

SUPPLIER QUALITY REQUIREMENTS - (PURCHASE ORDER NOTES)

Table of Contents

<u>Topic #</u>	<u>Topic Description</u>	<u>Page No.</u>
A	QMS, FOD, ESD Requirements	2
B	DPAS Requirement	2
C	Source Inspection & Supplier Facility Access	3
D	Documentation Requirements – CoC, Cert. of Special Process, Raw Mat'l Cert., Flow Down Req't, Quality Record Retention (7 yrs)	3
E	Reliability – Change of Product/Process, No Parts Substitutions, Dispo. Authority	4
F	Material – Counterfeit Mat'l, GIDEP	5
G	Solderability – Lead Solder, RoHS 6 Compliant	6
H	Special Processes – ANSI/ESD, J-STD-001, MIL-DTL-5541-F, ASTM B 449, MIL-F-14072, Conformal Coating	6
I	Packaging	7
J	Hazardous Mat'l – Mercury Free, Shelf Life	7
K	Product Traceability, Component Traceability	7
L	Mrkg. Mfr. ID on Parts	7
M	FAI/FAT – First Article Insp./Test Requirement	7
N	Secondary Processes – Metal Fasteners	8
	Appendix A – Approved Special Processor(S)	9



HEREINAFTER "LINEARIZER TECHNOLOGY, INC & SUBSIDIARIES (LTI&S)" SHALL BE DESIGNATED AS "THE BUYER"

ONE OR MORE OF THE FOLLOWING NOTES IS APPLICABLE TO THIS ORDER AS REFERENCED ON THE FACE OF THE PURCHASE ORDER WHICH THIS SHEET IS ATTACHED.

APPLICABILITY: Applicable clause(s) of this attachment is (are) referenced on the face of the Purchase Order and are expressly made a part thereof. Failure to include test reports, inspection reports, etc., with shipments, as required, will result in rejection, and return of the material. Documents specified herein shall be of the issue in effect on date of issue of the Linearizer Technology, Inc. & Subsidiaries (LTI&S) Purchase Order, unless otherwise specified. The supplier shall remain responsible that the supplies/service conform to all applicable requirements of this order.

QUALITY CONTROL

A1: QUALITY MANAGEMENT SYSTEM COMPLIANCE

Items supplied on this order shall be produced and serviced under a quality system that complies with ISO9001 or AS9100 as required. Only certifications completed by an IAF (International Accreditation Forum) accredited company or third-party registrar will be accepted.

A2: CERTIFIED ISO9001 QUALITY MANAGEMENT SYSTEM

Items supplied on this order shall be produced and serviced under a certified ISO9001 quality management system. Certification must be to the current revision of the standard. Only certifications completed by an IAF (International Accreditation Forum) or a third-party registrar will be accepted.

A3: CERTIFIED AS9100 QUALITY MANAGEMENT SYSTEM

Items supplied on this order shall be produced and serviced under a certified AS9100D quality management system. Certification must be to the current revision of the standard. Only certifications completed by an IAF (International Accreditation Forum) or a third-party registrar will be accepted.

A4: FOD (FOREIGN OBJECT DEBRIS)

Whenever and/or wherever FOD entrapment or foreign objects can migrate, SELLER shall maintain a FOD prevention program. SELLER'S FOD prevention program shall include the review of manufacturing processes to identify and eliminate foreign object entrapment areas and paths through which foreign objects can migrate. SELLER shall ensure work is accomplished in a manner preventing foreign objects or material in deliverable items. SELLER shall maintain work areas and control tools, parts, and materials in a manner sufficient to preclude the risk of FOD incidents. SELLER shall document and investigate each FOD incident and ensure elimination of the root cause of each such incident.

A5: ESD SENSITIVE PRODUCTS

The SELLER is responsible for ensuring the product is manufactured, tested, identified, and handled in accordance with MIL-STD 1686, ESD S20.20 or equivalent. The SELLER shall maintain an ESD control program in accordance with MIL-STD-1686, ESD S20.20 or equivalent and shall include procedures, personnel training records and calibration of ESD testing equipment. The SELLER'S ESD control program, including the procedures, is subject to the BUYER'S review throughout the period of this contract.

DEFENSE PRIORITIES AND ALLOCATIONS SYSTEM (DPAS)

B1: DPAS (DO)

This is a rated contract certified for National Defense. The SELLER is required to follow all provisions of the Defense Priorities and Allocations System (DPAS) regulations (15 C.F.R Part 700). The rating on this contract is DO.

Levels of priority: DO rated orders take preference over unrated orders. Customer notification requirements. (1) A person must accept or reject a rated order and transmit the acceptance or rejection in writing (hard copy), or in electronic format, within fifteen (15) working days after receipt of a DO rated order. If the order is rejected, the person must also provide the reasons for the



rejection, pursuant to paragraphs (b) and (c) of C.F.R 15 part 700 Subpart D, Section 700.13, in writing (hard copy) or electronic format.

B2: DPAS (DX)

This is a rated contract certified for National Defense. The SELLER is required to follow all provisions of the Defense Priorities and Allocations System (DPAS) regulations (15 C.F.R Part 700). The rating on this contract is DX.

Levels of priority: DX rated orders take preference over DO rated orders and unrated orders. Customer notification requirements. (1) A person must accept or reject a rated order and transmit the acceptance or rejection in writing (hard copy), or in electronic format, within ten (10) working days for a DX rated order. If the order is rejected, the person must also provide the reason(s) for the rejection, pursuant to paragraphs (b) and (c) of C.F.R 15 part 700 Subpart D, Section 700.13, in writing (hard copy) or electronic format.

SOURCE INSPECTION & SUPPLIER FACILITY ACCESS

C1: SOURCE INSPECTION

The BUYER along with its customer, reserves the right to perform product verification at the SELLER'S facility throughout the duration of the purchase agreement.

C2: FACILITY ACCESS

The BUYER along with its customer, and regulatory authorities reserves the right to perform supplier reviews, audits and to have access to the applicable areas of SELLER'S facility to review the product related critical processes and to applicable documented information, at any level of the supply chain including, sub-tier suppliers, at a convenient date and time agreed to by both parties.

DOCUMENTATION

D1: CERTIFICATE OF COMPLIANCE

The SELLER shall provide a Certificate of Conformance / Compliance (C of C) with each delivery of product. This C of C is acknowledgement by the SELLER that the requirements of the purchase order/subcontract have been fully met and any required chemical/physical analysis has been performed with substantiating evidence/data on file and available upon request by the BUYER. The C of C provided with this order shall contain the PO number and identify the name of the authorized representative of the company who is to approve the C of C. The C of C / Packaging documentation shall contain the BUYER'S part number listed on the Purchase Order if applicable.

The C of C shall also contain the Lot Code(s) / Date Code(s) of the items in the shipment as applicable / available. The SELLER also certifies that the requirements of the BUYER'S PO and other appropriate requirements have been conveyed to any sub-tier suppliers in the execution of this purchase order / subcontract.

D2: CERTIFICATE OF SPECIAL PROCESS

The SELLER shall provide a Certificate of Conformance with each delivery, certifying compliance with all special processes required in executing this Purchase Order. The Certification shall contain the SELLER'S name and address used for the special processes unless the Special Process Suppliers certification is included with the shipment. Refer Appendix A for Special Process list.

D3: RAW MATERIAL REPORT AND/OR CERTIFICATE OF COMPLIANCE

The SELLER shall provide a Report or Certificate of Compliance (C of C), with each delivery, 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, tests conducted, and any other relevant information needed to identify the raw material. Acceptable examples include foundry report, mill report, dimension/ description, temper/hardness, alloy, and condition. The SELLER 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). In addition, material shall meet any other contractual requirements as stated in the Purchase Order, and any applicable DFARs such as Specialty Metals.

D4: FLOW-DOWN

When sub-tier suppliers are used in support of this Purchase Order, all applicable P.O Notes (Supplier Quality Assurance Requirements) shall be flowed down to the sub-tier Supplier.

D5: QUALITY RECORDS (7 YEARS)

Quality records, such as first article inspection, test reports and certifications, including special processes, and chemical and/or physical reports identifiable to the raw material used in the performance of this PO, shall be maintained by the SELLER in a controlled condition for a minimum of (7) years from completion of purchase order. Certificate of conformance for this PO shall be maintained by the SELLER. These records shall be maintained in protected condition, remain legible, retrievable by PO number, and made available to the BUYER, its customers and/or regulatory authorities.

RELIABILITY

E1: CHANGE OF PRODUCT OR PROCESS

The SELLER shall the BUYER in writing for manufacturing location change, or change of ownership and of all Process, Design, Fabrication, Testing, Facilities and Material changes affecting the form, fit, function, reliability, or interchangeability of end item specification or drawing requirements. These changes must be evaluated the BUYER prior to implementation by the supplier.

E2: NO PARTS SUBSTITUTIONS ALLOWED

Commercially available parts (COTS) supplied to this order must be an EXACT MATCH to the part number ordered. For upgraded, alternate or equivalent parts considered, the supplier must request and receive approval by the BUYER prior to shipment and acceptance. Parts procured to specifications such as MIL, MS, SAE etc. may be substituted as allowed by the subject specification. If a QPL/QML exists for the product, the SELLER must procure from an approved source. If no QPL exists, the SELLER shall verify that the material meets the standard in full.

Parts supplied to BUYER drawings shall be supplied exactly as ordered. Internal parts used on assemblies shall only be those specified on the parts list. No changes are allowed without the BUYER'S approval.

E3: DISPOSITION AUTHORITY

The SELLER does not have MRB authority for the BUYER or any of its prime customers' designed items unless specifically authorized in writing. The SELLER MRB shall not perform any disposition on any nonconformance to the BUYER or customer requirements that affect form, fit, function, weight, interchangeability, maintainability, reliability, unique key characteristics, or safety. These nonconformances shall be submitted to Linearizer Technology, Inc. & Subsidiaries (LTI&S) for MRB. The SELLER has no authority to proceed with processing as it pertains to the nonconformance until full written and approved final disposition has been given addressing the nonconforming issue.

The SELLER'S disposition authority of nonconformances is limited to rework to specification, return to supplier and scrap. These terms are defined as follows:

- 1) Rework - Restore material to specification compliance in accordance with required process(s) and addressed by governing process specification(s). Parts subject to subsequent processing not authorized by specification shall be submitted to the BUYER. Specific rework instructions shall be provided with Rework dispositions.
- 2) Return to Supplier - Return of subcontractor product found to be discrepant for subsequent rework or replacement. If return of product will impact on time delivery of material to the BUYER, SELLER shall notify the BUYER of any change in delivery schedule ahead of time.
- 3) Scrap - Permanent removal from production and destruction of product found to be unfit for use. Scrapped product shall be segregated or bonded and controlled until destroyed. When the BUYER'S Material Review Board has

disposed material as "Scrap" the material shall be physically rendered unusable within 72 hours (three working days, weekends excluded) after receipt of the disposition. Any requests for alternate disposition shall be resubmitted the BUYER within 72 hours of receipt of the scrap disposition.

MATERIAL

F1: COUNTERFEIT MATERIAL

The SELLER shall not deliver Counterfeit Work or Suspect Counterfeit Work to THE BUYER under this PO. It is the responsibility of the supplier to deliver parts, materials and or hardware to the BUYER that are not counterfeit. The SELLER shall have and maintain a Counterfeit Parts Avoidance and Risk Mitigation Program. The supplier shall verify that the delivered hardware does not contain any counterfeit materials. Verification shall include procurement documentation that the SELLER purchased the product directly from the OEM or from a "Franchised" distributor, reseller or aftermarket supplier who is authorized by that original manufacturer. The SELLER shall also perform an evaluation that could include: Visual Inspection of the device markings, electrical and destructive testing and or non-destructive testing and or non-destructive physical analysis. The evaluation shall also be made to a known authentic sample or with assistance from the original manufacturer. Supplier shall comply with DFARS 252.246-7007 and DFARS 252.246-7008.

-SELLER shall immediately notify the BUYER with the pertinent facts if SELLER becomes aware that it has delivered Counterfeit Work or Suspect Counterfeit Work. When requested by the BUYER, SELLER shall provide OCM/OEM documentation that authenticates traceability of the affected items to the applicable OCM/OEM. SELLER, at its expense, shall provide reasonable cooperation to the BUYER in conducting any investigation regarding the delivery of Counterfeit Work or Suspect Counterfeit Work under this PO.

- This requirement applies in addition to and is not altered, changed, or superseded by any quality provision, specification, statement of work, regulatory flow down, or other provision included in this PO addressing the authenticity of Work.

-In the event that work delivered under this Contract constitutes or includes Counterfeit Work, SELLER shall, at its expense, promptly replace such Counterfeit Work with genuine Work conforming to the requirements of this PO. Notwithstanding any other provision in this Contract, SELLER shall be liable for all costs relating to the removal and replacement of Counterfeit Work, including without limitation THE BUYER'S costs of removing Counterfeit Work, of installing replacement Work and of any testing necessitated by the reinstallation of Work after Counterfeit Work has been exchanged. The remedies contained in this paragraph are in addition to any remedies THE BUYER may have at law, equity or under other provisions of this PO.

F2: GIDEP

The SELLER must be a member of GIDEP, if eligible, and take appropriate corrective and preventive actions on all suspect or defective material or suspect counterfeit or counterfeit parts reported by GIDEP alerts. Access to GIDEPs can be viewed at www.gidep.org/gidep.htm.

The SELLER must ensure that all occurrences where it has:

- 1) Acquired suspect or defective material or suspect counterfeit or counterfeit parts are reported to GIDEP.
- 2) Provided suspect or defective material or suspect counterfeit or counterfeit parts are immediately reported the BUYER.

Note: The SELLER shall respond to any suspect or defective material or suspect counterfeit or counterfeit part inquiries made by the buyer regarding the authenticity of products provided by the supplier.

SOLDERABILITY

G1: LEADED SOLDER

The SELLER (and any sub-tier suppliers) shall NOT use lead-free solder in any product delivered to the BUYER. Solder is considered lead-free if it contains less than three percent (3%) lead by weight.

G2: ROHS 6 COMPLIANT

The SELLER (and any sub-tier suppliers) shall NOT use leaded solder in any product delivered to the BUYER.

SPECIAL PROCESSES

H1(X): ANSI/ESD S20.20-ESD CONTROL PROGRAM

The SELLER and/or their sub-tier suppliers shall conform to this special process requirement which must be approved by the BUYER. "(X)" refers to specific approved processors. Please refer to Appendix A of this document for a list of the BUYER'S approved special processors.

H2(X): J-STD-001

The standard for soldering electronic assemblies –Class 3. The SELLER and/or their sub-tier suppliers shall conform to this special process requirement which must be approved by the BUYER. "(X)" refers to specific approved processors. Please refer to Appendix A of this document for a list of the BUYER'S approved special processors.

H3(X): MIL-DTL-5541-F

Aluminum chemical film class 3 type II. The SELLER and/or their sub-tier suppliers shall conform to this special process requirement which must be approved by the BUYER. "(X)" refers to specific approved processors. Please refer to Appendix A of this document for a list of the BUYER'S approved special processors.

H4(X): ASTM B 449

Aluminum chromate type III. The SELLER and/or their sub-tier suppliers shall conform to this special process requirement which must be approved by the BUYER. "(X)" refers to specific approved processors. Please refer to Appendix A of this document for a list of the BUYER'S approved special processors.

H5(X): MIL-F-14072

Protective finishes for ground electronic equipment use. The SELLER and/or their sub-tier suppliers shall conform to this special process requirement which must be approved by the BUYER. "(X)" refers to specific approved processors. Please refer to Appendix A of this document for a list of the BUYER'S approved special processors.

H6(X) CONFORMAL COATING

Conformal Coating. The SELLER and/or their sub-tier suppliers shall conform to this special process requirement which must be approved by the BUYER. "(X)" refers to specific approved processors. Please refer to Appendix A of this document for a list of the BUYER'S approved special processors.

*The cleanliness of the PCBA is of extreme importance. The surface shall be free of moisture, dirt, wax, grease, flux residues and other contaminants prior to coating. After coating the PCB assemblies shall be inspected per IPC-A-610, Class III.

PACKAGING

I1: PACKAGING

All class 1, 2, or 3 electronic static sensitive parts delivered against this order shall be packaged per MIL-STD-1686 and DOD-HDBK-263 or as applicable per ANSI/ESD S20.20 in ESD protective material only. Packaging peanuts of any type are not allowed inside any of the packaging containers. All non-sensitive parts shall be packaged using anti-static material (as or if required by industry standards). PCBAs packaging shall have desiccant and moisture indicator card, etc.

HAZARDOUS MATERIAL

J1: MERCURY FREE

Mercury or mercury containing compounds shall not be intentionally added or come in direct contact with hardware or supplies furnished under this contract.

J2: SHELF LIFE

Chemicals delivered to the BUYER shall have a minimum of 75% shelf life remaining. Hazardous materials must ship with MSDS/SDS.

PRODUCT TRACEABILITY

K1: SERIALIZATION

Serial number control is required. SELLER shall serialize each part/assembly that is delivered against this PO. Each serial number shall be unique and not repeated. Additional traceability clauses might apply to this PO as required.

K2: COMPONENT TRACEABILITY

SELLER and/or their sub-tier supplier shall provide component level traceability for PCB Assembly. This shall consist of lot/date codes for all components that trace back to the manufacturer (OCM/OEM). The SELLER shall not commingle lots or date codes of components when manufacturing each PCB Assembly. Lot or date codes shall be traceable back to the part/assembly's unique serial number.

MANUFACTURER ID MARKING ON PARTS

L1: MARKING MANUFACTURER ID ON PARTS

SELLER shall mark each part with their manufacturer ID, such as CAGE CODE or "MIS" code (3 digit letter code, "XXX" as Manufacturer Identification Symbol) as assigned by the DoD. If the supplier does not have a CAGE CODE or "MIS" code, the SELLER shall mark each part with their abbreviated company name.

FAI/FAT – FIRST ARTICLE INSPECTION/TEST REQUIREMENT

M1: FAI – FIRST ARTICLE INSPECTION/TEST REQUIREMENT

SELLER shall perform, maintain, and provide FAI/FAT – First Article Inspection/Test records for this P/N. if it is called out on the P.O. as the requirement, and if any of the following conditions occur:



1. First time product is manufactured for production for this P/N.
2. A change in the design affecting form, fit, function and or interchangeability of the part.
3. A change in manufacturing source(s), process(es), inspection method(s), acceptance criteria, location of manufacture, tooling, or materials.
4. A change in numerical control program or translation to another media that is utilized to produce end item parts.
5. A natural or man-made event, which may adversely affect the manufacturing process.
6. A lapse in production for two years, or as specified by the customer.
7. For MOTS (modified off-the-shelf) or AID (Altered Item Dwg.) items, FAI of the modified portion at a minimum is required.
8. The SELLER shall use the most current version of AS9102 Forms 1,2 & 3 for their FAI report, and provide supporting documents as CoC for raw material, special processes, and test reports.

NOTE: A FAI report is not required for rework/repair P.O. or for parts or material conforming to an established industry or national authority published specification (i.e., COTS and MIL-Spec parts).

SECONDARY PROCESSES

N1: METAL FASTENERS

SELLER Shall install fasteners per manufacturer specifications. Test data shall be maintained, and be made available to the BUYER, and its customers.

SUPPLIER QUALITY REQUIREMENTS - APPENDIX A

Requirement	Special Process	Approved Special Processor(s)
H1(LM)	ANSI ESD S20.20	SCJ ASSOCIATES, INC. 60 COMMERCE DRIVE ROCHESTER, NY 14623
		GREEN CIRCUITS 1130 RINGWOOD CT SAN JOSE, CA 95131
H1(LPL)	ANSI ESD S20.20	AMERICAN COMPUTER DEVELOPMENT, INC. (ACDI) 7435 NEW TECHNOLOGY WAY, FREDERICK, MD 21703
H2(LM)	J-STD-001 Class 3	SCJ ASSOCIATES, INC. 60 COMMERCE DRIVE ROCHESTER, NY 14623
		GREEN CIRCUITS 1130 RINGWOOD CT SAN JOSE, CA 95131
H2(LPL)	J-STD-001 Class 3	AMERICAN COMPUTER DEVELOPMENT, INC. (ACDI) 7435 NEW TECHNOLOGY WAY, FREDERICK, MD 21703
H3(LM)	MIL-STD-5541-F	GENERAL AVIATION & ELECTRONICS 30 JERSEY PL, HACKENSACK, NJ 07601
		A L FINISHING COMPANY, INC. 925 SCHWAB RD, HATFIELD, PA 19440
		JWF DEFENSE SYSTEMS, LLC 84 IRON STREET, JOHNSTOWN, PA 15901
H3(NAD)	MIL-DTL-5541-F	PURECOAT NORTH, LLC 39 HITTINGER ST, BELMONT, MA 02478
		C.I.L ELECTROPLATING, INC. 125 GLENN ST, LAWRENCE, MA 01843
H4(NAD)	ASTM B 449	PURECOAT NORTH, LLC 39 HITTINGER ST., BELMONT, MA 02478
H5(LM)	MIL-F-14072	SAR FINISHING 104N NJ Rt. 73, BERLIN, NJ 08009
H6(LPL)	Conformal Coating	SPECIALIZED COATING SERVICES (SPEC COAT) 42680 CHRISTY ST., FREEMONT, CA 94538

Legend for Processor Approval:

(LM) = Lockheed Martin Approved Processor

(NAD) = NADCAP Approved Processor

(LPL) = Linear Photonics Approved Processor