



DEPARTMENT OF THE NAVY

NAVAL SEA SYSTEMS COMMAND
WASHINGTON, DC 20362-5101

IN REPLY REFER TO

NAVSEAINST 9460.5A
STEPS #3
OPR: 63T1
Ser 09/420
10 Sep 1986

NAVSEA INSTRUCTION 9460.5A

Subj: SONAR CERTIFICATION PROGRAM

Ref: (a) OPNAVINST 4700.8G
(b) NAVSEAINST 3960.5

1. Purpose. To provide direction for implementing the sonar certification program.
2. Cancellation. NAVSEAINST 9460.5 of 4 April 1977 was cancelled by NAVSEANOTE 5215 of 2 January 1986.
3. Scope. This instruction is applicable to sonars installed in submarines and surface ships. Sonar certification testing occurs in shipyards during new construction or overhaul. This certification requirement has been approved by NAVSEA's Shipboard Certification Requirements Review Board.
4. Objective. To ensure that the sonar, as installed, satisfies specified equipment tolerances and performance parameters, and that established allowances of repair parts, Maintenance Assist Modules (MAMs), special tools, test equipment and technical documentation are available onboard to operate and maintain the equipment.
5. Program Description
 - a. Sonar certification tests on sonar equipment and suites are conducted or witnessed by a NAVSEA designated certification test team:
 - (1) After installation but prior to ship delivery in the case of new construction. Completion of sonar certification testing is a prerequisite to the Ship Acceptance Trials in accordance with reference (a).
 - (2) After installation of new sonar systems or major modifications of installed sonar systems during overhaul.
 - (3) Upon completion of repairs or minor modifications to sonar systems during regular overhaul of active Fleet ships, if so requested and funded by the Type Commander.

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b. Sonar certification tests include dockside and at-sea electrical, mechanical, and acoustic tests performed on the sonar system to ensure that the system is operating in accordance with the installation specifications, and meets acceptable performance specifications.

(1) Test procedures and criteria are developed by NAVSEA equipment managers or their designated agents. For new construction ships this documentation must be reviewed and concurred with by NAVSEA ship acquisition managers prior to sonar certification testing.

(2) Dockside tests consist of selected measurements of sonar system installation characteristics and performance parameters to assess installation quality, verify system performance, and ensure readiness for sea trials. These tests are conducted during a 2-10 day dockside period (depending on the size and complexity of the sonar suite) and usually include, but are not limited to: visual and mechanical inspections; power conditioning and control checks; electronic noise measurements; system interlock checks; receiver sensitivity measurements; beam pattern measurements; source level; minimum detectable levels; static tracking accuracy and calibration measurements; sonar display, control, and operational tests; system interface tests; and performance monitoring and fault localization subsystem operation. In accordance with reference (b), these dockside tests will be treated as part of the ship's Integrated Test Package during each shipyard availability.

(3) At-sea tests consist of those evolutions which could not be conducted dockside, and which are essential to complete the performance assessment. Such tests are conducted during sea trials and require 1-5 days of ship operations to complete. They include, but are not limited to: transmit power level measurements; tracking accuracy measurements; array gain and receive sensitivity measurements; beam pattern measurements; array deployment and retrieval operations; and self-noise measurements.

c. The sonar certification program also includes a logistics audit which is conducted to ensure that all authorized logistical support is onboard to support the installed configuration. The logistics audit is performed prior to the start of the equipment certification process onboard the ship or submarine, at the shipyard or at the Integrated Logistics Overhaul (ILO) site. The audit verifies the availability of onboard repair parts, MAMs,

special tools, test equipment, ready service spares, technical and supply documentation, and it confirms the system configuration.

d. Sonar certification results are reported to NAVSEA via naval messages following dockside and at-sea testing. These reports include:

(1) A summary of those sonars which successfully completed the applicable ASW Standardized Test Procedure (ASWSTP) testing.

(2) A summary of those sonars which failed to meet the ASWSTP testing requirements.

(3) A list of major equipment deficiencies. A major deficiency is one which causes degradation or loss of a mission area normally resulting in a CASREP (see NWP 7 Operational Reports), or, one which will affect safe navigation of the ship.

(4) A list of critical spares deficiencies disclosed by the logistics audit.

(5) A recommendation for granting or withholding certification of the sonar suite after at-sea trials.

e. Following the message reports, a complete report of all deficiencies is provided by separate correspondence. The report, and the correction or resolution of trial deficiencies, is the basis on which COMNAVSEASYS COM issues or withholds certification of the sonar suite.

f. Sonar certification will be granted when the following criteria are met:

(1) There are no major equipment deficiencies.

(2) Onboard logistics support is satisfactory as measured by either of the following conditions:

(a) Established onboard allowances for all items are satisfied.

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(b) When onboard allowances for all items are not fully satisfied, all three of the following criteria are met:

1. All MAMs needed for fault isolation are available (when required by maintenance philosophy).

2. At least one unit-of-issue (U/I) is onboard for 85% of the remaining spare parts allowance, with the balance, both in range and quantity, on order.

3. Of the remaining 15% which do not meet their allowance, at least one U/I is onboard for those designated by NAVSEA representatives as critical. Critical items are those whose failure would cause a major equipment deficiency.

(3) Certification is recommended by the team leader or the designated on-site NAVSEA representative.

g. When sonar certification is withheld, NAVSEA will detail action to be taken so certification can be granted.

6. Responsibilities

a. Ship Acquisition Program Manager (SHAPM). For new construction:

(1) Ensure that shipbuilding contracts include the requirement for sonar certification.

(2) Fund sonar certification testing.

(3) Release sonar certification correspondence.

(4) Review and approve sonar certification test procedures.

b. Ship Logistic Manager (SLM). For overhauls, modernizations, and conversions:

(1) Ensure sonar certification requirements are included in Overhaul Work Packages (OWPs) and the Ship Alteration and Repair Package (SARP).

(2) Ensure OWPs and SARPs require that deficiencies identified during the sonar certification are corrected or resolved prior to overhaul completion.

(3) Release sonar certification correspondence.

c. Sonar Equipment Life Cycle Managers (LCMs)

(1) Provide sonar certification test procedures and criteria.

(2) Provide special purpose test equipment and instrumentation required to conduct sonar certification verification.

(3) Designate the on-site NAVSEA Sonar Certification Representative.

(4) Designate the sonar certification conduct activity.

(5) Provide funding for the conduct of sonar certifications on ships receiving new sonar systems or major modifications to existing sonar systems accomplished during overhauls or restricted availabilities.

(6) Evaluate sonar certification results.

(7) Determine responsibility for the correction of deficiencies, correct the deficiencies which are NAVSEA's responsibility, and make sure that all deficiencies are corrected or resolved prior to certification.

(8) Prepare certification correspondence for release by SHAPM/SLM.

d. Submarine Maintenance Engineering Planning and Procurement (SUBMEPP). For submarine overhauls, modernizations, and conversions:

(1) Issue sonar certification test procedures to naval shipyards and Supervisors of Shipbuilding.

(2) Maintain sonar certification test procedures.

(3) Manage the Standardized ASW Test Problem Reporting system.

(4) Ensure the OWPs and SARPs reflect sonar certification requirements as directed by NAVSEA or the Type Commander.

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e. Planning and Engineering for Repairs and Alterations of Cruisers and Destroyers (PERA(CRUDES)). For surface ship overhauls, modernizations, and conversions:

(1) Ensure the SARPs and OWPs reflect sonar certification requirements as directed by NAVSEA or the Type Commander.

f. In-Service Engineering Agent (ISEA)

(1) Develop, maintain, and issue sonar certification test procedures to the Naval Weapons Support Center (NAVWPNSUPPCEN) for surface ship overhauls, modernizations, and conversions.

(2) Develop sonar certification test procedures for issue to SUBMEPP for submarine overhauls, modernizations, and conversions.

g. Naval Shipyards (NAVSHIPYDs) and Supervisors of Shipbuilding (SUPSHIPS)

(1) Schedule Sonar Certification Trials testing periods.

(2) Notify NAVSEA and the sonar certification team via naval message that the sonar suite or system is "ready for sonar certification testing" at least two weeks prior to the scheduled start of testing.

(3) Support the Sonar Certification Program as specified in new construction contracts, OWPs, or SARPs.

(4) Provide the sonar certification team with the results of earlier phases of shipboard testing as required.

(5) Provide sonar certification team members as required.

(6) Correct or resolve all certification deficiencies. Additional testing may be necessary to satisfactorily complete the sonar certification if the system does not meet certification requirements.

(7) Provide 30-day message reports on status of major discrepancies until they are corrected.

h. Type Commanders

(1) Request and fund, if desired, the certification of those installed sonars that did not receive modifications during overhaul.

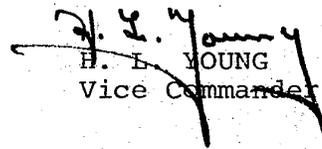
i. NAVSEA Representative (On-Site) and Sonar Certification Team

- (1) Review shipyard pre-certification test results.
- (2) Conduct sonar certification.
- (3) Evaluate sonar certification results.
- (4) Issue a message report of dockside testing results.

(5) Provide at-sea test results and a recommendation relative to sonar certification to NAVSEA via naval message within 72 hours of completing at-sea certification testing.

7. Policy. The sonar certification program will be managed in support of NAVSEA policies on ship testing, reference (b). The contents of this instruction constitute Ship Test and Evaluation Program Standard (STEPS) No. 3. Copies of all approved STEPS may be obtained from the NAVSEA Test and Evaluation Division, SEA 902.

8. Action. When authorized and funded by separate correspondence, the Sonar Certification Program will be conducted as indicated above.


H. L. YOUNG
Vice Commander

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