

Quality Assurance Procurement Provisions – QAPPs

The following provisions with their terms and conditions shall become an integral part of the purchase order to the extent specified in the purchase order and shall become a supplement to the presently existing terms and conditions of the purchase order. All specifications and standards referenced in this document are the latest issue in effect at the time of Purchase Order placement, unless otherwise stated. These provisions apply to suppliers providing hardware or software development or fabrication to all ViaSat facilities and divisions, as appropriate.

1. IDENTIFICATION MARKING, PERMANENCY AND LEGIBILITY

The engineering drawing specifies marking requirements. Unless stated otherwise, marking permanency and legibility for PWAs and electronic assemblies shall be in accordance with ANSI/IPC-A-610. WEEE and RoHS marking permanency must be in accordance with ViaSat, Inc. PR000450, PR000608 and/or CENELEC EN50419:2005.

2. GOVERNMENT REVIEW OF PERFORMANCE

During performance on this contract, the government reserves the right to inspect at source of supplies or services. Government inspection shall not constitute acceptance nor shall it in any way replace ViaSat inspection. The purpose of this inspection is to assist the government representatives at ViaSat to determine the conformance of supplies or services with contract requirements. Government inspection or release of product prior to shipment is not required unless Supplier is otherwise notified.

3. VIASAT FIELD INSPECTION

ViaSat reserves the right to visit the plant of the Supplier or his source to survey facilities, systems, and/or product to determine satisfactory conformance to the applicable specifications. ViaSat Quality Assurance representative(s) may elect to conduct inspection either on a random basis or to the extent of 100% inspection. Supplier will be notified if ViaSat inspection is to be conducted on specific shipments. No shipments are to be held for ViaSat inspection unless notification is received prior to, or at the time of, material being ready for shipment.

4. IDENTIFICATION

This QAPP has been combined with QAPP #1.

5. CERTIFICATE OF COMPLIANCE

Certification is required with each shipment of this item. The certificate shall contain a signature of an authorized Quality Assurance representative of the Supplier and will read substantially as follows: "Materials and processes, including special processes, used to produce the item(s), components, parts, described on the Purchase Order conform to all Purchase Order requirements, referenced specifications or special requirements." It must include serial numbers, lot codes and date codes, as applicable. When QAPP 12.A or QAPP 49 is invoked, the Supplier shall provide Certificate of Compliance that contains the name, specification number, type, and class, of the material or process specified in the appropriate specification/drawing. It must include serial numbers, lot codes and date codes, as applicable. It must also list all Special Processes used in the manufacture of delivered items, as defined in QAPP # 49.

If Source Inspection per QAPP 15 or 15.A is invoked on this order, the Certificate of Compliance must be completed and presented to the Source Inspector at the Supplier's facility at the conclusion of the Source Inspection (excludes In-process Source Inspection per QAPP 16). The Source Inspector shall review the Certificate of Compliance and indicate acceptance on the Certificate (stamp or signature.).

6. MATERIAL DECLARATIONS

~~DELETED~~ Requirements moved to PR000608 Environmental Quality Assurance Procurement Provisions – E-QAPP.

7. GOVERNMENT SOURCE INSPECTION

- (a) Government inspection is required prior to shipment from the Supplier's plant. Upon receipt of this order, the Supplier shall promptly notify the government QA representative who normally services the Supplier's plant so appropriate planning for government inspection can be accomplished.
- (b) On receipt of this order, promptly furnish a copy to the Government representative who normally services your plant or, if none, to the nearest Army, Navy, Air Force, or Defense Supply Agency Inspection office. In the event the representative or office cannot be located, the ViaSat Supply Chain agent should be notified immediately.

8. WORKMANSHIP STANDARD

The materials and workmanship shall conform to the requirements specified in the appropriate specification/drawing. If not specifically identified in the specification or drawing, the following workmanship standards shall apply:

IPC-A-610, Class 2 – for all electrical and electronic assemblies and for PWAs reworked per IPC-7711/7721

IPC-A-600 Class 2 – for Printed Circuit Boards

Quality Assurance Procurement Provisions – QAPPs

IPC/WHMA-A-620 Class 2 – for Cable and Wire Harness Assemblies

IPC-7711/7721 – for rework, repair and modification of electronic assemblies and PWAs (Also, see QAPP 41)

Rework, repair and modification of electronic assemblies and PWAs shall be performed in accordance with IPC-7711/7721. In addition, for module and PWA rework, see QAPP #41 for the maximum number of rework cycles permitted for selected device types.

ViaSat Document 070-QA-044 – for mechanical workmanship of Metal Assemblies.

9. SUPPLIER RESUBMISSION OF REJECTED MATERIAL

Supplier shall notify ViaSat of shipment of material from lot(s) previously rejected by ViaSat, and such lots shall be clearly identified as “resubmitted” items on the Supplier’s shipping document. If the initial rejection resulted in a ViaSat NMR (Non-conformance material report) this number must be referenced on the Supplier’s shipping documentation.

10. RAW MATERIAL REPORTS

With the shipment, the seller shall forward reports of mechanical properties and chemical composition to show evidence of conformance to all applicable specifications for all raw material used in fabrication of the ordered material.

With shipment of chemical orders, the seller shall forward reports of chemical composition to show evidence of conformance to applicable specifications for all raw material used in the ordered material. This report shall comply with the requirements of the Material Safety Data Sheet (MSDS), and shall be retained as a record by the Supplier in accordance with methods defined in QAPP 44.

11. TRACEABILITY OF RAW MATERIAL

For all material used on this purchase order, the seller must provide a certificate that reads substantially as follows: “Raw materials used in this Purchase Order conform to all applicable Purchase Order requirements and are traceable to test reports at the point of manufacture. Originals or true copies of such reports are available for review by ViaSat.”

12. FIRST ARTICLE INSPECTION (FAI)

First article inspection (FAI) shall be performed for both hardware and software, and a first article inspection report (FAIR) shall be submitted on the same drawing revision called out on the purchase order for Pre-Production and Production builds only. Software FAIs shall be satisfied by a ViaSat approved Software Qualification Test (SQT) and Programmable Logic (PL) FAIs shall be satisfied by a ViaSat approved Acceptance Test. FAIs and FAIR submittals are not required for prototype builds unless specifically called out on the associated Build Instructions from New Product Introduction (NPI) Engineering, as invoked per purchase order.

FAI shall be performed on the first parts manufactured by ViaSat fabricated item suppliers and subtier manufacturers and suppliers and require FAIR approval from the Purchasing Authority (e.g, ViaSat or ViaSat subcontractor) prior to commencement of manufacturing builds. Where ViaSat is the Purchasing Authority, approval shall be granted and notification given via an auto email notification from ViaSat’s ERP system upon FAIR acceptance by ViaSat’s Quality Department. This notification, once approved, shall alert the supplier that they can now commence with manufacturing builds. For subtier manufacturers and suppliers, this notification shall be prescribed by each subtier Purchasing Authority.

All FAIR reports from subtier manufacturers and suppliers shall be retained on file and available for review by ViaSat upon request (see QAPP 44). Should ViaSat require review and approval of a subtier manufacturer or supplier FAIR prior to manufacturing builds, this shall be indicated on the ViaSat Purchase Order via a Special Instruction to ViaSat’s fabricated item supplier (i.e., ViaSat’s first tier supplier). This in turn shall then be flowed down to any subtier manufacturers or suppliers.

Subsequent builds to the same drawing revision shall not require new FAIs or FAIR submittals. However, a new delta first article inspection (i.e., a new first article on the revised attribute(s)) shall be performed and a Delta FAIR submitted on production runs affected by either of the following circumstances:

- (a) A first time build to a new revision of the fabricated item drawing
- (b) Any part, material or process (PMP) changes, critical equipment changes or subcontractor changes as directed by QAPP 40 herein.

Delta FAIR reports shall be handled in the same manner as original FAIR reports as specified above.

For environmental requirements of FAIR, see PR000608.

NOTE: This QAPP does not invoke AS9102 FAI requirements. AS9102 FAI requirements are invoked per QAPP #12A below.

Quality Assurance Procurement Provisions – QAPPs

12.A AS9102 FIRST ARTICLE INSPECTION

For First Article Inspections invoking AS9102, the above requirements per QAPP 12 shall apply. In addition, the following shall also apply to ViaSat AS9102 First Article Inspections (**Ref. PR000565, FAIR Forms and Guidelines**):

- (a) First article inspection (FAI) shall be performed and a first article inspection report (FAIR) shall be submitted by the supplier in accordance with the requirements of AS9102.
- (b) When documenting the FAI, the supplier may use the forms contained within AS9102 or their equivalent, as long as the forms contains all the information required by AS9102.
- (c) The supplier shall provide a Certificate of Compliance that contains the name, specification number, type, and class, of the material or process specified in the appropriate specification/drawing as stated in QAPP #5.

13. PRODUCT FLOW PLAN

The Supplier shall prepare and submit to ViaSat a product flow plan. Unless otherwise specified, the product flow plan together with copies of the (1) Supplier Inspection Procedure and (2) Acceptance Test Procedure used for the final acceptance of the product shall be submitted prior to the initial shipment of material to ViaSat.

14. PACKAGING

Unless otherwise specified on the drawing, the specification, and/or the purchase order, the following requirements are mandatory:

- (a) Prior to packaging, material shall be clean (free from foreign matter). Critical functioning or close tolerance surfaces shall be cleaned to insure removal of corrosion, soil, grease, residues and fingerprints, perspiration or other acid and alkali residues.
- (b) Material not inherently resistant to corrosion shall be inhibited with a suitable medium.
- (c) Material shall be packaged to the extent necessary to provide protection from the hazards of transport, contamination and physical damage encountered in general handling, shelf storage, and issue.
- (d) Applicable ESD packaging shall be used for all items sensitive to electrostatic discharge.
- (e) All packaging material shall be of non-ozone depleting materials; ref. Volume 40 of the Code Of Federal Regulations, Part 82, Clean Air Act, Title VI.
- (f) Fabricated metal, when possible, shall be packaged in cartons of 50 lbs or less.

14.A RoHS COMPLIANT PACKAGING

Requirements moved to PR000608 Environmental Quality Assurance Procurement Provisions – E-QAPP

15. VIASAT SOURCE INSPECTION

The following applies to ViaSat Source Inspection (**Ref. PR000551, Request for Source Inspection**). ViaSat reserves the right to perform source inspections at the Suppliers facility. The inspections, if deemed required, are to be scheduled through the Quality Assurance and Purchasing organizations. The Supplier is responsible for providing the representative with suitable working area, tools as identified by the representative, and access to Supplier support personnel in respect to the product and processes associated with the product to be source inspected.

The Supplier shall inform ViaSat as to the readiness of the product to be source inspected a minimum of 48 hours in advance of material / product availability.

15.A PWA SOURCE INSPECTION

The following specifically applies to Source Inspection of Printed Wiring Assemblies, PWA's (**Ref. PR000551, Request for Source Inspection**). ViaSat requires a 48-hour written request for Source Inspection prior to Supplier shipments of PWA's. The Source Inspection request must contain three Sections: (1) a cover letter specifying the quantity, part number, and Revision of the PWA's that are ready for Source Inspection, (2) an Excel-like spread sheet listing all and only Serial Numbers (S/N's) of the PWA's ready for Source Inspection, and (3) a copy of the signed Statement of Work (SOW), if applicable. Part shortages must be summarized in Section (1) of the Source Request and detailed in Section (2) next to the appropriate S/N's. If there are no part shortages, this must be indicated in the cover letter of Section (1).

The Source Inspection request for PWA's applies to all PWA's to be shipped to ViaSat. This includes, but is not limited to: (a) all new PWA's, (b) all PWA's that were previously rejected and returned to the Supplier either during Source Inspection at the Suppliers facility or at Receiving/Inspection at ViaSat's facility, and (c) all PWA's being returned to ViaSat following either warranty or non-warranty repairs. Material previously rejected by ViaSat must be identified as "resubmitted" per QAPP# 9.

Quality Assurance Procurement Provisions – QAPPs

16. DELETED

17. WIRE

Each spool of wire on this order must be legibly and permanently identified with: (1) purchase order number, (2) gauge, and (3) where applicable, the ViaSat part number.

18. VIASAT FURNISHED TOOLING

The seller is responsible for the protection, calibration, maintenance, and care (other than normal wear) of all tooling and equipment provided by ViaSat. Said tooling or equipment shall be subject to surveillance inspection upon notice and shall be returned in an acceptable condition upon demand or notice.

19. SECURITY CLEARANCE

The seller must supply satisfactory evidence of government clearance by the Department of Defense for access to classified information furnished on this order. The personnel having access to this material must have the necessary security clearance. ViaSat shall stipulate the necessary clearance level.

20. DELETED

21. DELETED

22. SUPPLIER FAILURE ANALYSIS REQUIRED

As requested by ViaSat on specific identified occurrences, the Supplier shall provide a complete failure analysis describing the actual cause of failure including the component failure mechanism. Include corrective action and date code or serial number effectivity to preclude recurrence of this failure mode.

23. AGE CONTROL-ELECTRONIC PARTS

The Supplier shall deliver to ViaSat only those parts manufactured less than five years prior to date of shipment. This shall be evidenced by date code marking on each individual part when required by the procurement specification or drawing.

Waivers to this requirement shall be submitted to ViaSat Purchasing in writing for approval prior to use within ViaSat product.

Regardless of the age of the electronic part, the device must solder satisfactorily and meet IPC –A-610 workmanship Class as specified on the engineering drawing. In addition, the device must be functional and meet all of the manufacturer’s specifications.

24. SUPPLIER’S QUALITY MANAGEMENT SYSTEM

- (a) The materials and services processed by the Supplier for this order must be controlled by a documented quality management system that conforms to ISO 9001 or AS9100, as appropriate, or:
- (b) The materials and services processed by the Supplier for this order must be controlled by a documented quality management system that conforms to MIL-I-45208, or:
- (c) The materials and services processed by the Supplier for this order must be controlled by a documented quality management system acceptable to ViaSat.

25. CALIBRATION SYSTEM

Measurement and test equipment (M&TE) used in the performance of this order shall be calibrated in accordance with ANSI/NCSL Z540-1 or ISO 10012.1. In the event M&TE is later found to be out of calibration after its use on ViaSat’s products, the Supplier shall immediately notify the ViaSat Supply Agent. The Supplier shall generate an internal corrective action report (CAR) providing ViaSat the Part Numbers and Serial Numbers of all affected products delivered. In addition the details of the out of tolerance condition shall be provided to ViaSat’s Purchasing Representative.

26. DELETED

27. RoHS PRODUCT TESTING

ViaSat, Inc. reserves the right to **have any advertised RoHS compliant** product tested for RoHS compliance. If product is determined **to be noncompliant it is the responsibility** of the supplier to replace or correct all noncompliant material.

Quality Assurance Procurement Provisions – QAPPs

28. DELETED

29. DELETED

30. CUSTOMER SOURCE INSPECTION

ViaSat and ViaSat's customer have the right of entry to subcontractor facilities in order to determine and verify the quality of work and material. This right extends to the plant of any subtier Supplier for materials intended for incorporation into the contracted product(s). Such investigations at subtier facilities will be performed jointly by ViaSat, the ViaSat customer, and the subcontractor (as applicable).

31. DELETED (SEE QAPP #8)

32. DELETED (SEE QAPP #8)

33. DELETED (SEE QAPP #8)

34. UNIQUE IDENTIFICATION AND SERIAL NUMBER

The Supplier shall identify each individual unit/item supplied to ViaSat with a serial number as specified per the Purchase Order or engineering drawing. These serial numbers shall be sequential and shall not be repeated within a specific part number. . The supplier shall identify software supplied to ViaSat with a unique version and build number as specified per the Purchase Order.

35. TEST & INSPECTION DATA

Electrical test results and visual & mechanical inspection results of items manufactured against this purchase order shall be taken, recorded and shipped with all products for each purchase order shipment. Actual data to be recorded shall be specified in the detail specification/drawing and shall be submitted electronically via soft copy to ViaSat or the Purchasing Authority Quality Department. The Supplier (or subtier manufacturer or supplier) shall assure that products failing to meet specification/drawing requirements are not shipped to ViaSat or the Purchasing Authority. As a minimum, test data shall include:

- (a) Part number and revision.
- (b) ViaSat or Purchasing Authority purchase order number.
- (c) Supplier's acceptance test procedure number (as applicable) and revision date.
- (d) Date of test or inspection completion.
- (e) Evidence of test or inspection acceptance by Supplier's Quality Assurance representative.

Test/Inspection data shall be maintained in accordance with the records retention requirements specified via QAPP 44.

36. SHELF LIFE/HAZARDOUS MATERIAL

Materials with a limited life shall be supplied with an accompanying effective date of manufacture and date of expiration and must, at time of receipt at ViaSat, have at least 75% of their shelf life still remaining. The seller shall provide the Material Safety Data Sheets (MSDSs) with the first shipment of material requiring such special handling.

36.A RoHS MAXIMUM CONCENTRATION VALUES (MCVS)

DELETED Requirements moved to PR000608 Environmental Quality Assurance Procurement Provisions – E-QAPP.

37. NONCONFORMING MATERIAL

Nonconforming material supplied under this contract must be processed in accordance with a documented system for the control, material review and disposition of nonconforming material. If, after shipment of product by Supplier to ViaSat, the Supplier identifies any actual or potential nonconformity of product supplied to ViaSat or to the processes used in the manufacture of product supplied to ViaSat, the Supplier shall notify ViaSat in writing of any such nonconformity, what product or process was affected, and what corrective action was taken by Supplier to prevent recurrence.

38. ELECTROSTATIC DISCHARGE SENSITIVE (ESDS) MATERIAL

ESD Material shall be in compliance with the current version of the ANSI/ESD S20.20 standard, MIL-STD-1686 or MIL-PRF-81705.

Quality Assurance Procurement Provisions – QAPPs

39. SUPPLIER DESIGN AND PART, MATERIAL AND PROCESS CHANGE CONTROL

When the design is the supplier's responsibility, the supplier shall not, without prior approval of ViaSat (or the purchasing authority for sub-tier manufacturers or suppliers), make any change in hardware, software or programmable logic requirements, high level design, design details or part, material or process that would affect: (a) part number identification, (b) physical or functional interchangeability, (c) repair and overhaul procedures, (d) reliability, (e) safety and (f) RoHS compliance. Copies of the revised drawings shall be forwarded to ViaSat. The purchasing authority and ViaSat shall approve the change prior to supplier implementation.

40. VIASAT DESIGN AND SUPPLIER PART, MATERIAL AND PROCESS CHANGE CONTROL

When a fabricated item supplier (or sub-tier contract manufacturer or supplier) is manufacturing to ViaSat's design, no departure from the part, material, process, drawing and/or specification shall be made within this supply chain unless specifically authorized by each sub-tier level supplier's purchasing authority and ViaSat's Supply Chain or Contracts Department. In the event the supplier intends to make any part, material, process or critical equipment change (e.g., change or movement of semiconductor, microcircuit or hybrid process equipment) or move manufacturing, processing or testing functions internally or a new subcontractor, the supplier shall submit a transition plan providing all details to their purchasing authority, which shall be flowed up to ViaSat for concurrence. ViaSat reserves the right to approve all supplier and sub-tier supplier or subcontractor transition plans.

41. MATERIAL REVIEW BOARD RESTRICTIONS

The Supplier may *rework* (see definition below) nonconforming material processed for this purchase order. However, the Supplier shall not *repair* (see definition below) or use as-is any nonconforming material without prior written authorization from the Purchasing Authority and ViaSat. These conditions apply only to material purchased or manufactured by the Supplier (or sub-tier manufacturer or supplier); they do not apply to material consigned to the Supplier by ViaSat or a sub-tier manufacturer or supplier. Consigned materials are addressed by direct interactions between ViaSat (or sub-tier manufacturer or supplier) and the Supplier.

Rework, of electronic assemblies and PWAs shall be performed in accordance with IPC-7711. In addition, the following table lists the maximum number of rework cycles allowed for those device types listed without requiring Purchasing Authority and ViaSat approval. For any additional device rework (i.e., more rework cycles beyond that specified), authorization shall be obtained in writing from the Purchasing Authority and ViaSat.

Device Type	Maximum Number of Allowed Rework Cycles
Ball Grid Array	1
Leadless Device	1
Connector	1
Integrated Circuit	3
Filter	1
Daughter Board	1
Discrete	10
BGA Re-Balling	1

Repair and modification of electronic assemblies and PWAs shall be performed in accordance with IPC-7721.

The Supplier shall submit, in writing, a request for waiver or deviation of specification/drawing requirements to the Purchasing Authority and ViaSat when nonconforming material is believed to meet the intent of the design requirements but may have been repaired via a means other than that permitted within the specification or drawing. All such deviations and waivers shall be approved in writing by the Purchasing Authority and ViaSat (for sub-tier manufacturers and suppliers) prior to delivery by Supplier.

Definitions:

Rework The act of processing nonconforming articles, through the use of original or alternate equivalent processing, in a manner that *assures conformance* of the article with applicable drawings or specifications. Example: Removal of solder bridges.

Repair The act of restoring the *functional capability* of a nonconforming article in a manner that *allows compliance* of the article with applicable drawings or specifications. Example: Addition of a jumper wire.

Quality Assurance Procurement Provisions – QAPPs

42. CORRECTIVE ACTION

Supplier shall respond in writing to a request for corrective action made by ViaSat or the purchasing authority, if other than ViaSat. Corrective action shall be extended to all lower tier manufacturers and suppliers. All articles rejected by ViaSat or the purchasing authority and subsequently resubmitted by the Supplier to the ViaSat or the purchasing authority shall bear adequate identification of such resubmission either on the articles themselves or on the Supplier's shipping document. Reference shall be made to ViaSat or the purchasing authority rejection document and evidence given that the causes for rejection have been corrected.

43. DIRECT SHIPMENT TO THE GOVERNMENT

This purchase order requires the Supplier to ship directly to a government agency. Instructions for preservation, packaging, and shipping are attached to the PO package. The Supplier must immediately notify ViaSat if there are any questions or if any assistance is needed for this requirement. If QAPP #7 also is invoked, the Supplier shall notify ViaSat 48 hours in advance of the scheduled time of Government Source Inspection (GSI) so that ViaSat can, at its option, arrange for concurrent witness.

44. SUPPLIER MANAGEMENT OF VIASAT PRODUCT DATA RECORDS

Supplier records shall be correctly indexed, legible and stored in a manner permitting easy access, retrieval and protection. Records shall be maintained in a manner that prevents damage or deterioration during the retention period. Retention period for product data for ViaSat products is a minimum of seven (7) years or as defined by contract. Suppliers shall have a documented system for records management and retention in accordance with their internal Quality Management System as well as any customer contractual flowdown requirements. This shall include, but not be limited to, the following:

- Records management and retention requirements definition in QMS
- Procedures, processes and systems used for records management and retention.
- Supplier retention period for records retention.
- Process followed when ViaSat's records retention period exceeds Supplier's internal QMS retention requirements.
- Method of records retention (i.e., hard or soft-copy, stored on-site or off-site)
- Records management and retention for manufacturing builds and for RMA field returns and repairs shall be clearly defined in the Supplier QMS documentation.

45. VIASAT ELECTRICAL TEST WITNESS

Supplier to provide sufficient advanced notification to ViaSat to permit scheduling of ViaSat witness of electrical test.

46. BGA ACCEPTANCE CRITERIA

Every printed wiring assembly (PWA) containing BGA's and similar components shall be soldered according to J-STD-001 or other ViaSat approved equivalent. BGA or micro BGA sites shall be X-rayed perpendicular to and at a 45-degree angle to the PWA. X-ray photographs, which indicate the presence of voids in any solder ball or questionable joints of any kind, shall be re-taken at greater magnification and evaluated by the Supplier. Voids whose cross sectional area is greater than 25% of the solder pad must be evaluated by ViaSat Engineering and Quality Assurance. Prior to any BGA device re-work being performed, Supplier is to inform the ViaSat Purchasing Agent immediately of any suspect parts. ViaSat Engineering and Quality Assurance will determine if rework of the BGA is required. Unless otherwise specified in the Purchase Order, every BGA or micro BGA site shall be X-rayed based on the following statistical sampling:

PWA Lot Size (X)	Number of PWA Samples
$X \leq 10$	2 (first of the lot and last of the lot)
$10 < X \leq 50$	4 (first and last of lot and 2 others of the lot)
$X > 50$	10% of lot size (first and last of lot and others as required)

The use of X-Ray Laminography with an equal or tighter sampling plan supersedes the X-Ray requirements of this QAPP.

The supplier shall retain all X-Ray and Laminography photos and data records which shall be provided to ViaSat upon request. The data shall be retrievable by the PWA part number, PWA serial number and component reference designator, and shall be stored in accordance with QAPP 44.

46.A LEADED (NON-RoHS) BGA ACCEPTANCE CRITERIA

This QAPP is not applicable for lead-free (RoHS) designs. Contact ViaSat Purchasing or Quality for clarification if it has been specified on a RoHS design.

This assembly requires the use of leaded (non-RoHS) BGA components. The supplier shall test each BGA component via X-ray fluorescence (XRF) or other ViaSat approved method to confirm the presence of lead in the solder balls. The testing shall be performed on one part from each package (tape & reel, tray, etc.) upon receipt and upon the first part used on each SMT lot prior to the build. Use

Quality Assurance Procurement Provisions – QAPPs

of a tighter sampling plan (more samples) is acceptable. The supplier shall document compliance to this QAPP in a manner that is auditable and retrievable upon request for the period stated in QAPP 44.

47. TRACEABILITY OF COMPONENTS (ELECTRICAL, ELECTRONICS & MECHANICAL)

All components used on this purchase order shall be traceable to the original manufacturer's lot or date codes and supporting approval documentation (e.g., purchase orders & certificates of conformance). This also applies to test data and reports, as specified in the applicable purchase order, contract or specification. The Seller must be able to trace these components to all delivered items.

47.A SEGREGATION OF ROHS AND NON-ROHS MATERIAL

Requirements moved to PR000608 Environmental Quality Assurance Procurement Provisions – E-QAPP.

48. PRINTED WIRING BOARD (PWB) VENDOR SELECTION

The Supplier is responsible for furnishing the bare PWB to satisfy product requirements on this purchase order. The Supplier shall use a PWB vendor who is on their approved sources list as prescribed in Supplier's approved Quality System. In the event Supplier's PWB source is not on ViaSat's Scope of Approval (SOA) matrix, then prior to placement of Supplier's purchase order to the PWB vendor, Supplier shall:

- (a) Provide ViaSat written notice of intent to use a different PWB vendor than one listed on ViaSat's SOA matrix 10-14 days after receipt of the ViaSat purchase order (i.e. after Supplier runs MRP and they are obtaining quotes for PWBs). PWB vendor's manufacturing facility shall be located within the U.S. unless otherwise acknowledged by ViaSat in writing.
- (b) Provide ViaSat with Supplier's current PWB vendor quality evaluation, and
- (c) Provide ViaSat with not less than 6 months of Supplier's PWB vendor's most recent incoming quality data, i.e. first pass yield and defects (if any) summary.
- (d) Provide any other reject Quality data associated with the PWB vendor that was discovered at any points during processing and builds after Receiving Inspection (e.g., in-process or final).

ViaSat shall assess Supplier's recommended PWB vendor and the Quality data provided and shall provide a written response to Supplier within 5 business days with ViaSat's decision to:

- (1) Approve proposed PWB vendor for use based upon review of data provided and add to the ViaSat Scope of Approval (SOA) matrix; or
- (2) Conduct a Quality survey and audit at PWB vendor's manufacturing facility to further assess PWB vendor's Quality system and determine whether this vendor can be approved for the build of ViaSat's product on order. This survey may be a joint effort between ViaSat and Supplier. If successful, supplier shall be added to the ViaSat SOA matrix; or
- (3) Reject use of selected PWB vendor for build of ViaSat's product on order, with supporting rationale for such a decision.

49. SPECIAL PROCESSING

Special processing is defined as the manufacturing step or process where the end item or result cannot be physically or visually inspected post processing such as some types of material plating. Any special processing step(s) must be identified on the Certificate of Compliance. ViaSat and ViaSat's customer have the right of entry to the subcontractor facilities in order to assess the special process(s) being used to manufacture the end item and to verify the quality of work and material. The seller shall provide Certificate of Compliance that contains the name, specification number, type, and class of the material or process specified in the appropriate specification/drawing as stated in QAPP #5.

Special processes being performed are subject to:

- (a) The requirements being clearly specified for any special process operation, including associated equipment and.
- (b) The special process(s) being qualified prior to use.
- (c) The Supplier controlling all applicable aspects of special processes, as defined by the process specifications, including special process changes.
- (d) The Supplier defining the significant operations and parameters in the process to be controlled during production.
- (e) Records being maintained for qualified processes, equipment and personnel, as appropriate, in accordance with QAPP 44.

50. PWB FAB DATA

The PWB fabrication Supplier shall provide the following PWB quality process verification items for each homogenous lot manufactured and delivered. The quality process verification items for each lot are:

- (a) Cross Section Report including data / results and pictures. (Cross section puck is not to be sent).
- (b) Quantity (1) Solder Sample PWB, as a minimum.

Quality Assurance Procurement Provisions – QAPPs

- (c) 100% Net List testing data results certification, if performed.

If this QAPP 50 is invoked on an Assembly order (for example, PWA, Flex Cable, etc.) in which the EMS/Supplier is responsible to provide the PWBs, then the same data set as above, shall be retained by the EMS/Supplier and be available for ViaSat review upon request. The EMS/Supplier is not required to deliver these items to ViaSat. These items shall be retained for the period stipulated per QAPP 44 Supplier Management of ViaSat Product Data Records, or other agreed upon data retention period.

51. REQUIREMENTS FOR FABRICATION OF CABLE AND WIRE HARNESS ASSEMBLIES

Acceptability requirements for cable and wire harness assemblies provided on this order shall be per IPC/WHMA-A-620, Requirements and Acceptance for Cable and Wire Harness Assemblies. Suppliers shall certify operators/inspectors to this specification (exceptions shall be approved in writing by ViaSat.)

All cable/wire harness acceptance tests shall be performed using the appropriate mating connector or appropriate mating pins. No probing of pins is allowed (i.e. use of non-mating connectors/pins).

All mechanical crimp connections shall be verified as satisfactory by a crimp pull test, industry-accepted "go/no go" gauging of crimp tool, or, crimp barrel measurements. Crimp pull tests shall be conducted on crimp samples only, and not be performed on deliverable hardware. Supplier shall keep records of these tests as part of their product records and maintain as defined in QAPP 44.. These records may be reviewed by ViaSat upon request.

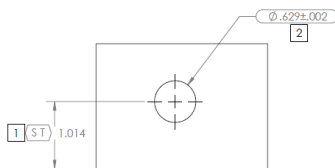
52. KEY PERFORMANCE CHARACTERISTIC

When a "Key Performance Characteristic" is identified in the software or programmable logic requirements, the supplier must provide measurement data to ViaSat via soft copy format in a MS Excel spreadsheet or MS document for each release. The supplier shall only provide software / programmable logic that meets "Key Performance Characteristic" requirements unless otherwise directed by ViaSat. "Key Performance Characteristics" are identified in the Purchase Order and/or determined by the completion of the System Requirements Review (SRR). The remaining paragraphs are applicable to hardware.

When a "Key Performance Characteristic" is identified on the drawing/specification by the symbol ST (Statistical Tolerance - see symbol below), the supplier must provide tabular measurement data to ViaSat via soft copy format in a MS Excel spreadsheet. Sample size for these measurement data must be taken on at least 30 items chosen randomly throughout the lot. If the lot size is < 30 items, then 100% measurement data is required. The supplier shall calculate Cpk for this measurement data and verify the Cpk index is ≥ 1.33 unless otherwise specified on the engineering drawing. ViaSat shall require the supplier to only provide material to ViaSat with a Cpk ≥ 1.33 for all flagged Key Performance Characteristics unless otherwise directed by ViaSat. Tabular measurement data is to be recorded on ViaSat Cpk-calculating Excel spreadsheet form PR000665 available in Agile. A softcopy of the data shall be sent to ViaSat's Quality Organization at ReceivingInspection@viasat.com. The supplier shall list in the subject line of the email, "Cpk data for P/N XXX, ViaSat PO Number YYY, and PO Line item number ZZZ". Alternatively, the supplier shall upload the data to a ViaSat provided ftp site, with notification provided to ViaSat's Quality Organization. If a Key Performance Characteristic is < 1.33, the supplier shall notify ViaSat's Quality Organization and request approval via a formal deviation or other agreed upon means before the material can be shipped to ViaSat.



When a "Key Performance Characteristic" is identified on the drawing/specification within an oval (as shown below) the supplier must provide tabular measurement data to ViaSat via soft copy format in a MS Excel spreadsheet. Sample size for these measurement data must be taken on at least 30 items chosen randomly throughout the lot. If the lot size is < 30 items, then 100% measurement data is required. A softcopy of the data shall be sent to ViaSat's Quality Organization at ReceivingInspection@viasat.com. The supplier shall list in the subject line of the email, "KPC data for P/N XXX, ViaSat PO Number YYY, and PO Line item number ZZZ". The Supplier shall verify that all KPC dimensions are within tolerance.



Quality Assurance Procurement Provisions – QAPPs

53. WARRANTY EXPIRATION DATES AND SERIAL NUMBERS

For each item provided on the Purchase Order, the Seller shall provide on the Shipping Document (Shipper) the following information:

- (a) Warranty expiration date
- (b) Serial number

54. USE OF INDEPENDENT DISTRIBUTORS & OF BROKERS FOR PURCHASE OF ELECTRONIC COMPONENTS

Electronic components shall be procured directly from the Manufacturer or their Authorized (licensed) Distributors. No electronic components shall be purchased through or from Independent Distributors or Brokers without written approval from the ViaSat Supply Chain Group Purchasing Representative unless 1) otherwise specified in the ViaSat Purchase Order or 2) the Supplier has a Counterfeit Electronic Parts Control plan per SAE AS5553 in-place and approved by ViaSat. The ViaSat Supplier shall include and flow down this requirement in all sub-contracts for electronic parts or assemblies.

55. REPAIR/SERVICE REPORTING

Repair Supplier to provide, electronically, a Service and Repair report which shall include the following information:

- (a) Item being repaired ViaSat part number and revision.
- (b) Item serial number
- (c) ViaSat RMA number/Supplier RMA number
- (d) Failure symptom observed
- (e) If applicable, item sub-assembly part number and serial number
- (f) Item or reference designator affected by repair
- (g) Action taken - replaced, repaired, scrapped, adjusted, use as is, no problem found
- (h) Date of repair and/or test activity
- (i) Repair / test technician

Test data shall be provided to ViaSat and shall be retained by supplier per product agreements with ViaSat Inc. A hardcopy of the final test report shall ship with the product, unless other arrangements are made with ViaSat purchasing.

The time to completion goal may vary by product line or customer need, but the typical ViaSat goal is to ship the product back to ViaSat or ViaSat customer's in less than 30 days from time of product receipt by the repair/service facility. The data and metrics shall be monitored by ViaSat to determine the level of performance by the Supplier's repair/service facility.

56. COMMERCIAL AVIATION REPAIRS – DRUG & ALCOHOL PREVENTION PROGRAM

All Repair of Materials on this order are considered Safety Sensitive. All domestic (i.e., U.S. located) personnel performing “hands on” work on this material must be included in an FAA Registered Drug & Alcohol Abuse Prevention Program in accordance with 14 CFR Part 121, Appendices I and J. This requirement shall also be flowed down to all subsequent subtier manufacturers and suppliers.

57. FOREIGN OBJECT DEBRIS (FOD) / FOREIGN OBJECT ELIMINATION (FOE)

All suppliers involved in the manufacturing and material handling of ViaSat products, whether Engineering builds, New Product Introduction builds (i.e., prototypes), Pre-Production builds or Production builds shall have a FOD/FOE program in place that meets the requirements of ViaSat Process Document PR001020 available on ViaSat's website: [http://www.viasat.com/supplierinformation/Foreign Object Prevention, Detection and Removal Process \(PR001020\)](http://www.viasat.com/supplierinformation/ForeignObjectPrevention, Detection and Removal Process (PR001020)). This shall be clearly identified by supplier process documentation and training records.

58. PWB VERIFICATION

Perform third party inspection services for PWB verification per PR001362.

59. BUILD DOCUMENTATION, FILES & INSTRUCTIONS

ViaSat utilizes Agile Product Collaboration as its official Configuration Management and Document Control system. Build documentation, files and instructions apply to hardware, software, and programmable logic. The supplier shall build to the product revision specified on the Purchase Order (see NOTE below.) However, when the product revision specified on the Purchase Order is not the latest revision in Agile, written or email confirmation must be obtained from the Purchasing Authority prior to commencement of product builds. Note that email or other written instructions can only be used for this confirmation of such down-rev build requirements. The original and subsequent changes to contractual instructions, however, shall only be provided via the Purchasing Authority's formal Purchase Order system. The supplier shall use the product numbers and revisions called out in the top level BOM for any sub-level assemblies tied to this top level product revision.

To verify and/or obtain the correct build documentation and files applicable per Purchase Order, the following process shall be followed:

Quality Assurance Procurement Provisions – QAPPs

- (a) ViaSat fabricated item suppliers with ViaSat Agile access shall retrieve the correct Agile release documentation and files directly from the ViaSat Agile system prior to the commencement of product builds. Only released ECOs shall be incorporated into product builds. Unreleased ECOs provided to the fabricated item supplier for advance notice and collaboration shall not be incorporated. If the supplier has any questions, they are to contact the ViaSat Purchasing Agent for this product/program.
- (b) ViaSat fabricated item suppliers without ViaSat Agile access shall verify/request the correct Agile release documentation and files via email notification to the ViaSat Purchasing Agent. ViaSat's Purchasing Agent will work with ViaSat's Configuration Management (CM) Change Analyst assigned to this product/program who shall then transmit the correct documentation and files to the supplier prior to commencement of product builds.
- (c) Subtier manufacturers or suppliers to ViaSat's fabricated item supplier shall verify/obtain correct Agile release documentation and files from their Purchasing Authority (i.e., ViaSat's fabricated item supplier) prior to commencement of product builds. Subtier manufacturers or suppliers with ViaSat Agile access shall retrieve the Agile files directly as per item "a" above.
- (d) Software and programmable logic build documentation shall include file lists and directories, make and build files and related instructions.

NOTE: For products in the early phases of product lifecycle (e.g., prototype and pre-production builds), ViaSat's New Product Introduction (NPI) Engineering Group may provide additional manufacturing direction via Build Instructions (BIs.) When these apply, Purchase Order revision number may not be included on the PO. Also, when BIs are applicable, the Build Instruction Item Number shall be called out on the Purchase Order.

For product builds classified as "For Official Use Only" (FOUO), the above process shall apply for determination of correct top level product and sub-level revision builds. However, additionally, ViaSat's FOUO process and protocol shall also be followed in processing and fulfillment of product builds.

60. ENGINEERING PROCESS

Suppliers shall prepare engineering development plans and processes to be approved by ViaSat or the purchasing authority that define the following as applicable:

- (a) Program management structure,
- (b) Management oversight and progress tracking measures, including Program Monthly Reviews (PMRs),
- (c) Engineering lifecycle approach,
- (d) Engineering environment, tools, and file management,
- (e) Milestones for System Requirements Review (SRR), Preliminary Design Review (PDR), Critical Design Review (CDR), and Test Readiness Review (TRR),
- (f) Work Breakdown Structure (WBS) that includes configuration items,
- (g) Risk management, including risk planning, identification and analysis (likelihood criteria, consequence criteria), risk mitigation, and continuous risk monitoring and reassessment
- (h) Requirements management with bidirectional traceability to design and test,
- (i) Configuration Management (CM) and change control,
- (j) Peer review requirements prior to change control,
- (k) Action Item and problem tracking,
- (l) Test and verification,
- (m) Release process and authorization,
- (n) Quality oversight and audits,

61. ENGINEERING RECORDS

Suppliers shall maintain engineering records that shall be available to ViaSat for inspection and audit. These records include files, records, minutes, and other artifacts of the planning and processes identified and as applicable in section #60. Unless specifically tailored by the program contract statement of work, the following record keeping is required as a minimum:

- (a) Review minutes and action items from program reviews, including program management reviews, requirement reviews, design reviews and verification/validation reviews;
- (b) Records and action items associated with the verification and validation of the product;
- (c) Configuration management records relating to configuration identification, change control, configuration status accounting and configuration audits.