

Supplemental Quality Assurance Provisions

SQAP #	TEXT
SQAP_6_8_23_2007	<p>Seller's Controlled Products</p> <p>The initial shipment on this purchase order shall be accompanied by two (2) legible and reproducible copies of applicable specifications, drawings, and/or catalogs.</p>
SQAP_12_8_23_2007	<p>Printed Wiring Boards MIL-P-50884 (Flexible) or IPC-6013</p> <p>a. Certification of compliance to this specification shall accompany all materials supplied to this specification. b. Test coupons shall be supplied with delivered material - fabricated simultaneously with boards (except single-sided (type I)). c. Marking - in addition to the marking requirements of paragraph 5.3 of MIL-P-50884, when specified on the drawing, each board shall be marked with its lot code (date of manufacture).</p>
SQAP_35_8_23_2007	<p>Marking Permanence</p> <p>Any parts requiring special marking (i.e., additional screening, etc.) shall be marked using an epoxy-based ink such that marking is permanent and will not be removed by cleaning fluids.</p>
SQAP_2_8_23_2007	<p>In Process Audit</p> <p>Upon completion of circuit board fabrication prior to any additional assembly process(es), the circuit board assembly will be subject to BAE Source Inspection Acceptance. Seller shall give the buyer at least five (5) days notification when the circuit boards will be ready for BAE Source inspection.</p>
SQAP_23_8_23_2007	<p>SMD with Co-planarity Requirements</p> <p>This purchase order contains surface-mounted devices with formed leads. All lead dimensions identified on the specification drawing, including co-planarity, are critical dimensions. The supplier shall demonstrate the ability to measure and control all dimensions listed on the drawing, including co-planarity.</p>
SQAP_10_8_23_2007	<p>Quality Assurance Plan Required.</p> <p>The supplier has an obligation to provide a written QA Plan for the product purchased which should include, details, milestones, and instructions of how quality testing, first-piece submission, first-article inspection and test, and PCA activities will be completed before full scale development [FSD]/production material is delivered.</p>
SQAP_14_8_23_2007	<p>Special Handling – MICROELECTRONICS</p> <p>Supplier is to mark on exterior of shipping package and on any inside boxes "Do Not Open Except in Clean Room".</p>
SQAP_53_8_23_2007	<p>Pin Diode Testing Pin diodes (911157) requires burn-in testing consisting of 168 hours at 125 degrees C with pre-electrical and post-electrical measurements of the reverse current (IR) at a voltage of 200V.</p>
SQAP_17_8_23_2007	<p>SPC - Key Characteristics – Measurements</p> <p>There are one (1) or more "key" characteristics identified by BAE for the part number on this order. Refer to QA-403B (revised 3/00), "Supplier Requirements For Key Characteristic Implementation."</p>
SQAP_50_8_23_2007	<p>Matrix Trays Definition:</p> <p>An ESD package with indented pockets that house the components. The pockets that hold devices must be in a regular pattern (left to right, and front to rear). The parts must not be held by supplementary means within the tray. The lid of the tray must be capable of being removed without disturbance of the components, and part number information should be accessible on the outside of the container.</p>

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SQAP_46_8_23_2007	<p>Die Topography-Data Supplier shall furnish die topography with each shipment.</p>
SQAP_3_8_23_2007	<p>Die Topography-Lots All deliveries of semiconductor dice with the same part number, on the same order, shall have the same topography.</p>
SQAP_55_8_23_2007	<p>Special Requirements for 125201-3 a. The item shall be manufactured in accordance with MIL-STD-1130B, Notice 2, dated 7/20/88. b. The supplier shall maintain a daily log for the "un-wrap test" (para. 5.6.3 and 5.6.3.1) and "stripforced" (para. 5.6.1) required in accordance with MIL-STD-1130B and traceable to the end product serial number. Gas tight test objective evidence shall be made available upon request in accordance with MIL-STD-1130B para. 5.6.2. c. The buyer shall supply a floppy disc file number 546 for the WL965440-92 rev.A. The wirewrap is to be accomplished on a fully automatic machine. d. 100% continuity test is required. e. The buyer shall supply the 331776 bussbar installed on the backplane assembly to be wirewrapped. f. The buyer shall install jumper wire, JW1 "in accordance with note 5 on drawing 125201 rev.F [this is not a vendor responsibility]. g. The supplier is only responsible for performing acceptable wirewrapping in accordance with WL965440-92.</p>
SQAP_31_8_23_2007	<p>Matrix tray an ESD package with indented pockets that house the components. The parts must not be held in the pockets by supplementary means within the tray. The lid must be capable of being removed without disturbing the parts within the tray and the part no. information must be accessible from the outside of the container. A maximum of 5 devices shall be contained in a tray.</p>
SQAP_19_8_23_2007	<p>Mechanical Inspection: Each shipment is required to be accompanied by mechanical inspection data performed in accordance with the drawing(s) identified on this purchase order. All critical dimensions eg. with tolerances of .005" or tighter, are to be inspected and actual dimensions recorded for each item shipped to BAE Systems. The inspection data submitted must contain the signature of an authorized representative, performing the inspection and must assure conformance to drawing requirements.</p>
SQAP_25_8_23_2007	<p>MIL-M-38510 Seller shall comply with Military Specification Mil-M-38510 "Quality Assurance Requirements", and all other terms of this purchase order in the manufacture and delivery of these materials.</p>
SQAP_26_8_23_2007	<p>MIL-H-38534 QA Requirements Seller shall comply with Military Specification MIL-H-38534 "Quality Assurance Requirements", and all other terms of this purchase order in the manufacture and delivery of these materials.</p>

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SQAP_61_8_23_2007	<p>QUALITY CONFORMANCE INSPECTION DATA: One copy of all Quality conformance Inspection data in accordance with the device specification pertinent to the inspection lot shall accompany the shipment.</p>
SQAP_28_8_23_2007	<p>ELECTRICAL TEST: This order requires 100% electrical test for shorts and opens. A test stamp shall be applied to the board and the C of C accompanying the shipment.</p>
SQAP_48_8_23_2007	<p>In-Process Reviews: Any In-Process Review [IPR] as defined by the SOW shall be witnessed by a member of the buyer's Quality Assurance staff. A minimum of 5 days advance notice shall be given to the buyer's Sub-Contracts department.</p>
SQAP_18_8_23_2007	<p>Flex Printed Wiring Boards, IPC-6013, Class 3: a) Certification of Compliance to this specification for Class 3 product shall accompany all materials supplied to this drawing/specification. b) The supplier shall maintain the required Quality Conformance testing, Qualification testing and Reliability testing in accordance with IPC-6013, class3. No repairs are allowed. c) Test coupons shall be supplied with delivered material, fabricated simultaneously with deliverable product [except if single sided].</p>
SQAP_30_8_23_2007	<p>INPROCESS MATERIAL-SOURCE INSPECTION Source inspection shall be performed on PWB 1010244P, a sub-assembly of this PO, after the completion of the net list testing and final PWB quality conformance inspection. All test and inspection results shall be approved by the procuring activity prior to any assembly of the end item, 1001769G-2.</p>
SQAP_27_8_23_2007	<p><u>Special C of C</u> The vendor shall supply an additional C of C with each shipment attesting to the following: That PTFE laminate ED/Wrought copper peel test has been performed and meets 4 pli min.</p>
SQAP_45_8_23_2007	<p>PWB-TENTED VIAS 1st ARTICLE SAMPLE: This board contains single sided tented via holes. The seller is required to provide a 1st article sample prior to delivery of the PO production quantity for evaluation by the buyer. The seller is required to assure that there is full solder coverage (fused) in the holes and that there is no contamination present.</p>
SQAP_39_8_23_2007	<p>PCB ELECTRICAL TEST: This order requires 100% electrical test for shorts and opens. The test voltage per the drawing is 600v. A test stamp shall be applied to the board and a C of C shall accompany the shipment.</p>
SQAP_43_8_23_2007	<p>Flex/Rigid PWB Requirements: First Article test of the PWB shall be in accordance with Specification 1008905 para. 4.2.2. Written approval by the buyer for the First Article assemblies shall authorize the seller to proceed with assembly of the Flex/Mother board P/N 10239811P. Contact the BAE Receiving Inspection Supervisor at least 5 days in advance of submission to arrange of source inspection. The Acceptance Test and First Article Test plans shall be approved in writing by the buyer before conducting the required tests. All PWB's shall be net list tested in accordance with the Gerber files provided.</p>

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SQAP_56_8_23_2007	<p>Final Bake Out All boards provided on this order shall be baked out at 250 F for 4hours then placed in a chip loc bag as per QA 607 and sealed. C of C provided with order shall so note.</p>
SQAP_32_8_23_2007	<p>Flex/ Motherboard Assembly 1st Article Requirements: <u>1.</u> A first article assembly inspection and test report shall be prepared by the Seller. <u>2.</u> Testing of the assembled product shall consist of 100% isolation and continuity testing in accordance with the schematic referenced on the parts list and include interfacing thru all connector contacts. Passive components shall be checked for orientation and/or value. Assemblies shall be marked with a test stamp. <u>3.</u> The bare board shall be net list tested in accordance with Buyer approved Gerber files provided. Test voltages shall be per the maximum voltage specified on the bare board drawing. The material Certificate of Conformance shall attest to full compliance. <u>4.</u> Traceability of the material used in the assembly shall be maintained by the Seller and include C of C's and Inspection records attesting to compliance with the Buyer Component Source/Specification Control drawings. <u>5.</u> No repairs are allowed. <u>6.</u> Contact the Buyer Receiving Inspection Supervisor at least 5 days in advance of submission to arrange for 1st article on site inspection.</p>
SQAP_44_8_23_2007	<p>Pre-Bonding Inspection: Prior to final bonding of layer 3 to layer 4, BAE Source Inspection shall be required. The supplier shall provide at least 5 days notice to BAE Buyer to schedule inspection activity.</p>
SQAP_60_8_23_2007	<p>Group B/Qualification/Destruct Testing Requirements: The specification/drawing called out on this purchase order invokes one or more group B, qualification, and/ or destruct test requirements. The supplier is obligated to perform the required testing on each lot of material, maintain the necessary test data/reports on file which shall be available upon request, unless specifically instructed otherwise by BAE in writing. The Certificate of Conformance provided with each lot submitted shall specifically identify that the required Group B/Qualification/ Destruct Testing required has been completed and accepted.</p>
SQAP_59_8_23_2007	<p>Qualification Testing per IPC-6018: The supplier shall perform all tests specified in IPC-6018 Table 4-3 Acceptance Testing and Frequency including thermal shock; Quality Conformance testing per Table 4-4. Actual board [type 5] shall be used for testing and coupons where appropriate. All results shall be recorded and comply with IPC-6018 and IPC-6011. Acceptance Testing shall be performed on all lots of material delivered. Quarterly Quality Conformance Testing shall be conducted as a minimum on product representative of the type and complexity being delivered.</p>
SQAP_13_8_23_2007	<p>RF Strip Line Coupons: Each panel of boards shall have two (2) strip line coupons in accordance with BAE artwork 1011389P produced with each panel. The coupons shall be at opposing corners of the panel. The coupons and PWBs shall be serialized to the panel from which they came. The coupons shall be provided in a separate bag with the order and be clearly marked. This coupon does not replace any existing coupons already on the PWB artwork.</p>

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SQAP_34_8_23_2007	<p>Printed Wiring Boards, Flex-Hardboard:</p> <p>a) Inspection and Tests in accordance with IPC-6013 and BAE specification 1024704P para.4.2 shall be performed. A certification of Compliance to this specification shall accompany all materials supplied. b) First Article Tests shall be performed in accordance with BAE spec 1024704P, para.4.2.2. A test report shall be provided. c) 100% test in accordance with BAE spec. 1024704P, para. 4.2.1 Shall be performed using Gerber net lists files provided. A test report shall be provided. d) Mounted coupons shall be supplied with the delivered material traceable to each panel used in fabrication.</p>
SQAP_4_8_23_2007	<p>First Article CMM:</p> <p>First article Inspection shall be performed by providing a coordinate measurement machine [CMM] report, using the level of accuracy that is consistent with the configuration/tolerances of the item[s] procured under this purchase order. The CMM report provided shall include graphic and data printout delivered with the lot.</p>
SQAP_36_8_23_2007	<p>PWB X-RAY Reports</p> <p>The supplier shall provide X-RAY report showing the top to bottom registration for holes in diagonally opposing corners of each panel. The X-Rays shall be labeled as to part number, panel serial number, and lot number for traceability. Reports [photos] shall be provided with the shipment.</p>
SQAP_37_8_23_2007	<p>Inspection/Test Report, Special</p> <p>The supplier shall provide an inspection/test report that contains specific data as required by BAE specification 1051419P, para. 7.0, "Test Requirements". The report shall be serialized to each assembly, be approved by the supplier's Quality Assurance representative, and accompany the shipment.</p>
SQAP_38_8_23_2007	<p>RF Strip Line Coupons:</p> <p>Each panel of boards shall have at least two [2] strip line coupons IAW BAE artwork 1010241P or 1010242P produced with each panel. The coupons shall be at opposing corners of the panel. The coupons and the PWB's shall be serialized to the panel from which they came. The coupons shall have a copper ground plane on the side opposite the strip line. The coupons shall be provided in a separate bag with the order and be clearly marked with P/N, date code, and panel serial number. This coupon does not replace any existing coupons already on the PWB artwork. Coupons and boards may be bagged and tagged for traceability. BAE Receiving Inspection shall route the coupons to MEL for testing.</p>
SQAP_16_8_23_2007	<p>Group B Test Requirements:</p> <p>Group B must be performed in accordance with the requirements of the drawing, specification, and applicable approved test procedures. The Group B test is a one-time requirement for this Purchase order. Group B tests may be submitted by similarity for approval by BAE. A Certificate of Conformance for Group B tests along with supporting test results signed by the seller's Quality representative must be submitted to BAE Supplier QA Department for approval.</p>

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SQAP_51_8_23_2007	<p>Special die used with P/N 1003961P-3: The supplier is required to use only 54FCT244 die with an Y244Z die mask geometry from National Semiconductor in the fabrication of BAE A/D converter P/N 1003961P-3 devices. The Supplier shall provide objective evidence with each production delivery that this specific die mask geometry, Y244Z, was used.</p>
SQAP_49_8_23_2007	<p>Mechanical Compliance: The base plate will be reworked on a "best effort" basis but with no readings greater than 0.020 inch around the perimeter using the inspection tool with the plate in an "unrestrained" condition. The reworked plates shall be identified uniquely. The four corner measurements shall be recorded for each plate and provided with the order.</p>
SQAP_20_8_23_2007	<p>Ref: BAE P/N 1051329P, Behlman P/N 94018 (all dash numbers).The welded wrap-around chassis (P/N 54024) shall have: a) Stress relief in the corners prior to bending b) Properly prepped corners prior to welding to assure a good, clean, continuous weld. c) The weld shall be continuous and have full penetration through the walls. d) A weld wall thickness equal to the material thickness minimum. e) The weld shall end as a weld, not as a crack</p>
SQAP_11_8_23_2007	<p>TDR Testing: Supplier shall perform TDR test on at least one coupon per panel to the required impedance value(s) listed on the drawing. A test report with the recorded values by panel serial number along with the coupon(s) tested shall be provided with the shipment.</p>
SQAP_29_8_23_2007	<p>Multiwire Board Requirements, IPC-DW-424, Class 3: a) Certification of Compliance to this specification for Class 3 product shall accompany all materials supplied to this drawing/specification. b) The supplier shall maintain the required Quality Conformance testing, Qualification testing and Reliability testing in accordance with IPC-DW-424, class 3. No repairs are allowed. c) Test coupons shall be supplied with delivered material, fabricated simultaneously with deliverable product.</p>
SQAP_24_8_23_2007	<p>CRIMP SAMPLE-PULL TEST: The supplier shall perform a pull test on samples of each type crimped contact from each lot of cables prepared for shipment. The supplier shall provide an inspection test report listing the contact type, crimp tool, specification limits, and actual results with each lot shipped to BAE. In addition, a 3 piece sample of crimped contacts untested shall be provided with each order for test by BAE.</p>
SQAP_42_8_23_2007	<p>ESS TESTING-RF COAXIAL SWITCH: The following ESS testing shall be performed as a minimum: Step 1. All units once sealed, shall be environmentally screened via a random vibration test on all three (3) axes, using the vibration profile as specified in BAE drawing 1023358P. Step 2. All units shall then be subjected to ten (10) complete temperature cycles of -40C to +77C. During the tenth cycle, after a dwell time of 0.5 hours at temperature, the unit shall be electrically cycled twenty five (25) times per position at each temperature extreme (100 times total per unit). The following functions shall be tested and recorded, per functional cycle: [a] Contact resistance [b] Indicator [c] RF Switching time Step 3. All units shall be subjected to a gross leak test as follows: final sealed units shall be submerged in tap water preheated to 140F min. for a minimum of 20 seconds but no longer than 90 seconds. The observation container shall contain sufficient fluid to cover the units with at least 2 inches and be viewable from all sides. Sufficient illumination shall be provided. Leaks will be indicated by a stream of bubbles. Any units exhibiting leaks shall be rejected. All uni</p>

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SQAP_47_8_23_2007	<p>Data Review: Vendor shall supply Transistor test data for review and Approval to the BAE Buyer prior to Shipping Parts. A copy of the BAE Engineering Test data Approval sheet must be included with the shipment along with the Test data required as per QA Clause 111.</p>
SQAP_41_8_23_2007	<p>PWB Coupons: The supplier shall provide at least one (1) uncounted coupon per panel with each lot delivered. The coupon shall have at least three (3) plated thru holes of the smallest diameter called out suitable for evaluating plating and registration. Coupons shall be traceable to the lot.</p>
SQAP_40_8_23_2007	<p>Harness Electrical Testing: Each harness shall be tested for end to end continuity and pin to pin isolation to insure there are no shorts or opens. The Isolation test shall be run at 50 volts DC. Test data shall be supplied with each harness. An electrical acceptance test stamp shall be marked on the harness.</p>
SQAP_1_8_23_2007	<p>Material Certification/Data Sheet: The supplier shall provide a material certification for the conformal coating used with the product in accordance with the drawing. The certification shall include the Mfg., Part number, conformity to mil standards, and proof of equivalency to the BAE requirement, if different. Where the BAE drawing refers to a disallowance of specific Restricted and/or Hazardous materials, the supplier shall provide a certification of compliance to this requirement.</p>
SQAP_33_8_23_2007	<p>SPC-Key Characteristics Implementation on Radomes 1062518P-1 & 1071627P-1: By way of the purchase order the following 'key characteristics' are part of the requirements imposed on the supplier: [a] 0.960 min. inside dimension and [b] 0.060 +.005 /-.008 wall thickness at apex. Please refer to QA Clauses 173 and SQAP_17_8_23_2007 along with procedure QA-403. The supplier shall provide SPC data to the BAE Buyer with every 25 piece (or greater) lot. The data shall be unscreened/unsorted.</p>
SQAP_52_8_23_2007	<p>Special Packaging: Individually wrap or package in anti-static material (use at least minimum static requirement).</p>
SQAP_8_8_23_2007	<p>Cleanliness Test BAE SYSTEMS' Supplier Quality Assurance Department shall witness cleanliness testing as required on Dip Brazed assemblies. The Supplier shall give at least five (5) working days advanced notice of the time and place for the testing.</p>
SQAP_54_8_23_2007	<p>SPC Plan: SPC must be employed in the manufacture of this product. The techniques used must be similar to those specified in JEDEC publication 19, or ANSI STDs Z1.1, A1.2 and Z1.3, or similar documents. AN SPC plan must be approved by BAE Systems prior to start of production.</p>
SQAP_15_8_23_2007	<p>Space Flight Equipment: The material on this order is for use in Space Flight Equipment. Material, manufacturing methods and workmanship of the highest quality standards, compatible with the state of the art, are essential to astronaut safety and/or mission success.</p>

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SQAP_5_8_23_2007	<p>In-process Source Inspection: Items covered by this purchase order are to be inspected in process, prior to lamination of individual layers, at your facility, by the BAE SYSTEMS Quality Control Representative. You must give the BAE SYSTEMS Buyer two (2) days advance notice for source inspection coverage.</p>
SQAP_57_8_23_2007	<p>Production Readiness Review: A Production Readiness review is required at your facility prior to start of production when this order is the first to your facility for this part number, or when a major change in design or process has occurred, or there has been a break of more than one (1) year in your production of this part. Items covers will be: Engineering Drawings, Part Selection, Assembly Work Instructions, Process Instructions, Testability, and Subcontract Services.</p>
SQAP_58_8_23_2007	<p>Quality Conformance Testing: Quality Conformance Testing (Group B, C, D) by the supplier is required. Testing is to be performed in accordance with the appropriate specification. Test data shall be retained on file by the supplier.</p>
SQAP_7_8_23_2007	<p>C of A: The material supplied on the purchase order must be accompanied by a Certificate of Analysis, in the vendor's format, indicating that the plating meets the chemical and physical requirements, as delineated in the specification. The certificate must show the name of the testing lab, the test methods used, and results of the testing. The certificate must include the title of the person signing</p>
SQAP_22_8_23_2007	<p>Casting Approval: One (1) sample piece, representative of each casting mold, forging/forming tool, die or mold cavity(ies), in any stable material, accompanied with a copy of the supplier's detail inspection report, must be submitted for BAE SYSTEMS approval of supplier produced tooling. When an item includes cored passages, or other dimensioned design features requiring sectioning of the part for evaluation, the supplier must also submit his sectioned layout sample for BAE SYSTEMS evaluation.</p>
SQAP_21_8_23_2007	<p>Wire List FH 1.0 - All wire-list programs must be submitted to BAE SYSTEMS PQA for review and approval prior to assembly. In no instances shall changes be made to an approved wire-list program without written approval from BAE SYSTEMS. 2.0 - Prior to use on a wire-wrap assembly, all wire must be tested. A sample of 150 to 200 feet for each lot must be submitted to BAE SYSTEMS for test prior to assembly. This sample must be wrapped around a small spool or cardboard. The wire lot number for each gage and color used on each board must be recorded on a shop traveler and a copy of same must accompany each board.</p>
SQAP_62_8_23_2007	<p>Failed Part ID:F1 - (for outside screening test houses only) All rejected parts must be segregated and identified. All parts to be repackaged as received from BAE SYSTEMS.</p>
SQAP_9_8_23_2007	<p>PWB First Article Inspection Due to the criticality of location for mounting holes PWBs on this order are subject to the following. First Article inspection is to be performed on the first piece of each production lot.</p>