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SYNCHRONOUS
SIGNALING RATES
BETWEEN DATA TERMINAL
AND DATA COMMUNICATION
EQUIPMENT

CATEGORY: HARDWARE STANDARD
SUBCATEGORY: TRANSMISSION

U.S. DEPARTMENT OF COMMERCE, *Juanita M. Kreps, Secretary*

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NATIONAL BUREAU OF STANDARDS, *Ernest Ambler, Acting Director*

Foreword

The Federal Information Processing Standards Publication Series of the National Bureau of Standards is the official publication relating to standards adopted and promulgated under the provisions of Public Law 89-306, and Part 6 of Title 15 Code of Federal Regulations. The entire series constitutes the FEDERAL INFORMATION PROCESSING STANDARDS REGISTER.

The series is used to announce Federal Information Processing Standards, and to provide standards information of general interest and an index of relevant standards publications and specifications. Publications that announce adoption of standards provide the necessary policy, administrative, and guidance information for effective standards implementation and use. The technical specifications of the standard are usually attached to the publication, otherwise a reference source is cited.

Comments covering Federal Information Processing Standards and Publications are welcomed, and should be addressed to the Associate Director for ADP Standards, Institute for Computer Sciences and Technology, National Bureau of Standards, Washington, D.C. 20234. Such comments will be either considered by NBS or forwarded to the responsible activity as appropriate.

Ernest Ambler, Acting Director

Abstract

This standard specifies the rates of transferring binary encoded information in synchronous serial or parallel form between data processing terminal and data communications equipments that employ voice band communication facilities. This revision supersedes FIPS PUB 22 and reflects changes made to the corresponding American National Standard X3.1-1976. This standard is identified also as Federal Standard Number 1013.

Key words: Data communication equipment; data processing terminal equipment; data transmission (voice band); Federal Information Processing Standards; synchronous signaling rates; teleprocessing.

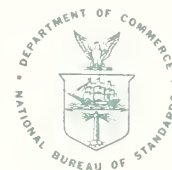
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Federal Information Processing Standards Publication 22-1

1977 September 1



ANNOUNCING THE STANDARD FOR

SYNCHRONOUS SIGNALING RATES BETWEEN DATA TERMINAL AND DATA COMMUNICATION EQUIPMENT

Federal Information Processing Standards Publications are issued by the National Bureau of Standards pursuant to the Federal Property and Administrative Services Act of 1949, as amended, Public Law 89-306 (79 Stat. 1127), Executive Order 11717 (38 FR 12315, dated May 11, 1973), and Part 6 of Title 15 Code of Federal Regulations (CFR).

Name of Standard. Synchronous Signaling Rates Between Data Terminal and Data Communication Equipment.

Category of Standard. Hardware Standard, Transmission.

Explanation. This standard specifies the rates of transferring binary encoded information in synchronous serial or parallel form between data processing terminal and data communications equipments that employ voice band communication facilities. This revision supersedes FIPS PUB 22 and reflects changes made to the corresponding American National Standard X3.1-1976.

Approving Authority. Secretary of Commerce.

Maintenance Agency. Department of Commerce, National Bureau of Standards (Institute for Computer Sciences and Technology).

Cross Index.

- a. American National Standard ANSI X3.1-1976, Synchronous Signaling Rates for Data Transmission.
- b. FIPS PUB 16-1, Bit Sequencing of the Code for Information Interchange in Serial-By-Bit Data Transmission.
- c. FIPS PUB 17-1, Character Structure and Character Parity Sense for Serial-By-Bit Data Communication in the Code for Information Interchange.
- d. FIPS PUB 18-1, Character Structure and Character Parity Sense for Parallel-By-Bit Data Communication in the Code for Information Interchange.

Applicability. Applicable to data terminal and data processing equipment employed with synchronous data communication equipment which are designed to operate on binary encoded information in either serial or parallel fashion over voice grade communication channels of nominal 4 kHz band-width. For data rates above 9600 bit/s, whether or not 4 kHz circuits are utilized, FED-STD-1001 applies. Nothing in this standard precludes DTE-DTE application.

Specifications. Federal Information Processing Standard 22-1 (FIPS 22-1), Synchronous Signaling Rates Between Data Terminal and Data Communication Equipment, is identified also as Federal Standard Number 1013 (affixed). This joint Federal Information Processing Standard and Federal Standard adopts American National Standard X3.1-1976, Synchronous Signaling Rates for Data Transmission.

Implementation Schedule. All data terminal or data processing equipment and related data communication equipment to be employed with voice grade communication channels ordered on or after the date of this FIPS PUB must be in conformance with this standard unless a waiver has been obtained in accordance with the procedure described below. Exceptions to this standard are made in the following cases:

a. For equipment installed or on order prior to the date of this FIPS PUB.

b. Where procurement actions are into the solicitation phase (i.e., Request for Proposals or Invitation for Bids have been issued) on the date of this FIPS PUB.

Waiver Procedure. Proposed waivers relating to the procurement of equipment using non-standard data rates will be coordinated in advance with the General Services Administration according to the procedures described in paragraph 3, CHANGES, of the Federal Standard affixed to this FIPS PUB. It is suggested that a request for waiver include the following information:

a. A brief, narrative description of the existing or planned teleprocessing or data communication system to which the waiver applies, including:

(1) Statement of purpose and principal function of the system.

(2) Potential or planned use of the facilities employed with this system to interchange information with similar systems operated within the agency or by other agencies.

b. A brief description of the system configuration, including a listing of accountable features, such as numbers and costs of data processors, terminals, modems, and communication lines, identifying those items to which the waiver applies.

Special Information. Federal Information Processing Standards are reviewed and revised periodically based upon changing requirements and the need to clarify or correct problems identified in their use. When a specific FIPS is cited or cross referenced in this publication, it should be noted that the most current version of it will be used. A list of current FIPS may be obtained from the NBS Office of ADP Standards Management, Washington, D.C. 20234.

Where to Obtain Copies. Copies of this publication are for sale by the National Technical Information Service, U.S. Department of Commerce, Springfield, Virginia 22161. When ordering, refer to Federal Information Processing Standards Publication 22-1 (NBS-FIPS-PUB-22-1) and title. Payment may be made by check, money order, or deposit account.

FEDERAL STANDARD

**TELECOMMUNICATIONS: SYNCHRONOUS SIGNALING
RATES BETWEEN DATA TERMINAL EQUIPMENT
AND DATA CIRCUIT-TERMINATING EQUIPMENT
UTILIZING 4 kHz CIRCUITS**

This standard is issued by the General Services Administration pursuant to the Federal Property and Administrative Services Act of 1949, as amended, and Public Law 89-306. This standard has also been published as an integral part of Federal Information Processing Standards (FIPS) Publication 22-1. The application of this standard to data processing systems and telecommunication systems is mandatory on all Federal agencies.

1. Scope. This standard specifies the standard signaling rates up to 9600 bit/s between Data Terminal Equipment (DTE) and Data Circuit-Terminating Equipment (DCE) utilizing nominal 4 kHz circuits.

1.1 Purpose. Federal telecommunication standards are to facilitate interoperability between telecommunication facilities and systems and compatibility of these systems at the computer-communications interface with data processing equipment.

1.2 Application. This standard is to be used by Federal agencies with other Federal Standards or design specifications describing functional, mechanical, and procedural characteristics as necessary to achieve interoperability. For data rates above 9600 bit/s, whether or not 4 kHz circuits are utilized, FED-STD-1001 applies. Nothing in this standard precludes DTE-DTE application.

2. Reference Document. This standard adopts the following American National Standards Institute (ANSI) document to the extent specified herein:

X3.1-1976 Synchronous Signaling Rates for Data Transmission

Copies may be obtained from ANSI, Inc., 1430 Broadway, New York, New York 10018. Federal agencies may obtain copies with FIPS Publication 22-1 from the National Technical Information Service, Document Processing Branch, 5285 Port Royal Road, Springfield, VA 22161.

3. Changes. When a Federal agency considers that this standard does not provide for its essential needs, a statement citing inadequacies shall be sent in duplicate to the General Services Administration, Federal Supply Service, FMH, Washington, DC 20406, in accordance with provisions of Federal Property Management Regulations 41 CFR 101-29.3. The General Services Administration will determine the appropriate action to be taken and will notify the agency.

PREPARING ACTIVITY:

National Communications System
Office of Technology and Standards
Washington, D.C. 20305

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NOTE: At present the principal publication outlet for these data is the Journal of Physical and Chemical Reference Data (JPCRD) published quarterly for NBS by the American Chemical Society (ACS) and the American Institute of Physics (AIP). Subscriptions, reprints, and supplements available from ACS, 1155 Sixteenth St. N.W., Wash. D. C. 20056.

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Superconducting Devices and Materials. A literature survey issued quarterly. Annual subscription: \$30.00. Send subscription orders and remittances for the preceding bibliographic services to National Bureau of Standards, Cryogenic Data Center (275.02) Boulder, Colorado 80302.

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