

## ***IS&S Procurement Quality Requirements (4QF06-02)***

**This document establishes the Quality Assurance requirements (Q clauses/codes) which are a requirement of the procurement.**

### **Q-1 General Quality Assurance Requirements (includes paragraphs a through q below).**

#### **a. Prohibited Practices**

1. Unauthorized Repairs: Supplier may not repair by welding, brazing, plating, splicing, soldering or adhesives, items damaged or found to be faulty during manufacture, without IS&S approval.
2. Changes in Approved Drawings, Processes, Materials or Procedures: Supplier shall not change any drawing, process, material or procedure without prior IS&S written approval, if such drawing, process, material or procedure was originally approved by IS&S.
3. Resubmittal of rejected Items: Items rejected by IS&S and subsequently resubmitted to IS&S shall be clearly identified on Supplier's shipping document as resubmitted items.
4. Unauthorized Submittal of Production: When the Procurement Document requires IS&S acceptance of a "First Article (Q-10)," Supplier shall not submit items from a production run for IS&S inspection prior to IS&S acceptance of such "First Article", unless otherwise directed in writing. The Supplier assumes all risks for production runs submitted to IS&S without first obtaining 'First Article' Approval from IS&S.
5. Notification of Facility Change: Supplier shall not use or relocate any production, manufacturing and/or processing facilities during performance of the work specified on the Procurement Document from those production, manufacturing or process facilities approved by IS&S, without notifying IS&S and affording IS&S an opportunity to examine such facilities for compliance with Quality Assurance requirements.
6. Notification of Significant Organizational Changes: Supplier will notify IS&S of significant organizational changes such as change in company name or Senior Management.

#### **b. Responsibility for Conformance**

Neither surveillance, inspection and/or tests made by IS&S or its representatives or representatives of the Government or IS&S customers, at either Supplier's or IS&S facility, nor Supplier's compliance with all applicable Quality Assurance requirements, shall relieve Supplier of the responsibility to furnish items which conform to the requirements of the Procurement Document. Also see Q-1, section h below.

#### **c. Configuration Status**

Supplier shall promptly notify IS&S of any impending change to the Supplier's publicly available data sheets, specifications, outline drawings, assembly instructions, etc. that would result in a change in the form, fit, function, or end use suitability of the item being offered for sale.

#### **d. IS&S Surveys, Surveillance, Audits and Inspection**

1. IS&S has the right to conduct surveys, audits, and surveillance of Supplier's facilities, or those of Supplier's subcontractors or suppliers with prior coordination with Supplier, to determine the capability to comply, and to verify continuing compliance, with the requirements of the Procurement Document.
2. IS&S has the right to perform inspection at Supplier's facilities, or those of Supplier's subcontractors or suppliers with prior coordination with Supplier, during the period of manufacture, inspection and acceptance at IS&S facility, unless otherwise specified on the Procurement Document.
3. IS&S reserves the right to use ANSI/ASQ Z1.4, or equivalent sampling plans for the acceptance or rejection of items which in no way relieves the Supplier of the responsibility for compliance to requirements.

#### **e. Documentation**

IS&S may refuse to accept items if Supplier fails to submit certifications, documentation, test data or reports specified by the Procurement Document.

Unless otherwise specified, current revisions of the regulations, rules, specifications, standards and documents referenced in this Procurement Document will be used.

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### **f. Supplier Discrepancy Reports**

When a quality problem exists with Supplier's items, IS&S may forward a Supplier Corrective Action Request (SCAR) to the Supplier. This requires mandatory response and must include the following information: Analysis of the cause of the problem, statement of the action taken to prevent recurrence, and the effectivity of the action. When corrective action is required for Government Source inspected items, Supplier shall coordinate such action with the Government Quality Assurance Representative assigned to Supplier's facility.

### **g. Measuring and Test Equipment**

Supplier shall be responsible for validating the accuracy and stability of tools, gauges and test equipment to MIL-STD-45662, ANSI/NCSL Z540-1, or equivalent, which are used to demonstrate that items conform. Documented schedules shall be maintained to provide for periodic calibration traceable to the National Institute of Standards & Technology (NIST). Objective evidence of calibrations shall be recorded and made available for IS&S review upon request.

### **h. Discrepant Material**

Decisions to accept discrepancies (variances from IS&S drawings and specifications), detected at Supplier's facilities, must be made by an IS&S Quality Assurance representative unless otherwise specified by the Procurement Document. Shipment of discrepant items must be authorized by IS&S Quality Assurance in writing via IS&S Supplier Deviation Procedure 1U-09936.

Supplier shall provide for control, segregation and identification of discrepant material detected at Supplier's facilities.

Upon receipt of discrepant materials, IS&S shall notify Supplier of acceptance or rejection of these materials. In the event that IS&S rejects discrepant material, IS&S may require Supplier to replace or rework any discrepant materials in accordance with the contract requirements on an expedited basis. In the event that the scheduled requirements do not permit the return of the material to the Supplier's facility, Supplier agrees to perform rework at the IS&S facility or reimburse IS&S for all costs incurred by IS&S in performing this rework. IS&S will provide to Supplier, documentation supporting the costs incurred by IS&S. Dispositions of Use As Is & Repair may not be used without IS&S approval.

Supplier agrees to immediately notify IS&S Quality Assurance, in writing, of all details related to any subsequent Nonconforming material issues found after the material has been shipped to IS&S

### **i. Records**

Records created by the Supplier in the manufacture, inspection or testing of IS&S products shall be maintained for a minimum of 10 years. Records shall be made available to IS&S for review upon request.

### **j. Electrostatic Discharge Protection**

Supplier shall provide safeguards for all electrostatic discharge sensitive (ESDS) components and assemblies in conformance with MIL-STD-1686, Military Handbook DOD-HDBK-263, or ANSI/ESD S20.20. ESDS components and assemblies shall be packaged and transported in electrostatic shielding containers. All ESDS containers or cushioning materials must have the mechanical characteristics to properly protect the parts against damage. All ESDS packaging containers must have an ESDS caution label affixed to the outer surface. IS&S may refuse to accept items received which are improperly packaged or protected. IS&S reserves the right to verify continuing compliance with the requirements for ESD protection.

### **k. Workmanship Standards**

Unless otherwise specified, quality workmanship shall be in accordance with applicable drawings and/or specifications or if not identified, with MIL-STD-454 or American National Standards Institute (ANSI) criteria (Class 3). Soldering workmanship shall conform to IPC-A-610 (Class 3).

# **IS&S Procurement Quality Requirements (4QF06-02)**

## **I. Packaging and Marking**

Unless otherwise specified on the drawing, packaging will be in accordance with the best commercial practices available. Material must be packaged to protect against the introduction of Foreign Objects & Debris (FOD). The packaging must be capable of protecting the quality of the product and prevent deterioration or damage, including ESD & Moisture Barrier packaging, where applicable. ESD and Moisture Barrier Packaging shall adhere to and be marked per EIA 583 (for Moisture) and ANSI/ESD S541 (for ESD).

When specified by part manufacturer, JEDEC J-STD-033 Moisture Sensitive Level 2a thru 5a must be marked with expiration date. All Seal Dates must be within 75% of their shelf life when supplied to IS&S.

All rigid Printed Wiring Boards (PWBs) and Flex PWBs must be packaged in a sealed, Moisture Barrier Bag that meets or exceeds EIA 583, Class1 and must include both Desiccant and a Humidity Indicator Card (HIC). The Seal Date shall be clearly marked on each sealed package and have a minimum of 75% of the shelf life remaining when supplied to IS&S. IS&S defines a 2 year useable shelf life (from Date of Manufacture or Lot Number Date Code) per specifications listed in Q-9, Solderability Requirements..

Unless otherwise specified on the drawing, markings on each rigid/flex PWB, in contrasting epoxy ink or etched, shall incorporate the board manufacturer's cage code and/or logo (preferred), markings required per UL94V-0, lot date (format: wwww), and serial number. The serial number shall be sequential and must not be recurring. All markings shall be a nonconductive, fungistatic ink; be able to withstand solder fluxes, cleaning solutions, and molten solder encountered in the manufacturing process and remain legible after all tests. All markings cannot have any effect on the performance of the part.

## **m. Right of Entry**

Supplier shall allow IS&S, customers, government or regulatory agencies right of entry to any place necessary to determine and verify the quality of contracted work, records and material.

## **n. Specialty Metals**

Supplier shall provide and maintain a quality program which is in conformance with:

Defense Federal Acquisition Regulation Supplement (DFARS) 252.225-7009 Restriction on Acquisition of Certain Articles Containing Specialty Metals; found on the internet at:

<http://www.acq.osd.mil/dpap/dars/dfarspgi/current/index.html>

## **o. Conflict Minerals**

Supplier shall comply with the Securities and Exchange Commission's Conflict Minerals Final Rule. Rule requires companies along with their suppliers to disclose their use of conflict minerals-tin, tantalum, tungsten and gold-and determine whether these minerals originate from the Democratic Republic of Congo or its surrounding countries (Angola, Burundi, Central African Republic, Rwanda, South Sudan, Tanzania, Uganda and Zambia). This information shall be submitted to IS&S through completion of the Conflict Minerals Reporting Template.

The Template, along with training materials, may be found at: [www.conflictfreemelter.org](http://www.conflictfreemelter.org).

## **p. UL94V-0**

All rigid and flex PWBs must be UL recognized and have an ID that conforms to UL 94V-0. Each PWB must be marked per Q-1, section L above.

## ***IS&S Procurement Quality Requirements (4QF06-02)***

### **q. Counterfeit Parts**

IS&S Suppliers shall establish and maintain a Counterfeit Parts/Material Prevention and Control Plan. As applicable, this plan must use AS5553, AS6174, AS6081 and/or DFARS 252.246-7007 as guidance. The purpose of the control plan shall be to develop a robust process to control and prevent the delivery of counterfeit commodities (parts, assemblies, raw material etc.) to IS&S. It is the seller's responsibility to flow these requirements to their lower tier suppliers and protect the integrity of these commodities during any procurement activity with IS&S, thus ensuring that counterfeit commodities are contained and do not reenter the supplier chain. The supplier shall ensure their Counterfeit Parts/Material Prevention and Control Plan includes training of applicable personnel to applicable requirements.

If the IS&S Supplier becomes aware of or suspects that it has furnished counterfeit commodities, the Supplier must provide detailed, written notification to IS&S Quality Assurance and Purchasing within 1 working day of the discovery. Suppliers eligible for utilization of the Government-Industry Data Exchange Program ("GIDEP") shall utilize the GIDEP process to alert the industry of encountered counterfeit commodities.

Suppliers should only purchase commodities directly from an Original Component Manufacturer (OCM)/Original Equipment Manufacturer (OEM), an OCM/OEM authorized distributor chain, an authorized aftermarket manufacturer or an authorized reseller. These commodities shall have verification that these goods are traceable to the OCM/OEM; the OCM/OEM authorized distributor chain, the authorized aftermarket manufacturer or the authorized reseller. These verifications should include all that identifies the name and location of all the supply chain intermediaries from the commodities manufacturer to the direct source of the commodities. These verifications shall include manufacturer's identification such as batch codes, date codes, lot codes, serializations and/or other identifications to ensure the required traceability. Upon request, the Supplier will provide this verification/traceability data to IS&S Quality Assurance and/or Purchasing.

If these commodities can only be acquired from independent distributors or brokers, (such as in cases due to of diminishing material supply or obsolescence), written notice shall be provided to the IS&S VP of QA and Buyer prior to procurement of these goods. This notice should include data that ensures the commodities' conditions (i.e., extent of any damage / wear, New vs Used etc.). After written approval by IS&S is received by the supplier, the goods shall be subjected to testing and/or screening processes appropriate to the commodity in accordance with applicable AS5553, AS6174 and/or DFARS 252.246-7007 requirements. The testing and screening methods are to be determined by the IS&S VP of QA with input from the supplier, including using an IS&S approved third party laboratory/testing house if necessary. Records of evidentiary tests and inspections performed that ensure verification of the commodities shall be provided to IS&S for review and approval by the IS&S VP of QA prior to delivery and acceptance of these commodities.

### **r. Responsibility for Product Safety-**

Suppliers must ensure their employees are aware of their contribution to Product Safety for all products and/or services delivered to IS&S. These employee contributions include, but are not limited to, understanding:

1. their knowledge of the products/services provided to IS&S.
2. their individual accountability, including their potential impact on the products/services provided to IS&S
3. their required attention to detail and process compliance to satisfy the end product/service expectations of IS&S.

## ***IS&S Procurement Quality Requirements (4QF06-02)***

### **s. Ethical Behavior-**

IS&S is committed to the highest standards of business ethics and integrity in dealings with suppliers and other parties. In particular, we expect all of our suppliers to conduct themselves with the same high standards of honesty, fairness and personal integrity.

Accordingly, the following requirements apply.

1. IS&S Suppliers will maintain a management system designed to ensure compliance with all applicable laws, regulations and policies in their dealings with IS&S. Obeying these laws, regulations and policies, both in letter and spirit, is the basis of this Ethical Behavior clause.
2. Beyond compliance with laws, regulations and policies, IS&S requires all IS&S employees and suppliers to act in a manner that meets the highest standards of ethical behavior. This includes the obligation to avoid any actual or apparent conflicts of interest in both the personal and professional relationships between IS&S suppliers and IS&S employees.  
  
IS&S Suppliers who observe, learn of or suspect an ethical, regulatory or policy violation must immediately report the violation to the VP of Quality at IS&S. Reported violations to IS&S will be investigated, addressed promptly /appropriately and be treated fairly and confidentially to the extent possible, noting that IS&S must report certain violations as required by law, regulations, and /or customer contracts and agreements.
3. IS&S and its suppliers must not condone ethical violations for the sake of supplier or personal gain, personal advantage, expediency or perceived business advantage. Suppliers will not enter into a financial or any other relationship with an IS&S employee or competitor that creates any actual or potential conflict of interest with IS&S.
4. IS&S Suppliers will respect IS&S' intellectual property rights worldwide and will utilize intellectual property only in accordance with established agreements between IS&S and the supplier. Suppliers will always safeguard and protect IS&S intellectual property and will not disclose or transfer any intellectual or confidential information without the express written consent of IS&S.
5. IS&S Suppliers will commit to upholding the human rights of workers and to treating them with dignity and respect by international standards and applicable laws. All employees shall be treated humanely without threat or harassment, coercion, or unlawful discrimination. IS&S expects our suppliers to provide their employees confidential avenues for raising legal or ethical issues or concerns without fear of retaliation.
6. IS&S Suppliers will comply with all applicable anti-trust, competition and anti-corruption laws.
7. IS&S Suppliers will strive to maintain a safe and healthy work environment that promotes occupational safety and environmental responsibility.
8. IS&S expects our suppliers to flow down the above Ethical Behavior requirements to their sub tier suppliers.

# ***IS&S Procurement Quality Requirements (4QF06-02)***

## **Q-2 Quality Program Requirements (MIL-Q-9858) (FAR 46.202-3) (ISO90XX, AS91XX, NADCAP, A2LA)**

Supplier shall provide and maintain a quality program which is in conformance with Military Specification MIL-Q-9858, "Quality Program Requirements", ISO90XX, AS91XX, NADCAP or A2LA Standards.

## **Q-3 Inspection System Requirements**

Supplier shall provide and maintain an inspection system which will assure compliance with the Procurement Document. Examples of inspection systems include, but are not limited to, MIL-I-45208, ISO90XX, AS91XX. If the Supplier uses facilities other than his own (i.e., sub-tier), that facility is subject to the same conditions stated herein. It is the supplier's responsibility to ensure the proper 'flow down' (including 'Design Characteristics) of all IS&S requirements to their sub-tier suppliers. All certifications and records supplied as objective evidence for parts or services performed must indicate all required data (ex: Company, date, Part Number, quantity, service performed, applicable standards, PO, etc.) to ensure full traceability through the supply chain. Sub tier supplier records must also be maintained per Q-1, section i.

Flow down requirements per AS9102 are required when specified by contract.

Ball Grid Array (BGA) reball suppliers are required to perform 100% AOI (Automated Optical Inspection) on all reballed parts supplied to IS&S (also see Q-8 for Certificate of Conformance requirement).

## **Q-4 Computer Software Quality Requirements (MIL-STD-2168) (RTCA DO 178)**

Supplier shall provide and maintain a quality program which is in conformance with MIL-STD-2168, Software Quality Assurance Program Requirements" or RTCA/DO-178.

## **Q-5 IS&S/Customer Source Inspection**

Items will be inspected by IS&S/Customer during manufacture and/or prior to shipment as specified by the Procurement Document. Supplier shall notify IS&S/Customer not less than five (5) working days in advance that the items are ready for IS&S/Customer inspection. After IS&S/Customer inspection, any rework or retest of the item, including any unscheduled entry, such as removal of a panel, cover or enclosure will void the inspection. In case of any unscheduled entry, rework, or retest, IS&S shall be notified for a decision as to the need for IS&S/Customer reinspection.

## **Q-6 Government Source Inspection**

Government Source Inspection (GSI) is required prior to shipment from your plant. Upon receipt of this order, promptly notify the government representative who normally services your plant so that appropriate planning for government inspection can be accomplished. 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, IS&S purchasing should be notified immediately.

## **Q-7 Test Data**

When IS&S requires data to be recorded during the performance of acceptance testing or inspection, a copy of the recorded data, showing evidence of Supplier's inspection and verification of conformance, shall accompany shipment of items to IS&S. As a minimum, data shall be identified with:

- |                           |  |
|---------------------------|--|
| a. Purchase Order Number  | d. Lot numbers, serial numbers, or data codes of items listed                  |
| b. Part Number            | e. Total quantity tested, quantity accepted and quantity rejected              |
| c. Type of test performed | f. Any codes, keys or other information necessary to interpret Supplier's data |

# ***IS&S Procurement Quality Requirements (4QF06-02)***

## **Q-8 Material Certifications**

Shipment of raw material, finished or semi-finished items must be accompanied by a Certificate of Compliance (IS&S Form 4QF06-01 or equivalent).

Items delivered from a distributor must be accompanied by a statement, executed by an authorized representative, that the parts furnished are part of the shipment covered by the manufacturer's documentation.

Applicable raw material certifications, tests, processes, inspections, and statistical records, will be maintained and made readily available to IS&S or Government / customer representatives upon request per Q-1, section i.

Certificates of Conformance from Ball Grid Array (BGA) reball suppliers must state adherence to 100% AOI (Automated Optical Inspection) (also see Q-3 for Inspection requirement).

Certificates of Conformance for each Flex Printed Wiring Board (PWB) or Rigid PWB will list both the 6F-xxxxx-xx Fab (Fabrication) revision and M6F-xxxxx-xx Artwork revision.

## **Q-9 Solderability Requirements**

All printed wiring boards shall comply with MIL-PRF-55110 or J-STD-003 solderability requirements.

All components, i.e. ICs, resistors, capacitors, transistors, diodes, wire (solid and stranded up to .125" diameter), lugs, tabs, turrets, etc. (any item which is normally joined by a soldering operation) shall comply with J-STD-002 or equivalent solderability requirements. All solderable components shall be packaged and sealed to eliminate air flow and moisture. Packaging material containing paper with sulfur is strictly forbidden as is any material which could leave a residue or degrade the solderability of the components.

## **Q-10 First Article Approval**

When specified on the Procurement Document, First Article approval is required. A First Article Inspection Report (FAIR) shall be completed by the Supplier and submitted with the first product shipment. Also see Q-1, section a, #4. FAIRs are subject to verification and approval by IS&S.

First Article Inspection Reports per AS9102 are required when specified by contract.

## **Q-11 Tape and Reel**

When specified on the Procurement Document, the components are to be supplied on tape & reel per EIA Standard 481-1, -2 or other standard as approved by the SMT Manufacturing Engineer. If parts cannot be supplied on tape & reel due to availability, lot size, or other circumstances, then tray, tube, or cut tape packaging must be approved by the IS&S buyer.

The packaging, materials and processes shall not adversely affect the mechanical and electrical characteristics or markings of the components. The components shall be ESD protected. Moisture sensitive components shall also be protected.

## **Q-12 Shelf Life**

When specified on the Procurement Document, items must be marked with expiration date, as applicable. Material must be within 75% of the material shelf life when supplied to IS&S.

## **Q-13 Hazardous Material**

When specified on the Procurement Document, supplier shall package and label material in accordance with OSHA guidelines for Hazardous Material, and supply current MSDS sheet.

## **Q-14 Other**

The Supplier will be responsible for meeting other QA requirements delineated on the Purchase Order and not included within this supplement.

## **Q-15 Calibration Requirements**

Items shall be calibrated in accordance with ANSI/NCSL Z540-1, ISO 10012-1, ISO/IEC 17025 or equivalent.

**Note: Codes 16 through 59 and 61 are IS&S Sales Order Codes. If required, Code 21 (FAA Form 8130 Required) may be noted on the Procurement Document.**

# ***IS&S Procurement Quality Requirements (4QF06-02)***

## **Q-60 Quality Codes Q-1, Q-3 AND Q-8 ALL required**

Quality Codes Q-1 (General Quality Assurance Requirements), Q-3 (Inspection System Requirements) AND Q-8 (Material Certifications) are ALL required. See codes above for details.

## **4QF06-02 REVISION HISTORY**

### **Rev Z** Delete Page 3 Section I Paragraph 4.

As a minimum, each Printed Wire Assembly (PWA), Flex Assembly, Flex PWB, or rigid PWB shall be marked with the board manufacturer's CAGE code and/or logo (preferred), markings required per UL94V-0, Part Number and Serial Number. The Serial Numbers should be sequential and must not be recurring. PWB/Flex PWBs will also be marked with lot date (format: wyyy) Rigid and Flex PWBs will also be marked with IS&S Part number and revision Etch preferred (ex: 6F-01234-1 Rev X) and Assembly part number, in contrasting epoxy Ink (ex: 8E-01234-1 Rev \_). The IS&S Artwork part number (ex: M6F-01234-1, Rev X ) should be marked in contrasting Epoxy ink or Etched in PWB Array frame whenever possible. Flexible PWBs and Single PWBs are exempt from this rule. All markings shall be a nonconductive, fungistatic ink, be able to withstand solder fluxes, cleaning solutions, and molten solder encountered in manufacturing and remain legible after all tests. All markings cannot have any effect on any performance of the part.

Add Following:

Unless otherwise specified on the drawing, markings on each rigid/flex PWB, in contrasting epoxy ink or etched, shall incorporate the board manufacturer's cage code and/or logo (preferred), markings required per UL94V-0, lot date (format: wyyy), and serial number. The serial number shall be sequential and must not be recurring. All markings shall be a nonconductive, fungistatic ink; be able to withstand solder fluxes, cleaning solutions, and molten solder encountered in the manufacturing process and remain legible after all tests. All markings cannot have any effect on the performance of the part.

**Rev X** Added new Q Codes Q-1r (Responsibility for Product Safety) and Q-1s (Ethical Behavior) - Required per AS9100D:2016 and DEKRA Dec 2017 AS9100D:2016 Audit finding.

Codes Q-5 and Q-6- Clarified grammar, No content changes.

**Rev W** General document clean-up for spelling and grammar. No content changes.

Added new Code Q-1q for Counterfeit Parts per AS9100D, customer and regulatory requirements.

Code Q-2 – added references to NADCAP and A2LA, Changed text from 'ISO9001' and 'AS9100' to 'ISO 90XX' and 'AS91XX'.

**Rev V** Added Revision History, beginning with Revision V.

Code Q-1, section b - Per FAA MIDO QSA Audit, added text 'Also see Q-1, section h below.'

Code Q-1, section e – Per DEKRA AS9100C Audit, added text 'Unless otherwise specified, current revisions of the regulations, rules, specifications, standards and documents referenced in this Procurement Document will be used '



## ***IS&S Procurement Quality Requirements (4QF06-02)***

Code Q-1, section h – Per FAA MIDO QSA Audit, added text 'Supplier agrees to immediately notify IS&S Quality Assurance, in writing, of all details related to any subsequent Nonconforming material issues found after the material has been shipped to IS&S'

Code Q-1, section l, 3<sup>rd</sup> paragraph – Added text 'IS&S defines a 2 year useable shelf life (from Date of Manufacture or Lot Number Date Code) per specifications listed in Q-9, Solderability.'

Code Q-1, section l, 4<sup>th</sup> paragraph – Changed text from '...94V-0,' to '...markings required per UL94V-0,'

Code Q-1, section p – Changed text from 'Each PWB must be marked '94V-0' per Q-1, section L above.' to 'Each PWB must be marked per Q-1, section L above.'

Note (after Code Q-15) – added text '...and 61' for reference to Sales Order code Q-61.