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MIL-STD-2042(SH)
7 July 1993

MILITARY STANDARD

FIBER OPTIC TOPOLOGY INSTALLATION STANDARD METHODS FOR NAVAL SHIPS

AMSC N/A

AREA GDRQ

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FOREWORD

DEPARTMENT OF THE NAVY
NAVAL SEA SYSTEMS COMMAND
WASHINGTON, DC 20362-5101

1. This Military Standard is approved for use by the Naval Sea Systems Command, Department of the Navy, and is available for use by all Departments and Agencies of the Department of Defense.

2.Beneficial comments (recommendations, additions, deletions) and any pertinent data which may be of use in improving this document should be addressed to: Commander, Naval Sea Systems Command, SEA 05Q42, Department of the Navy, Washington, DC 20362-5101 by using the self-addressed Standardization Document Improvement Proposal (DD Form 1426) appearing at the end of this document or by letter.

3. This standard provides detailed information and guidance to personnel concerned with the installation of fiber optic topologies on Naval surface ships and submarines. The methods specified herein are not identifiable to any specific ship class or type, but are intended to standardize and minimize variations in installations to enhance the compatibility of the fiber optic topologies of all Naval ships.

4. In order to provide flexibility in the use and update of the installation methods, this standard is issued in seven parts; the basic standard and six numbered parts as follows:

Part 1 Cables
Part 2 Equipment
Part 3 Cable Penetrations
Part 4 Cableways
Part 5 Connectors and Interconnections
Part 6 Tests

5. Considering the magnitude of this standard, along with the changing requirements imposed on the fiber optic topology, it is inevitable that changes will be required to update these methods. Therefore, when the need for change is recognized, comments should be forwarded to Naval Sea Systems Command (NAVSEA) 05Q42. Revisions to this standard will be by issuance of change pages.

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1. SCOPE

1.1 Scope. This standard provides detailed methods for the installation and test of fiber optic topologies (see 3.1) on Naval surface ships and submarines.

1.1.1 Applicability. These criteria apply to installations on specific ships when invoked by the governing ship specification or other contractual document. They are intended primarily for new construction; however, they may also be used for conversion or alteration of existing ships. The rapidly changing state of the art in fiber optic technology makes it essential that some degree of flexibility be exercised in enforcing this document. Where there is a conflict between this document and the ship specification or contract, the ship specification or contract shall take precedence. Where ship design is such that the methods herein cannot be implemented, users shall submit new methods or modifications of existing methods to NAVSEA 06KR22 for approval prior to implementation.

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2. APPLICABLE DOCUMENTS

2.1 Government documents.

2.1.1 Standards. The following standards form a part of this document to the extent specified herein. Unless otherwise specified, the issues of these documents are those listed in the issue of the Department of Defense Index of Specifications and Standards (DODISS) and supplement thereto, cited in the solicitation (see 6.2).

STANDARDS

MILITARY

MIL-STD-2042-1 - Fiber Optic Topology Installation, Standard Methods for Naval Ships (Cables).

MIL-STD-2042-2 - Fiber Optic Topology Installation, Standard Methods For Naval Ships (Equipment).

MIL-STD-2042-3 - Fiber Optic Topology Installation, Standard Methods for Naval Ships (Cable Penetrations).

MIL-STD-2042-4 - Fiber Optic Topology Installation, Standard Methods for Naval Ships (Cableways).

MIL-STD-2042-5 - Fiber Optic Topology Installation, Standard Methods for Naval Ships (Connectors and Interconnections).

MIL-STD-2042-6 - Fiber Optic Topology Installation, Standard Methods For Naval Ships (Tests).

(Unless otherwise indicated, copies of federal and military specifications, standards, and handbooks are available from the Standardization Documents Order Desk, Building 4D, 700 Robbins Ave, Philadelphia, PA 19111-5094.)

2.2 Order of precedence. In the event of a conflict between the text of this standard and the references cited herein, the text of this standard shall take precedence. Nothing in this document, however, supersedes applicable laws and regulations unless a specific exemption has been obtained.

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3. DEFINITIONS

3.1 Fiber optic topology. The fiber optic topology consists of fiber optic interconnection boxes, trunk and local cables and the connectors and splices used to interconnect the trunk and local cables.

3.2 Trunk cable. A trunk cable is a fiber optic cable that provides a continuous optical path between interconnection boxes. Typically, trunk cables are run in the main cableways and have higher fiber counts per cable than local cables.

3.3 Local cable. A local cable is a fiber optic cable that provides a continuous optical path between an end user equipment and an interconnection box, and is typically not run through the main cableways.

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4. GENERAL REQUIREMENTS

4.1 Organization. This standard is comprised of seven different parts, each of which is a separate publication with a unique identification number. This organization provides maximum flexibility in using, referencing and revising the standard. The complete standard consists of the basic standard and six numbered parts as follows:

MIL NUMBER	TITLE
MIL-STD-2042	Fiber Optic Topology Installation Standard Methods For Naval Ships.
MIL-STD-2042-1	Fiber Optic Topology Installation Standard Methods for Naval Ships (Cables).
MIL-STD-2042-2	Fiber Optic Topology Installation Standard Methods for Naval Ships (Equipment).
MIL-STD-2042-3	Fiber Optic Topology Installation Standard Methods for Naval Ships (Cable Penetrations).
MIL-STD-2042-4	Fiber Optic Topology Installation Standard Methods for Naval Ships (Cableways).
MIL-STD-2042-5	Fiber Optic Topology Installation Standard Methods for Naval Ships (Connectors and Interconnections).
MIL-STD-2042-6	Fiber Optic Topology Installation Standard Methods for Naval Ships (Tests).

4.2 Arrangement and contents. Each numbered part of this standard contains a series of standard installation methods. Methods providing similar functions are grouped together for ease of useability and referencing as follows:

MIL-STD-2042 Part Number	Functional group	Function
1 (Cables)	A	Cable end-sealing
	B	Cable jacket repair
	C	Cable splicing
2 (Equipment)	A	Cable entrance to equipment via nylon stuffing tubes

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	B	Cable entrance to equipment via MCP
	C	Cable and buffered fiber forming and shaping
	D	Splice assembly and alignment
3 (Penetrations)		
	A	Cable penetrations via metal stuffing tubes
	B	Cable penetrations via MCP
4 (Cableways)		
		Methods in DOD-STD-2003 referenced
5 (Connectors and Inter-connections)	A	Multiple terminus connector installation
	B	Single terminus connector installation
	C	Mechanical splice ferrule installation
6 (Tests)		
	A	Visual inspection of fiber optic components
	B	Cable attenuation test
	C	Cable assembly link loss test
	D	Cable continuity test
	E	Cable topology end-to-end attenuation test
	F	Test jumper cable selection test

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5. DETAILED REQUIREMENTS (Not applicable)

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6. NOTES

(This section contains information of a general or explanatory nature that may be helpful, but is not mandatory.)

6.1 Intended use. The standard methods for installation and test of the fiber optic topology depicted in Parts 1 through 6 of this standard are intended primarily for new construction; however, they may be used for conversion or alteration of existing ships. In the case of conversion or alteration, the degree of applicability of these criteria shall be specified by the activity preparing instructions for the work.

6.2 Issue of DODISS. When this standard is used in acquisition, the applicable issue of DODISS must be cited in the solicitation (see 2.1.1).

6.3 Subject term (key word) listing.

Fiber Optic Topology
Organization
Arrangement and content

Preparing activity:
NAVY - SH
(Project GDRQ-N127)

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STANDARDIZATION DOCUMENT IMPROVEMENT PROPOSAL

INSTRUCTIONS

1. The preparing activity must complete blocks 1, 2, 3, and 8. In block 1, both the document number and revision letter should be given.
2. The submitter of this form must complete blocks 4, 5, 6, and 7.
3. The preparing activity must provide a reply within 30 days from receipt of the form.

NOTE: This form may not be used to request copies of documents, nor to request waivers, or clarification of requirements on current contracts. Comments submitted on this form do not constitute or imply authorization to waive any portion of the referenced document(s) or to amend contractual requirements.

I RECOMMEND A CHANGE:	1. DOCUMENT NUMBER	2. DOCUMENT DATE (YYMMDD)
	MIL-STD-2042(SH)	930707

3. DOCUMENT TITLE

FIBER OPTIC TOPOLOGY INSTALLATION STANDARD METHOD FOR NAVAL SHIPS

4. NATURE OF CHANGE (Identify paragraph number and include proposed rewrite, if possible. Attach extra sheets as needed.)

5. REASON FOR RECOMMENDATION

6. SUBMITTER

a. NAME (Last, First, Middle Initial)	b. ORGANIZATION	
c. ADDRESS (Include Zip Code)	d. TELEPHONE (Include Area Code) (1) Commercial (2) AUTOVON (If applicable)	7. DATE SUBMITTED (YYMMDD)

8. PREPARING ACTIVITY

a. NAME	b. TELEPHONE (Include Area Code) (1) Commercial	(2) AUTOVON
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c. ADDRESS (Include Zip Code) Commander, SEA 03Q42 Naval Sea Systems Command 2531 Jefferson Davis Hwy Arlington, VA 22242-5160	IF YOU DO NOT RECEIVE A REPLY WITHIN 45 DAYS, CONTACT: Defense Quality and Standardization Office 5203 Leesburg Pike, Suite 1403, Falls Church, VA 22041-3466 Telephone (703) 756-2340 AUTOVON 289-2340	