Certification and Qualification Information for Conventional Specifications

DLA Land and Maritime-VQ
October 2013

PREAMBLE

This document is applicable to the general specifications and DoD Qualification Program administered by the DLA Land and Maritime Sourcing and Qualifications Division in its capacity as the Qualifying Activity. This publication has been developed to outline and discuss the elements needed for manufacturers to successfully qualify their products for listing on the Qualified Products List (QPL).

The QPL Program offers many advantages and opportunities to both manufacturers and users of electronic, construction, and mechanical components. QPL products provide superior performance, quality, and reliability from a known cadre of qualified manufacturers. The QPL products provide fewer Diminishing Manufacturer Sources (DMS) problems and a lower cost of ownership. In addition, the QPL Program maintains configuration control and assures the military system is logistically supportable throughout its life cycle.

This document provides an overview of the DoD Qualification Program as administered by this office and helps manufacturers get started in qualifying their products. The Sourcing and Qualification Division stands ready to assist you with all of your component questions and with getting started in the qualification program.

Any QPL Program questions or clarifications of a general nature should be directed to:

U.S. Postal Service
DLA Land and Maritime
ATTN: -VQ
Joseph Gemperline
P.O. Box 3990
Columbus, OH 43218-3990

Private Carriers (e.g.,. UPS, FED EX, etc.)
DLA Land and Maritime
ATTN: -VQ
Joseph Gemperline
3990 East Broad Street
Columbus, OH 43213-1199

Phone: (614) 692-0663
Fax: (614) 692-6942 or (614) 693-1658
e-mail: joseph.gemperline@dla.mil

Thank you for your participation and support of the Department of Defense (DoD) Product Qualification Program.

Sincerely,

JOSEPH GEMPERLINE
Chief
Sourcing and Qualifications Division

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INTRODUCTION

This publication has been developed to outline and discuss the elements needed for manufacturers to successfully qualify their products for listing on the Qualified Products List (QPL).

Certified manufacturers will find it useful as a reference guide and non-certified manufacturers will be challenged by the many advantages and opportunities available to the QPL supplier of military products.

This booklet also provides beneficial information to the user Original Equipment Manufactures (OEMs), Systems Program Offices (SPOs), etc. on the advantages in procuring the highest quality and reliability level products available.

The information in this document is supplementary to Provisions Governing Qualification (SD-6) and Defense Standardization Program Policies and Procedures (DoD 4120.24-M). It does not supersede or waive the provisions of these documents or of the applicable military or federal specifications.

The details discussed in this publication apply only to qualification programs administered by the DLA Land and Maritime, Sourcing and Qualifications Division (VQ) in its capacity as Qualifying Activity for general specifications.

The manufacturer, by application and subsequent listing on a Qualified Products List (QPL), agrees to comply with all provisions specified in the applicable specification and herein.

This publication outlines the necessary elements for an acceptable QPL program. This publication will list the key elements needed, but leaves the format and implementation of these elements to the manufacturer.

Electronic/Alternate Media Submission Option: DLA Land and Maritime requests that all correspondence be submitted in electronic format. Examples of this include requests for technical evaluations, qualification reports, mandatory retention testing and requests for testing authorization. In the event that a specific report or document is of very large size (>5MB) please submit the information by mail or commercial carrier on a compact disc (CD). Electronic documents are a more efficient format and will help our office evaluate your questions in a more efficient and expeditious manner.

CAUTION: The information in this booklet is of a general nature because it covers a wide cross-section of QPL programs. For the specific qualification requirements for a given technology, the applicable specifications and standards must be reviewed. In addition, we suggest that you contact the applicable qualification point-of-contact to discuss your specific qualification plans and make sure you fully understand the applicable requirements. Failure by the manufacturer to fully understand the qualification requirements or clarify any questions they may have regarding the meaning and intent of this document prior to qualification testing, may result in unnecessary testing, non-compliant testing, and delay your qualification approval.

Points of Contact

Alan Will
DLA Land and Maritime
Sourcing and Qualifications Division
VQP
Passive Devices Branch

Raymond Kolonchuk
DLA Land and Maritime
Sourcing and Qualifications Division
VQE
Electronic Devices Branch

James Eschmeyer
DLA Land and Maritime
Sourcing and Qualifications Division
VQH
Hybrid Devices Branch

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Fax numbers: (614) 692-6942, or (614) 693-1658

Name	**Phone Number**	**DSN**	**E-mail address**
Alan J. Will (VQP Branch Chief)	(614) 692-0619	850-0619	alan.will@dla.mil
Ray Kolonchuk (VQE Branch Chief)	(614) 692-0621	850-0621	raymond.kolonchuk@dla.mil
James Eschmeyer (VQH Branch Chief)	(614) 692-0591	850-0591	james.eschmeyer@dla.mil
Group I: 5905 Resistors/5910 Capacitors/5915 Filters/5950 Transformers/5965 Headsets, Loudspeakers, and Microphones/5999 Miscellaneous/1650, 2530, 4720 Hoses/wipers, 4730 Fittings, 4930 Construction			
Dwight Oglesby	(614) 692-0609	850-0609	dwight.oglesby@dla.mil
Gene Ott	(614) 692-0665	850-0665	gene.ott@dla.mil
Jeff Zern	(614) 692-0597	850-0597	jeffrey.zern@dla.mil
Group II: 5935 Connectors/6145 Wire and Cable/6060 Fiber Optics			
Alex Baillieul	(614) 692-2867	850-2867	alexander.baillieul@dla.mil
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Sonya Taylor	(614) 692-2193	850-2193	sonya.taylor@dla.mil
Group III: 5920 Fuses/5925 Circuit Breakers/5930 Switches/5945 Relays/5955 Crystals and Oscillators/5999 Miscellaneous			
Bob Bates	(614) 692-0504	850-0504	robert.bates@dla.mil
Kevin Rudd	(614) 692-0594	850-0594	kevin.rudd@dla;mil
Art Woolum	(614) 692-0505	850-0505	william.woolum@dla.mil

Group IV: 2530, 3010, 4810, Hardware			
Robert Puckett	(614) 692-0625	850-0625	robert.puckett@dla.mil
Lowell Sherman	(614) 692-0627	850-0627	roger.sherman@dla.mil
Group V: 5985, 5960 MIL-E-1 RF and Wave Guide			
Ryan Michael	(614) 692-7527	850-7527	ryan.michael@dla.mil
Robert Puckett	(614) 692-0625	850-0625	robert.puckett@dla.mil

NOTE: This information is correct as of the date of publication. For up to date information, check the VQ web page.

Comments or recommendations that may be of use in improving this document should be mailed to one of the addresses listed in the Points of Contact on page 5. Requests for copies of this document should also be forwarded to one of these addresses.

Requests for an assessment or for further information about the QPL program should be directed to one of the VQ contacts listed in the Points of Contact on Page 5.

DLA Land and Maritime
-VQ: Sourcing and Qualifications Division (Joseph Gemperline, Chief)
-VQE: Electronic Devices Branch (Raymond Kolonchuk, Chief)
-VQP: Passive Devices Branch (Alan J. Will, Chief)
-VQH: Hybrid Devices Branch (James Eschmeyer, Chief)

Request for copies of DoD 4120.24-M (Defense Standardization Program (DSP) Policies and Procedures, SD-6 (Provisions Governing Qualification Qualified Products List), MIL-STD-202, and any other military document should be addressed to DoD Single Stock Point Special Assistance Desk, Bldg 4D, 700 Robbins Avenue, Philadelphia, PA 19111-5098, (215) 697-2179, M-F 7:30a.m. to 4:30p.m. (EST). See web site http://dodssp.daps.dla.mil/.

Copies of specifications for which VA is the Preparing Activity are also available for viewing and printing at no charge, from the DLA Land and Maritime Document Standardization Division's website at http://www.landandmaritime.dla.mil/programs/milspec/ .

REFERENCES

Military specifications and Qualified Products Lists (QPLs) for a specific stock class may be requested by contacting the applicable DLA Land and Maritime-VQ agent called out on our web site.

http://www.landandmaritime.dla.mil/offices/sourcing_and_qualification/

The numbers and titles of the military standards, manuals, and handbooks referenced by this document are listed below.

NUMBER	TITLE
DoD 4120.24-M	Defense Standardization Program Policies and Procedures
MIL-STD-202	Test Methods for Electronic and Electrical Component Parts
MIL-STD-883	Test Methods and Procedures for Microelectronics
EIA 364	Test Methods for Electrical Connectors
SD-6	Provisions Governing Qualification
ANSI NCSL-Z540.3 or ISO 10012 -1	Calibration Systems Requirements
	Laboratory Suitability Information
	List of Commercial Laboratories Suitable for Testing Military Devices

Copies of DoD 4120.24-M, Military Specifications, Military Standards, and SD-6, may be obtained from:

DoD Single Stock Point Special Assistance Desk
700 Robbins Avenue, Building 4D
Philadelphia, PA 19111-5098

Phone (215) 697-2179, FAX (215) 697-1462

The Sourcing and Qualifications Division has a web site. See next page for details.

Sourcing and Qualifications Division (DLA Land and Maritime-VQ)

DLA Land and Maritime, 3990 East Broad Street, Columbus, OH 43213

http://www.landandmaritime.dla.mil/offices/sourcing_and_qualification/

The Sourcing and Qualification web pages were originally developed mid 1995 to provide a user-friendly approach to downloading the Division's Query Tool programs. The web pages have since been expanded to disseminate much of the public information that was formerly distributed on paper. We are developing cost effective real-time alternatives to the traditional paper documents, and providing them on the World Wide Web.

General features of the VQ web pages:

- Most pages and graphics are very small for fast transfer to the user's computer
- Pages have been written to utilize the latest features of the Hypertext Markup Language (HTML) language and the Active Server Pages technology. Pages are best viewed on the latest versions of the popular web browsers, but should display acceptably on any older browser.

Items currently available on the VQ web pages:

- General information from the Division office including the mission, and organizational statement.
- General information for each of the Division's four branches (**Custom Devices, Hybrid Devices, Passive Devices, and Electronic Devices**). Information includes program information, contacts, and QML/QPL status, downloadable forms, and various reports.
- **Qualified Manufacturers List (QML), Qualified Products List (QPL) and Qualified Products Database (QPD) Supplemental Information Sheet (SIS)** documents available in the Adobe Portable Document Format, including historical revisions, and downloadable databases (on selected QMLs/QPLs). Also, qualification actions awaiting inclusion in a QPL, QML, or QPD are listed where applicable.
- An **on-line part search capability**. Downloading is not required. Many QPLs and QMLs are searchable via this capability. Microsoft Access 2000 formatted databases for many of the searchable QPLs and QMLs are also available for download. The end-user may then run their own custom queries and reports.
- Information about the Division's **ISO 9001 value-added audit program** including background information, audit information, and the DLA LAND AND MARITIME-VQ ISO 9001 Registration list.
- Reports and information including progress reports, program initiatives, newsletters, and program updates.
- Information about the Division's **Commercial Laboratory Suitability Program** (Includes List of Commercial Laboratories Suitable for Testing Military Devices), including a real-time commercial laboratory suitability listing.

For further information about the Sourcing and Qualification Division web pages, contact:
VQWebTeam@dla.mil
Ned Raybould, 614-692-0582, vqh.esr@dla.mil
Rick Barker, 614-692-0596, vqh.rb@dla.mil

Last updated: July 19, 2010

A BRIEF OVERVIEW

Qualified Products List (QPL)

The QPL is a list of products or families of products which the manufacturer has successfully demonstrated the capability to manufacture in full compliance with the requirements of the applicable military specifications, as well as the manufacturer's own internal requirements.

Initially, through documentation, a manufacturer establishes a quality program. Subsequently, the program is implemented to ensure required support systems, processes, materials, procedures, and controls are working. DLA Land and Maritime-VQ performs an onsite audit of the manufacturer's facility to assure that these support systems, processes, materials, procedures and controls are implemented and working to provide the desired performance, quality and reliability necessary for the DoD. This is accomplished through the performance of a Government audit. The auditors will review documentation and data, observe processes and tests, look at actual parts, and interface with personnel.

After all DLA Land and Maritime Audit Results (DARs) are satisfactorily corrected, the manufacturer is approved to build product in accordance with the requirements of the applicable specification. The product is submitted to a series of strenuous environmental, mechanical, and electrical tests called Qualification Tests. These tests give data concerning the performance, quality and reliability of the part. Upon successful completion of the tests, QPL listing is granted. **Representative product is periodically tested to verify continued conformance to the military performance, quality, and reliability requirements.**

It is up the manufacturers and users to make the qualification program work. Each manufacturer must inform their customers of the availability of QPL products and the advantages of using them. Also, each military user should enforce the use of qualified products through contractual requirements.

SECTION I

REQUESTING AN AUDIT

To begin the qualification process, the manufacturer must first contact the assigned office point-of-contact to express interest. DLA Land and Maritime-VQ will then send a preaudit letter which specifies the information to be submitted by the manufacturer to DLA Land and Maritime-VQ. The manufacturer may be requested to schedule a meeting with DLA Land and Maritime-VQ to discuss the qualification program and the required preaudit documentation and data.

The preaudit information requested by DLA Land and Maritime-VQ is intended to ensure the following:

- The manufacturer has a documented and controlled operation.
- The manufacturer is meeting its own requirements as well as the military requirements.
- The manufacturer has a functional quality program in place, with supporting data as necessary.
- The manufacturer has a self-audit program.

In the preaudit letter, DLA Land and Maritime may request results from the latest self-audit, a copy of the manufacturer's Quality Manual, a copy of a traveler/router, and organizational charts, as well as other information to ensure the above essential requirements are in place.

The advantages to having preaudit requirements are:

- Better use of manpower and funds.
- Performance of timely, effective, and successful audits.
- Quick turnaround time from the audit to obtaining the desired QPL listing.

SECTION II

THE CERTIFICATION AUDIT

The goal of the audit is for DLA Land and Maritime-VQ to verify that the manufacturer has implemented an effective quality program that incorporates all the manufacturers and military's requirements (see the applicable military specification and standard). The audit will be conducted on a sample basis to provide the audit team with an acceptable level of confidence that the manufacturer has a program for building high quality product, on a continual basis, that conform to the specified performance, quality and reliability requirements without the need for constant government oversight.

An audit/validation team (typically 2 auditors) from DLA Land and Maritime-VQ will perform a sample audit over a 1-3 day period. The auditors will question and observe operators, examine actual product, as well as review records, operating procedures and other data. All areas from incoming inspection of materials to shipment of final product are subject to review.

Below is a list of essential items that DLA Land and Maritime-VQ requires for a manufacturer to have their products listed on the Qualified Products List.

- Process parameters are specified and controlled to assure repeatability of processing.
- Test methods are documented in operating procedures, describing how to perform the tests using the manufacturer's own equipment. Test methods shall meet the requirements of MIL-STD-883, EIA 364, MIL-STD-202 and the applicable military specification as interpreted and approved by DLA Land and Maritime-VQ.
- All necessary elements are contained in the company's quality manual.
- Product is not shipped to the customer, or to the next level of assembly, until qualification testing and Quality Conformance Inspection (QCI) have been performed, passed, verified and listed on the QPL.
- A change-control review process is in place to identify the impact of any changes. This includes determining qualification testing to be performed, and whether notification to DLA Land and Maritime-VQ or the customer is required prior to implementation.
- Calibration system is effective in accordance with ANSI/NCSL Z540.3 or equivalent.
- An ongoing self-audit program is implemented to ensure compliance to military and customer specifications and standards as well as to the manufacturer's internal specifications.
- An adequate training program exists that assures each operator is properly trained and retrained in the production and testing of military product.

During the audit, the auditors will document their findings/observations and provide them to the manufacturer on the last day of the audit, prior to departure. The manufacturer must respond to all findings/observations identified as deficiencies within 30 days, unless otherwise noted.

Once the manufacturer corrects all of the deficiencies found during the audit, they will receive a letter, stating that the audit has been successfully completed and that they are now certified to make product to the applicable specification(s). The manufacturer will also receive a "Facility Suitability" certificate and letter. The letter will specify the tests that the manufacturer is approved to perform in-house. Additional tests may be added later with the approval of DLA Land and Maritime-VQ. Only those areas included during the audit are approved for manufacturing and testing of QPL product. Products can only be produced in the plant location that was qualified during the audit using the approved qualification system (e.g. procedures, flowcharts, travelers, equipment.)

NOTE: Moving the approved plant facility's location constitutes a major change and requires immediate notification to DLA Land and Maritime. Depending on the extent of the move or change, requalification could be required.

Certification and Qualification in a Country Outside the U.S.

In countries outside the U.S., the provisions are the same as in Section II above with the following additions:

- The length of time required to schedule and complete the audit will be somewhat longer due to the time required by DLA Land and Maritime auditors to request and obtain proper clearances to visit and work in another country. This paperwork takes approximately 60-120 days to complete.
- Audits are scheduled on a first-come basis. DLA Land and Maritime is limited to the number of audits it will perform each fiscal year, so requesting an audit as early as possible will increase the chances of the audit being included on the schedule.

All other provisions are the same as for certification/qualification within the U.S. All letters, forms, paperwork, correspondence, etc., will take place directly between the manufacturer and the VQ point of contact.

SECTION III

QUALIFICATION

After the audit is successfully completed, the next step is to qualify the processes, materials, or products audited by the government team. Qualification is accomplished by:

1. Identifying exactly what part numbers the manufacturer wishes to have listed on the QPL.

2. Submitting the appropriate application (Form19) for qualification testing to DLA Land and Maritime-VQ (See Section IV, Qualification Testing Procedures and Test report Format.). As a minimum, the application for qualification testing must specify the following:

- The product to be tested
- The proposed testing to be performed (100% screen and sample testing)
- The number and type of the samples to be tested
- The test locations

3. Building the product, following the approved flows, and using the approved controls and operating procedures.

4. Performing testing per the approved test plan (approved Form 19). All testing must be performed at a DLA Land and Maritime-VQ approved laboratory (either in the approved plant's test lab or at a laboratory listed on the "List of Commercial Laboratories Suitable for Testing Military Devices" found on the DLA Land and Maritime website at http://www.landandmaritime.dla.mil/offices/sourcing_and_qualification/resource.asp

5. Successful completion of these environmental, mechanical, and electrical tests verifies the performance, quality, and reliability of the product. **Note:** DLA Land and Maritime may require monitoring by the Quality Assurance Representative (QAR).

6. Submitting the test data report (see Section IV below) to the appropriate DLA Land and Maritime-VQ office for review.

7. Listing of the manufacturer and products and/or processes and materials on the applicable QPL after DLA Land and Maritime-VQ approves the test data report. The manufacturer will receive a Qualification Letter.

8. Periodic testing of representative product is then performed in accordance with applicable military specification to verify continued conformance to the military performance, quality, and reliability requirements. Representative product is defined as parts produced throughout the reporting period for the periodic testing. DLA Land and Maritime does not want manufacturers to produce parts specifically for retention of qualification testing. (DLA Land and Maritime will assign a date when the manufacturer's periodic/retention of qualification test data is due.)

   Note: If manufacturers wish to add part numbers to their existing qualification, they must notify the DLA Land and Maritime-VQ point of contact. Some families of part numbers can be qualified by similarity. If the applicable specification does not allow for qualification by similarity, additional part numbers may be qualified with reduced testing if approved by the Qualifying Activity.

SECTION IV

Qualification Testing Procedures and Test Report Format

1. Application/Authorization Procedures

   a. For the most part, the DLA Land and Maritime Form 19 is self explanatory. The manufacturer will complete Section I. One copy of the completed DLA Land and Maritime Form 19 listing the product(s) to be tested is to be submitted to DLA Land and Maritime-VQ. Both the military part or type number(s) and the manufacturer's part number(s) shall be listed on the form. The manufacturer will then submit the form to the appropriate branch of the Sourcing and Qualifications Division, for approval of the proposed test plan. Upon receipt of the form, DLA Land and Maritime-VQ will complete Section II and return the signed original with any additional comments to the manufacturer. Any testing performed prior to receiving the DLA Land and Maritime approved, signed form is done at the manufacturer's risk.

   b. If testing is to be done at more than one location (either in an approved company in-plant laboratory or an approved commercial test laboratory), Block 7 of the application must show clearly which tests each test laboratory will perform.

   c. If the specification has a family sampling plan where testing a few types will qualify additional types, the manufacturer shall identify the types they will test. They should list in the additional information block on Form 19, all types of the family for which they desires qualification.

   d. Line item number 3 of DLA Land and Maritime Form 19 is a reminder that all test facilities must be approved by DLA Land and Maritime-VQ prior to being used in qualification testing. Failure to have laboratory suitability approval prior to testing is a common cause of rejection, or delay, in acceptance of a test report by DLA Land and Maritime-VQ.

   e. The application/authorization form must be signed by a company official who has the authority to commit the manufacturer of the product to the conditions stated in Form 19.

2. The following general provisions apply to qualification testing. Failure to comply with these provisions may result in rejection of the test.

   a. Test samples must have been manufactured at the approved plant that is listed on the application/authorization form (DLA Land and Maritime Form 19).

   b. Qualification testing shall not be started prior to submittal of the DLA Land and Maritime Form 19.

   c. Tests must be performed at the laboratories listed on the DLA Land and Maritime application/authorization (Form 19). If it is necessary to change the listed laboratory for any test, the manufacturer shall inform DLA Land and Maritime-VQ prior to testing. DLA Land and Maritime-VQ will then revise or amend the application/authorization form.

   d. Samples must be subjected to all tests listed on the DLA Land and Maritime-VQ approved Form 19 and performed in the sequence required by the specification. Test procedures must be in accordance with the applicable specification's test paragraph or military standard's test method as interpreted by DLA Land and Maritime-VQ. If test procedure clarification is needed, please phone or write DLA Land and Maritime-VQ before performing that test. If there are any failures during testing, or problems such as samples damaged during handling, using improper test methods, test equipment failure, marginal failures or unusual failure modes, DLA Land and Maritime-VQ must be notified before proceeding with the testing.

   e. All testing must be performed using test equipment approved by DLA Land and Maritime-VQ prior to testing.

f. DLA Land Maritime may request the Government QAR to monitor testing at non-government laboratories.

3. **Recording of Data - Test Data Sheets:** Data should be presented in sufficient detail to substantiate the test procedures used and the results obtained in the testing. Failure to submit data in sufficient detail may be cause for rejection of the test report.

a. Standard DLA Land and Maritime data sheets, e.g. Form 36F, are available for some specifications and may be used to record qualification test data. All blocks at the top of every data sheet used must be filled-in. When standard DLA Land and Maritime data sheets are not used, the manufacturer can use their own forms; however, it is recommended that DLA Land and Maritime review them, prior to use, to ensure that they contain all required information.

b. The **DATE** and **TIME** each test was started and completed shall be recorded on the data sheet so that the sequence of testing can be established.

c. All actual environmental, mechanical and electrical test conditions existing at the time of the test shall be recorded by the test equipment operator. It is important that this data be recorded by the operator at the time of test and not copied from the specification before testing or when the test report is being assembled.

d. All data in a qualification test report, such as test conditions and test results, must be the actual readings on each item during the test. VARIABLES data is required for every measurement taken.

e. Dimensional measurements must include all dimensions included on the applicable specification figure having a numerical value with a tolerance. Dimensions identified as nominal or reference need not be measured. In many drawings, only one value (usually identified as "typical") is shown for such things as multiple mounting holes, several leads or several pins. However, all holes, leads or pins must be measured and their measurements recorded. When a specification does not specify the number of units for dimensional measurement, a random sample shall be selected as follows:

No. of Units in Test Lot	No. of Units to be Measured
1 - 10	All
11 - 110	10
111 - 180	15
181 & above	20

f. Test data for environmental and mechanical tests shall include all test conditions. For example, vibration test data must include: vibration amplitude (inches or "g's"), frequency range, sweep time, duration and planes of vibration that were tested, as well as any electrical values applied and recorded during test. Results of electrical testing before and after vibration shall be recorded. For tests involving time as a test condition (e.g., thermal shock test), the data should show the actual time that the test started and ended and the temperature for each step of each cycle. This data can be recorded on an operating log sheet and is acceptable for reporting test conditions data in the test report.

g. For electrical tests, the data must include all applicable test conditions, i.e., voltage, current, frequency, etc., and the specified test characteristic. If the characteristic value is calculated, the data must include all readings, the characteristics measured, the formulas used for calculations, a sample calculation and the calculated values. For example, when voltage and current readings are taken for wattage calculation, the values of the voltage and current

measured must be recorded on the data sheets along with the calculated wattage. A copy of any chart, table or graph used in lieu of actual calculations must be included with the data.

h. Corrections on data sheets must be made by 'lining out" the incorrect entries with a single line and inserting the correct entry immediately adjacent to the "lined out" entry. Erasures, "mark overs" and "white-out" are not permitted on the original test data sheets.

Assembly of the Qualification Test Report

a. The test laboratory shall prepare a separate test report for each test report number assigned by DLA Land and Maritime on the DLA Land and Maritime Form 19 "Application/Authorization to Conduct Qualification Test". The test laboratory will then submit the **original** test report to DLA Land and Maritime-VQ. If more than one test laboratory performs the tests, the manufacturer will combine the data from each laboratory into one report. Page 3 of the Form 36F should show all tests in the order listed on the specification test table. The laboratory performing the test can be shown in the remarks column. A separate page 4 of the VQ-SOF-93 should be used for each test laboratory.

b. All reports will be properly collated and bound, and pages numbered. The test report will consist of the following items:

1) A completed Form 36F or equivalent. Do not omit any of the required information. Page 4 of Form 36F should list only the equipment used for this qualification test. Form 36 is not an acceptable substitute for this page. The "date of calibration" column listed on page 4 of Form 36F should reflect the last calibration date of the piece of equipment used during the actual test..

2) A Certification of Materials (if required by the specification or if requested by DLA Land and Maritime.)

3) Design and construction information (if required by the specification or if requested by DLA Land and Maritime.)

4) Photographs (if required by the specification or if requested by DLA Land and Maritime.)

5) Data sheets (in the same order as the listing in the qualification test table(s) of the applicable specification.)

6) Other data or information e.g., VSWR charts, X-rays, formulae, moisture resistance charts, etc. (if required by the specification or if requested by DLA Land and Maritime.)

c. The original test data shall be submitted to DLA Land and Maritime and identified on the front cover as "DLA Land and Maritime-VQ Original Test Data". This copy differs from any duplicated copies as follows:

1) The "DLA Land and Maritime-VQ Original Data" report contains the original handwritten sheets in addition to typed or duplicated sheets.

2) The DLA Land and Maritime-VQ "Original Test Data Report" also contains:

a) Original moisture charts. If, for instance, the cold sub-cycle, step 7a of method 106, MIL-STD-202 is performed in a different chamber, this must be stated on the chart. The chart must l also include the following information:

1. The name and location of the test laboratory used.

2. The date the chart was recorded

3. The Military designation of the product(s) under test.

4. The test report number. (If several tests are performed simultaneously, all test report numbers will be included.)

b) Image reproductions of the moisture resistance charts will be accepted by DLA Land and Maritime-VQ if it is impractical to submit the original charts. (For example, tests may be performed for several reports simultaneously and it would be impossible to submit the original charts with each test report.) The reproduction must be of the same scale as the original charts and completely legible. (If the laboratory uses this option, the reason must be stated in the remarks section of Form 36F and the reproduced charts annotated to show the test report number under which the original charts were submitted.)

c) A photograph, or other depiction of the shock wave, when required by the DLA Land and Maritime Form 19, should include:

1. The axis of the illustration must be properly labeled showing the unit of measure and scale, and

2. The photograph should be fastened to a page containing the following information:

a. Name and address of the laboratory conducting the shock test.

b. Date of the test.

c. Test report number.

d. Identification of the test sample, type, number, etc.

e. Overlays and computations demonstrating compliance.

f. Other photos, diagrams, etc., required by the applicable specification or required by DLA Land and Maritime-VQ.

d) If qualification testing is initiated and then discontinued for any reason, DLA Land and Maritime-VQ is to be notified within 10 working days. If testing is not resumed, a test report covering all tests performed prior to discontinuance must be submitted. Failure to notify DLA Land and Maritime-VQ, or to submit this test report by the date agreed, is cause for rejection of future applications for qualification testing and may result in loss of laboratory suitability status. If a report covering product failure is submitted, and the manufacturer wants to retest, he must submit a new DLA Land and Maritime Form 19 and his proposed corrective action. DLA Land and Maritime-VQ will evaluate the proposed corrective action, and, if acceptable, will issue a new authorization and assign a new test report number.

5. QPL Listing: Once a manufacturer has successfully completed and passed all required qualification testing, the products listed on the approved Form 19 will be listed on the appropriate QPL. This listing will remain in effect for as long as the product continues to demonstrate compliance with the specification requirements. Compliance includes successful demonstration of the product's ability to meet the latest specification performance requirements, successful completion of revalidations, proper submittal of all required documentation, as well as demonstrating continued effectiveness of quality system, etc. In the event that compliance cannot be effectively demonstrated, the manufacturer will be suspended from shipping QPL product until the non-compliance is corrected. The listing may be removed from the QPL if the manufacturer fails to meet the provisions for qualification listed in DoD 4120.24-M, SD-6, or if the product fails to meet the performance requirements of the specification.

Products can only be produced in the plant location or test laboratory qualified during the audit using the approved procedures, equipment, flowcharts, etc. The Qualifying Activity, DLA Land and Maritime, must be immediately notified of any changes to the plant location or approved procedures or equipment or flowcharts. Some type of requalification may be required depending on the extent of the move and/or program change.

Any product processed with deviations to the applicable military specification and/or military standard shall not be marked, advertised, or claimed as compliant product in any manner.

SECTION V

CERTIFICATION/QUALIFICATION MAINTENANCE

This section describes the long-term relationship between DLA Land and Maritime-VQ and the manufacturer that is required to maintain the certification/qualification status. The items listed below are the basic areas that apply to all qualified product types. Additional requirements and procedures are detailed in the general specification applicable to each particular product. Manufacturer's must:

- Maintain the controls and quality levels for the systems, processes, materials, and products that were audited and approved.
- Build products to the approved flows and procedures.
- Perform self-audits to maintain compliance.
- Keep the qualification listing current and perform retention of qualification testing when required.
- Maintain the quality program plan.
- Notify DLA Land and Maritime-VQ and customers of in-house or field failures, quality related customer complaints of QPL product, and all non-compliances with specification and/or quality requirements.
- Keep DLA Land and Maritime-VQ informed of all changes to products, processes, equipment, approved locations, key personnel, etc., as applicable to the approved QPL Program. Requalification may be required depending on the status of the change as determined by the Qualifying Activity (DLA Land and Maritime).
- Implement all changes (amendments, revisions) to military specifications and standards within the required time frame.
- Perform periodic QCI/retention of qualification testing.
- Be willing to be subjected to periodic re-audits by DLA Land and Maritime-VQ. These audits will normally be scheduled at least a month in advance, however, drop-in audits may occur.
- Submit retention of qualification report to DLA Land and Maritime-VQ as required per the applicable military specification or DLA Land and Maritime-VQ. DLA Land and Maritime-VQ will establish the dates for the retention of qualification reporting period. The report is due at DLA Land and Maritime-VQ no later than 30 days after the end of the established reporting period unless otherwise specified in the military specification. **These dates are specified in the initial qualification letter to a plant for each specification. A manufacturer who has not been assigned a reporting dates for his qualified products should request one from DLA Land and Maritime-VQ.**

- Submit a negative report (DD Form 1718 or equivalent), listing all of the qualified part numbers for which there has been no production during the current reporting period. If a specification does not contain retention of qualification requirement, or none is required by the Qualifying Activity (DLA Land and Maritime), the manufacturer must submit a certification (DD Form 1718 or equivalent). The following information is required on the certification (DD Form 1718 or equivalent) or attachments to it:

    1. Certification that the manufacturer still maintains the personnel, equipment and materials to make the product in accordance with the applicable military specification and wishes retain the QPL listing. This certification must cover each plant listed on the QPL and must be submitted at the end of every reporting period. Please include the last lot acceptance date for each product.

    2. A list of qualified products that were <u>not produced</u> during the reporting period and for which the manufacturer has the capability to produce and wishes to retain on the QPL.

    3. A list of qualified products in which production has been discontinued and should be removed from the QPL. (When a manufacturer has decided to discontinue production of a product listed on a QPL, DLA Land and Maritime-VQ must be notified immediately, with as much advance notice as possible prior to the end of production. Hopefully, this will enable DLA Land and Maritime-VQ to make a last time buy before the manufacturer's stock is liquidated.)

    4. A statement that the products, which are to remain on the QPL are being or will be made under the same conditions as most recently qualified (i.e., same processes, materials, construction, designs, manufacturers part numbers, or designation) and meets all the requirements of the current issue of the applicable specification.

    5. A separate certification for each applicable general specification and company plant.

If DLA Land and Maritime accepts the certification, it is with the understanding that if a test failure occurs when production is begun again, all product shipped by the manufacturer since the last successful testing is subject to recall. The certification must be signed by a responsible official of the manufacturing company. Failure to submit this certification by the specified reporting date is cause for removal of the products from the QPL. The paragraph titled "Procedures for Removal" contained in SD-6, does not require the Qualifying Activity (DLA Land and Maritime) to notify the manufacturer in advance of the removal. It is the manufacturer's responsibility to prepare the certification in time to meet the report due date.

SECTION VI

Retention of Qualification Reports

1. Retention of Qualification Groups A & B (Lot Acceptance) **summary** reports shall state, as a minimum, the number of lots which have passed and the number of failures that have occurred during the retention cycle. Lots which have failed shall be identified and reasons given for these failures. Disposition of these lots shall be addressed in the summary report.

2. Retention of Qualification Group C/periodic test reports shall comply with the requirements of the initial qualification report except:

    a. DLA Land and Maritime Form 19 is not required.
    b. Form 36F is not required but may be used.
    c. DD Form 1718 or equivalent is required.

    In general, all test reports shall meet the same conditions in Section IV of this document, unless otherwise specified by the Qualifying Activity. This includes submitting original humidity charts (or equivalent), shock photographs, detailed calculations, etc.

3. If the Military Specification does not indicate a required retention period, reports shall be submitted annually. The due date will be established by DLA Land and Maritime-VQ. If no reporting period has been established, contact DLA Land and Maritime-VQ and one will be set up.

4. Retention of Qualification reports are required for every plant/assembly plant listed on the QPL. The report is to be received by this Center no later than 30 days after the last day of the reporting period unless otherwise specified by the military specification or as specified by the Qualifying Activity.

List of Acronyms

DoD - Department of Defense

DLA Land and Maritime

DLA Land and Maritime – VQ – Sourcing and Qualifications Division

DLA Land and Maritime -VQE – Electronic Devices Branch

DLA Land and Maritime-VQH – Hybrid Devices Branch

DLA Land and Maritime-VQP – Passive Devices Team

* DD Form 1718 - Certification of Qualified Products

* DLA Land and Maritime Form 19 - Application/Authorization to Conduct Qualification Test

* VQ-SOF-91 - List of Qualification Test Facilities or List of Quality Conformance Test Facilities

* VQ-SOF-93 - Qualification Test Report at a Non-Government Test Laboratory

HTML - Hypertext Mark-up Language

MOU - Memorandum of Understanding

NATO - North Atlantic Treaty Organization

POC - Point of Contact

QA - Quality Assurance

QPL - Qualified Products List

SPC - Statistical Process Control

TRB - Technical Review Board

- These forms can be obtained from a separate booklet, or by visiting the VQ web site (see page 2)

COMMON AUDIT FINDINGS

This listing of audit findings has been prepared to highlight some of the most common problems found during manufacturer audits conducted by the various DLA Land and Maritime Branches of the Sourcing and Qualifications Division (DLA Land and Maritime-VQ).

These audit findings are intended to help manufacturers become aware of common audit problems discovered by auditors, and to aid the manufacturer in planning and conducting self-audits.

CAUTION: This list is not intended to give detailed problem scenarios or provide a technical course of action for problems, but rather, contain broad categorization of the problems. Further, it is published to assist manufacturer's self audit teams.

EXAMPLES OF VARIOUS FINDINGS

FINDING # 1: Incorrect Change of Data

Any obliteration of data, use of white out, pencil, tape, erasers, etc., for corrections is not acceptable on any records, including lot travelers, calibration records, C of C, etc. The only acceptable method to change data is to line out the incorrect entry, add the new information, and add date of correction and initial of personnel making the change.

FINDING #2: Compliance to Requirements

The manufacturer must establish a quality assurance program that ensures full compliance to all military specification requirements. The Quality Assurance system must include a documentation system (e.g., detail travelers, routing cards) that can clearly and objectively verify that all required processing and testing requirements are met. The manufacturer must also use self auditors or designated QA personnel to routinely verify compliance to all military requirements. CAUTION: Any specification requirement that may be considered technically unwarranted or deemed otherwise unnecessary shall not, under any circumstances, be arbitrarily ignored, deleted or modified by any of the manufacturer's personnel. These specification requirements should be brought to the attention of appropriate government personnel. The qualifying activity will provide a contact point if you do not know how to submit a proposed change.

FINDING #3: Reporting of Failures (Qualification, Group B, Group C)

All failures shall be reported in writing to DLA Land and Maritime-VQ, as they occur, for resolution. Under no circumstances may the manufacturer choose not to report failures.

FINDING #4: Communication within engineering and production departments needs to be improved.

a. Process specifications have not been revised to reflect latest manufacturing operations performed.

b. Process specifications are not available.

c. Manufacturing flow charts are incomplete (e.g., manufacturing process, inspection, testing, and document control numbers are not completely identified on the flow).

d. Manufacturing router is incomplete or incorrect (e.g., missing manufacturing process or more than one manufacturing process included in one operation step).

e. Manufacturing routers specify incorrect process specification.

f. Operators are not performing required operations.

g. Assembly personnel are not verifying completion.

h. Obsolete or cancelled process specifications were observed in manufacturing areas.

i. Oven cure time and temperature cannot be verified or are being performed incorrectly.

j. Tools and fixtures used in manufacturing are not identified or available (e.g., load fixture is not identified for each specification sheet; and one load fixture is used for a specific spec-sheet when two or more load fixtures are needed).

FINDING #5: Calibration System is Not Maintained Properly

a. System evaluating out of tolerance calibration condition is not properly identified, and interval of calibration is not reduced when past calibration history shows equipment out of tolerance.

b. Chamber/oven profile is not available or is done incorrectly.

c. Equipment is not recalibrated within the required calibration schedule (e.g., leak detector is not calibrated every working shift and calibration log is not utilized.

d. There is no segregation of equipment that is out-of-tolerance or past calibration due date from equipment within tolerance.

e. There is no adequate certification or traceability to National Standards.

FINDING #6: ESD Control Procedure is not Documented Properly

a. Wrist strap continuity test record is incomplete; work stations and wrist straps are not identified.

b. Extended frequency of wrist strap continuity test is not justified.

c. The procedure for handling suspect parts between previously successful continuity test and unsatisfactory continuity test is not specified.

FINDING #7: Material/production traceability is not documented properly.

The conforming materials identification throughout the production process is incomplete.

FINDING #8: Required Incoming Materials Inspection could not be verified

a. The purity of gas (e.g. helium) is not verified.

b. An inspection check list is not utilized or shows incomplete inspection steps.

c. Materials requiring measurement data are accepted without supporting data.

FINDING #9: Controlled Storage Area not Maintained for Complete Stock.

a. QPL materials and finished devices are stored with the accepted materials for commercial use only and commercial finished devices.

b. Ink, epoxy, RTV, etc., exceed recommended storage life requirements.

FINDING #10: Quality Conformance Inspection (QCI) Requirements could not be verified.

a. Improper selection of samples for test (test samples should represent sales and should be selected randomly).

b. There is no positive system for verifying QCI completion prior to product shipment.

FINDING #11: Self Audit Program is not Administered Properly.

a. Incomplete or non-existent self audit program for each area.

b. Corrective actions are not reported to upper management or to the qualifying activity.

c. Follow-up on corrective actions is not performed.

d. Self-audit not taken seriously; insufficient training of auditors; inadequate auditor training records; inadequate resourcing.

e. Auditor checklists are not maintained (evaluated for changes) based on audit findings or specific needs.

f. Reliance on DLA Land and Maritime to determine compliance to the requirements and identify problems instead of depending on the manufacturer's self-audit program. Some manufacturers think their continuous QC program meets the self-audit requirements. Self-audits should be as comprehensive as DLA Land and Maritime audits; should be performed in a 1 or 2 week period per facility; and should be in addition to the ongoing QC function. Survey/audits by other customers does not meet the self-audit requirements.

g. Meaningful self-audit summaries are lacking; for example:

1) areas audited

2) number of deficiencies for each area and total number of deficiencies

3) classification of deficiencies (major, minor, repetitive)

4) trend analysis (current self-audit to previous self-audit and DLA Land and Maritime audit

5) corrective actions for each discrepancy identified and implemented in a timely manner (in most cases 30 days).

NOTE: A well documented self-audit program will in many cases find, correct, and follow-up deficiencies. This complements DLA Land and Maritime audits; allowing our office to consider extending the interval between DLA Land and Maritime audits.

IMPACT: The certified process can easily change or drift to the point where quality/reliability is questionable. In addition, certification and qualification may be removed for ineffective or lack of self-audits, or more frequent DLA Land and Maritime audits will be required.

FINDING #12: Lack of Procedures and Document Control

a. Process specifications have not been revised to manufacturing operations performed. Manufacturing personnel have performed operations out of sequence when they have determined that the assembly would be less complicated.

b. QCI procedures could not be located at the inspection station.

c. Manufacturing personnel did not have the latest process specification at their assembly area.

d. Manufacturing routers specify incorrect process specifications causing manufacturing flow charts to be inaccurate.

e. Process specifications are identified on manufacturing routers, yet these specifications have not been released to manufacturing.

FINDING #13: Test Equipment Discrepancies

a. Tools and fixtures used in manufacturing are not identified.

b. Test equipment used in QCI has not been recalibrated, yet is being used for testing of product.

c. Test equipment out of calibration has not been segregated.

d. Certifications of calibration records could not be located. (See Finding #3).

e. Correlation between test equipment is nonexistent or inadequate.

FINDING # 14: Discrepancies in Manufacturing Processes and Procedures

a. Operators do not log oven cure time on logs or manufacturing routers.

b. Personnel are not stamping off the completion of performed operations.

c. Personnel are not performing operations and inspections required by the routers or military specification.

d. Testing is not done in accordance with military standard.

e. Log books are not kept up to date.

f. Controlled storage area is not available for completed product.

FINDING #15: Test Equipment Problems

Assuming that failures are caused by test equipment malfunction is not an acceptable practice. All indicated failures must be reported to DLA Land and Maritime-VQ and an analysis of the problem and a course of action will be decided. Assuming test equipment malfunction without verification is not a valid failure analysis.

FINDING #16: Selection of QCI Samples

Samples used for retention testing (Groups B, C, and D) must be representative of production that occurred during the retention period. Producing lots specifically for retention testing is not an acceptable practice. Samples shall represent part numbers, styles, processes, equipment, operators, materials, and all Group A lots produced during that period.

IMPACT: Items such as out of date process specifications, failure to verify QCI, incorrect routers, calibration discrepancies, etc., could easily affect product quality. These types of discrepancies can go unnoticed until it is too late and a major quality problem appears. Regular DLA Land and Maritime audits and manufacturer self-audits will find and correct these problems quickly, and help keep manufacturers aware of the areas that should be more frequently monitored.

FINDING #17: Statistical Process Control (SPC) Programs

a. Many manufacturers have not yet taken the SPC requirements seriously as a tool that can be used to accelerate continual process improvements into the manufacturing operations and products.

b. Many manufacturers have not yet established comprehensive SPC plans with realistic and achievable milestones.

c. DLA Land and Maritime realizes that military specifications are in various stages of including SPC. However, all manufacturers should be reviewing their product line and manufacturing operations in order to develop SPC plans that will foster continual improvements.

FINDING #18: Training Program

a. There are no training records for all personnel involved in the manufacture and testing of military product.

b. No re-evaluation of training is established.