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FIPS PUB 100-1

FEDERAL INFORMATION PROCESSING STANDARDS PUBLICATION
(Supersedes FIPS PUB 100 – 1983 July 6)

INTERFACE BETWEEN DATA TERMINAL EQUIPMENT (DTE) AND DATA CIRCUIT-TERMINATING EQUIPMENT (DCE) FOR OPERATION WITH PACKET-SWITCHED DATA NETWORKS (PSDN), OR BETWEEN TWO DTEs, BY DEDICATED CIRCUIT

CATEGORY: HARDWARE STANDARD   SUBCATEGORY: DATA TRANSMISSION

1991 MARCH 20

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Foreword

The Federal Information Processing Standards Publication Series of the National Institute of Standards and Technology (NIST) is the official publication relating to standards and guidelines adopted and promulgated under the provisions of Section 111(d) of the Federal Property and Administrative Services Act of 1949 as amended by the Computer Security Act of 1987, Public Law 100-235. These mandates have given the Secretary of Commerce and NIST important responsibilities for improving the utilization and management of computer and related telecommunications systems in the Federal Government. The NIST through its Computer Systems Laboratory provides leadership, technical guidance, and coordination of Government efforts in the development of standards and guidelines in these areas.

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James H. Burrows, Director
Computer Systems
Laboratory

Abstract

This Federal Information Processing Standard (FIPS) specifies the interface between data terminating equipment (DTE) such as automated data processing (ADP) equipment and telecommunication system terminal equipment, and data circuit-terminating equipment (DCE) for operation in the packet mode on packet-switched data networks (PSDN), or between two DTEs, by dedicated circuit. This revised standard adopts American National Standard ANSI X3.100-1989 which in turn adopts CCITT Recommendation X.25-1988 developed by the Consultative Committee on International Telephone and Telegraph, and ISO 7776-1986 and ISO 8208-1987 developed by the International Organization for Standardization. This revision supersedes FIPS 100/FED-STD 1041. More detailed specifications on the applicable interface points for this standard in an Integrated Services Digital Network (ISDN) environment will be developed for a future FIPS for ISDN.

Key words: computer networking; data circuit-terminating equipment; data communications; data communications networks; data terminal equipment; Federal Information Processing Standard; packet switching; public data network; X.25; telecommunications.

**Federal Information
Processing Standards Publication 100-1**

1991 March 20

Announcing the Standard for

INTERFACE BETWEEN DATA TERMINAL EQUIPMENT (DTE) AND DATA CIRCUIT-TERMINATING EQUIPMENT (DCE) FOR OPERATION WITH PACKET-SWITCHED DATA NETWORKS (PSDN), OR BETWEEN TWO DTEs, BY DEDICATED CIRCUIT

Federal Information Processing Standards Publications (FIPS PUBS) are issued by the National Institute of Standards and Technology (NIST) after approval by the Secretary of Commerce pursuant to Section 111(d) of the Federal Property and Administrative Services Act of 1949 as amended by the Computer Security Act of 1987, Public Law 100-235.

1. Name of Standard. Interface between Data Terminal Equipment (DTE) and Data Circuit-Terminating Equipment (DCE) for Operation with Packet-Switched Data Networks (PSDN), or between Two DTEs, by Dedicated Circuit (FIPS 100-1).

2. Category of Standard. Hardware and Software Standards, Computer Network Protocols.

3. Explanation. This Federal Information Processing Standard (FIPS) specifies the interface between data terminating equipment (DTE) such as automated data processing (ADP) equipment and telecommunication system terminal equipment, and data circuit-terminating equipment (DCE) for operation in the packet mode on packet-switched data networks (PSDN), or between two DTEs, by dedicated circuit. This revised standard adopts American National Standard ANSI X3.100-1989 which in turn adopts CCITT Recommendation X.25-1988 developed by the Consultative Committee on International Telephone and Telegraph, and ISO 7776-1986 and ISO 8208-1987 developed by the International Organization for Standardization. This revision supersedes FIPS 100/FED-STD 1041. More detailed specifications on the applicable interface points for this standard in an Integrated Services Digital Network (ISDN) environment will be developed for a future FIPS for ISDN.

4. Approving Authority. Secretary of Commerce.

5. Maintenance Agency. U.S. Department of Commerce, National Institute of Standards and Technology, Computer Systems Laboratory.

6. Cross Index.
a. American National Standard (ANSI) X3.100-1989, Interface between Data Terminal Equipment (DTE) and Data Circuit-Terminating Equipment (DCE) for Operation with Packet-Switched Data Networks (PSDN), or between two DTEs, by Dedicated Circuit.
b. CCITT Recommendation X.25-1988 (CCITT Blue Book), Interface between Data Terminal Equipment (DTE) and Data Circuit-Terminating Equipment (DCE) for Terminals Operating in the Packet Mode and Connected to Public Data Networks by Dedicated Circuit.
c. CCITT Recommendation X.25-1984 (CCITT Red Book), Interface between Data Terminal Equipment (DTE) and Data Circuit-Terminating Equipment (DCE) for Terminals Operating in the Packet Mode and Connected to Public Data Networks by Dedicated Circuit.
d. International Standard (ISO) 7776-1986, Data Communications — High-Level Data Link Control Procedures — Description of the X.25 LAPB-Compatible DTE Data Link Procedures.
e. International Standard (ISO) 8208-1987, Data Communications — X.25 Packet Level Protocol for Data Terminal Equipment.

7. **Related Documents.** Related documents are listed in Section 2, Referenced and Related Standards and Publications, ANSI X3.100-1989.

8. **Applicability.** The technical specifications of this standard shall be employed in the acquisition, design, and development of all Federal automated data processing equipment, services, and telecommunication equipment and PSDN whenever a X.25 DTE/DCE or DTE/DTE interface is required.

9. **Implementation.** The provisions of this standard are effective in two stages: September 16, 1991, for all items covered in CCITT X.25-1984, ISO 7776-1986, and ISO 8208-1987, and January 1, 1993, for additional items covered in CCITT X.25-1988. Any applicable equipment or service ordered on or after the final effective dates, or procurement action for which solicitation documents have not been issued by those dates, must conform to the provisions of this standard unless a waiver has been granted in accordance with the procedures described below.

10. **Specifications.** Affixed. This standard adopts in whole the American National Standard (ANSI) X3.100-1989, Interface Between Data Terminal Equipment (DTE) and Data Circuit-Terminating Equipment (DCE) for Operation with Packet-Switched Data Networks (PSDN), or Between Two DTEs, by Dedicated Circuit.

11. **Waivers.** Waiver of this standard is required when a CCITT Recommendation X.25 interface is to be employed and, the interface does not implement all options mandated by this standard.

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, U.S. 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 on which the agency head made the required finding(s). A copy of each such decision, with procurement sensitive or classified portions clearly identified, 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.
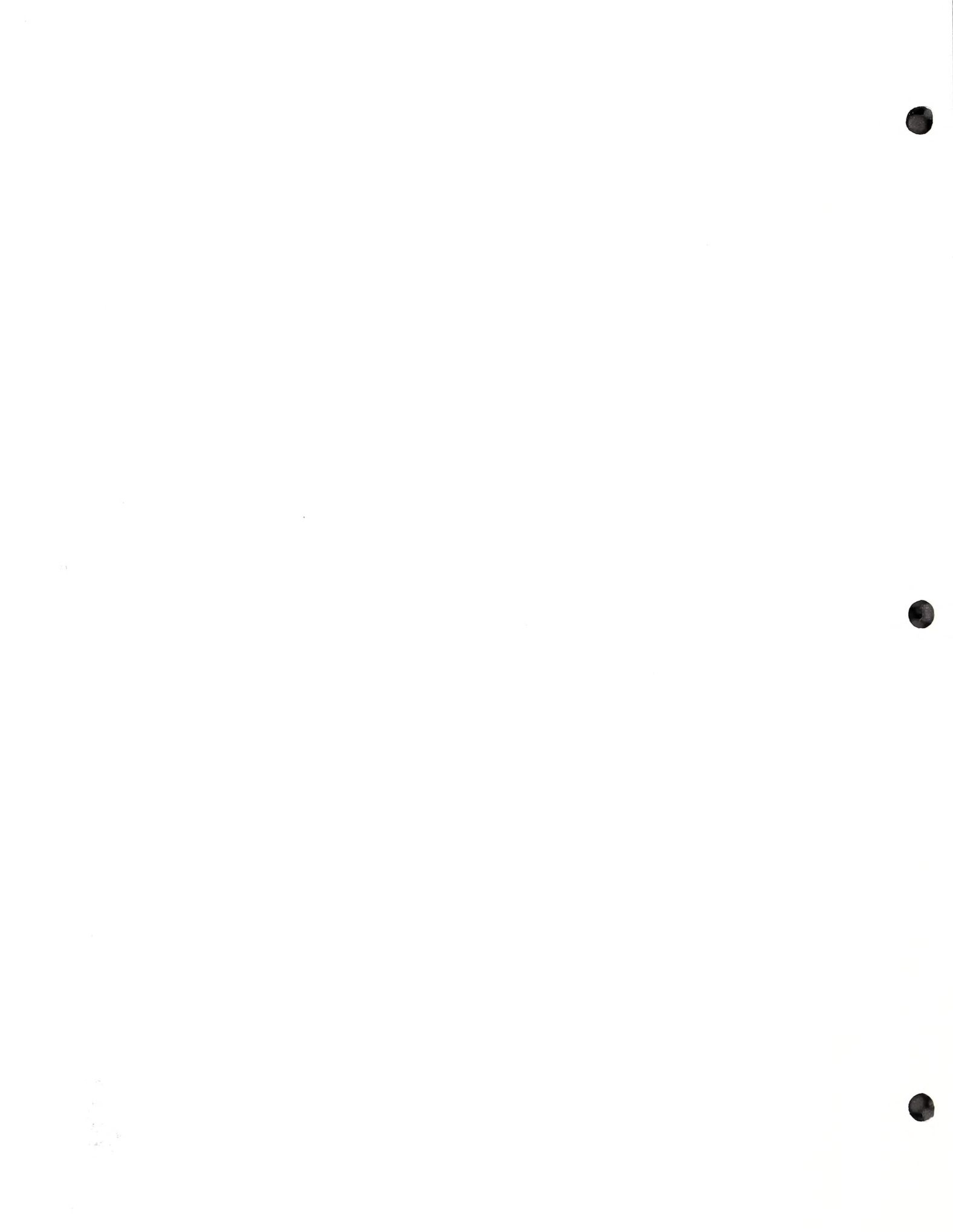
12. Where to Obtain Copies. Copies of this publication are for sale by the National Technical Information Service (NTIS), U.S. Department of Commerce, Springfield, VA 22161. (Sale of the included specifications document is by arrangement with the American National Standards Institute.) When ordering, refer to Federal Information Processing Standards Publication 100-1 (FIPSPUB100-1), and title. Payment may be made by check, money order, or NTIS deposit account.

Copies of the CCITT specifications may also be obtained from NTIS:

- CCITT X.25-1988 (CCITT Blue Book), specify PB89-144216 (X.1–X.32), the cost is $66.
- CCITT X.25-1984 (CCITT Red Book), specify PB85-192664 (X.20–X.32), the cost is $28.

Copies of International Standards may be obtained from:

American National Standards Institute, Inc.
1430 Broadway
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