RELEASED

Vivace

Supplier Quality Assurance Codes

VP-350-100

Rev. E

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PROPRIETARY DOCUMENT

The current document is located on SharePoint. Printed documentation is considered "Out of Date" and should be used with caution.

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Revision History

Revision	Date	Changes
Original	4/24/2013	Original Issue
A	6/12/2013	Revised document number; was VP-50.115
B	9/5/2014	Added additional information to D3 and R1 codes and created R2 to specifically define Right of Access
C	1/10/2019	Added new codes – C4, C5, S6, S7, S8. Recoded C3, was D1; D1, was C3. Added descriptive detail to Q1 and Q2 title.
D	5/16 /2019	Added new codes – S9, S10 and T5; supports flow down requirement of NG
E	5/26/2019	Added new codes – C6, P4 and P5; revised C5, P3 and R1

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1 PURPOSE

Supplier Quality Codes are added to Subcontracts and Purchase Orders by Vivace Quality Assurance as needed per program and product requirements.

2 SUPPLIER QUALITY CODE DEFINITIONS

C1 Certificate of Conformance

C2 Corrective Action Response

C3 Certified Test Report

C4 Conflict Minerals

C5 Counterfeit Parts

C6 Flowdown Requirements to Sub-Tier Suppliers

D1 Dropped Shipped

D2 Data Package

D3 Disposition Delegation and Material Review

G1 GIDEP

H1 Hazardous Material

H2 HAZ MAT

M1 Furnished Material

N1 NDT

O1 Off the Shelf Items

P1 Special Packaging

P2 Packaging

P3 Product Change Notification

P4 Use of Approved Supplier (Sub-Tier)

P5 Awareness – Contribution to Conformity, Product Safety and Ethical Behavior

Q1 Quality System - Registered

Q2 Quality System - Compliant

R1 Records

R2 Right of Access

S1 Statement of Work/Performance Specification

S2 Serialization

S3 Shipping Containers Marking

S4 Special Instructions

S5 Space Flight

S6 Manned Space Flight

S7 In-Process Source Surveillance

S8 Final Source Inspection

S9 Part/Material Substitution Prohibited

S10 Obsolete Parts Prohibited

T1 Traceability – Maintain Report

T2 Traceability – Provide Report

T3 Ultrasonic Testing

T4 Test Procedure

T5 Torqueing

2.1 C1 CERTIFICATE OF CONFORMANCE

The supplier shall furnish a Certificate of Conformance that includes:

1. The Vivace purchase order number and revision
2. Manufacturers name, location and/or Cage Code
3. Part Number (and revision, if available)
4. Serial number or Date/Lot code, if applicable
5. Date of manufacture (if available)
6. Reference to all applicable specifications as listed on the PO or drawings,
7. Quantity and units of measure of items shipped.
8. The statement "WE HEREBY CERTIFY THAT ALL MATRIALS FURNISHED CONFORM TO ALL DRAWINGS, SPECIFICATIONS, PROCESSES, AND'OR OTHER REQUIREMENTS AS STATED ON THE ABOVE REFERENCED PURCHASE ORDER." (Reasonable variations of this statement are acceptable as long as the content concurs)
9. The original signature (electronic signatures are acceptable) of an authorized company representative.

This Certificate of Conformance shall assure that the articles shipped have been manufactured in accordance with and verified to applicable drawings and specifications. All components of the item being provided have been manufactured or procured by the supplier from either the manufacturer or an authorized distributor of the manufacturer and that all material documentation, functional test reports and inspection records are on file at the supplier and/or manufacturer's facility and are available for Vivace review.

2.2 C2 CORRECTIVE ACTION RESPONSE

Acceptance of this Purchase Order obligates the supplier to perform, upon request, a corrective action investigation when discrepant materials are received by Vivace. A written report shall be furnished which is specific and conclusive to prevent a recurrence of the discrepancy. Timeliness of the report shall be within 30 calendar days, or as otherwise determined by the impact to Vivace's schedule, delivery or other significant milestone.

2.3 C3 CERTIFIED TEST REPORT

Supplier of metallic raw materials and/or suppliers of components produced from metallic raw materials shall furnish a copy of a certified test report with each shipment for each item listed on this purchase order. One of the following test reports shall accompany the shipment:

1. A certified copy of the actual producing mill's test report, or
2. A certified copy of an accredited laboratory's test report, or
3. A certified copy of the distributor's test report.

These test reports must contain the following:

1. The name of the producing mill
2. The material specification and revision number

3. The raw material heat/lot number
4. The actual quantitative results for all lot acceptance testing as required by the raw material specification (i.e. – chemical, physical and metallurgical).
5. The original signature (electronic signatures are acceptable) of and authorized mill, laboratory, or distributor representative.

Note: In addition to the above, some type of traceability is required to be maintained in order to tie together our purchase order, the supplier C of C and the material test report. (Example: the mill heat/lot number must be referenced on the supplier C of C furnished against the Vivace purchase order number)

2.4 C4 Conflict Minerals

All suppliers shall reasonably cooperate with Vivace's efforts to comply with the Frank-Dodd Act (2010), Section 1502, which requires certain companies to disclose their use of conflict minerals (tin, tantalum, tungsten or gold) if those minerals are "necessary to the functionality or production of a product" manufactured by those companies. Companies providing products containing conflict minerals are expected to apply due diligence to determine if Conflict Minerals are sourced from the Democratic Republic of the Congo or adjoining countries and if so, support efforts to eradicate the use of the minerals which directly or indirectly finance or benefit armed groups in these countries.

2.5 C5 Counterfeit Parts

Defined: an unauthorized copy, imitation, substitute, or modified part (e.g., material, part, component), which is knowingly misrepresented as a specified genuine part of an original or authorized manufacturer.

NOTE: Examples of a counterfeit part can include, but are not limited to, the false identification of marking or labeling, grade, serial number, date code, documentation, or performance characteristics.

Suppliers shall have in place a documented program to avoid, detect, mitigate and disposition counterfeit or suspect counterfeit parts and materials. The prevention process should consider:

- Training of appropriate persons in the awareness and prevention of counterfeit parts
- Application of a parts obsolescence monitoring program
- Controls for acquiring externally provided product from original or authorized manufacturers, authorized distributors, or other approved sources
- Requirements for assuring traceability of parts and components to their original or authorized manufacturers
- Verification and test methodologies to detect counterfeit parts
- Monitoring of counterfeit parts reporting from external sources (e.g. GIDEP)
- The quarantine and reporting of suspect or detected counterfeit parts.

Suppliers should utilize and reference AS6174 for guidance.

Suppliers shall also flow down counterfeit parts programs requirements to their sub-tier, especially but not limited to:

- Electronic parts suppliers
- Raw material suppliers
- Distributorship

Counterfeit parts or suspect counterfeit parts shall be documented in the nonconformance system and Vivace notified within 2 days.

The system shall be subject to approval by Vivace by survey or audit.

2.6 C6 Flowdown Requirements to Sub-tier Suppliers

Suppliers shall flow down to their sub-tier suppliers all applicable requirements of this purchase order.

2.7 D1 Dropped Shipped

Products are to be drop shipped to the address shown on the purchase order. The Quality Assurance related paperwork (certification, inspection results, test results, etc.) and a copy of the packing list are to be mailed to the following address: Vivace Corporation, 13800 Old Gentilly Road, Bldg. 103-2-H7, New Orleans, LA 70129

2.8 D2 Data Package

The vendor/subcontractor shall provide a data package at completion of hardware build activity that shall document the "As Built" configuration and the inspections and tests utilized to verify that configuration. Inspection and test equipment used on this contract shall be calibrated at intervals not to exceed one year, to a measurement standard traceable to standards.

2.9 D3 Disposition Delegation and Material Review

Vivace does not grant nor delegate any disposition or material review authority to any of its suppliers. Nonconforming products identified prior to or after delivery shall be documented and Vivace notified within 2 days of discovery.

2.10 G1 GIDEP

The Supplier shall establish and implement a system to review and take action, as necessary, on Government-Industry Data Exchange Program (GIDEP) or The European Space Agency (ESA) equivalent. The Supplier shall be responsible for monitoring and reporting GIDEP or ESA equivalent Alerts for impact to flight hardware delivered to Vivace, or shall provide an Alternate Method, Process or Procedure to notify Vivace of any GIDEP or ESA Alerts received by the Supplier or their material vendors. Suspect parts identified on GIDEP or ESA equivalent Alerts shall be segregated from all stores, kits, assemblies, and any other allocation used as a source of parts for Vivace flight hardware for disposition by an MRB.

2.11 H1 HAZARDOUS MATERIAL

Prior to shipment or transfer to Vivace, the supplier shall provide the appropriate Material Safety Data Sheet(s), where applicable, for any chemical substance that is on the list compiled and published by the Environmental Protection Agency for Hazardous Material, as defined in Appendix A of FED-STD-313.

2.12 H2 HAZ MAT

Use of Class I Ozone Depleting Substances (ODS) on this order is prohibited. Class I ODS includes, but is not limited to:

1. Halons
2. Chlorofluorocarbons (CFCs)
3. Other controlled substances - Carbon Tetrachloride (Tetrachloromethane), Methyl Chloroform (1,1,1-Trichloroethane), and Methyl Bromide

2.13 M1 FURNISHED MATERIAL

Items manufactured under this purchase order shall be fabricated from Vivace furnished material. The supplier shall not substitute for or dispose of Vivace furnished material except as instructed in writing by Vivace. Unused material, properly identified, shall be returned with the last shipment of fabricated parts. (With each shipment of parts, the supplier shall submit a certificate, signed by a member of the supplier's Quality supervision, which states "(supplier company name) certifies that all material used in the performance of this purchase order number _____was supplied by Vivace and no unauthorized substitutions or disposals were made".

2.14 N1 NDT

Non-destructive testing required. See PO for specific requirements.

2.15 O1 OFF THE SHELF ITEMS

Items and/or material on this PO have been procured as standard catalog items. The initial shipment of these items shall be accompanied by the catalog/drawing from which these items were purchased for verification at Vivace's Receiving Inspection Department.

2.16 P1 SPECIAL PACKAGING

Special preservation, packaging, and packing are required. See PO for specific requirements.

2.17 P2 PACKAGING

In cases where packing and packaging requirements are not specified on the drawings, specifications and/or Purchase Order, packing and packaging shall conform to the following requirements:

1. All items shall be enclosed within wrappings, bags, cartons, boxes, or other containers to the extent necessary to provide protection from hazards of contamination and damage encountered in general handling, shipping, and storage.
2. Materials used to enclose parts shall be dry and in accordance with good commercial practice. Material used in direct contact with metal surfaces shall not cause or promote corrosion.
3. All items with the same part number may be packed together in the same container, provided they are individually segregated to prevent damage during shipping.

2.18 P3 Product Change notification

The supplier shall notify Vivace for acceptance of any changes to the product, processes or services, including changes of their suppliers or location of manufacture.

2.19 P4 Use of Approved Suppliers (Sub-Tier)

Customer-designated or approved sub-tier suppliers shall be used, including process sources (e.g. special processes – heat treat, NDE, etc.)

2.20 P5 Personnel Awareness – Contribution to Conformity, Product Safety and Ethical Behavior

Supplier shall ensure that its personnel have the required training and experience appropriate with the requirements necessary for the performance of this PO and are aware of:

a. Their contribution to product or service conformity.

b. Their contribution to product safety, as defined: "*The state in which a product is able to perform to its designed or intended purpose without causing unacceptable risk of harm to persons or damage to property.*"

c. The importance of ethical behavior.

2.21 Q1 Quality System - Registered

The supplier shall establish, document, implement and maintain a "Registered" ISO 9001 or AS 9100 Quality Management System. Vivace reserves the right to conduct an assessment of the supplier's system.

2.22 Q2 Quality System - Compliant

The supplier shall establish, document, implement and maintain a Quality Management System compliant to ISO 9001 or AS9100 requirements. Vivace reserves the right to conduct a survey of the supplier's facilities to determine the adequacy of the quality system.

2.23 R1 Records

All supplier records for articles and materials supplied to Vivace on this purchase order shall be retained in a safe and accessible location by the supplier for 7 years or as specified by contract.

2.24 R2 Right of Access

Vivace, their customer and regulatory authorities shall be granted access to the applicable areas of all facilities, at any level of the supply chain, involved in manufacture of the product and to all applicable records.

2.25 S1 Statement of Work/Performance Specification

Articles defined in this Purchase Agreement are subject to additional requirements per a Statement of Work or Performance Specification, which must be met to achieve compliance to contract requirements. Articles will not be accepted by Vivace if Sub-contractor fails to comply with these requirements.

2.26 S2 Serialization

Individual serialization is required. Apply serial number to item as indicated per drawing. If no other system is in place, use of a four (4) digit numerical number starting with 0001 is preferred. Serial number must be prefixed with the supplier's logo, name, abbreviation of name, or other methods that positively identifies the supplier. The serialization shall continue in a contiguous manner under subsequent PO's.

2.27 S3 Shipping Containers Marking

The supplier shall mark exterior shipping containers with a statement equivalent to the following: "Receiving Department - Do not open containers. Forward Receiving Reports and unopened container to Receiving Inspection".

2.28 S4 Special Instructions

Special instructions/requirements apply to this PO. See the PO for details.

2.29 S5 Space Flight Hardware

This item is for use on an unmanned spacecraft.

2.30 S6 Manned Space Flight

This item is for use on manned space flight. Materials, manufacturing and workmanship of the highest quality standards are essential for astronaut safety and well-being.

2.31 S7 In-Process Source Surveillance

Source surveillance may be conducted by Vivace at the supplier's facilities or where designated in this contract prior to shipment. Inspection/test and in-process inspection/test of the articles defined in this purchase order shall be performed by the supplier and shall be witnessed by Vivace's QA representative.

Prior to the start of fabrication, the supplier shall contact Vivace Quality Assurance so that Mandatory Inspection Points (MIPs) can be agreed upon. A minimum of 5 days prior to the inspection need date, the

supplier shall notify Vivace QA of the upcoming inspection/test to allow arrangement for Vivace's witnessing of the activity.

2.32 S8 Final Source Inspection

Source inspection for final acceptance inspection/test shall be conducted by Vivace at the supplier's facilities, or where designated by contract, prior to shipment. Inspection and/or test performed in accordance with an agreement between the supplier and a Vivace QA representative will fulfill the acceptance/test requirements of Vivace.

Prior to the start of fabrication, the supplier shall contact Vivace Quality Assurance so that Mandatory Inspection Points (MIPs) can be agreed upon. A minimum of 5 days prior to the inspection need date, the supplier shall notify Vivace QA of the upcoming inspection/test to allow arrangement for Vivace's witnessing of the activity.

2.33 S9 Part / Material Substitution Prohibited[1]

Part and/or material substitutions for items stated on Vivace design requirements are not allowed. Any deviation from drawing, specification, and/or purchase documents shall have written authorization from Vivace with documentation of the approval included in the shipping documents package. The supplier shall ensure that these requirements are flowed down through the supply chains that support the item(s) on this order.

2.34 S10 Obsolete Parts Prohibited[1]

There shall be parts used in the design that are known to be obsolete by the original manufacturer. After approval of the design baseline, the supplier shall notify Vivace of any impending parts obsolescence for evaluation. The supplier shall ensure that these requirements are flowed down through the supply chains that support the item(s) on this order.

2.35 T1 Traceability – Maintain Report

Supplier shall provide and maintain a system of traceability utilized in the parts being supplied. The following items must be traceable to the hardware delivered and the line item of the Vivace Purchase Order, and be made available for review by Vivace upon request:

1. Materials
2. Components
3. Inspection records
4. Test results
5. Process control records
6. Material certifications
7. Process certifications

2.36 T2 Traceability – Provide Report

A copy of laboratory and/or test reports indicating chemical composition and mechanical properties (such as tensile strength, hardness, etc.) identifiable to each lot, batch, or heat treat lot shall accompany each shipment and shall be signed by an authorized representative.

2.37 T3 Ultrasonic Testing

Ultrasonic testing is required. The supplier shall furnish certification that ultrasonic testing has been performed to the Purchase Order requirements.

2.38 T4 Test Procedure

Supplier's test procedures require approval by Vivace prior to the start of any test.

2.39 T5 General Torque Requirements, Workmanship Standards[1]

Torqueing

The extensive use of bolts, studs, and nuts as fastening elements and an avoidable quality problem history makes proper selection and tightening of fasteners essential. The supplier shall ensure that fastener selection and tightening meet or exceed industry best practices and the following generalized requirements derived from industry specifications and standards.

a. Holes shall be verified as deburred before fasteners ar3e installed.
b. No lubricant or sealant shall be applied to fasteners or threads unless it is specifically called out on the engineering drawing.
c. Threaded fastening system hardware shall be inspected prior to installation to verify that part number(s), cleanliness, and orientation are in accordance with the engineering drawing.
d. Locking torque shall be measured during installation and verified to be within the minimum-maximum range.
e. Fasteners removed may be reinstalled but shall be r3eistalled using the same procedures as for new fasteners. Fasteners shall be examined for wear or deformation before being reinstalled.
f. Tools and instruments used to install fastening system hardware shall be used within their design and calibration ranges.
g. Torque instruments should be chosen so the torque (running or final assembly)being measured or controlled is between 20 and 90 percent of the instrument’s full-scale torque.
h. All torque wrenches shall be verified to be in calibration before they are used.
i. If a calibrated tool or instrument is dropped, struck, or otherwise damaged or suspected of being out of calibration, the calibration shall be re-verified before further use.
j. The tool or instrument name, serial number, calibration due date, and torque value shall be recorded on the planning for traceability.
k. Fasteners shall be tightened to the installation torque specified by the engineering drawing.
l. The engineering documentation shall specify the installation torque range or specify an applicable standard that defines the installation torque range.

m. The engineering documentation shall clearly identify when the installation torque is the torque above running torque. Running torque shall be recorded on the planning documentation.
n. Personnel installing fastening system hardware shall be qualified through experience and formal training per program, project, or organization specific quality processes.
o. Tightening sequence shall be a star pattern unless system design requirements require alternate tightening scheme. A verification check shall be performed either in a clockwise or counter clockwise direction to ensure all fasteners are tight.
p. Mechanical locking features shall be verified by visual inspection after installation.
q. Adhesive locking features dependent upon substrate or configuration for cure shall be verified by torque measurements on witness coupons that are representative of and processed with hardware being verified
r. All other adhesive locking features shall be verified using sure samples at the time of application/processing.
s. Quality shall witness and record in planning documentation all torqueing operations when safety and mission critical items are installed in flight systems.

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[1] Code is a customer flowdown requirement