Director, Computer Systems Laboratory (CSL), Attn: PHIGS Interpretation, National Institute of Standards and Technology, Gaithersburg, MD 20899, Telephone: (301) 975–3265.

11.4 Validation of PHIGS Implementations. Implementations of FIPS for PHIGS using either FORTRAN or C bindings shall be validated in accordance with NIST Computer Systems Laboratory (CSL) validation procedures for FIPS for PHIGS. Recommended procurement terminology for validation of FIPS for PHIGS is contained in the U.S. General Services Administration publication Federal ADP & Telecommunications Standards Index, Chapter 4 Part 2. This GSA publication provides terminology for three validation options: Delayed Validation, Prior Validation Testing, and Prior Validation. The agency shall select the appropriate validation option. The agency is advised to refer to the NIST publication Validated Products *List* for information about the validation status of PHIGS products. This information may be used to specify validation time frames that are not unduly restrictive of competition.

The agency shall specify the criteria used to determine whether a Validation Summary Report (VSR) or Certificate is applicable to the hardware/software environment of the PHIGS implementation offered. The criteria for applicability of a VSR or Certificate should be appropriate to the size and timing of the procurement. A large procurement may require that the offered version/release of the PHIGS implementation shall be validated in a specified hardware/software environment and that the validation shall be conducted with specified hardware/software features or parameter settings; e.g., the same parameter settings to be used in a performance benchmark. An agency with a singlelicense procurement may review the Validated Products List to determine the applicability of existing VSRs or Certificates to the agency's hardware/ software environment.

PHIGS implementations using either FORTRAN or C bindings shall be validated using the NIST PHIGS Test Suite, a suite of automated validation tests for PHIGS implementations. The NIST PHIGS Test Suite was first released in July 1990 to help users and vendors determine compliance with FIPS for PHIGS. The most recent version of the test suite will be used for validating conformance of PHIGS implementations after the effective date of FIPS PUB 153–1. The results of validation testing by the PHIGS Testing Service are published on a quarterly basis in the *Validated Products List*, available from the National Technical Information Service (NTIS). See related documents section.

Each release of the test suite has provided additional language bindings and test cases to increase the test suite's coverage of PHIGS functionality. Version 2.1 of the NIST PHIGS Test Suite, released in April 1994, provides testing for PHIGS implementations using either the FORTRAN or C language binding. Version 2.1 does not include tests for the functionality of PHIGS PLUS added by this revision of FIPS of PHIGS.

A PHIGS Test Suite license includes all of the tests described above, documentation, and automatic notifications of approved changes to the PHIGS Test Suite for a six month period. A license for the most recent version of the PHIGS Test Suite is a necessary requirement for an organization that desires to be tested by the NIST PHIGS Testing Service after the effective date of FIPS 153–1.

Current information about the NIST PHIGS Validation Service and validation procedures for FIPS for PHIGS is available from: National Institute of Standards and Technology, Computer Systems Laboratory, Graphics Software Group, Building 225, Room A266, Gaithersburg, MD 20899, (301) 975–3265.

12. Waivers. Under certain exceptional circumstances, the heads of Federal departments and agencies may approve waivers to Federal Information Processing Standards (FIPS). The head of such agency may redelegate such authority only to a senior official designated pursuant to section 3506(b) of Title 44, United States Code.

Waivers shall be granted only when: a. Compliance with a standard would adversely affect the accomplishment of the mission of an operator of a Federal computer system, or

b. Cause a major adverse financial impact on the operator which is not offset by Governmentwide savings.

Agency heads may act upon a written waiver request containing the information detailed above. Agency heads may also act without a written waiver request when they determine that conditions for meeting the standard cannot be met. Agency heads may approve waivers only by a written decision which explains the basis upon which the agency head made the required findings(s). A copy of each such decision, with procurement sensitive or classified portions clearly identifed, shall be sent to: National Institute of Standards and Technology; Attn: FIPS Waiver Decisions,

Technology Building, Room B–154; Gaithersburg, MD 20899. In addition notice of each waiver granted and each delegation of authority to approve waivers shall be sent promptly to the Committee on Government Operations of the House of Representatives and the Committee on Governmental Affairs of the Senate and shall be published promptly in the Federal Register.

When the determination on a waiver applies to the procurement of equipment and/or services, a notice of the waiver determination must be published in the *Commerce Business Daily* as a part of the notice of solicitation for offers of an acquisition or, if the waiver determination is made after that notice is published, by amendment to such notice.

A copy of the waiver, any supporting documents, the document approving the waiver and any supporting and accompanying documents, with such deletions as the agency is authorized and decides to make under 5 U.S.C. Sec. 552(b), shall be part of the procurement documentation and retained by the agency.

13. Where to Obtain Copies. Copies of this publication are for sale by the National Technical Information Service, U.S. Department of Commerce, Springfield, VA 22161. (Sale of the included specifications document is by arrangement with the American National Standards Institute. When ordering, refer to Federal Information Processing Standards Publication 153–1 (FIPSPUB153–1) and title. Payment may be made by check, money order, or deposit account.

## Appendix A—The Family of Graphics Standards

The following computer graphics standards are now available to address the needs of government applications in creating, modifying, manipulating, and exchanging computer-generated pictures:

• FIPS PUB 120–1, the Graphical Kernel System (GKS), which adopts ANSI X3.124–1985;

• FIPS PUB 153–1, the Programmer's Hierarchical Interactive Graphics System (PHIGS), which adopts ANSI/ ISO 9592–1989;

• FIPS PUB 128–1, the Computer Graphics Metafile (CGM), which adopts ANSI/ISO 8632–1992 and

• FIPS PUB 177, the Initial Graphics Exchange Specification (IGES), which adopts ASME/ANSI Y14.26M–1989.

In addition, the Computer Graphics Interface (CGI) has recently become an International standard, and is expected to be issued as a FIPS.