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PURPOSE AND SCOPE

This document contains the Trillium Engineering Supplier Quality Assurance Requirements (SQAR). Suppliers to Trillium Engineering understand and acknowledge that with the acceptance of any Trillium Engineering purchase order, this SQAR is invoked in its entirety and remains in effect for the duration of the purchase order's period of performance.

All Trillium Engineering purchase orders referencing this document, in whole or in part, are within the scope of the requirements outlined herein.

REFERENCES

- ANSI/ESD-S20.20 Protection of Electrical and Electronic Parts, Assemblies, and Equipment
- AS5553 Fraudulent/Counterfeit Electronic Parts; Avoidance, Detection, Mitigation, and Disposition
- AS6081 Counterfeit Electrical, Electronic, and Electromechanical (EEE) Parts: Avoidance, Detection, Mitigation, and Disposition - Independent Distribution
- AS6171 Test Methods Standard; General Requirements, Suspect/Counterfeit, Electrical, Electronic, and Electromechanical Parts
- FY2020 NDAA Section 848
- FY2023 NDAA Section 817

SQAR-1 CERTIFICATE OF CONFORMANCE

- 1.1 Supplier shall submit a signed/stamped and dated certificate of conformance (CoC) with each shipment. Certificate of conformance shall state that the supplied material, part, or service was made/delivered and tested in accordance with required specifications and provides for traceability back to the original source for any EEE parts supplied or contained in the parts supplied.
- 1.2 For Trillium Engineering vendor item control or source control drawings, Supplier shall certify to the part number specified on the purchase order.
- 1.3 The CoC shall identify at minimum:
 - Supplier's name and address
 - Trillium Engineering purchase order number
 - Quantity shipped
 - Lot and/or serial numbers, if applicable
 - Country of origin
 - Trillium Engineering part number and revision
 - Supplier part number and revision, if applicable
 - Date of manufacture, lot/batch number, and expiration date for limited shelf life items
 - Signature/stamp, title, and date by an authorized representative of the supplier

SQAR-2 MATERIAL SHELF LIFE

- 2.1 Each container of limited shelf life material shall have the shelf life expiration date clearly marked on the container and/or annotated in certifications provided with the material.
- 2.2 Material received with less than 75% of the shelf life remaining will be rejected.

SQAR-3 NDAA COMPLIANCE

- 3.1 Flight controllers, radios, data transmission devices, cameras, and gimbals supplied to Trillium Engineering shall be compliant with FY2020 NDAA Section 848 as amended by FY2023 NDAA Section 817.

SQAR-4 SUPPLIER CORRECTIVE ACTION REQUEST

- 4.1 Supplier agrees to provide timely and thorough response to Supplier Corrective Action Requests (SCARs) issued by Trillium Engineering. Failure to adequately address any SCAR will negatively affect the supplier's performance rating and could result in suspension or removal.
- 4.2 Supplier shall give priority to root cause analysis and corrective actions necessary to prevent further nonconformances. Failure analysis performed as part of Supplier's investigation shall be included in the SCAR response.

SQAR-5 PACKAGING

- 5.1 Deliverable items shall be individually packaged in a manner that protects them from physical damage, Electrostatic Discharge (ESD) damage, and Foreign Object Debris (FOD) contamination, as applicable.

SQAR-6 LABELING

- 6.1 Deliverable items shall be individually labeled with their Trillium Engineering part number and lot number (if assigned) in human and machine-readable formats. An adhesive label on each part's unit-level packaging is preferred.

SQAR-7 CALIBRATION SERVICES

- 7.1 Suppliers of calibration services shall be certified to an industry-recognized standard (e.g. ISO 17025, ISO 10012-1, ANSI Z540).
- 7.2 Calibration of Trillium Engineering test and measurement equipment shall be performed to NIST-traceable standards unless otherwise specified in the relevant purchase order.

SQAR-8 ELECTRONIC COMPONENTS

- 8.1 Suppliers of electronic components other than the Original Component Manufacturer (OCM) and their authorized distributors shall be AS6081 certified and able to provide component testing by an AS6171 certified test house.
- 8.2 Suppliers of electronic component testing services shall be AS6171 certified.

SQAR-9 ELECTRONIC ASSEMBLIES

- 9.1 Cables, wire harnesses, and PCBAs shall be inspected to the relevant IPC standard's Class 2 requirements, at a minimum.
- 9.2 Additional requirements, if applicable, will be noted in the provided assembly documentations and/or purchase order.

SQAR-10 COUNTERFEIT PARTS PREVENTION

- 10.1 Supplier shall implement and maintain a counterfeit parts prevention process using AS5553 as a guideline.
- 10.2 Supplier shall flow down the requirements of this SQAR to any of its suppliers providing EEE parts for fulfillment of Trillium Engineering purchase orders.
- 10.3 Supplier shall immediately notify Trillium Engineering's Director of Quality if it becomes aware of or suspects that items delivered to Trillium Engineering are or contain suspect or confirmed counterfeit items.
- 10.4 Supplier shall purchase all materials from Original Equipment Manufacturers (OEMs), Original Component Manufacturers (OCMs), or their authorized resellers or distributors. Purchase of materials from alternate sources may only occur after obtaining written approval from Trillium Engineering's VP of Operations.
- 10.5 Supplier shall retain sufficient documentation to trace purchased EEE parts to their OEM or OCM and shall provide this documentation to Trillium Engineering upon request.

SQAR-11 ELECTROSTATIC DISCHARGE (ESD)

- 11.1 Suppliers of electronic components, Printed Circuit Board Assemblies (PCBAs) or other electro-mechanical subassemblies shall implement and maintain an ESD control program using ANSI/ESD-S20.20 as a guideline.
- 11.2 ESD sensitive parts, products, and assemblies shall be placed in conductive or static-dissipative packages, tubes, carriers, conductive bags, etc., for shipment.
- 11.3 Packaging shall be clearly labeled to indicate that it contains electrostatic sensitive items.

SQAR-12 LOT CONTROLLED ITEMS

- 12.1 When lot controlled, each deliverable item shall be identifiable by a lot or batch number.
- 12.2 Lot numbers shall be unique and used only once for each Trillium Engineering part number.

SQAR-13 SERIALIZED ITEMS

- 13.1 When serialized, each deliverable item shall be identifiable by a serial number on its unit level packaging.
- 13.2 Serial numbers shall be unique and used only once for each Trillium Engineering part number.

SQAR-14 PRINTED CIRCUIT BOARD ASSEMBLIES (PCBAs)

- 14.1 PCBAs shall be depanelized and individually packaged for shipment.
- 14.2 Supplier shall lot track Trillium Engineering PCBAs and maintain traceability of electronic component lot/date codes to their PCBA lot codes.
- 14.3 Supplier shall mark all PCBA unit-level packages with their Trillium Engineering lot code, defined as follows:
SSSYDDDD, where
 - SSS = three capital letters denoting the supplier
 - YY = last two digits of the year of manufacture
 - DDD = day of manufacture per the Julian calendar
- 14.4 Day of manufacture in 14.3 above need not be the exact day the PCBAs were produced. Ship date is acceptable, for example, provided the following conditions are met:
 - Lot numbers assigned shall be unique for a given Trillium Engineering part number
 - Lot numbers assigned shall be traceable to the supplier's lot numbers, and thereby to the relevant electronic component lot/date codes

SQAR-15 DESIGNATED SUB-TIER SUPPLIERS

- 15.1 When specified, Suppliers shall purchase parts, materials, or services from Trillium Engineering designated sub-tier suppliers.

- 15.2 Trillium Engineering's designation of a sub-tier supplier does not eliminate the Supplier's responsibility to ensure the sub-tier supplier's conformance to requirements.

SQAR-16 REQUEST FOR DEVIATION

- 16.1 Supplier shall submit requests for deviation from technical requirements in writing to the Trillium Engineering buyer that issued the relevant purchase order, or the Procurement Manager in their absence.
- 16.2 If granted, deviation approval must be communicated to the Supplier in writing by the buyer that issued the relevant purchase order, or the Procurement Manager in their absence, to be actionable by the Supplier.
- 16.3 Any costs incurred by the Supplier by proceeding at-risk, in advance of Trillium Engineering's review and approval of their deviation request, are the Supplier's sole responsibility.

SQAR-17 FIRST PART/LOT APPROVAL

- 17.1 When requested during the quote process and subsequently required on the corresponding purchase order, the Supplier will submit a sample first part or lot for dimensional and functional approval prior to producing the balance of the items.
- 17.2 Supplier shall notify the buyer that issued the relevant purchase order, or the Procurement Manager in their absence, when the part or lot is ready for examination.
- 17.3 Approval examination may be conducted at the Supplier's facilities or at Trillium Engineering's receiving inspection area.

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