.g., manufacturer, date code, lote code, reliability level, markings ect.” The term, “falsely represented” specifically includes any part that have been reclaimed, previously used, or motified by other than a EMI/EDEL approval process.

The terms shown below are defined in Aerospace Standard SAE AS5553.

- Suspect Part
- Counterfiet Part
- Original Component Manufacturer (OCM)
- Original Equipment Manufacturer (OEM)
- Authorized Supplier

The supplier shall maintain a counterfeit prevention process internally and with its supplier using ASE AS5553 as a guide. The supplier shall immediately notify EMI/EDEL with appropriate information if the supplier becomes aware or suspects or confirmed counterfeit parts.

The supplier shall be the OEM/OCM or purchase material directly from the OEM, OCM, or authorized supplier. Original OEM/OCM traceability information (includes the chain of custody documents from the original manufacturer through subsequent owners) shall be provided with the part shipment. The supplier is not authorized to deliver any material to EMI/EDEL not procured from or manufactured by an OEM/OCM, or authorized supplier. Any departure from a supplier notify EMI/EDEL for approval prior to delivery.

The supplier shall flow down the requirements of the SQC code to lower tier suppliers and ensure compliance.

The supplier's Certification of Conformance represents that the shipment does not contain any 'suspect' or 'known' Counterfeit Part, Material, or Work and ensures that parts, material or work are procured only through Original Equipment Manufacturers (OEMs)/Original Component Manufacturers (OCMs) or their Franchised Distributors or Authorized Supplier. Any use of other than an Authorized Supplier requires Engineered Magnetics/EDEL, Inc. written approval prior to procurement and use, which shall be contained within EMI and EDEL deliverable data package.

The supplier shall verify the procurement source and associated certifying documentation.

Supplier's receiving inspection process shall utilize incoming inspection or test methods, or both, to detect potential counterfeit parts, material or work.

#### **Counterfeit Parts Prevention "ELECTRONIC COMPONENTS"**

EMI/EDEL only procures electronic parts from suppliers on the EMI/EDEL Approved Vendor List which would consist of Original Equipment Manufacturer (OEM) or OEM authorized distributors.

Any departure from a specified OEM or an authorized distributor of the OEM called out in the part documentation shall require written approval from EMI/EDEL prior to delivery. This approval will come only after EMI/EDEL has notified their customer along with EMI/EDEL receiving and concurring to the specific instructions documented in the customer's counterfeit Parts Management Program (PMP).

#### **Restrictions on Pure Tin or Lead Free\* Parts or Solder**

The use of "pure tin" on any delivered product is prohibited unless specifically authorized. Product changes or conversion of products due to the restrictions on the use of hazardous substances (Example: EU lead-free mandates), as well as associated process changes are prohibited without written approval from EMI/EDEL. Pure tin solder or its usage on any product delivered to EMI/EDEL is prohibited due to the possibility of the "tin whisker" effect that can occur over time, causing product failure.

\*The definition of pure tin is >97% Sn (Tin) or <3% Pb (Lead).

#### **Preservation and Packaging, FOD and ESD control**

Preservation, packaging and packing of all deliverable goods shall be in accordance with the latest revision of ATSM D3951, standard practice for commercial packaging, unless other requirements are specifically specified in this order. All parts and



materials intended for EMI/EDEL shall be protected against the potential damage from shipping, ESD (Electrostatic Discharge), FOD (Foreign Object Debris), corrosion, moisture, contamination, deterioration or damage by processing, handling, storage at the Seller, or in transit to EMI/EDEL or from any sub-tier supplier.

### Traceability for Metallic Metals

- Metallic materials shall be traceable by manufacturer, specification, heat lot number (for annealed or as-fabricated products), or heat treat lot number (for all mill heat treated products). Note: The heat treat lot number shall also provide traceability to the heat lot number (raw material).

### Obsolescence Management/End of Life (EOL)

Supplier shall perform obsolescence/EOL analysis of the Bill of Material (BOM) This Bill of Material is a listing of the raw materials, sub-assemblies, intermediate assemblies, sub-components, parts and quantities of each needed to manufacture the end product.

Obsolescence is defined as the loss or impending loss of parts or suppliers of parts or raw material. The BOM should be categorized based on:

- Known Obsolescence/EOL – material(s) and/or component(s) are no longer in production by the manufacturer.
- Potential Obsolescence/EOL concern – material(s) are nearing the end life cycle. Manufacture has plans to discontinue the material(s) and/or component(s) within the next 12 months, as a minimum and/or up to as much as 4 years.
- Small or no Obsolescence/EOL concern – verified by the material(s) and/or component(s) will be available for the next 12 months at a minimum.

Method for analysis is at the supplier's discretion, if required EMI/EDEL will help support review of affected material(s) and/or component(s). Analysis shall be performed within the first 60 days of the execution of this purchase order or no more than 12 months from the previous analysis. Any new items added to the BOM shall require analysis. Supplier shall provide written notice, identification of impact and possible recommendations, within 10 days of the obsolescence identification.

EMI/EDEL resolution of the obsolescence/EOL issues may include: (i) one-time purchase of EOL material(s) and/or components(s), (ii) the qualification of an alternate supplier, material(s) and/or component(s), or redesign of the affected component(s).





**Shelf Life and Storage Requirements:**

Suppliers, Distributors, and or Manufactures that deliver material to EMI/EDEL with chemical material compounds that have a shelf life or special storage conditions other than ambient temperature, must submit shelf life and/or storage conditions on their certifications. Such materials may include, but not inclusive to, adhesive backed labels, tags, disks, any solder material that has flux, etc..

The certifications(s) must include the date of manufacture, length of shelf life and or expiration date, and/or any special storage information. Not: Any specific SQC Code affixed to the purchase order will take precedence over this General Requirement.

**ALL SUPPLIERS MUST COMPLY WITH EMI/EDEL TERMS AND CONDITIIONS AND AS NOTED IN THE SQC'S MENTIONED WITHIN THE PURCHASE ORDER.**

**EMI/EDEL SUPPLIER QUALITY CODES (SQC'S)**

**SQC – 04 –Removed added to General Requiremnts.**

**SQC – 06 - Source Inspection and/or Customer Verification of Subcontracted Product**

EMI/EDEL or EMI's customer representative may perform inspection/test of product/services at the Supplier's facility prior to each shipment EMI/EDEL reserves the right to conduct (or waive) surveillance of work-in-progress, inspection, and/or test at points selected by EMI/EDEL quality. Such a waiver shall have no effect on the Supplier's requirements to fully comply with the specifications and all of the terms and conditions of the contract/purchase order.



The supplier shall furnish reasonable access to relative contract, design and specification data, and the necessary equipment and space to perform any such inspection/tests.

**SQC - 07 – Government Source Inspection**

Government inspection is required at your facility or your sub-tier processor, as delegated. If you have a government/military representative you normally work with, provide them a copy of this purchase order.

If you do not have an onsite representative, or you do not know how to arrange a representative, contact the EMI/EDEL buyer for direction.

When Government Delegation is required for Supplier’s or Sub-tier suppliers, the Prime Contract Number and DPAS Rating shall be added to the purchase order. A copy of the Purchase order shall be forwarded to EMI/EDEL Purchasing.

EMI/EDEL will be notified of any corrective actions/findings issued by the government as a result of the inspection within 3 day

**SQC - 08 – Removed added to General Requirements**

**SQC - 09 –Removed added to General Requirements**

**SQC - 25 – Process Certifications**  
(Superseded by SQC 25A)

**SQC - 25A – Process Certifications (Non-AVL)**

Suppliers and/or their sub-contractors who perform any processes listed on the purchase order, referenced drawing, or specifications must provide certifications for all processes performed in compliance with this order.

Each shipment shall be accompanied by on legible copy of the signed Suppliers Certificate of Conformance that identifies the processes performed to specification, or sub-tier supplier certification, as applicable. Electronic signature or signed validation is acceptable unless otherwise specified by contract.

**The certificate shall include as a minimum:**

1. Supplier’s name and address.





2. EMI/EDEL PO Number
3. Part number, including dash or rev. letter
4. Quantity
5. Lot number, batch numbers, serial numbers as applicable
6. Process name and specification number with type of class
7. Name and Address of agency that performed the process, if other than the supplier.
8. Signature or stamp with the title of the supplier's authorized personnel signing the certificate.

**NOTE: Sub tier suppliers certs must reference supplier PO and info or EMI/EDEL traceability.**

**See General Requirements for retention requirements.**

### **SQC – 25B – NADCAP Process Approval**

This code requires the same information as SQC 25A except the supplier shall be NADCAP approved. The C of C shall reflect NADCAP certification or a valid NADCAP certificate shall be included with the shipment.

NADCAP (Nathional Aerospace and Defense Contractors Accreditation Program).

### **SQC – 26 – Certificate of Age/Environment Sensitive Material (50% Shelf Life)**

Limited shelf life items must have a minimum of 50% of the rated shelf life (if shelf life is established) remaining at the time of receipt, *unless otherwise specified on the purchase order*. Each shipment shall be accompanied by one legible copy of an approved Supplier Certificate of Conformance which certifies that all requirements, of the will contain the following as a minimum:

1. Supplier's name and address
2. EMI/EDEL Purchase Order Number
3. Part number, dash & rev. letter (if applicable)
4. Material name or type as stated on the Purchase Order with the referenced Vendor part number if different from EMI/EDEL purchased part number.
5. Quantity
6. Material lot or identification number
7. Date of manufacture (Date code on container is acceptable).
8. Start and length of shelf life or expiration date (marking on the individual container is an acceptable alternate). If shelf life is determined to be unlimited, expiration date will be identified as "unlimited" or "NE" (indicating no expiration).
9. Storage temperature, if other than room ambient.



### **SQC – 26A – Certificate of Age/Environment Sensitive Material (80% Shelf Life)**

This SQC follows all the requirements of SQC 26 except that the minimum remaining manufacturer’s recommended shelf life at the date of receipt shall be 80%.

### **SQC – 26B – Age Control for solderability (2 years maximum for Electronic Components )**

All electronic components must have a lot date code (or date of manufacture) of less than 2 years old at the time of shipment to EMI/EDEL, or show evidence of EMI/EDEL approved solderability testing prior to delivery.

Each shipment shall include one legible copy of certification containing:

1. Supplier’s name and address
2. EMI/EDEL Purchase Order Number
3. Part Number, dash and revision letter (if applicable)
4. Date of Manufacture

*\*Note: If the distributor of electronic components is not an authorized factory distributor for the component, the original OEM certification must accompany the shipment. Any deviations will require the submittal and EMI/EDEL approval.*

### **SQC - 26C – Age Control for Solderability (4 years maximum for Electronic Components)**

This SQC follows all the requirements of SQC 26B except that the components must have a lot date code (or date of manufacture) of less than 4 years old at the time of shipment to EMI/EDEL.

### **SQC –26W Control of Silver Coated/Plated Copper Wire**

Silver Coated/Plated Copper Wire shall be adequately protected from moisture and oxygen on any exposed metal ends. Supplier’s certifications must state the wire is silver coated/plated copper wire. Upon receiving silver coated/plated copper wire at EMI/EDEL, the receiving inspection department shall process the material per DI-QA-206(CH) Inspection and Testing, Age Sensitive Control procedure to protect against “red plague.”

### **SQC – 27 – Record Retention Requirement – 10 Years**



The supplier shall retain a set of all records associated with this product for a minimum of 10 years. This includes but is not limited to manufacturing data, test results and material certs and data sheets. Please note that at the end of 10 years the supplier must notify EMI/EDEL prior to disposing of any records. Any deviations from this clause will be specified on the purchase order.

**SQC – 27A – Record Retention Requirement – 7 Years**

This SQC follows all the requirements of SQC 27 except that the minimum record retention is seven years.

**SQC – 27B – Record Retention Requirement – 20 Years**

This SQC follows all the requirements of SQC 27 except that the minimum record retention is twenty years.

**SQC – 27C – Record Retention Requirement – 15 Years**

This SQC follows all the requirements of SQC 27 except that the minimum record retention is fifteen years.

**SQC – 28- Certificate of Compliance (Non-Age Sensitive Material)**

Shipment of non-age sensitive material shall be accompanied by one legible copy of an approved (signed) supplier certification, Using Supplier Certificate of Conformance, which certifies that all requirements of the Purchase Order have been compiled with.

**The certificate shall contain, as a minimum, the following information:**

1. Supplier's name and address
2. EMI/EDEL PO Number
3. Part number, including dash and revision letter
4. Date code (applicable to electronics only) Date code on container is acceptable
5. Quantity
6. Lot number and serial numbers, if applicable
7. Signature by authorized representative (electronic signature acceptable)

**SQC – 28A – Certificate of Compliance (Special Distributors)**

Distributors of material used for deliverable product shall be on the EMI/EDEL Approved Vendors List and must comply with all the requirements set forth in clause SQC 28 above, plus the following:

1. Name of original manufacturer
2. Lot or serial number(s) or date code



**SQC -28B - Certificate of Compliance (Non-AVL distributors).**

**Distributors of material not used for deliverable product are not required to be on the EMI/EDEL Approved Vendors List, but shall comply with the requirements set forth in clause SQC 28 above plus the following:**

1. **Name of original manufacturer (if applicable)**
2. **Lot or serial number(s) or date code**

**SQC - 30 - Customer Approved Sources**

For all materials and outside processing for this purchase order, EMI/EDEL will specify which vendor/s to use. If a vendor is not specified, contact EMI/EDEL for direction.

**SQC - 31 - Certificate of Material Conformance**

Each shipment shall be accompanied by one legible copy of the Certificate of Conformance (C of C) for the raw material supplied or used in the parts supplied. The C of C shall be from the original raw material supplier and include original supplier lot number, material specification(s), tests conducted, and any other relevant information needed to identify the raw material. The above certification(s) shall show acquisition traceability to the seller whose name appears on the EMI/EDEL purchase order. Acceptable examples include foundry report, mil report, dimension/description, temper/hardness, alloy and condition. The supplier shall maintain the original mill certification and any secondary independent test laboratory certification(s) if any additional process was done after original mill certification for procured metallic material that shall include physical properties, chemical analysis and lot number(s).

If the seller is a distributor, a separate and independent Distributor Certificate Compliance(DCOC) shall also accompany each shipment, which certifies that the purchase order items are produced from material for which the supplier has specific data or objective evidence to the effect that the material conforms to all drawings and/or specification. In the event the seller procures the Purchase Order items from a source other than the original raw material supplier, acquisition traceability shall also include distributors documentation for each distributor in the supply chain.

**The certificate shall list the following:**

1. Supplier's name
2. EMI/EDEL Purchase Order (PO) number
3. EMI/EDEL and/or supplier part number, including dash and revision letter (if referenced on the PO)



4. Quantity
5. Lot number (manufacturer/heat/batch number)
6. Material type and specification number or an actual material certification traceable to the EMI/EDEL part and PO number.

*Material certification shall be maintained and traceable to raw materials; objective evidence provided upon request.*

**SQC – 31A – Certificate(s) of Material Conformance (COTS items)**

Supplier must provide legible copies of certifications for commercial off the shelf items (COTS) ordered to military or industry specifications (MS, NAS, AA, AN, ect.). Certifications, shall include quantity, material type and specification number traceable to EMI/EDEL and part number.

**SQC –32 – Certificate of Material Conformance (EMI/EDEL furnished material traceability)**

Each shipment shall be accompanied by one legible approved Supplier Certification Certificate of Conformance, or a copy\* of the EMI/EDEL provided traceability (as applicable) that certifies that the purchase order items were produced from materials furnished by EMI/EDEL.

The certificate (or copy) shall list the following as a minimum:

1. Supplier Name
2. EMI/EDEL P.O. Number
3. EMI/EDEL Part Number (if referenced on the purchase order) and Vendor Number, including dash and revision letter and Quantity
4. Lot number, as furnished by EMI/EDEL
5. Material traceability, as furnished by EMI/EDEL  
EMI/EDEL material purchase order/work order number

**SQC – 33 – Certificate of Material Conformance, Preference for Domestic Specialty Metals\***

**Certificate of Material Conformance, Preference for Domestic Specialty Metals\***

Suppliers must use specialty metals melted in the United States or its outlying areas. Specialty metals (Steel & Metal Alloys\*) produced outside of the United States or its outlying areas will not be used or provided unless the country of origin of melting (Qualifying Country) is listed in DFARS 225.872. This requirement shall be flowed down to any sub-tier suppliers. The DFARS list is maintained by the US Department of Defense and is accessible on the website:

[http://www.acq.osd.mil/dpap/dars/dfars/html/current/225\\_8.htm#225.872](http://www.acq.osd.mil/dpap/dars/dfars/html/current/225_8.htm#225.872)



Specialty Metals\* are defined by DFARS clause 252.225-7008, current revision. Each shipment shall be accompanied by one legible copy of an approved Certificate of Conformance that certifies the origin of material melt of specialty metals by a qualifying country.

**The certificate shall list the following:**

1. Supplier's name
2. EMI/EDEL Purchase Order (PO) number
3. EMI/EDEL and/or supplier part number, including dash and revision letter (if referenced on the PO)
4. Quantity
5. Lot number (manufacturer/melt/heat/batch number\_
6. Material type and specification number or an actual material certification traceable to the EMI/EDEL part and PO number.
7. Country of material melt.
8. Copy of Mill Certification and chemical/physical reports from the producing mill.

**SQC – 33A – Certificate of Material Conformance, Use of All Domestic Metals**

Suppliers are to provide and certify that all metal constituents in the item provided originated or were melted in the United States. Each shipment shall be accompanied by one legible copy of an approved Supplier Certificate of Conformance.

**SQC – 34 – Certificate of Domestic Origin**

Suppliers are to certify that all constituents in the items provided originated in the United States. Each shipment shall be accompanied by one legible copy of an approved Supplier Certificate of Conformance.

**SQC – 38 – Calibration Services**

Supplier test equipment calibration services must have a calibration system conforming to ANSI/NCSL Z540-1 or ISO10012, or 17025, and or NIST. Calibration procedures must be maintained which provide sufficient information for periodic calibration of measuring and test equipment (M&TE). The report, as a minimum, shall include the following information:

1. Date of Calibration
2. Specification(s) to which calibrated
3. Identification or serial number of the item to which the report pertains
4. Evidence of traceability for all calibrations performed to the National Institute of Standards and Technology (NIST).
5. Name and certification of the agency performing the calibration(s) if other than the supplier.





6. Results of calibration's performed including the initial (as received and as returned) measurements. The data shall include a statement of uncertainties (tolerances) or accuracy of standards used, including data for any out-of-tolerance condition found.
7. Relevant environmental or other condition under which the calibration was obtained and for which the stated tolerances are valid, as applicable.
8. Corrections which must be applied if standard conditions of temperature, gravity, air buoyancy, etc. are not met or differ from those at time and place of calibration, when applicable.
9. Each shipment shall be accompanied by one legible copy of an approved Supplier Certificate of Conformance.
10. Supplier's must return replaced parts to EMI/EDEL.

**SQC - 41 - Manufacturer's Data Sheet**  
**OBSOLETE**

**SQC - 42 - Test Data**

One copy of the supplier's or sub-tiered supplier's test data, identifiable to the material or items supplied, will normally accompany shipment and will reference the EMI/EDEL Purchase Order number, the test performed, the lot number and serial numbers (as applicable), and the applicable specification. All test data, qualifications and acceptance test reports will meet EMI/EDEL P.O. requirements, as applicable and to be kept on file at the seller's facility for a minimum of 7 years or Purchase Order requirement.

**SQC - 43 - Printed Wiring Board (PWB) Requirements**

**SQC - 43A - PWB Coupons and Test Data**

Each shipment shall be accompanied by one representative test coupon for each lot or batch along with a legible copy of all applicable test data from the test conducted on printed wiring boards **or subassemblies** submitted to EMI/EDEL.

**SQC - 43B - PWB DPA Requirements**

The supplier shall provide one representative printed wiring board destructive physical analysis (DPA) cross-section sample and DPA report for each panel unless otherwise specified. Along with a legible copy of the report, the supplier is to provide a certification with a *signature of the agency representative* that performed the DPA attesting to conformance to specification requirements. (Electronic signature or signed validation is acceptable unless otherwise specified by contract).

**SQC - 43C - PWB Design Services**



Artwork shall be supplied to Buyer for approval in electronic format that is readable with free viewers. Fabrication of the PWB shall not proceed prior to artwork approval by the Buyer. If no changes are made to the design, the final artwork shall be supplied to Buyer for documentation purposes.

### **SQC – 43D – PWA Sub-Tier Flow down Requirements.**

**Printed Wiring Assembly (PWA)** suppliers shall assure complete flow down of applicable EMI/EDEL requirements to all sub-tier suppliers. Supplier shall be provided the applicable drawing applicable Quality Assurance Provisions and any other requirements stated in the Purchase Order applicable to the PWA or sub-tier supplier.

### **SQC – 43E – PWB Testing**

PWB's on this order shall be tested to the requirements of IPC-6012, IPC-6013, or MIL-P-50884, Group A and B prior to delivery. Copies of Group A test data shall accompany each shipment of PWB's Group B test data shall be retained on file.

**Coupons and Micro-sections** The PWB supplier shall incorporate coupons on the fabrication panel that are representative of all the technology in the PWB including the worst-case condition of such features (e.g. annular rings, etc.). *Mirco-sections shall be performed on a read and record basis with data included in the PWB certification. One additional set of coupons shall be provided to Buyer with each lot of PWB's*

### **SQC – 43F – PWA Assembly Special Processes and Certifications**

The PWA supplier shall provide separate certifications from each supplier of a special process. Special processes include wire bonding, soldering, plating, PWB manufacture, adhesive bonding, etc. Certifications shall include lot date codes or lot numbers for all components used in the assembly, including those supplied by all suppliers of special processes shall be a EMI/EDEL approved or directed supplier (PWA supplier may add applicable EMI/EDEL PO# reference on the sub-tier certs). Each certification shall contain as a minimum:

1. Supplier name
2. Supplier address
3. EMI/EDEL PO number
4. Part number, dash number and revision
5. Quantity processed
6. Lot date code or batch number
7. Process name, specification (with revision), along with type and class.

### **SQC – 43G – EEE Component Sub-Tier Flow down Requirements.**

EEE Component supplier shall ensure complete flowdown of applicable EMI/EDEL requirements to all sub-tier suppliers. Supplier shall be provided the applicable drawing, applicable Quality Assurance Provisions and any other requirements stated in the Purchase Order applicable to the EEE Component or sub-tier supplier.

#### **SQC – 45 – Chemical Test Reports**

Each shipment shall be accompanied by one legible copy of the actual test data from the chemical tests conducted on materials submitted to EMI/EDEL. The reports must contain the material lot number, specification, material type, and signature of the responsible representative or sub-tier supplier (Electronic signature or signed validation is acceptable unless otherwise specified by contract) attesting to conformance to specification requirements.

#### **SQC – 46 - Physical Test Reports**

Each shipment shall be accompanied by one legible copy of the actual test data from the physical tests conducted on materials submitted to EMI/EDEL. The reports must contain the material lot number, specification, material type, and signature of the responsible representative or sub-tier supplier attesting to conformance to specification requirements. (Electronic signature or signed validation is acceptable unless otherwise specified by contract)

#### **SQC – 47 – Inspection Plan and Report**

The Supplier shall complete, sign and date the supplied Inspection Plan & Report (IP&R) or Receiving Inspection Operation Sheet (RIOS) to the specified AQL\* (Acceptable Quality Level), or submit documentation that includes all the requirements of the supplied IP&R or RIOS.

*NOTE: Suppliers are to fill in the “Actual/Span” blanks only when a characteristic is found to be out of tolerance, which requires a VIR submittal to EMI/EDEL prior to delivery.*

Inspection Plan AQL’s provided in these plans are for sample size determination only. There is no implied or permissible reject quantity allowed for deliveries to EMI/EDEL based on AQL table accept/reject allowances.

#### **SQC – 54 - Special Process Procedure**

The supplier must get approval from Engineered Magnetics, Inc. on all “special” processes that will be performed when making these parts. Examples of special processes are welding, heat-treating, cleaning, electroplating, anodizing, chemical film, or non-destructive testing. If there is any doubt if a process is considered



“special”, contact Engineered Magnetics, Inc. for help. To get approval of a special process:

1. Send a copy of the procedure to Engineered Magnetics, Inc.
2. Do not start work on the job until you get written approval (email)
3. Before shipping the product, make sure the following information is on the Certificate of conformance:
  - a. The special process procedure number
  - b. The procedure revisions
  - c. Any specifications that apply to the process
  - d. Material lot number
  - e. Serial numbers if they are serialized
4. If any special process were performed on the product by an outside processor (sub-tier), review their Certificate of Conformance for the same items before shipping.

#### **SQC – 56 – Supplier Process Change Control**

Supplier shall notify EMI/EDEL of any proposed changes to the established baseline of company ownership, materials, processes, sub-tier suppliers or inspection testing methods, techniques and/or facility changes/relocation/Expansion/ and or downsize. Request is to be submitted to [kathy@engineeredmagnetics.net](mailto:kathy@engineeredmagnetics.net). EMI/EDEL’s Quality Engineering approval is required prior to the implementation of any proposed changes. Process changes do not apply to standard hardware (nuts, bolts, washers, etc.) that is ordered to military, federal or industry specification or standards (e.g., MS AN, NAS, etc.) or to metallic raw material raw material (plate, sheet, bar, etc.) that is purchased from a mill.

#### **SQC – 58 – Packaging of Springs and Threaded Items**

For springs, packaging shall ensure that the items do not become inter-twined, tangled or damaged. The use of tubes or rods for packing shall be employed. For threaded items, all internal and external threads shall be sufficiently protected to prevent damage to any processed surface during transit.

#### **SQC – 60 – Serialization**

Each line item carrying this SQC shall be identified by serial number, as required in the Purchase Order, drawing, and/or specification. No duplication of serial numbers is allowed. The supplier shall assign serial numbers unless provided by EMI/EDEL in the purchase order. The material for all serialized items shall be traceable to their source. This requirement applies to all sub-tier suppliers.

#### **SQC – 62 - Homogeneous Requirements**



All parts supplied under this Purchase Order shall be from one homogeneous and identical lot; that is, there was no change in material, process, design, or significant lapse of time during manufacture of the lot by the supplier. Any such change will be indicated by a change in lot number(s).

**SQC – 63 – Manufacturing Lot or Batch Number**

All parts, materials, and/or applicable documents shall be identified by the supplier with a lot number, date lot code, batch number, heat number, heat code, heat lot number or melt number. Where it is not practical to mark the part, the smallest container package shall be marked or tagged with the above data. All applicable documents (chemical and physical reports, certifications) shall include the above-required identification, as well as a reference to the EMI/EDEL Purchase Order Number.

**SQC - 70 – First Article Inspection (FAI) Each Order**

Unless otherwise specified in the Purchase Order, inspection is required at 100%. This clause requires a FAI with every order. The FAI shall be conducted on 1 part that is representative of the lot provided unless otherwise specified. The FAI will be performed on all applicable drawings (including notes) and specifications. All suppliers must use the AS9102 format. The FAI must be maintained by the supplier and be made available for EMI/EDEL review upon request. The First Article shall include a ballooned drawing along with the First Article Inspection Report. The part/s used to perform the FAI must be clearly identified and included with the shipment.

The First Article Inspection Report shall include:

- A. Tool part number and serial number.
- B. Cavity ID number (Not if tool has multiple cavities, the FAI must be performed on each cavity)

**SQC – 70A – First Article Inspection (FAI) As Req.**

The supplier shall perform an initial FAI as defined in SQC 70. After the initial FAI is performed, the supplier resubmittals are only required if there has been a lapse in production for more than one year or as defined in AS9102 Par 5.3. If the supplier has not had a lapse in production that exceeds 12 months, the supplier must state on certification that:

1. This product has not seen any lapse in production that exceeded 12 months.



2. There have been no changes to the manufacturing process or product design or any other items as noted in AS9102 par 5.3 since the first article was performed.

### **SQC – 70B – First Article Inspection (FAI) As Req.**

This clause has the same requirements of SQC 70A except the lapse in production cannot be greater than 6 months.

### **SQC – 72 – Tool Proofing**

Tool proofing shall be accomplished on all EMI/EDEL authorized, vendor-furnished tools manufactured or acquired for use on this order by the supplier's Quality Control. The Supplier shall not manufacture or modify any such tooling unless authorized by a tool order. Objective evidence of proper control and maintenance shall be maintained by the Supplier and subject to audit by EMI/EDEL.

### **SQC – 80 - Certificate of Qualified Products List (QPL)**

Each shipment shall be accompanied with one legible copy of a Supplier Certificate of Conformance (or the supplier's equivalent form with the same information) that identifies the materials as qualified to the required specification and listed on an official Government Qualified Products List (QPL). Where material is qualified by not included in the QPL, the certification shall reflect the qualifying test report number. Approved vendor listings issued by prime contractors will be utilized when required by contract.

### **SQC – 81 – Special Requirements**

Refer to the Purchase Order notes or attachments for description of special requirements.

### **SQC – 84 - Electrostatic-Sensitive Items (Electrostatic Discharge Protection (ESD))**

Line items given SQC 84 shall be identified, handled, processed, and packaged to provide proper electrostatic discharge protection within the guidelines of JEDEC/EIA 625- (Requirements for Handling Electrostatic Discharge Sensitive Devices).



### **SQC – 91- Change Control**

Supplier shall not implement any changes in design materials, processes, or control without prior written approval (via the EMI/EDEL buyer), from the cognizant Quality Assurance or Program Engineering representative prior to supplying services and/or material. The supplier is also responsible for compliance by sub-contractors.

### **SQC – 92- MRB Limited Authority**

Supplier is delegated limited Material Review Board (MRB) authority for Class II defects which is SCRAP or REWORK to print. All other discrepancies will require suppliers to submit a request to [kathy@engineeredmagnetics.net](mailto:kathy@engineeredmagnetics.net). The VIR must have concurrence from EMI/EDEL's Quality Assurance Material Review Board prior to shipment. Non-conforming material shall be identified with shipping documents and must include evidence of EMI/EDEL's concurrence. Disposition of non-conformances to drawings or specifications shall **not** be considered as precedence for additional or future dispositions.

### **SQC – 93 – Statistical Process Control (SPC)**

The supplier shall provide variable data to support compliance to the required capability, as outlined in a supplier or EMI/EDEL generated and/or EMI/EDEL approved SPC Plan. Data shall be submitted as required by the purchase order.

### **SQC – 94 – Mission Assurance Requirements**

#### **SQC – 94A – Configuration Control & Notification**

The supplier shall be responsible for:

1. Controlling changes to parts or components manufactured to the established baseline of EMI/EDEL drawings and specifications, EMI/EDEL controlled supplier drawings, specifications and processes to ensure that the end product meets the specified configuration requirements. Only EMI/EDEL is authorized to approve changes to these drawings, processes and specifications.
2. Maintaining a system to control processes that fulfill the requirements of the purchase order, at its facilities and that of its sub-tier suppliers is required.
3. The supplier shall notify EMI/EDEL prior to any changes to their sub-tier's design (including proprietary designs), parts/components, materials, fabrication methods, processes\*, tooling, equipment or methods used in the testing and acceptance of products delivered to EMI/EDEL.

*NOTE: \*If the process performed by the Supplier or its sub-tier suppliers is identified as a Critical and/or Special Process then it shall be controlled by the Supplier in accordance with Quality Clause SQC 25. The Supplier shall*



*obtain EMI/EDEL written approval prior to making any changes to such processes.*

4. The supplier shall notify EMI/EDEL within one (1) working day of any recall notices for any product, raw material and/or components procured by the Supplier. The Supplier is also responsible to notify EMI/EDEL of all such recall notices or GIDEP's from wholesalers, manufacturers, and sub-vendors and agencies.
5. Supplier shall inform EMI/EDEL within ten (10) working days as to whether a
6. GIDEP ALERT is applicable. EMI/EDEL shall notify the Supplier of GIDEP ALERTS or other potential recall notices.

#### **SQC – 94B – Approval of Acceptance Procedures**

The supplier shall provide assembly and acceptance procedures to EMI/EDEL for approval and is required to obtain written approval prior to any changes.

#### **SQC – 94C – Deleted**

#### **SQC – 94D – Written Authorization to Subcontract**

The Supplier shall notify EMI/EDEL and receive EMI/EDEL written approval prior to subcontracting work in excess of 40%, excluding cost of material, of the cost to produce any line item of the purchase order or RFQ.

#### **SQC – 94E – Quality Program Plan (QPP)**

The Supplier shall prepare and submit a Quality Program Plan (QPP) to EMI/EDEL. Contents of the plan used to implement requirements of the Purchase Order are subject to disapproval by EMI/EDEL. The QPP shall include, as a minimum, the following:

1. A description or organization chart showing the Quality Control Organizational relationship to other functional organizations (i.e. Engineering, Purchasing, Manufacturing, etc.).
2. A detailed definition of the Supplier's method for assuring product quality at all phases of inspection and test from procurement through receiving, fabrication, testing, acceptance, preservation, packaging and shipping.
3. Flowcharts indicating inspection and test verification points through the receiving, fabrication, assembly and shipping sequence.

#### **SQC – 94F – Foreign Object Elimination (FOE) Program**

The supplier shall establish and maintain an FOE program acceptable to EMI/EDEL. The FOE program will be subject to review and approval by EMI/EDEL. The material supplied on this purchase order shall be manufactured in an environment that is free of foreign object contamination. Any instances where foreign object contamination



have occurred or is suspected will be reported to EMI/EDEL prior to material acceptance and delivery. The intent of this quality requirement is to maintain continual awareness of the need to eliminate sources of foreign object contamination for all supplied material.

### **SQC - 94G - Test Failure and Anomaly Notification**

In the event of any Destructive Lot Acceptance Test (DLAT) failure or anomaly, the test setup will be frozen and EMI/EDEL will be immediately notified. Unless a safety issue is involved, there will be no activity performed until a formal failure review board (FRB) is conducted with EMI/EDEL. If the FRB decides the test equipment is not the cause of the failure or anomaly, the FRB may allow continued testing on other production units.

Within any production lot or batch, part which fail to meet ATP or LAT criteria during Non-Destructive testing will be set aside until completion of the specific test in process. Upon completion of the test, non-conforming parts will be documented and segregated from accepted product.

### **SQC - 94H - Training and Certification Program**

The Supplier shall implement and maintain an employee training program subject to review and approval by EMI/EDEL. The plan used will be sufficient to maintain and assure product and process quality and consistency.

### **SQC - 94J - As-Built & Traceability Data**

With each delivery, the supplier will provide an As-Designed vs. As-Built drawing record along with specific traceability information for each and every component and/or material provided in the finished assembly.

### **SQC - 94K - Date Code Limitation-Electronic Items**

Electronic items provided on this order must have a date code of manufacture of 18 months or less from the date of receipt at EMI/EDEL.

### **SQC - 94M - "No Pure Tin" Certification and Data**

With each delivery, the supplier must separately certify (for each date code or lot supplied) that no pure tin or lead free components, finishes, material or solder was used or present in or on the components delivered to EMI/EDEL. The preferred method of testing is XRF. The certification must include spectrum analysis data showing composition of material on terminals of the device. Each certification shall reference the EMI/EDEL Purchase Order number and be signed by an authorized company representative. The definition of pure tin is >97% Sn (Tin) or < 3% Pb (Lead).



One copy of the Supplier or OEM's test data (identifiable to each date code or lot) and the material or items supplied, must accompany shipment. Each test report shall specify, the method used, tests performed, lot or date code designator and the results of the analysis.

In the event that tests were conducted at an independent lab or sub-tier, the reports will note supplier name, address, purchase order, part number date of tests, and lot or date code designator. The report is to be certified and signed by an authorized company representative.

#### **SQC – 94N – “No Pure Tin” Certificate**

Supplier shall furnish a signed copy of the OEM Certificate with each delivery (for each date code or lot supplied) stating that no pure tin or lead free components, furnished, material or solder was used or present in or on the components. The definition of tin is >97% Sn (Tin) or <3% Pb (Lead).

#### **SQC – 95 – Boeing Approved Processors**

The Supplier and any sub-tier contractor shall be or utilize Boeing approved process sources in accordance with DI-4426, which, along with information on Boeing approved processors and the User Instructions for the document, can be obtained from the Boeing website.

NOTE: Boeing approved processors can be found at: [http://www.boeing.com/companyoffices/doingbiz/index\\_quality.html](http://www.boeing.com/companyoffices/doingbiz/index_quality.html) The supplier shall supply copies of the approved processor certification to Buyer with each shipment. If a specific Boeing inspection or processing criteria or requirement is referenced in the PO, the supplier shall include a specific reference of compliance to this on the supplier certification(s) with each shipment.

Note: D1-4426 can be found at:  
<http://active.boeing.com/doingbiz/d14426/index.cfm>

#### **SQC – 96 – Lockheed Approved Processors**

The Supplier and any sub-tier contractor engaged in special processes (i.e. soldering, cleaning, X-Ray, welding, magnetic particle and penetrant inspection, heat treating, plating, etc.) shall have either:

1. Lockheed Martin approval of special processor, or
2. Lockheed Martin approval of supplier quality system to control sub-tier's performing special process.



Approval of special process sub-tier contractors does not relieve the Supplier of the responsibility for exercising control measures necessary to ensure that work performed by sub-tier contractors is in accordance with specification requirements. The Supplier shall have records of Lockheed Martin approval on file available for review. The Supplier shall provide a legible copy of an approved special process certificate with each shipment that lists the processor's name/address and the process specification/revision traceable to the EMI/EDEL part and PO number.

*NOTE: A list of first tier Lockheed Martin approved special processors can be found in Exostar LM Procure to Pay Portal under Current Approvals Table. Contact your EMI/EDEL Buyer for a list of current approved processors.*

### **SQC – 97 – Single Heat Lot Control**

The Supplier shall furnish the entire lot on this order from the same heat lot. The Supplier shall indicate the heat lot number on the Certificate of Conformance and flow down the heat lot requirement to all sub-tier processors. Sub-tier processors shall record the heat lot number on all certifications submitted to the Supplier.

### **SQC – 98 – Test Document Review**

The supplier shall review the entire test document to ensure all test requirements are met, regardless of the individual test paragraph identified in the Purchase Order.

### **SQC –99 – No Quality Codes Specified**

No code numbers specified, but general requirements still apply.

### **SQC – 100 –Technical Data Sheets**

Each shipment shall be accompanied by on legible copy of the Technical Data Sheet.

### **SQC – 101 MRB Authority –Lockheed**

The supplier is not allowed to perform material review board (MRB) action or disposition of nonconforming material with the intent of delivering such material without the express written authorization for EMI/EDEL. Purchasing and Lockheed Martin.

Recommended dispositions or departures from drawing specifications (REPAIR or USE AS IS) must be forwarded to EMI/EDEL for approval. The supplier shall wait for written approval from EMI/EDEL and its customer, Lockheed Martin, before proceeding without MRB actions. Any deviation from the MRB process without prior written EMI/EDEL and Lockheed Martin approval shall result in scrapping of the hardware at the suppliers' expense.



EMI/EDEL buyer must approve any departures from the purchase order requirements. Previous disposition shall not be considered precedence or acceptability. EMI/EDEL may request to submit cause and corrective action on discrepancies related to an order.

**SUPPLIER QUALITY CODES LISTING PER CATEGORY (as required)**

<b>Supplier Category</b>	<b>SQC No.</b>	<b>Notes</b>
Hardware	25A, 27A, 28A, 28B, 31, 56	09, 34, 42, 58, 94(a-m) (as required)
Plating	06, 25A, 27, 28A, 31, 42, 45, 46, 56, 91, 98	09, 26, 31A, 54, 72, 80, 94(a-m) (as required)
Distributor	25A, 26C, 27A, 28B, 28A, 31, 56, 84	09, 26, 30, 34, 42, 58, 62, 63, 94, 98(a-m) (as required)
Mechanical	06, 25A, 27, 28B, 28A, 31, 56, 91	09, 31A, 33, 33A, 42, 45, 46, 54, 58, 72, 94(a-m), 98 (as required)
Electronics	25A, 26C, 27, 28B, 28A, 31, 56, 84, 91	09, 30, 34, 42, 43D, 43F, 46, 62, 63, 80, 94(a-m), 98 (as required)
First Articles	06, 25A, 27, 28A, 31, 46, 54, 56, 70, 91, 98	07, 09, 26C, 31A, 33, 33A, 34, 42, 43(a-f), 45, 46, 62, 63, 70A, 70B, 72, 80, 84, 94(a-m) (as required)
Magnetics	06, 25A, 26C, 27, 28A, 31, 42, 54, 56, 60, 62, 63, 91, 98	07, 09, 31A, 46, 72, 84, 94(a-m) (as required)
PWB	43A, 43B, 43E, 54, 56, 62, 63, 91, 98	43C, 43D, 43F, 80, 94(a-m) (as required)