



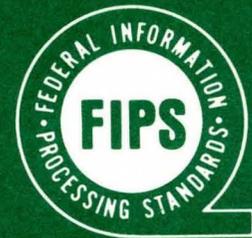
FIPS PUB 12-2

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**FEDERAL INFORMATION
PROCESSING STANDARDS PUBLICATION**

1974 DECEMBER 1

U.S. DEPARTMENT OF COMMERCE / National Bureau of Standards



**FEDERAL INFORMATION
PROCESSING STANDARDS
INDEX**

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 under 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.

RICHARD W. ROBERTS, *Director*

Abstract

This publication provides material concerning standardization activities in the area of information processing at the Federal, National, and International levels. Also included are related policy and procedural guideline documents. A list of Federal Government participants involved in the development of Federal Information Processing Standards is provided. This FIPS PUB is revised and updated annually.

Key words: American National Standards; computers; data elements and codes; data processing systems; Federal Information Processing Standards; management information systems; International Organization for Standardization; standards; U.S. Government.

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**Federal Information
Processing Standards Publication 12-2**



**FEDERAL INFORMATION
PROCESSING STANDARDS INDEX**

1974 December 1

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), and as implemented by Executive Order 11717 (38 FR 12315, dated May 11, 1973), and Part 6 of Title 15 CFR (Code of Federal Regulations).

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1. Introduction

The ADP Standards program is authorized by Public Law 89-306 as follows:

“The Secretary of Commerce is authorized . . . (2) to make appropriate recommendations to the President relating to the establishment of uniform Federal automated data processing standards.”

The ADP Standards program is an Executive Branch program. In June of 1966 in a memorandum to the Heads of Departments and Agencies, President Johnson recognized the need for better management of ADP and the role of ADP standards. He stated that he expected all agencies to cooperate fully with the Department of Commerce in accomplishing the objectives of PL 89-306. In a policy guidance letter to the Secretary of Commerce, the Director of OMB outlined the responsibilities and programs for ADP standards.

On May 9, 1973, Executive Order 11717 signed by President Nixon transferred to the Secretary of Commerce all functions being performed by the Office of Management and Budget relating to the establishment of government-wide automatic data processing standards, including the function of approving standards on behalf of the President.

On December 5, 1973, Part 6 of Title 15 of the Code of Federal Regulations replaced OMB Circular A-86 which was rescinded on August 29, 1973. This new regulation established a leadership role for NBS in the management of activities within the Federal Government relating to the development, implementation, and maintenance of data standards.

The ADP Standards program is concerned with standards for data, programs and components, data communications, computer performance, applications and data, personnel and environment, and acquisition and reassignment of ADP products. The continuing objective is to facilitate the increased interchange and sharing of data, programs, and equipment by Federal agencies and the public, improved performance and quality of ADP products and services developed by or acquired by Federal agencies, and increased awareness by government and industry of the need for standards to achieve compatibility and enhance the effective utilization of ADP products and serv-

ices in the preparation and delivery of public services.

It is recognized that information processing standards are being developed nationally under the auspices of the American National Standards Institute (ANSI) and internationally under the auspices of the International Organization for Standardization (ISO). It is important that Federal computers and information systems be compatible not only with each other, but with those of State and local governments, the private sector of the economy and those of other nations. Accordingly, standards developed to meet Federal requirements should, to the extent practicable, be consistent with corresponding ANSI and ISO standards. In order that Federal interests are adequately reflected in such standards, NBS in its standards management role, is responsible for assuring Federal participation in their development, for considering them as Federal standards in those cases where they meet the requirements of the Federal Government, or for initiating independent development actions in cases where ANSI and ISO efforts do not exist, are too slow, or are leading to results which will not satisfy the Government's needs.

State and local governments and industry organizations frequently request advice and assistance from NBS on ADP standards. In many instances Federal standards are adopted for use and in procurements by organizations in the public sector. Examples of this type of support and cooperation with the public sector include activities with the National Retail Merchants Association, Computers and Business Equipment Manufacturers Association, American National Standards Institute, National Association of State Information Systems, American Association of Motor Vehicle Administrators, and the Electronic Industries Association.

The ADP Standards program is directed to the problem of reducing existing costly incompatibilities between computer systems, networks, and computer-produced information through adherence to Federal Information Processing Standards (FIPS) and to voluntary national standards. The resolution of these incompatibilities in ADP products and services can have a far reaching impact on the computer industry and its users. In FY 1973, the Federal Government alone reported the number of installed computers to be 7149, having an estimated purchase price of \$3.46 billion.

The Federal computer customer can expect to benefit from standards through reduced operational costs and through the increased availability of quality products and services. State and local governments as computer customers can enjoy these same benefits in providing services to the public. The professional computer community will benefit from standards by the elimination of unwarranted differences in techniques and procedures used in the solution of computer problems. The computer professional should benefit by having standard measurements for assessing the quality of performance of products and services. The computer industry benefits from standards through increased markets, nationally and internationally and through a reduction in the number of different variations of the same product it must provide to compete in the computer marketplace. The public as a whole benefits through increased quality services and products and reduced costs. The importance of the ADP Standards program can be expressed in terms of cost reductions, increased capabilities and improved products and services.

The NBS role in the ADP standards program can be summarized as follows:

- Providing day-to-day guidance and leadership of an executive branch program to determine requirements for standards and to promote the development and testing of standards for ADP products and services;
- Participating in appropriate activities of the National and International voluntary standards organizations;
- Monitoring and coordinating all Federal participation in these voluntary activities;

- Preparing recommendations for standards to be adopted for Federal implementation;
- Monitoring the implementation of Federal standards and assessing their impact on computer services; and
- Carrying out the necessary research and analysis in support of the development, implementation, and management of ADP standards.

FIPS PUB 23, dated 1973 February 15 provides the approved Objectives and Requirements of the Federal Information Processing Standards Program.

In order to facilitate communication and to better utilize the resources and expertise within the Federal Government now being expended in standardization efforts, the National Bureau of Standards is making available in a single document, information concerning standardization activities at all levels, related policy and procedural guideline documents, and the identification of federal participants on information processing standards committees at the Federal, national, and international levels.

This INDEX is updated on a periodic basis and provides information readily available at the time of publication. Comments and recommendations for additional material to be included in future editions of the INDEX are welcome. Also changes in individual committee designations, addresses or telephone numbers or other corrections should be forwarded to the Office of ADP Standards Management, Institute for Computer Sciences and Technology, National Bureau of Standards, Washington, D.C. 20234.

2. Federal Information Processing Standards (FIPS) Publications

2.1. List of Publications in the Federal Information Processing Standards Publication Series

The Federal Information Processing Standards Publications (FIPS PUB) Series is the official publication medium within the Federal Government for information relating to standards which are adopted and promulgated under the provisions of (1) Public Law 89-306, "The Brooks Bill", an act to provide for the economic and efficient purchase, lease, maintenance, operation, and utilization of automatic data processing equipment in Federal departments and agencies, (2) Executive Order 11717 which transferred to the Secretary of Commerce all functions being performed by the Office of Management and Budget relating to the establishment of government-wide automatic data processing standards, and (3) Part 6 of Title 15 Code of Federal Regulations dated December 5, 1973, which supersedes and replaces in its entirety the provisions of OMB Circular A-86 (rescinded by the Director of OMB on August 29, 1973) and which transfers to the Department of Commerce the leadership of the executive branch program for standardizing data elements and representations.

The standards in the series are classified into four major categories—hardware, software, applications, and data. In most cases the technical specifications of the standards are affixed to the FIPS PUBS. Where this is not the case, sources where these are available are cited. Procedures for obtaining FIPS PUBS are contained in Appendix A.

2.1.1. General Publications

FIPS PUB 0

GENERAL DESCRIPTION OF FEDERAL INFORMATION PROCESSING STANDARDS REGISTER, November 1, 1968, 8pp., 25 cents.
SD Catalog Number C13.52:0
NTIS Accession Number PB 191 944

This document defines the responsibilities for the Register, defines its contents and categories of standards, and suggests a method for establishing and maintaining standards within an activity.

FIPS PUB 12-2

FEDERAL INFORMATION PROCESSING STANDARDS INDEX,
SD Catalog Number C13.52:12-2
NTIS Report Number NBS-FIPS-PUB-12-2

This FIPS PUB provides information concerning standardization activities at the Federal, national, and international levels, related policy and procedural guideline documents, and the identification of Federal participants on information processing standards committees. Information is provided concerning standards development projects and availability of published documents.

FIPS PUB 23

OBJECTIVES AND REQUIREMENTS OF THE FEDERAL INFORMATION PROCESSING STANDARDS PROGRAM, 1973 February 15, 8 pp., 35 cents.
SD Catalog Number C13.523:23
NTIS Report Number NBS-FIPS-PUB-23

Public Law 89-306 (the Brooks legislation) was enacted to provide for the economic and efficient purchase, lease, maintenance, operation and utilization of automatic data processing equipment by Federal departments and agencies.

Among the other provisions of PL 89-306, the Secretary of Commerce is authorized to make appropriate recommendations to the President relating to the establishment of uniform Federal automatic data processing standards. The Federal Information Processing Standards Program was established in response to this part of the legislation. The purpose of this document is to outline the objectives of the Federal Information Processing Standards Program and to identify requirements for specific standards necessary to accomplish these objectives.

This FIPS PUB is available from the Superintendent of Documents, U.S. Government Printing Office, Washington, D.C. 20402 at the price cited.

FIPS PUB 12-2

FIPS PUB 28

STANDARDIZATION OF DATA ELEMENTS AND REPRESENTATIONS, 1973 December 5, 12 pp., 60 cents.

SD Catalog Number C13.52:28

NTIS Report Number NBS-FIPS-PUB-28

Pursuant to the authority delegated to the Secretary of Commerce by Executive Order 11717 (38 FR 12315, dated May 11, 1973), Subtitle A of Title 15 of the Code of Federal Regulations has been amended to add a new Part 6 which implements the provisions of Section III (f) (2) of the Federal Property and Administrative Services Act of 1949, as amended (79 Stat. 1127). This new Part 6 supersedes and replaces in its entirety the provision of Office of Management and Budget Circular A-86 entitled, "Standardization of data elements and codes in data systems", dated September 30, 1967, which was rescinded by the Director of the Office of Management and Budget on August 29, 1973. Part 6 provides policy and identifies responsibilities of executive branch departments and independent agencies for a government-wide program for the standardization of data elements and representations used in Federal automated data systems. This publication provides a copy of Part 6 and other documents relating to this amendment.

This FIPS PUB is available from the Superintendent of Documents, U.S. Government Printing Office, Washington, D.C. 20402 at the price cited.

FIPS PUB 29

INTERPRETATION PROCEDURES FOR FEDERAL STANDARDS COBOL, 1974 June 15, 4 pp., 25 cents.

SD Catalog Number C13.52:29

NTIS Report Number NBS-FIPS-PUB-29

This FIPS PUB defines the procedures that will be followed in requesting interpretation of the Federal Standard COBOL and in providing responses to those requests. The provisions of this document apply to all Federal departments and agencies and to vendors of COBOL compilers in their dealings with the Federal Government.

This FIPS PUB is available from the Superintendent of Documents, U.S. Government Printing Office, Washington, D.C. 20402 at the price cited.

2.1.2. Hardware Standards

2.1.2.1. Codes and Media

FIPS PUB 1

CODE FOR INFORMATION INTERCHANGE, November 1, 1968, 4 pp., 25 cents. (Supplemented by FIPS PUB 7.)

SD Catalog Number C13.52:1

NTIS Accession Number PB 191 995

This document provides administrative, policy, and guidance information relative to the implementation and utilization of the standard code for information interchange.

The technical specification of this standard are available to Federal Government agencies from the General Services Administration Specifications Activity at a cost of 40 cents a copy. Refer to FIPS 1. Others may obtain copies from the American National Standards Institute for \$3.25 a copy. Refer to American National Standard X3.4-1968. The technical specifications define a code and character set for use in Federal information processing systems, communications systems and associated equipments.

FIPS PUB 2

PERFORATED TAPE CODE FOR INFORMATION INTERCHANGE, November 1, 1968, 4 pp., 25 cents. (Supplemented by FIPS PUB 7.)

SD Catalog Number C13.52:2

NTIS Accession Number PB 191 996

This document provides administrative, policy, and guidance information pertaining to the implementation and utilization of the standard perforated tape code for information interchange.

The technical specifications of this standard are available to Federal Government agencies from the GSA Specifications Activity at 45 cents a copy. Refer to FIPS 2. Others may obtain copies from the American National Standards Institute for \$2.25 a copy. Refer to American National Standard X3.6-1965. The technical specifications of the standard specify the representation of the Federal Standard Code for Information Interchange (FIPS 1) on perforated tape used in Federal information processing systems, communications systems, and associated equipments.

FIPS PUB 3-1

RECORDED MAGNETIC TAPE FOR INFORMATION INTERCHANGE (800 CPI, NRZI), 1973 June 30, 4 pp., 25 cents. (Supplemented by FIPS PUB 7.)

SD Catalog Number C13.52:3-1

NTIS Report Number NBS-FIPS-PUB-3-1

This standard specifies the recorded characteristics of 9-track, one-half inch wide magnetic computer tape, including the data format for implementing the Federal Standard Code for Information Interchange at the recording density of 800 characters per inch (CPI). It is one of a series of Federal Standards implementing the Federal Standard Code for Information Interchange (FIPS 1) on magnetic tape media. This revision to FIPS PUB 3 reflects a change in scope from the earlier version of X3.22-1967, and encompasses the recorded tape requirements only. The unrecorded tape standard will include the requirements for the physical properties of the tape and reels that were previously included in FIPS 3.

The technical specifications of this standard (FIPS PUB included) are available to Federal Government agencies from the GSA Specifications Activity at 70 cents a copy. Others may obtain copies of the specifications from the American National Standards Institute for \$3.75 a copy. Refer to American National Standard X3.22-1973. Discounts are available on quantity orders. See American National Standards Institute catalog.

FIPS PUB 7

IMPLEMENTATION OF THE CODE FOR INFORMATION INTERCHANGE AND RELATED MEDIA STANDARDS (Supplement to FIPS PUBS 1, 2, and 3), March 7, 1969, 16 pp., 25 cents.

SD Catalog Number C13.52:7

NTIS Accession Number PB 191 999

This FIPS PUB provides further details covering the implementation of the Federal Standard Code for Information Interchange (FIPS 1), Perforated Tape Code for Information Interchange (FIPS 2), and Recorded Magnetic Tape for Information Interchange (800 CPI, NRZI) (FIPS 3-1). The publication includes a letter of approval of these standards by the President of the United States and a letter with attachments by the Secretary of Commerce providing details and policy of their implementation.

FIPS PUB 13

RECTANGULAR HOLES IN TWELVE-ROW PUNCHED CARDS, October 1, 1971, 4 pp., 25 cents.

SD Catalog Number C13.52:13

NTIS Report Number NBS-FIPS-PUB-13

This publication provides information on the size, location and dimensional tolerances of rectangular holes in 12-row, 3½-inch wide punched cards. It applies to card reading and punching equipment used in data processing, communications and similar operations in the Federal Government. This Federal standard adopts in whole a revised version of American National Standard X3.21-1967, Rectangular Holes in 12-Row Punched Cards.

The technical specifications of this standard (FIPS PUB included) are available to Federal Government agencies from the GSA Specifications Activity at \$1.80 a copy. Refer to FIPS PUB 13, Rectangular Holes in 12-Row Punched Cards. Others may obtain copies of the specifications from the American National Standards Institute for \$2.25 a copy. Refer to American National Standard X3.21-1967.

FIPS PUB 14

HOLLERITH PUNCHED CARD CODE, October 1, 1971, 4 pp., 25 cents.

SD Catalog Number C13.52:14

NTIS Report Number NBS-FIPS-PUB-14

This standard specifies the representation of the Federal Standard Code for Information Interchange (FIPS 1) in 3¼-inch wide, 12-row, rectangular hole, "Hollerith" punched cards used in Federal information processing systems, communications systems, and associated equipments. This Federal standard adopts only that part of the American National Standard X3.26-1970, Hollerith Punched Card Code which assigns hole patterns to the 128 characters of the Federal Information Processing Standard Code for Information Interchange (FIPS 1). The applicable code assignments are specified in Columns 0 through 7 of Code Table 2.1 of American National Standard X3.26-1970.

The technical specifications of this standard (FIPS PUB included) are available to Federal Government agencies from the GSA Specifications Activity at \$1.90 a copy. Refer to FIPS PUB 14, Hollerith Punched Card Code. Others may obtain copies of the specifications from the American National Standards Institute for \$3.25 a copy. Refer to American National Standard X3.26-1970.

FIPS PUB 12-2

FIPS PUB 15

SUBSETS OF THE STANDARD CODE FOR INFORMATION INTERCHANGE, October 1, 1971, 10 pp., 25 cents.
SD Catalog Number C13.52:15
NTIS Report Number NBS-FIPS-PUB-15

This publication provides three subsets of 95, 64, and 16 graphic characters derived from the Federal Standard Code for Information Interchange (FIPS PUB 1) which was adopted from the American Standard Code for Information Interchange (ASCII) X3.4-1968. These subsets are used in Federal printers, display devices, punched card equipment and other data processing or communication equipments which utilize a character subset less than the full 128 character set of FIPS PUB 1.

Copies of this publication are for sale from the Superintendent of Documents, U.S. Government Printing Office, Washington, D.C. 20402 at a cost of 25 cents a copy. Refer to FIPS PUB 15, Subsets of the Standard Code for Information Interchange.

FIPS PUB 25

RECORDED MAGNETIC TAPE FOR INFORMATION INTERCHANGE (1600 CPI, PHASE ENCODED), 1973, June 30, 4 pp., 25 cents.
SD Catalog Number C13.52:25
NTIS Report Number NBS-FIPS-PUB-25

This standard specifies the recorded characteristics of 9-track, one-half inch wide magnetic computer tape, including the data format for implementing the Federal Standard Code for Information Interchange at the recording density of 1600 characters per inch (CPI). It is one of a series of Federal Standards implementing the Federal Standard Code for Information Interchange (FIPS 1) on magnetic tape media.

The technical specifications of this standard (FIPS PUB included) are available to Federal Government agencies from the GSA Specifications Activity at 70 cents a copy. Others may obtain copies of the specifications from the American National Standards Institute for \$3.75 a copy. Refer to American National Standard X3.39-1973. Discounts are available on quantity orders. See American National Standards Institute catalog.

FIPS PUB 26

ONE-INCH PERFORATED PAPER TAPE FOR INFORMATION INTERCHANGE, 1973 June 30, 4 pp., 25 cents.
SD Catalog Number C13.52:26
NTIS Report Number NBS-FIPS-PUB-26

This standard specifies the physical dimensions and tolerances of one-inch wide paper tape, including the size and location of the perforations used for recording information.

The technical specifications of this standard (FIPS PUB included) are available to Federal Government agencies from the GSA Specifications Activity at 40 cents a copy. Others may obtain copies of the specifications from the American National Standards Institute for \$2.50 a copy. Refer to American National Standard X3.18-1967. Discounts are available on quantity orders. See American National Standards Institute catalog.

FIPS PUB 27

TAKE-UP REELS FOR ONE-INCH PERFORATED TAPE FOR INFORMATION INTERCHANGE, 1973 June 30, 4 pp., 25 cents.
SD Catalog Number C13.52:27
NTIS Report Number NBS-FIPS-PUB-27

This standard specifies the physical dimensions of paper tape take-up (or storage) reels, with either fixed or separate flanges. The two types of reels specified differ in the size and shape of the drive hub, but both are intended for use with one-inch perforated paper tape devices.

The technical specifications of this standard (FIPS PUB included) are available to Federal Government agencies from the GSA Specifications Activity at 45 cents a copy. Others may obtain copies of the specifications from the American National Standards Institute for \$3.00 a copy. Refer to American National Standard X3.20-1967. Discounts are available on quantity orders. See American National Standards Institute catalog.

2.1.2.2. Transmission

FIPS PUB 16

BIT SEQUENCING OF THE CODE FOR INFORMATION INTERCHANGE IN SERIAL-BY-BIT DATA TRANSMISSION, October 1, 1971, 4 pp., 25 cents.
SD Catalog Number C13.52:16
NTIS Report Number NBS-FIPS-PUB-16

This publication prescribes the method for transmitting the American Standard Code for Information Interchange (ASCII) in systems employing serial-by-bit, serial-by-character data transmission. The least significant bit (b1) is transmitted first, the most significant bit (b7) last, followed by the character parity bit (if transmitted). This standard adopts in whole the American National Standard for Bit Sequencing of the American National Standard Code for Information Interchange in Serial-By-Bit Data Transmission, American National Standard X3.15-1966, which was developed and approved by the American National Standards Institute.

The technical specifications of this standard (FIPS PUB included) are available from the General Services Administration, Specifications Activity, Printed Materials Supply Division, Building 197, Washington, D.C. 20407. Refer to FIPS PUB 16. Price is 40 cents a copy. Others may obtain copies from the American National Standards Institute. Refer to American National Standard X3.15-1966, Bit Sequencing of the American National Standard Code for Information Interchange in Serial-By-Bit Data Transmission, at a cost of \$2.25 a copy.

FIPS PUB 17

CHARACTER STRUCTURE AND CHARACTER PARITY SENSE FOR SERIAL-BY-BIT DATA COMMUNICATION IN THE CODE FOR INFORMATION INTERCHANGE, October 1, 1971, 4 pp., 25 cents.

SD Catalog Number C13.52:17

NTIS Report Number NBS-FIPS-PUB-17

This publication specifies the character structure and character parity sense for transmitting the American Standard Code for Information Interchange (ASCII) in systems employing serial-by-bit data transmission. Characters are to be transmitted as eight bits (seven ASCII bits plus one character parity bit). The parity sense shall be odd for synchronous transmission and even for asynchronous transmission. (Included in the standard is the position of the character parity bit.) This standard adopts in whole the American National Standard for Character Structure and Character Parity Sense for Serial-By-Bit Data Communication in the American National Standard Code for Information Interchange, American National Standard X3.16-1966, which was developed and approved by the American National Standards Institute.

The technical specifications of this standard (FIPS PUB included) are available from the General Services Administration, Specifications Activity, Printed Materials Supply Division, Building 197, Washington, D.C. 20407 at a price of \$1.60 a copy. Refer to FIPS PUB 17, Character Structure and Character Parity Sense for Serial-By-Bit Data Communication in the Code for Information Interchange. Others may obtain copies of the standard from the American National Standards Institute. Refer to American National Standard X3.16-1966, Character Structure and Character Parity Sense for Serial-By-Bit Data Communication in the American National Standard Code for Information Interchange. Price is \$2.25 a copy.

FIPS PUB 18

CHARACTER STRUCTURE AND CHARACTER PARITY SENSE FOR PARALLEL-BY-BIT DATA COMMUNICATION IN THE CODE FOR INFORMATION INTERCHANGE, October 1, 1971, 4 pp., 25 cents.

SD Catalog Number C13.52:18

NTIS Report Number NBS-FIPS-PUB-18

This publication specifies the character structure and character parity sense for transmitting the American Standard Code for Information Interchange (ASCII) in systems employing parallel-by-bit data transmission. The seven ASCII bits (b1 through b7) plus the character parity bit (P) are assigned to an ordered series of channel designators. The least significant bit (b1) is assigned to the lowest designator. Included in the standard is the position of the character parity bit. This standard adopts in whole the American National Standard for Character Structure and Character Parity Sense for Parallel-By-Bit Data Communication in the American National Standard Code for Information Interchange, American National Standard X3.25-1968, which was developed and approved by the American National Standards Institute.

The technical specifications of this standard (FIPS PUB included) are available from the General Services Administration, Specifications Activity at a price of \$1.25 a copy. Refer to FIPS PUB 18, Character Structure and Character Parity Sense for Parallel-By-Bit Data Communication in the Code for Information Interchange. Others may obtain copies from the American National Standards Institute. Refer to American National Standard X3.25-1968, Character Structure and Character Parity Sense for Parallel-By-Bit Data Communication in the American National Standard Code for Information Interchange. Price is \$2.25 a copy.

FIPS PUB 12-2

FIPS PUB 22

SYNCHRONOUS SIGNALING RATES BETWEEN DATA TERMINAL AND DATA COMMUNICATION EQUIPMENT, 1972 November 1, 4 pp., 25 cents.
SD Catalog Number C13.52:22
NTIS Report Number NBS-FIPS-PUB-22

This FIPS PUB prescribes speeds for transferring binary encoded information in synchronous serial or parallel forms between data terminal and data communication equipments employing voice band communication facilities. Speeds ranging from 75 to 9600 bits-per-second are specified. With two exceptions this Federal standard adopts the American National Standard X3.1-1969, Synchronous Signaling Rates for Data Transmission.

The technical specifications of this standard (FIPS PUB included) are available to Federal Government agencies from the GSA Specifications Activity at 35 cents a copy. Others may obtain copies of the specifications from the American National Standards Institute for \$2.25 a copy. Refer to American National Standard X3.1-1969. Discounts are available on quantity orders. See ANSI catalog.

2.1.3. Software Standards

2.1.3.1 Documentation

FIPS PUB 11

VOCABULARY FOR INFORMATION PROCESSING, November 15, 1970, 4 pp., 25 cents.
SD Catalog Number C13.52:11
NTIS Accession Number COM-71-00160

This FIPS PUB provides administrative, policy, and guidance information pertaining to the utilization of the American National Standard Vocabulary for Information Processing (X3.12-1970) within the Federal Government.

Copies of the VOCABULARY (FIPS PUB included) are available to Federal Government agencies from the General Services Administration, Specifications Activity at \$1.50 a copy. Refer to FIPS PUB 11, Vocabulary for Information Processing. Others may obtain copies of the VOCABULARY from the American National Standards Institute for \$6.00 a copy. Refer to American National Standard X3.12-1970.

The VOCABULARY provides an alphabetical listing of approximately 1,200 entries, each consisting of a term and its definition, for use in information processing activities such as the description, representation, communication, interpretation, and processing of data by human or automatic means.

FIPS PUB 20

GUIDELINES FOR DESCRIBING INFORMATION INTERCHANGE FORMATS, 1972 March 1, 12 pp., 25 cents.
SD Catalog Number C13.52:20
NTIS Report Number NBS-FIPS-PUB-20

This FIPS PUB provides guidelines which identify and describe the various characteristics of formatted information that should be considered whenever formatted information is interchanged. The objective is to clarify and improve the documentation necessary to effectively provide, process, or use the information involved. The guidelines provided are to be used throughout the Federal Government as a checklist for preparing effective documentation of formatted information interchange.

FIPS PUB 24

FLOWCHART SYMBOLS AND THEIR USAGE IN INFORMATION PROCESSING, 1973 June 30, 4 pp., 25 cents.
SD Catalog Number C13.52:24
NTIS Report Number NBS-FIPS-PUB-24

This publication establishes standard flowchart symbols and specifies their use in the preparation of flowcharts in documenting information processing systems. This standard applies to any Federal information processing operation where symbolic representation is desirable to document the sequence of operations and the flow of data and paperwork.

The technical specifications of this standard (FIPS PUB included) are available to Federal Government agencies from the GSA Specifications Activity at 80 cents a copy. Others may obtain copies of the specifications from the American National Standards Institute for \$3.75 a copy. Refer to American National Standard X3.5-1970. Discounts are available on quantity orders. See American National Standards Institute catalog.

FIPS PUB 30

SOFTWARE SUMMARY FOR DESCRIBING
COMPUTER PROGRAMS AND AUTOMATED
DATA SYSTEMS,
SD Catalog Number C13.52:30, 20 cents
NTIS Report Number NBS-FIPS-PUB-30

This publication provides a standard software summary form together with instructions for describing computer programs and/or automated data systems for identification, reference, and dissemination purposes.

This publication is available from the Superintendent of Documents, U.S. Government Printing Office, Washington, D.C. 20402 at the price cited.

2.1.3.2. Programming Languages

FIPS PUB 21

COMMON BUSINESS ORIENTED LANGUAGE (COBOL), 1972 March 25, 8 pp., 20 cents.
SD Catalog Number C13.52:21
NTIS Report Number NBS-FIPS-PUB-21

This FIPS PUB announces the adoption of the American National Standard COBOL (X3.23-1968) as the Federal Standard COBOL. The American National Standard defines the elements of the COBOL Programming Language and the rules for their use. The standard is used by implementors as the reference authority in developing compilers and by users for writing programs in COBOL. The primary purpose of the standard is to promote a high degree of interchangeability of programs for use on a variety of automatic data processing systems. The COBOL language is intended for use with business-oriented applications.

The technical specifications of this standard (FIPS PUB included) are available to Federal Government agencies from the General Services Administration, Specifications Activity at a cost of \$3.05 a copy. Refer to FIPS 21, COMMON BUSINESS ORIENTED LANGUAGE (COBOL). Others may obtain copies from the American National Standards Institute, Inc., 1430 Broadway, New York, New York 10018. Refer to American National Standard X3.23-1968, Standard for COMMON BUSINESS ORIENTED LANGUAGE (COBOL). Price is \$6.50 a copy. Discounts available on quantity orders. See American National Standards Institute catalog.

2.1.4. Data Standards (Representations and Codes)

FIPS PUB 4

CALENDAR DATE, November 1, 1968, 4 pp., 25 cents (Federal General Data Standard)
SD Catalog Number C13.52:4
NTIS Accession Number PB 191 998

This publication announces the adoption of a Federal standard for representing calendar dates used in the interchange of formatted machine sensible data. The technical specifications (FIPS 4) are affixed to the FIPS PUB.

FIPS PUB 5-1

STATES AND OUTLYING AREAS OF THE UNITED STATES, June 15, 1970 (Supersedes FIPS PUB 5) 4 pp., 25 cents. (Federal General Data Standard)
SD Catalog Number C13.52:5-1
NTIS Accession Number PB 194 344

This publication provides names, abbreviations, and codes for representing the 50 states, the District of Columbia, and the outlying areas, all of which are considered to be "first order subdivisions" of the United States. These codes are for use in the interchange of formatted machine sensible data. The technical specifications of the standard (FIPS PUB 5-1) are affixed to the FIPS PUB.

Hollerith punched cards containing names, abbreviations and codes prescribed by specifications of this standard are available from the National Technical Information Service, U.S. Department of Commerce, Springfield, Virginia 22151. When ordering, refer to accession number PB 190 719. Cost is \$3.00. (Cards are interpreted.)

FIPS PUB 6-2

COUNTIES AND COUNTY EQUIVALENTS OF THE STATES OF THE UNITED STATES, 1973 September 15 (Supersedes FIPS PUB 6-1), 35 pp., 65 cents (Federal General Data Standard)
SD Catalog Number C13.52:6-2
NTIS Report Number NBS-FIPS-PUB-6-2

This publication provides names and codes for representing the Counties of the 50 States or

FIPS PUB 12-2

county equivalents thereof for use in the interchange of formatted machine sensible data. Also included in the set of codes are the independent cities of Maryland, Missouri, Nevada, and Virginia and the Census Divisions and boroughs of Alaska. The technical specifications of the standard (FIPS PUB 6-2) are affixed to the FIPS PUB.

Magnetic tapes and Hollerith punched cards which contain state abbreviations, state codes, county names, and county codes as contained in the specifications of the standard are available from the National Technical Information Service, U.S. Department of Commerce, Springfield, Virginia 22151.

Magnetic tapes are available in the following forms:

- Seven track, BCD code, 556 cpi, even parity
- Seven track, BCD code, 556 cpi, odd parity
- Seven track, BCD code, 800 cpi, even parity
- Seven track, BCD code, 800 cpi, odd parity
- Nine track, ASCII (FIPS PUB 1) code, 800 cpi, odd parity
- Nine track, EBCDIC code, 800 cpi, odd parity

When ordering magnetic tape, refer to accession number COM-74-11289, and specify tape characteristics needed. Cost is \$97.50 which includes a 600 foot tape and reel.

When ordering punched cards, refer to accession number NBS-FIPS-PUB-6-2-C. Cost is \$35.00. (Cards are interpreted.)

FIPS PUB 8-4

STANDARD METROPOLITAN STATISTICAL AREAS, 1974 June 30, 20 pp., (Federal General Data Standard) 60 cents
SD Catalog Number C13.52:8-4
NTIS Report Number NBS-FIPS-PUB-8-4

This publication provides standard identifications and codes for representing Standard Metropolitan Statistical Areas for the interchange of machine sensible data among agencies. It supersedes FIPS PUB 8-3, Standard Metropolitan Statistical Areas, dated 1973 August 15. The general concept of a Standard Metropolitan Statistical Area, commonly referred to as "SMSA" is one of an integrated economic and social unit with a recognized large population nucleus. The technical specifications of the standard (FIPS PUB 8-4) are affixed to the FIPS PUB.

Hollerith punched cards which contain titles of the Standard Metropolitan Statistical Areas and codes as contained in the specifications of the standard are available from the National Technical Information Service, U.S. Department of Commerce, Springfield, Virginia 22151. (\$10.00; Accession number NBS-FIPS-PUB-8-4-C). Cards are interpreted.

FIPS PUB 9

CONGRESSIONAL DISTRICTS OF THE UNITED STATES, November 14, 1969, 4 pp., 25 cents (Federal General Data Standard).
SD Catalog Number C13.52:9
NTIS Accession Number PB 192 001

This publication provides a standard coding pattern for representing the Congressional Districts identified in the various Congresses of the United States for use in the interchange of machine sensible data. In this concept, Congressional Districts are considered to be any of the districts into which a state is divided for the purpose of electing representatives to the House of Representatives. The technical specifications of the standard (FIPS PUB 9) are affixed to the FIPS PUB.

Another publication used in conjunction with this standard is the "Congressional District Atlas" which provides definitions and outline maps of Congressional Districts. It is useful in those instances where the exact boundaries of Districts must be defined, but need not be referenced if the only interest is that of the code pattern. The "Congressional District Atlas", a Department of Commerce, Bureau of Census publication, is available from the Superintendent of Documents at a price of \$4.50 a copy. (SD Catalog Number C56.213/2:973.)

FIPS PUB 10-1

COUNTRIES, DEPENDENCIES AND AREAS OF SPECIAL SOVEREIGNTY, 1974 June 15, 27 pp., 70 cents (Federal General Data Standard)
SD Catalog Number C13.52:10-1
NTIS Report Number NBS-FIPS-PUB-10-1

This publication provides a list of basic geographical-political entities and associated standard codes. These entities include independent states, dependent areas, areas of quasi-independence, non-contiguous territories, possessions without population, areas with special

sovereignty associations, areas without sovereignty, political regimes not recognized by the United States, and outlying areas of the United States. This standard code is for use in the interchange of formatted machine sensible data.

Hollerith punched cards which contain codes as prescribed by the specifications of the standard are available from the National Technical Information Service, U.S. Department of Commerce, Springfield, Virginia 22151. When ordering punched cards refer to accession number NBS-FIPS-PUB-10-1-C. Cost is \$3.00. (Cards are interpreted.)

FIPS PUB 19

GUIDELINES FOR REGISTERING DATA CODES, February 1, 1972 (Federal General Data Standard) 7 pp., 25 cents.
SD Catalog Number C13.52:19
NTIS Report Number NBS-FIPS-PUB-19

Part 6, Title 15 Code of Federal Regulations, "Standardization of Data Elements and Representations" assigns to the National Bureau of Standards responsibility for maintaining registers of data elements and codes and to Federal departments and agencies the responsibility for registering program and agency codes with NBS. This publication provides guidelines for registering data codes with NBS

and for reporting the use of the codes to maintaining agencies for purposes of receiving changes.

This FIPS PUB is available from the Superintendent of Documents.

2.1.5. ADP Operations

2.1.5.1. Computer Security

FIPS PUB 31

GUIDELINES FOR AUTOMATIC DATA PROCESSING PHYSICAL SECURITY AND RISK MANAGEMENT,
SD Catalog Number C13.52:31, \$1.35
NTIS Report Number NBS-FIPS-PUB-31

This publication provides guidelines to be used by Federal organizations in structuring physical security programs for their ADP facilities. It treats security analysis, natural disasters, supporting utilities, system reliability, procedural measures and controls, off-site facilities, contingency plans, security awareness and security audit. It contains statistics and information relevant to physical security of computer data and facilities and references many applicable publications for a more exhaustive treatment of specific subjects.

This FIPS PUB is available from the Superintendent of Documents, U.S. Government Printing Office, Washington, D.C. 20402 at the price cited.

**2.2. Index of Proposed Federal Information Processing Standards
and Related Documents Published in the FEDERAL REGISTER¹**

Title of Document	Federal Register Date	Federal Register Page Number
Bit Sequencing of the Code for Information Interchange in Serial-By-Bit Data Transmission (Published as FIPS PUB 16)	January 30, 1970	1246
Character Set for Handprinting	November 10, 1972	23930
Character Structure and Character Parity Sense For Parallel-By-Bit Data Communication in the Code for Information Interchange (Published as FIPS PUB 17)	January 30, 1970	1248
Character Structure and Character Parity Sense for Serial-By-Bit Data Communication in the Code for Information Interchange (Published as FIPS PUB 18)	January 30, 1970	1249
Common Business Oriented Language (COBOL) (Published as FIPS PUB 21)	June 26, 1971	12178
Flowchart Symbols and Their Usage In Information Processing (Published as FIPS PUB 24)	May 9, 1972	9352
General Purpose Paper Cards for Information Processing	November 11, 1969	18131
Hollerith Punched Card Code (Published as FIPS PUB 14)	November 11, 1969	18135
Interface Between Data Terminal Equipment and Automatic Calling Equipment for Data Communication	April 16, 1970	6207
Interface Between Data Terminal Equipment and Data Communication Equipment Employing Serial Binary Data Interchange	April 16, 1970	6200
Joint Federal Information Processing and Federal Telecommunications Standards	February 11, 1974	5218
Layout of Forms for OCR Input	March 20, 1970	4888
One-Inch Perforated Paper Tape for Information Interchange (Published as FIPS PUB 26)	July 7, 1972	13356
Optical Character Recognition Character Sets	November 10, 1972	23930
Recorded Magnetic Tape for Information Interchange (800 CPI, NRZI) (Published as FIPS PUB 3-1)	September 16, 1972	18939
Recorded Magnetic Tape for Information Interchange (1600 CPI, Phase Encoded) (Published as FIPS PUB 25)	September 16, 1972	18940
Rectangular Holes in 12-Row Punched Cards (Published as FIPS PUB 13)	November 11, 1969	18134
Representations of Numeric Data in Dense Forms for Information Interchange	July 24, 1973	19848
Software Summary for Describing Computer Programs and Automated Data Systems	August 28, 1973	22991
Standardization of Data Elements and Representations (Published as FIPS PUB 28)	December 5, 1973	33482
Subsets of the Code for Information Processing (Published as FIPS PUB 15)	December 19, 1969	19916
Synchronous Signaling Rates for Data Transmission (Published as FIPS PUB 22)	October 2, 1971	19325
Specifications for Properties of Unpunched Oiled Paper Perforator Tape	July 7, 1972	13357
Take-Up Reels for 1-Inch Perforated Tape for Information Interchange (Published as FIPS PUB 27)	July 7, 1972	13356
Unrecorded Magnetic Tape for Information Interchange (Nine-Track 800 CPI, NRZI and 1600 CPI, P.E.)	September 16, 1972	18941

¹The FEDERAL REGISTER is utilized by the National Bureau of Standards as the publication medium for coordinating proposed Federal Standards developed under provisions of the Brooks Bill (Public Law 89-306) with private industry, the public, and State and local governments.

The FEDERAL REGISTER is published daily, Tuesday through Saturday, by the National Archives and Records Service of the General Services Administration and is furnished by mail on a subscription basis for \$25 per year, payable in advance. Remittance in the form of check or money order should be made payable to the Superintendent of Documents, U.S. Government Printing Office, Washington, D.C. 20402. Also, the FEDERAL REGISTER is generally available for reference from major libraries.

3. Cross Index of International, National, and Federal Standards for Information Processing¹

ISO Recommendation or Draft Recommendation	Related National Standard	Related Federal Standard (FIPS)
CHARACTER RECOGNITION		
R1004	Print Specifications for Magnetic Ink Character Recognition.	X3.2-1970 Same Title
R1073	Alphanumeric Character Sets for Optical Character Recognition.	X3.17-1966 Character Set for Optical Character Recognition
R1831	Printing Specifications for Optical Character Recognition.	
ISO 2033	Coding of Character Sets MICR and OCR.	
CHARACTER SETS AND CODES		
ISO 646	6 and 7-Bit Coded Character Sets for Information Processing Interchange.	X3.4-1968 Code for Information Interchange FIPS PUB 1 Code for Information Interchange FIPS PUB 15 Subsets of the Standard Code for Information Interchange
ISO 963	Guide for the Definition of 4-Bit Character Sets Derived From ISO 7-Bit Coded Character Set for Information Interchange.	
ISO 2022	Code Extension Techniques with the 7-Bit Coded Character Set of ISO/R 646.	
ISO 2111	Data Communication—Basic Mode Control Procedures—Code Independent Information Transfer.	
DIS2375.2	Procedure for the Registration of Escape Sequences.	
DATA COMMUNICATIONS		
ISO 1155	The Use of Longitudinal Parity to Detect Errors in Information Messages.	
ISO 1177	Character Structure for Start/Stop and Synchronous Transmission.	X3.16-1966 Character Structure for Character Parity Sense for Serial-by-Bit Data Communication in the American National Standard Code for Information Interchange X3.25-1968 Character Structure and Character Parity Sense for Parallel-by-Bit Data Communication in the American National Standard Code for Information Interchange FIPS PUB 17 Character Structure and Character Parity Sense for Serial-by-Bit Data Communication in the Code for Information Interchange FIPS PUB 18 Character Structure and Character Parity Sense for Parallel-by-Bit Data Communication in the Code for Information Interchange

¹See footnote at end of this table.

FIPS PUB 12-2

DATA COMMUNICATIONS—Continued

ISO Recommendation or Draft Recommendation	Related National Standard	Related Federal Standard (FIPS)
R1745 Basic Mode Control Procedures for Data Communication System.	X3.28-1971 Procedures for the use of the Communication Control Characters of American National Standard Code for Information Interchange in Specified Data Communication Links	
	X3.1-1969 Synchronous Signaling Rates for Data Transmission	FIPS PUB 22 Synchronous Signaling Rates Between Data Terminal and Data Communication Equipment
	X3.15-1966 Bit Sequencing of the American National Code for Information Interchange in the Serial-by-Bit Data Transmission	FIPS PUB 16 Bit Sequencing of the Code for Information Interchange in Serial-by-Bit Data Transmission
	X3.24-1968 Signal Quality at Interface Between Data Processing Terminal Equipment and Synchronous Data Communication Equipment for Serial Data Transmission	
ISO 2110 Data Communication—Data Terminal and Data Communication Equipment Interchange Circuits—Assignment of Connector Pin Numbers		
ISO 2593 Connector Pin Allocations for the High Speed Data Terminal Equipment		
ISO 2628 Basic Mode Control Procedures—Complements		
ISO 2629 Basic Mode Control Procedures Conversational Information Message Transfer		

DATA REPRESENTATIONS AND CODES

R2014 Writing of Calendar Dates in All Numeric Form	X3.30-1971 Representation for Calendar Date and Ordinal Date for Information Interchange	FIPS PUB 4 Calendar Date
R2015 Numbering of Weeks		
ISO 2711 Representation of Ordinal Dates		
ISO 2955 Representations for SI Units and other Units to be used in Systems with Limited Character Sets.		
	X3.38-1972 Identification of States of the United States (Including the District of Columbia) for Information Interchange	FIPS PUB 5-1 States and Outlying Areas of the States of the United States
	X3.31-1973 Structure for the Identification of the Counties of the United States for Information Interchange	FIPS PUB 6-2 Counties and County Equivalents of the States of the United States

DATA REPRESENTATIONS AND CODES—Continued

ISO Recommendation or Draft Recommendation	Related National Standard	Related Federal Standard (FIPS)
DIS3166 Codes for the Representation of Names of Countries		FIPS PUB 8-4 Standard Metropolitan Statistical Areas FIPS PUB 9 Congressional Districts of the United States FIPS PUB 10-1 Countries, Dependencies, and Areas of Special Sovereignty

DOCUMENTATION

ISO 1028 Flowchart Symbols for Information Processing.	X3.5-1970 Flowchart Symbols and Their Usage in Information Processing	FIPS PUB 24 Flowchart Symbols and Their Usage in Information Processing
ISO 2636 Conventions for Incorporating Flowchart Symbols in Flowcharts		
DIS2382 Vocabulary—Part 01 Fundamental Terms		
DIS2383 Vocabulary—Part 04 Organization of Data		
DIS2452 Vocabulary—Part 06 Preparation and Handling of Data		
DIS2455 Vocabulary—Part 05 The Representation of Data		
DIS2763 Vocabulary—Part 02: Mathematics and Logic and Arithmetic and Logic Operations		
DIS2806 Vocabulary—Section 24: Numerical Control of Machines		
	X3.12-1970 Vocabulary for Information Processing	FIPS PUB 11 Vocabulary for Information Processing

MEDIA, LABELS

R1001 Magnetic Tape Labelling and File Structure for Information Interchange.	X3.27-1969 Magnetic Tape Labels for Information Interchange	
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MEDIA, MAGNETIC TAPE

R961 Implementation of the 6 and 7-Bit Coded Character Sets on 7-Track 12.7 mm (1/2 in) Magnetic Tape.	RS-346 Type A Hubs and Reels for Magnetic Tape	
ISO 962 Implementation of the 7-Bit Coded Character Set on 9-Track, 12.7 mm (1/2 in) Magnetic Tape.		
R1858 General Purpose Hubs and Reels with 76 mm (3 in.) Centrehole for Magnetic Tape Used in Interchange Information Applications		

FIPS PUB 12-2

MEDIA, MAGNETIC TAPE—Continued

ISO Recommendation or Draft Recommendation	Related National Standard	Related Federal Standard (FIPS)
R1859 Unrecorded Magnetic Tapes for Instrumentation Applications—General Dimensional Requirements		
R1860 Precision Reels for Magnetic Tape Used In Interchange Instrumentation Applications.		
R1861 7-Track 8 rpmm (200 rpi) Magnetic Tape for Information Interchange.		
R1862 9-Track 8 rpmm (200 rpi) Magnetic Tape for Information Interchange.	X3.14-1973 Recorded Magnetic Tape for Information Interchange (200 CPI, NRZI)	
R1863 9-Track 32 rpmm (800 rpi) Magnetic Tape for Information Interchange.	X3.22-1973 Recorded Magnetic Tape for Information Interchange (800 CPI, NRZI)	FIPS PUB 3-1 Recorded Magnetic Tape for Information Interchange (800 CPI, NRZI)
R1864 Unrecorded Magnetic Tape for Information Interchange, 8 and 32 rpmm (200 and 800 rpi), NRZI, and 63 rpmm (1600 rpi), Phase-Encoded.	X3.40-1973 Unrecorded Magnetic Tape for Information Interchange (9-Track 200 and 800 CPI, NRZI, and 1600 CPI, P.E.)	
ISO 2690 Unrecorded Magnetic Tape for Instrument Applications—Physical Properties and Test Methods.		
DIS2864 Interchangeable Magnetic Six-Disk Pack Physical and Magnetic Requirements	X3.39-1973 Recorded Magnetic Tape for Information Interchange (1600 CPI, P.E.)	FIPS PUB 25 Recorded Magnetic Tape for Information Interchange (1600 CPI, Phase Encoded)

MEDIA, PERFORATED TAPE

ISO 1113 Representation of 6 and 7-Bit Coded Character Sets on Punched Tape.	X3.6-1965 Perforated Tape Code for Information Interchange	FIPS PUB 2 Perforated Tape Code for Information Interchange
ISO 1154 Dimensions for Punched Paper Tape for Data Interchange.	X3.18-1967 One-Inch Perforated Paper Tape for Information Interchange X3.19-1967 Eleven-Sixteenths Inch Perforated Paper Tape for Information Interchange	FIPS PUB 26 One-Inch Perforated Paper Tape for Information Interchange
ISO 1729 Properties of Unpunched Paper Tape.	X3.29-1971 Specifications for Properties of Unpunched Oiled Paper Perforator Tape	
ISO 2195 Data Interchange on Rolled-Up Punched Paper Tape—General Requirements	X3.20-1967 Take-Up Reels for One-Inch Perforated Tape for Information Interchange	FIPS PUB 27 Take-Up Reels for One-Inch Perforated Tape for Information Interchange

MEDIA, PUNCHED CARDS

ISO 1679 Representation of ISO 7-Bit Coded Character Set on 12-Row Punched Cards.	X3.26-1969 Hollerith Punched Card Code	FIPS PUB 14 Hollerith Punched Card Code
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MEDIA, PUNCHED CARDS—Continued

ISO Recommendation or Draft Recommendation	Related National Standard	Related Federal Standard (FIPS)
ISO 1681 Specifications for Unpunched Paper Cards.	X3.11-1969 Specification for General Purpose Paper Cards for Information Processing	
ISO 1682 Dimensions and Locations of Rectangular Punched Holes in 80 Columns Punched Paper Cards.	X3.21-1967 Rectangular Holes in 12-Row Punched Cards	FIPS PUB 13 Rectangular Holes in Twelve-Row Punched Cards
R2021 Representation of 8-Bit Patterns on 12-Row Punched Cards.		
NUMERICAL CONTROL		
ISO 840 Code for the Numerical Control of Machines. (compatible with the ISO 7-Bit Code).	RS-358 Subset of USA Standard Code For Information Interchange for Numerical Machine Control Perforated Tape	
ISO 841 Axis and Motion Nomenclature for Numerically Controlled Machines.	RS-267-A Same Title	
R1056 Punched Tape Block Formats for the Numerical Control of Machines—Coding of Preparatory Functions G and Miscellaneous Functions M.		
ISO 1057 Interchangeable Punched Tape Variable Block Format for Positioning and Straight-Cut Numerically Controlled Machines.	RS-273-A Same Title Except "Perforated" for "Punched"	
ISO 1058 Punched Tape Variable Block Format for Positioning and Straight-Cut Numerically Controlled Machines.		
ISO 1059 Punched Tape Fixed Block Format for Positioning and Straight-Cut Numerically Controlled Machines.	RS-326-A Interchangeable Perforated Tape Fixed Block Format for Positioning and Straight-Cut Numerically Controlled Machines	
DIS2539 Punched Tape Variable Block Format For Contouring and Contouring/Positioning of Numerically Controlled Machines		
DIS2972 Symbols for Numerically Controlled Machine Tools		
PROGRAMMING LANGUAGES		
R1538 Programming Language ALGOL.		
R1539 Programming Language FORTRAN.	X3.9-1966 FORTRAN X3.10-1966 Basic FORTRAN	
DIS1672 Hardware Representation of ALGOL Basic Symbols.		
R1989 Programming Language COBOL.	X3.23-1968 COBOL	FIPS PUB 21 (Common Business Oriented Language (COBOL))

¹ Approved American National Standards and ISO Recommendations are available from the American National Standards Institute, 1430 Broadway, New York, N.Y. 10018. Catalog available on request.
Procedures for obtaining Federal Information Processing Standards (FIPS) are contained in Appendix A of this INDEX.

4. Federal Policy and Procedural Guideline Documents

4.1. Public Law 89-306 (Brooks Bill), dated October 30, 1965

Public Law 89-306
89th Congress, H. R. 4845
October 30, 1965

An Act

79 STAT. 1127

To provide for the economic and efficient purchase, lease, maintenance, operation, and utilization of automatic data processing equipment by Federal departments and agencies.

Be it enacted by the Senate and House of Representatives of the United States of America in Congress assembled, That title I of the Federal Property and Administrative Services Act of 1949 (63 Stat. 377), as amended, is hereby amended by adding a new section to read as follows:

"AUTOMATIC DATA PROCESSING EQUIPMENT"

"SEC. 111. (a) The Administrator is authorized and directed to coordinate and provide for the economic and efficient purchase, lease, and maintenance of automatic data processing equipment by Federal agencies.

"(b) (1) Automatic data processing equipment suitable for efficient and effective use by Federal agencies shall be provided by the Administrator through purchase, lease, transfer of equipment from other Federal agencies, or otherwise, and the Administrator is authorized and directed to provide by contract or otherwise for the maintenance and repair of such equipment. In carrying out his responsibilities under this section the Administrator is authorized to transfer automatic data processing equipment between Federal agencies, to provide for joint utilization of such equipment by two or more Federal agencies, and to establish and operate equipment pools and data processing centers for the use of two or more such agencies when necessary for its most efficient and effective utilization.

"(2) The Administrator may delegate to one or more Federal agencies authority to operate automatic data processing equipment pools and automatic data processing centers, and to lease, purchase, or maintain individual automatic data processing systems or specific units of equipment, including such equipment used in automatic data processing pools and automatic data processing centers, when such action is determined by the Administrator to be necessary for the economy and efficiency of operations, or when such action is essential to national defense or national security. The Administrator may delegate to one or more Federal agencies authority to lease, purchase, or maintain automatic data processing equipment to the extent to which he determines such action to be necessary and desirable to allow for the orderly implementation of a program for the utilization of such equipment.

"(c) There is hereby authorized to be established on the books of the Treasury an automatic data processing fund, which shall be available without fiscal year limitation for expenses, including personal services, other costs, and the procurement by lease, purchase, transfer, or otherwise of equipment, maintenance, and repair of such equipment by contract or otherwise, necessary for the efficient coordination, operation, utilization of such equipment by and for Federal agencies: Provided, That a report of equipment inventory, utilization, and acquisitions, together with an account of receipts, disbursements, and transfers to miscellaneous receipts, under this authorization shall be made annually in connection with the budget estimates to the Director of the Bureau of the Budget and to the Congress, and the inclusion in appropriation acts of provisions regulating the operation of the automatic data processing fund, or limiting the expenditures therefrom, is hereby authorized.

"(d) There are authorized to be appropriated to said fund such sums as may be required which, together with the value, as determined by the Administrator of supplies and equipment from time to time transferred to the Administrator, shall constitute the capital of the fund: Provided, That said fund shall be credited with (1) advances and reimbursements from available appropriations and funds of any agency (including the General Services Administration), organization, or contractor utilizing such equipment and services rendered them, at rates determined by the Administrator to approximate the costs thereof met by the fund (including depreciation of equipment, provision for accrued leave, and for amortization of installation costs, but excluding, in the determination of rates prior to the fiscal year 1967, such direct operating expenses as may be directly appropriated for, which expenses may be

charged to the fund and covered by advances or reimbursements from such direct appropriations) and (2) refunds or recoveries resulting from operations of the fund, including the net proceeds of disposal of excess or surplus personal property and receipts from carriers and others for loss of or damage to property: Provided further, That following the close of each fiscal year any net income, after making provisions for prior year losses, if any, shall be transferred to the Treasury of the United States as miscellaneous receipts.

“(e) The proviso following paragraph (4) in section 201 (a) of this Act and the provisions of section 602 (d) of this Act shall have no application in the administration of this section. No other provisions of this Act or any other Act which is inconsistent with the provisions of this section shall be applicable in the administration of this section.

“(f) The Secretary of Commerce is authorized (1) to provide agencies, and the Administrator of General Services in the exercise of the authority delegated in this section, with scientific and technological advisory services relating to automatic data processing and related systems, and (2) to make appropriate recommendations to the President relating to the establishment of uniform Federal automatic data processing standards. The Secretary of Commerce is authorized to undertake the necessary research in the sciences and technologies of automatic data processing computer and related systems, as may be required under provisions of this subsection.

“(g) The authority conferred upon the Administrator and the Secretary of Commerce by this section shall be exercised subject to direction by the President and to fiscal and policy control exercised by the Bureau of the Budget. Authority so conferred upon the Administrator shall not be so construed as to impair or interfere with the determination by agencies of their individual automatic data processing equipment requirements, including the development of specifications for and the selection of the types and configurations of equipment needed. The Administrator shall not interfere with, or attempt to control in any way, the use made of automatic data processing equipment or components thereof by any agency. The Administrator shall provide adequate notice to all agencies and other users concerned with respect to each proposed determination specifically affecting them or the automatic data processing equipment or components used by them. In the absence of mutual agreement between the Administrator and the agency or user concerned, such proposed determinations shall be subject to review and decision by the Bureau of the Budget unless the President otherwise directs.”

Approved October 30, 1965

**4.1.1. Memorandum for the Director, Office of Management and Budget,
Presidential Letter dated April 30, 1971**

THE WHITE HOUSE
WASHINGTON

April 30, 1971

MEMORANDUM FOR THE DIRECTOR,
OFFICE OF MANAGEMENT AND BUDGET

The Director of the Office of Management and Budget is hereby authorized and empowered to act finally, on behalf of the President, upon the recommendations provided for in Section 111 (f) (2) of the Federal Property and Administrative Services Act of 1949, as amended (40 U.S.C. 759 (f) (2)), concerning the establishment of automatic data processing standards for use by Federal agencies.

If, in any particular instance, the Director deems it appropriate to do so, he may submit such recommendations for my approval.

The Federal standards approved under this authority are intended to improve the Government's effectiveness in the use of automatic data processing systems. I expect that Federal agencies will apply these standards whenever their use will lead to greater operational efficiency and reduced costs.

This memorandum shall be published in the *Federal Register*.

Richard Nixon

4.2. Policy Guidance to the Department of Commerce (National Bureau of Standards) in the Implementation of P.L. 89-306, OMB Letter dated December 15, 1966

EXECUTIVE OFFICE OF THE PRESIDENT

BUREAU OF THE BUDGET
WASHINGTON, D.C. 20503

December 15, 1966

Honorable John T. Connor
Secretary of Commerce
Washington, D.C. 20230

Dear Jack:

Under the terms of Public Law 89-306 (the Brooks bill) the authority vested in the Secretary of Commerce is made subject to "direction by the President and to fiscal and policy control by the Bureau of the Budget" (Section 111(g)). Accordingly, our respective staffs have collaborated in the development of a policy guidance paper for the Department of Commerce (National Bureau of Standards) efforts under the legislation.

The policy guidance paper, which has been agreed to at the staff levels, is enclosed. It has my approval.

It is widely recognized that major hindrances to improving the use of ADP are the absence of: (a) standardization in character sets, input-output media, and interfaces which provide for compatible interchange of information and interoperation of systems and equipment, (b) standardization of computer programming languages, and (c) yardsticks for evaluating software and its effect upon the performance of the computer system. The Department should concentrate on actions which will overcome these deficiencies.

We recognize that as the computer technology evolves and as user interests and needs change, the problems related to effective ADP management will accordingly change. It is therefore necessary that this policy guidance document be subject to continuing review.

The complexities and interrelationships among these problems also require that all actions taken by the Department of Commerce, General Services Administration, and the Bureau of the Budget be closely coordinated and also include full consideration of the viewpoints of the using agencies. The Federal ADP Advisory Council and the Interagency Committee on ADP will serve as principal means for obtaining the views of the using agencies. We are confident that these cooperative efforts will result in an effective action program to achieve improved ADP management.

Sincerely,

Phillip S. Hughes
Acting Director

Enclosure

**Policy Guidance to the Department of Commerce
(National Bureau of Standards)
In the Implementation of P.L. 89-306**

Basic Policy

The provisions of P.L. 89-306 will be administered in a manner that is consistent with the prime objective of encouraging the use of ADP by Government agencies to achieve greater productivity and reduced costs in the discharge of their respective agency program responsibilities.

P.L. 89-306 provides that the Secretary of Commerce is authorized (1) to provide agencies, and the Administrator of General Services in the exercise of the authority delegated, with scientific and technological advisory services relating to automatic data processing and related systems, and (2) to make appropriate recommendations to the President relating to the establishment of uniform Federal automatic data processing standards. The Secretary of Commerce is authorized to undertake the necessary research in the sciences and technologies of automatic data processing computers and related systems as may be required.

Responsibility for carrying out these functions for the Secretary has been assigned to the Center for Computer Sciences and Technology, an organization within the Institute for Applied Technology, National Bureau of Standards.

In carrying out its responsibilities, the Center should maximize the utilization of existing capabilities and facilities even when they reside in agencies not specifically identified in P.L. 89-306.

The interrelationships among the central management agencies identified in P.L. 89-306 and the using agencies, coupled with the dynamic nature of the ADP technology, require that a special effort be made to expedite policy development and implementation. Therefore, direct working relationships will be maintained among the Center, the ADP Management Branch of the Bureau of the Budget, and the Office of Automated Data Management Services of the General Services Administration. Among the means to be employed for extensive coordination with the using agencies are the Federal ADP Advisory Council and the Interagency Committee on ADP.

Initial Guidelines

Initial guidelines for specific actions to be taken in certain areas are:

A. Advisory and Consulting Services

The Center will provide scientific and technological advisory and consulting services to executive agencies on automatic data processing. Upon request of Federal agencies, the Center will, to the extent possible, provide direct assistance on specific projects and monitor the technical performance of commercial consulting contracts. In addition, the Center will:

1. Provide guidelines for use by agencies in conducting systems studies, including consideration of systems interrelationships.

2. Provide guidelines and methods for monitoring the performance of systems studies and for implementing the results of such studies.

3. Provide criteria to assist in evaluating software and hardware developments that may be considered during the systems studies.

4. Provide technical guidelines for preparing solicitations of proposals, including the specification of system requirements.

5. Provide guidelines, criteria and techniques for evaluating and selecting equipment and related software, giving priority emphasis to criteria for measuring the effectiveness and efficiency of software. Data on this subject will also be furnished to GSA for consideration in the procurement of computers.

6. Maintain a reference index of computer programs to minimize the need for the development of programs already developed, tested and in use elsewhere.

7. Provide guidelines for evaluating installation and systems performance on a continuing basis.

The Center will keep abreast of the state-of-the-art developments in ADP equipment, techniques and languages and will evaluate these developments in terms of their current or potential impact upon the Government's use of equipment and software and its ADP management policies. Findings in this regard will be made known promptly to the Bureau of the Budget.

It is essential for NBS staff who are consulting with agencies in system design to be fully aware of on-going system developments, whether performed in-house or under contract for other Government agencies. In this connection, a study should be made and reported to the Bureau of the Budget soon after January 1, 1967 to explore the feasibility of developing a system by which each Federal agency would keep the NBS informed of all ADP system design study projects. In addition to the possibility of NBS maintaining a current index of projects in progress, consideration should be given to requiring agencies to provide to NBS, for a central reference file, copies of the reports of such information systems studies.

B. Development of Voluntary Commercial Standards

The Center will provide day-to-day guidance and monitorship of an executive branch program to promote the development and testing of voluntary commercial standards for automatic data processing equipment, techniques and computer languages. This responsibility currently excludes standards for data elements and codes.

In this role, the Center will:

1. Participate in activities of the X3 Committee on Information Processing of the United States of America Standards Institute, its subcommittees and task forces, and in activities of the International Standards Organization as requested by the USASI.

2. Arrange and insure appropriate representation and active participation from other Federal agencies on the X3 Committee, subcommittees and task forces to complement the Center's participation with additional expertise from the operating environments of the Government, and

3. Monitor and coordinate all such participation by all Federal agencies to assure its consistency with the Federal Government's objectives.

Prior to casting an official ballot on proposals under consideration by the X3 Committee, the Center will consider the views of interested Federal agencies, assuring that the probable impact of the subject standard is properly explored and understood.

In its research and development activities, the Center will make available to the various X3 groups its findings and conclusions for use in their deliberations. Care will be exercised to insure that all Government representatives participating in such X3 deliberations are kept currently informed of related standardization activities so that they may reflect so far as practicable known Government requirements.

C. Recommendations for Uniform Federal Standards

The Center will undertake to increase compatibility in automatic data processing in the Federal Government by recommending Federal standards related to automatic data processing equipment, techniques and computer languages. This responsibility currently excludes standards for data elements and codes, but the Center will provide technical advice and assistance upon request to groups developing recommendations for such standards.

In fulfilling this role, the Center will:

1. Immediately begin to develop, issue and maintain a statement of the Federal Government's standardization objectives and needs. The statement is intended to guide the orderly and logical pursuit of standardization in ways that are compatible with identified Federal interests.

2. Survey and keep abreast of ADP standardization activities within the Federal Government, the USASI, and elsewhere, and initiate and promote activities as necessary to achieve the Government's objectives.

3. Study and provide recommendations for Federal ADP standards.

4. Study and provide recommendations on the use within the Federal Government of each appropriate United States Standard approved by the United States of America Standards Institute in the area of ADP equipment, computer languages and techniques (excluding data elements and codes).

5. To the extent feasible and desirable, develop and recommend means for measuring compliance with Federal standards.

6. Provide for technical maintenance of Federal ADP standards.

7. Recommend procedures to be used in the Federal Government for adopting Federal standards and developing and implementing plans therefor.

Recommendations for Federal standards will be transmitted through the Secretary of Commerce to the Bureau of the Budget. Such communications will include (1) a statement of purposes to be served by the standard, (2) an assessment of its probable economic and technological impacts, (3) a summary of agency and industry comments that were considered in the formulation of the recommendation, (4) a reference to applicable methods for measuring compliance with the standards, (5) areas for recommended application, and (6) planning guidance for development of implementation schedules in each agency.

In the development of Federal standards, the Center will communicate and work closely with all Federal agencies (and with manufacturers, private industry, and State and local governments when required and advantageous) to assure proper consideration of their needs and views and to obtain their cooperation in the development process.

D. Research on Computer Sciences and Techniques

The Center will sponsor, monitor and undertake research and development activities in the computer and information sciences and technologies, including system design, oriented primarily toward Government application.

The Center will maintain current awareness of on-going basic and applied research and development activities conducted by other agencies, by Federally-sponsored contractors and grantees, and by the private sector of the economy. The Center will also develop means for making such activities known and the results, including appropriate evaluations, available to Federal agencies for their benefit. In carrying out the necessary research and development as required in support of statutory responsibilities for providing scientific and technical advisory services to other agencies and for developing Federal automatic data processing standards and preferred conventions of common practice, the Center will obviously refrain from duplicating or interfering with the research of user agencies. However, the Center will collaborate in the research and development programs of other agencies as appropriate, upon request.

Research activities of the Center will be directed primarily toward areas that give promise of satisfying widespread needs within the Federal Government and that offer prospects for significant improvements over existing capabilities. In particular, research and development activities will be sponsored or undertaken by the Center, as appropriate, for the following purposes:

1. To supplement agency research efforts when necessary to meet Government-wide requirements or to provide solutions to problems of concern to several different agencies.

2. To initiate efforts to solve large-scale and difficult problems sufficiently unique to special needs of Government that outside interests are not likely to undertake vigorous and timely action.

3. To evaluate and apply advanced concepts to the development, organization and implementation of automatic data processing, computer and related systems, including the innovation or extension of techniques needed for improved cost effectiveness in the conduct of agency programs through the use of computers and related techniques.

4. To conduct exploratory research in order to provide the technological bases for future standardization activities and to maintain the competence of the technical staff engaged in technical advisory services, testing and evaluation, and standardization activities.

5. To identify continuing research and development requirements for use by the Center, other agencies, academic and other organizations and industry in planning and coordinating R and D programs in the area of the computer and information sciences and technology.

An annual review of the accomplishments of and programs for research in computer sciences and techniques should be conducted with the Bureau of the Budget, Office of Science and Technology, and other Government agencies engaged in or sponsoring research in computer sciences to assess accomplishments and to provide guidance for programs.

E. Computer Services

The Center will operate a computer service activity to meet the needs of the National Bureau of Standards and upon request to furnish services including problem diagnosis, systems design, programming and related support activities to Federal agencies on a reimbursable basis.

**4.3. Policy Guidance to the General Services Administration in the Implementation of
P.L. 89-306, OMB Letter dated May 4, 1966**

EXECUTIVE OFFICE OF THE PRESIDENT
BUREAU OF THE BUDGET
WASHINGTON, D.C. 20503

May 4, 1966

Honorable Lawson B. Knott, Jr.
Administrator, General Services
Administration
Washington, D.C. 20405

Dear Lawson:

Your letter of February 1, 1966, requested an early meeting to discuss the implementation of PL 89-306 and enclosed a background paper to be used in such discussions. Subsequent telephone conversations between you and Mr. Harold Seidman satisfied the immediate need for that meeting and it was agreed that our respective staffs should continue their joint efforts to develop a policy guidance paper that would set the direction of GSA's efforts under the legislation.

The completed policy guidance paper, which has been agreed to at the staff levels, is enclosed. It has my approval. The paper establishes the basic premise that major changes will be based upon a careful evaluation of alternative courses of action. That evaluation will explicitly weigh the benefits obtained from each alternative (including cost reduction and avoidance) against the costs incurred. Further, implementation of approved actions should take maximum advantage of existing capabilities in lieu of creating new capabilities. We regard the relationship between equipment hardware and software as a major obstacle to improving the effective use of automatic data processing equipment in the Federal Government and therefore request that priority attention be given to this matter.

We recognize that as the computer technology, sales practices, pricing structures, and user interests change, the problem related to effective ADP management also change. It is therefore necessary that this policy guidance document remain under constant review by our staffs so that necessary adjustments to the programs are made as required.

The complexities and interrelationships among these problems also require that all actions taken by the General Services Administration, National Bureau of Standards and the Bureau of the Budget be closely coordinated and include full consideration of the viewpoints of the using agencies. The Federal ADP Council sponsored by the Bureau of the Budget will serve as a principal means for obtaining these views. We are confident that these cooperative relationships will result in an effective action program to achieve improved ADP management.

Sincerely,

Charles L. Schultze
Director

Enclosure

**Policy Guidance to the General Services Administration in the Implementation of
P.L. 89-306**

Basic Policy

The provisions of P.L. 89-306 will be administered in a manner that is consistent with the prime objective of encouraging the use of ADP by Government agencies to achieve greater productivity and reduced costs in the discharge of their program responsibilities.

P.L. 89-306 provides for three major changes in the existing ADP program. First, to improve the Government's bargaining position it provides, through GSA, for advancement of the central-purchaser concept in acquiring ADP equipment and related services. Second, it provides for ADP service centers to promote joint use, now limited to the sharing-exchange program. Third, it provides, through a revolving fund, a financial mechanism for conducting the program, including procurement and joint-use arrangements.

The implementation of these changes will be preceded by a careful study of alternative courses of action, and an evaluation of the potential impact which the selected action might have upon the prime objective stated above. These actions will recognize the specific responsibilities placed upon the using agencies by P.L. 89-306 for the determination of their ADP equipment requirements. Further, the Report on Management of Automatic Data Processing in the Federal Government, approved by the President on March 2, 1965, provided a definitive blueprint for appropriate action in management and technological matters. This blueprint will remain under constant review and be updated to give effect to changing circumstances.

Existing capabilities should be used to the maximum in accomplishing approved actions, even though such facilities may exist in agencies not specifically identified in P.L. 89-306. For example, since the ADP inventory data for the Department of Defense represents about two-thirds of the total Government volume, consideration should be given to the possibility of using DOD's processing facilities to satisfy the information requirements of the General Services Administration, Bureau of the Budget, and other agencies. Likewise the equipment selection office at Hanscom Air Force Base might be used for the selection of equipment for other agencies as it is now doing for a Commerce (Weather Bureau) computer. Procedures and reimbursement arrangements would be mutually agreed upon.

The interrelationships among using agencies and the central management agencies identified in P.L. 89-306, coupled with the dynamic nature of the ADP technology, require that a special effort be made to expedite policy development, modification, coordination and implementation. To provide a mechanism for this effort we plan to use the "Federal ADP Council." The Council will be used for consideration of certain proposed actions prior to implementation.

Initial Guidelines

Initial guidelines for specific actions to be taken in certain areas are set forth herein.

A. ADP Revolving Fund

The ADP revolving fund authorized by P.L. 89-306 shall be used to promote and facilitate the financing of arrangements for the joint use of ADP equipment and related services.

GSA will, however, explore various possibilities for enabling agencies to obtain needed data processing equipment and/or services at a reduced cost, which may lead to further uses of the fund. Among the possibilities to be studied are:

1. The establishment, operation, or monitoring the operation of ADP Service Centers in metropolitan areas or in areas where a concentration of ADP requirements exists.

2. The provision of central Government-wide system services in functional activities which are common to many or all Government agencies, such as legal retrieval systems.

3. The provision of equipment support services on a centralized or regional basis, such as maintenance, tape testing, cleaning and restoration; punch card and tape acquisition.

4. The establishment of central multiple-access computer facilities (or utilities), building upon the research and evaluation findings of the National Bureau of Standards, Department of Defense, and other agencies on the effectiveness of such systems.

5. The financing of procurements from the fund to take advantage of price reductions which have time limitations inconsistent with normal funding cycles.

The studies will include a discussion of the management and economic advantages and disadvantages expected to result from adoption of the recommendations. Studies will identify all related supporting costs.

B. Review of the ADP Procurement Process

1. GSA will evaluate the procurement processes currently employed by the Federal Government in acquiring data processing equipment or services, to determine the areas in which revised techniques, methods or practices will offer greater efficiency and economy in acquiring the end product. This evaluation will cover, among other things:

a. A determination of the appropriateness of continuing the annual negotiation of schedules for lease, purchase and maintenance of equipment and services.

b. A more precise definition of the software which the contractor agrees to supply and more specific penalty provisions for failure to deliver the promised software.

c. The possibility of procuring ADP equipment and ADP software as separate and distinct items, not necessarily from the same suppliers.

d. The possibility that additional sources of procurement should be cultivated to serve as competitive alternatives to procuring equipment or services directly from the supplier.

e. The advantages and possibilities of consolidated or other purchase arrangements for equipment to be selected by the agencies.

2. GSA will undertake a program to assist individual Federal agencies in negotiating the procurement of equipment and systems support, assuring that:

a. The Government profits in each succeeding acquisition from the experience of prior procurements and strives to acquire the data processing equipment and accompanying software, training, etc., at the minimum cost.

b. The agency determines its ADP equipment requirements, including development of systems specifications.

c. The agency determines the final selection of equipment.

d. A basis is established and maintained for containing relationships between agency and supplier after equipment is acquired.

e. Equipment available or expected to become available for redistribution is considered by agencies prior to instituting action to select new equipment.

3. In collaboration with the scientific and technological research and evaluation capabilities of NBS, GSA will develop procurement techniques which would focus upon "total systems performance" in lieu of product capability.

C. Redistribution of Excess Equipment

1. Although excess ADP equipment will be used to the maximum extent in meeting legitimate approved agency needs, computers should not be used by agencies for work that is not essential to the agency mission. The Bureau of the Budget will require that the same criteria are used in acquiring "excess" equipment that apply to new equipment.

2. GSA will extend and intensify its program to effect the redistribution of excess equipment within the Government (including its cost-type contractors) whenever practicable. In particular, GSA will (a) review existing processes for obtaining and circularizing information regarding equipment availability and institute improvements as necessary, (b) seek and evaluate reasons why equipments are unclaimed by agencies, as a basis for improving the effectiveness of the redistribution program, (c) initiate and cultivate working contracts with agencies to assist them in arranging for the use of suitable excess equipment in lieu of acquiring additional equipment whenever economically feasible, and (d) initiate steps to assist agencies in achieving economics by substituting excess owned equipment for similar equipment being rented or leased.

3. GSA will maintain a continuous review of potential excesses in various categories of Government-owned equipment, and will inform agencies when such excesses are sufficiently imminent (a) to be considered in determining the need for soliciting industry or (b) to warrant only the temporary rental of additional equipment (in lieu of purchase) until the excess equipment is available for redistribution.

D. Source Data Automation

GSA, through the National Archives and Records Service, will continue its program for developing and encouraging the use of source data automation techniques by Government agencies.

E. Information Systems

Work has been in progress within the Bureau of the Budget to develop an information system which will meet the requirements of central agencies, agency or sub-agency management and the operating activities. The central agencies and the principal using agencies will participate in an evaluation and critique of the initial draft of this system (preferably through the Federal ADP Council) and the development of the framework of the final system. Thereafter, GSA will provide full time staff members to assist in the detailed design of the system, and such personnel as may be required to program, operate and maintain the system.

As an interim measure BOB Circular A-55 is being revised to provide, among other things, a December 31, 1965 inventory. From this interim action it will be possible to determine agency plans for acquisition of additional computers during the remainder of FY 66 and 67.

**4.4. Memorandum for Heads of Departments and Agencies,
Presidential Letter dated June 28,**

1966

THE WHITE HOUSE
WASHINGTON

June 28, 1966

MEMORANDUM FOR

HEADS OF DEPARTMENTS AND AGENCIES

I want the head of every Federal agency to explore and apply all possible means to

- use the electronic computer to do a better job.
- manage computer activity at the lowest possible cost.

I want my administration to give priority emphasis to both of these objectives—nothing less will suffice.

The electronic computer is having a greater impact on what the Government does and how it does it than any other product of modern technology.

The computer is making it possible to

- send men and satellites into space
- make significant strides in medical research
- add several billions of dollars to our revenue through improved tax administration
- administer the huge and complex social security and medicare programs
- manage a multi-billion dollar defense logistics system
- speed the issuance of G.I. insurance dividends, at much less cost
- save lives through better search and rescue operations
- harness atomic energy for peaceful uses
- design better but less costly highways and structures.

In short, computers are enabling us to achieve progress and benefits which a decade ago were beyond our grasp.

The technology is available. Its potential for good has been amply demonstrated, but it remains to be tapped in fuller measure.

I am determined that we take advantage of this technology by using it imaginatively to accomplish worthwhile purposes.

I therefore want every agency head to give thorough study to new ways in which the electronic computer might be used to

- provide better service to the public
- improve agency performance
- reduce costs.

But, as we use computers to achieve those benefits, I want these activities managed at the lowest possible cost.

At the present time, the Federal Government

- uses 2,600 computers
- employs 71,000 people in this activity
- spends over \$2 billion annually to acquire and operate this equipment, including special military type computers.

Clearly, we must devote our best efforts to managing this large investment wisely and with the least cost.

I approved a blueprint for action when I approved the Bureau of the Budget "Report on Management of ADP in the Government."

The Congress recognized this need when it enacted Public Law 89-306 (the Brooks Bill) last October. This legislation provided specific authorities to

- the General Services Administration, for the procurement, utilization and disposition of automatic data processing equipment
- the Department of Commerce, for the development of data processing standards and the provision of assistance to agencies in designing computer-based systems
- the Bureau of the Budget, for exercising policy and fiscal control over the implementation of these authorities.

These agencies are seeking actively to put into effect ways for improving and reducing the cost of this huge and complex operation.

In my Budget Message for 1967 I told the Congress of my intent to make sure that this huge investment is managed efficiently.

The Federal Government must give priority attention to

- establishing better and more effective procurement methods
- making fuller use of existing facilities through sharing and joint-use arrangements before acquiring additional equipment
- re-utilizing excess equipment whenever feasible
- achieving, with industry cooperation, greater compatibility of equipment.

I expect all agencies to cooperate fully with the Bureau of the Budget, the General Services Administration, and the Department of Commerce in accomplishing these objectives.

I want the Director of the Bureau of the Budget to report to me on December 31, 1966, and every six months thereafter, on the progress that is being made throughout the Federal Government in improving the management of this very important technology.

Lyndon B. Johnson

4.5. Executive Order 11717 dated May 9, 1973

THE PRESIDENT

EXECUTIVE ORDER 11717

Transferring Certain Functions From the Office of Management and Budget to the General Services Administration and the Department of Commerce.

By virtue of the authority vested in me as President by the Constitution and Statutes of the United States, particularly by section 301 of title 3 of the United States Code, the Federal Property and Administrative Services Act of 1949, as amended, the Budget and Accounting Act, 1921, as amended, the Budget and Accounting Procedures Act of 1950, as amended, and Reorganization Plan No. 2 of 1970, it is hereby ordered as follows:

Section 1. There are hereby transferred to the Administrator of General Services all functions that were being performed in the Office of Management and Budget on April 13, 1973 by:

(1) the Financial Management Branch, the Procurement and Property Management Branch, and the Management Systems Branch of the Organization and Management Systems Division; and

(2) the Management Information and Computer Systems Division with respect to policy control over automatic data processing (except those functions relating to the establishment of Government-wide automatic data processing standards).

Sec. 2. There are hereby transferred to the Secretary of Commerce all functions being performed on the date of this order in the Office of Management and Budget relating to the establishment of Government-wide automatic data processing standards, including the function of approving standards on behalf of the President pursuant to section 111(f)(2) of the Federal Property and Administrative Services Act of 1949, as amended.

Sec. 3. (a) The functions transferred to the Administrator of the General Services Administration and to the Secretary of Commerce by this order do not include those performed in connection with the general oversight responsibilities of the Director of the Office of Management and Budget, as the head of that agency and as Assistant to the President for executive management, and the functions transferred by this order shall be performed subject to such general oversight to the same extent that other functions of the General Services Administration and the Department of Commerce, respectively, are so performed.

(b) The functions vested in the President by the first sentence of section 111(g) of the Federal Property and Administrative Services Act of 1949, as amended, with respect to fiscal control of automatic data processing activities shall continue to be performed by the Director of the Office of Management and Budget. No function vested by statute in the Director shall be deemed to be affected by the provisions of this order.

Sec. 4. So much of the personnel, property, records and unexpended balances of appropriations, allocations, and other funds employed, used, held, available, or to be made available, in connection with the functions transferred by this order as the Director of the Office of Management and Budget shall determine, shall be transferred to the Department of Commerce and the General Services Administration, respectively, at such times as the Director shall specify.

Sec. 5. Executive Order No. 11541 of July 1, 1970, is hereby superseded to the extent that it is inconsistent with this order.

Sec. 6. This order shall be effective as of April 15, 1973.

Richard Nixon

THE WHITE HOUSE,

May 9, 1973.

4.6. Memorandum to the Heads of Executive Departments and Establishments on Standardization of Data Elements and Codes in Data Systems

August 29, 1973

RESCISSION
CIRCULAR No. A-86

TO THE HEADS OF EXECUTIVE DEPARTMENTS AND ESTABLISHMENTS

SUBJECT: Standardization of data elements and codes in data systems

OMB Circular No. A-86, Standardization of data elements and codes in data systems is hereby rescinded.

Responsibilities of the Office of Management and Budget with respect to government-wide automatic data processing standards were transferred to the Secretary of Commerce by Executive Order 11717 dated May 9, 1973.

Revised policies and procedures in regard to standardization of data elements and codes will be issued by the Department of Commerce.

ROY L. ASH
DIRECTOR

4.7. Standardization of Data Elements and Representations, Part 6 of Title 15 CFR (Code of Federal Regulations)

Title 15—Commerce and Foreign Trade

SUBTITLE A—OFFICE OF THE SECRETARY OF COMMERCE

PART 6—STANDARDIZATION OF DATA ELEMENTS AND REPRESENTATIONS

Subtitle A of Title 15 of the Code of Federal Regulations is amended by adding a new Part 6, reading as follows:

PART 6—STANDARDIZATION OF DATA ELEMENTS AND REPRESENTATIONS

<i>Sec.</i>	<i>Sec.</i>
6.1 Purpose	6.7 Responsibilities
6.2 Background	6.8 Exceptions, Deferrals and Revisions of Federal Standards
6.3 Objectives	6.9 Effect On Previously Issued Standards
6.4 Glossary	Appendix A—Glossary
6.5 Types of Standards	
6.6 Policies	

AUTHORITY: The provisions of this Part 6 issued under 79 Stat. 1127; Executive Order 11717, dated May 9, 1973 (38 FR 12315, dated May 11, 1973).

§6.1 Purpose

The purpose of this Part is to implement the provisions of Section 111 (f) (2) of the Federal Property and Administrative Services Act of 1949, as amended (79 Stat. 1127) and Executive Order 11717 of May 9, 1973 (38 FR 12315, dated May 11, 1973). It supersedes and replaces in its entirety Office of Management and Budget Circular A-86 entitled, "Standardization of data elements and codes in data systems", dated September 30, 1967. Office of Management and Budget Circular No. A-86 was rescinded by the Director of Office of Management and Budget on August 29, 1973.

This Part identifies responsibilities and provides policies and guidelines for the management of activities in the Executive Branch relating to the development, implementation and maintenance of standards for data elements and representations used in automated Federal data systems. Its provisions complement the standards and recommendations that have been or may be issued under the statistical procedures prescribed by Office of Management and Budget Circular A-46.

§6.2 Background

Recent advances in computer and communications technologies have made possible the wider use of data and programs that are developed or generated to meet mission requirements of Federal departments, agencies, and activities. While the extended use of these data and programs can contribute to reduced costs in Government operations and improved services, the full advantages of these new technical capabilities cannot be realized until standards are developed and implemented which will provide for the uniform identification, definition and representation of data. These standards for data must also be accompanied by supporting standards for representing graphic characters (alphabets, numbers, and other symbols), communications and device controls. In addition, it is essential to have standards that provide for interchangeable media (e.g., tapes, cassettes and disks) covering both physical and logical specifications.

There is an ever increasing need to interchange data and programs with state, local and other governments, and with industry and the public. This adds further emphasis and dimension to the need for responsive standards that will facilitate interchange.

This Part defines a Federal-wide program for standardizing data elements and representations which are used and interchanged in Government data systems. Other approved standards and guidelines issued by the National Bureau of Standards in the Federal Information Processing Standards series of publications address related ADP subjects and areas.

§6.3 Objectives

The principal goal in standardizing data elements and representations is to make maximum utilization of the data resources of the Federal Government and to avoid unnecessary duplications and incompatibilities in the collection, processing, and dissemination of data.

§6.4 Glossary

Appendix A of this Part provides a glossary of terms as used in this Part and in descriptions of data.

§6.5 Types of Standards

For the purposes of this Part, the following types of practices and standards are identified for data elements and representations:

(a) De facto Practices. Those data elements and representations in current use that have not been subjected to official or formal standardization.

(b) Unit Standards. Those data elements and representations that have been approved by an authorized official for use within that unit. (A unit for purposes of this Part is any Federal organization within the executive branch of the Government, which is at a lower organizational level than an executive department or independent agency).

(c) Agency Standards. Those data elements and representations that have been approved by an authorized official for use within an executive department or independent agency.

(d) Federal Program Standards. Those data elements and representations that have been approved by the Secretary of Commerce for use in a particular program or mission where more than one executive branch department or independent agency is involved with their use. For example, those standards that could be approved and prescribed for use are those which include, but are not limited to, Federal-wide personnel, communications and transportation data systems.

(e) Federal General Standards. Those representations that have been approved by the Secretary of Commerce for Federal-wide use by executive departments and independent agencies in all Federal-wide programs and for use in all Federal data systems. For example, this includes such representations as calendar dates, state abbreviations and codes, and codes for standard metropolitan statistical areas.

(f) American National Standards. Those data elements and representations that have been approved for voluntary national use by the American National Standards Institute.

(g) International Standards. Those data elements and representations that have been approved by the International Organization for Standardization (ISO), for voluntary use by member nations and international organizations.

§6.6 Policies

The following policies apply to the development, implementation, and maintenance of data elements and representations standards:

(a) Data Elements and representations that are prescribed for interchange among more than one executive department or agency or with the private sector including industry, state, local, or other Governments, or with the public at large will be considered for standardization as either Federal general or Federal program standards.

(b) Federal general standards are the highest level standards followed by Federal program standards, agency standards and unit standards in that order. This order establishes a precedence for standards use. For example, a Federal general standard will be used and will supplant a Federal program, agency or unit standard. Likewise a Federal program standard takes precedence over an agency or unit standard.

(c) Approved standards will be implemented by all Federal agencies in all circumstances where technical, operating and economic benefits can be expected to result.

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These standards will be considered on the basis of their long term benefits and advantages to the Government at large. Local inconveniences or short-term conversion costs need to be recognized, but such factors will not be considered overriding deterrents to the development, implementation, and maintenance of standards that are capable of reducing overall government operating costs or providing improved Government services.

(d) Existing standards will be considered for adoption as Federal general or program standards when these are determined to meet Federal requirements or can readily be adapted to do so.

(e) Approved standards and revisions thereto will be implemented on a time phased basis in order to minimize disruption and conversion costs. Conversion costs will be identified and considered in the submissions of annual budget estimates.

(f) Although data element and representation standards are developed and implemented to provide for the effective interchange and processing of data, Federal departments and agencies must comply with applicable statutes, regulations and executive orders to assure that sensitive or classified data are adequately protected and that only authorized disclosure or release of such data is allowed.

(g) In the formulation of standards for data elements and representations which will have implementation impact on state and local governments, industry or other segments of the private sector, arrangements will be made to establish necessary liaisons and coordinations with these interests to consider their needs and potential problems in responding to Federally imposed reporting requirements.

§6.7 Responsibilities

Responsibilities for the standardization of data elements and representations are outlined below:

(a) **Department of Commerce.** The Department of Commerce will provide leadership of an executive branch program for standardizing data elements and representations. Within the Department the following specific responsibilities are assigned:

(1) **Secretary of Commerce.** The Secretary of Commerce, on behalf of the President, approves all Federal Information Processing Standards. For data elements and representations, this approval will include both Federal general and Federal program standards.

(2) **National Bureau of Standards.** The National Bureau of Standards will:

(i) Arrange with appropriate executive branch departments and independent agencies to assume leadership and undertake responsibilities for the development and maintenance of specific Federal program and Federal general standards.

(ii) Arrange for the publication and promulgation of approved Federal general and Federal program standards. These will be promulgated by the National Bureau of Standards as Federal Information Processing Standards. The responsibility under this subparagraph includes the authority to modify or supersede these standards whether issued under this regulation or prior to the effective date of this regulation.

(iii) Maintain and promulgate selected registers of data element and representation standards and practices that are under development or are in current use.

(iv) Provide procedures, guidelines and criteria to assist Federal departments and agencies in the development, implementation, and maintenance of standards.

(v) Provide technical assistance, as requested and within the limits of available resources to Federal departments and agencies on matters concerning the utilization of automatic data processing and standardization.

(vi) Arrange for the assessment of the need, impact, benefits and problems related to the implementation of proposed and approved standards.

(vii) Coordinate requests for exceptions to and deferments on the implementation of approved Federal standards.

(viii) Arrange for and coordinate appropriate Federal representation and participation on voluntary industry committees.

(ix) Arrange for appropriate liaison with state, local and other governments on matters of mutual interest or concern relating to Federal development, implementation, and maintenance of standards.

(b) Departments and Independent Agencies. Each of these organizations will:

(1) Implement approved Federal standards that are announced under the provisions of this Part and assist the National Bureau of Standards in the assessment of the need, impact, benefits and problems related to the implementation of approved standards.

(2) Assume leadership and support of responsibilities for the development of Federal general and Federal program standards as may be mutually arranged by the National Bureau of Standards.

(3) Establish within their organizations, mechanisms for the development, implementation and maintenance of agency and unit standards where such efforts will contribute to reduced costs or improved services.

(4) Establish appropriate procedures and mechanisms within their organizations for the dissemination and implementation of approved Federal standards.

(5) Review and provide information and comments on proposed standards that are being considered for Federal adoption. This includes the analyses necessary to assess implementation impact and potential savings or improved services.

(6) Prepare and submit selected registers of data elements and representations within the data systems of the department or agency as may be arranged by the National Bureau of Standards. These registers will be used as a source reference to avoid duplication in the design of new data elements and representations and to assist in determining possible subjects for future standardization.

(7) Provide participation on committees and task groups that may be formed to develop and maintain Federal general or Federal program standards.

(8) Provide participation, as requested by the National Bureau of Standards, on committees and task groups that may be formed to develop and maintain voluntary industry standards for use nationally and internationally.

(9) Designate an office or official to act as a single point of contact on matters related to this Part.

§6.8 Exceptions, Deferments, and Revisions of Federal Standards

Requests for exceptions, deferments and revisions of standards will be forwarded to the National Bureau of Standards for consideration and/coordination. These requests will provide detailed justification for the exception, deferment or revision deemed necessary. These should be submitted at least forty-five days in advance of any exception or deferral action.

§6.9 Effect On Previously Issued Standards

All standards that were issued under the provisions of Office of Management and Budget Circular No. A-86 prior to the effective date of this regulation remain in effect unless modified or superseded pursuant to the provisions of this regulation.

APPENDIX A

GLOSSARY OF TERMS

This glossary includes definitions of terms used in this Part. Additional terms applicable to data standardization are provided for purposes of clarification. The terms and definitions are either from established vocabularies or have been defined for purposes of this Part.

Attribute Data Element—A data element that is used to qualify or quantify another data element (e.g., “Date of Birth” and “Mailing Address” would be attribute data elements in a personnel file where the primary element(s) is/are used to identify the person).

Character Type—An indication of the type of characters or bytes to represent a value (i.e., alphabetic, numeric, pure alphabetic, pure numeric, binary, packed numeric, etc.).

Alphabetic—A representation which is expressed using only letters and punctuation symbols.

Alphanumeric—A representation which is expressed using letters, numbers, and punctuation symbols.

Binary—A representation of numbers which is expressed using only the numbers 0 and 1, e.g., 5 is expressed as 101.

Numeric—A representation which is expressed using only numbers and selected mathematical punctuation symbols.

Packed Numeric—A representation of numeric values that compresses each character representation in such a way that the original value can be recovered, e.g., in an eight bit byte, two numeric characters can be represented by two four bit units.

Pure Alphabetic—A representation which is expressed using only letters.

Pure Alphanumeric—A representation which is expressed using only letters and numbers.

Pure Numeric—A representation which is expressed using only numbers.

Composite Data Element (Data Chain)—A data element that has an ordered string of related data items that can be treated as a group or singly, e.g., a data element named “Date of Birth” could have the data items, “Year”, “Month”, and “Day of Month”.

Context Dependent Definition—A statement of meaning that relies upon a situation, background, or environment for proper interpretation.

Date Code—A coded representation used to identify a data item. Usually codes are designed according to established rules and criteria, and only by chance form a phonetic word or phrase.

Data Element—A basic unit of identifiable and definable information. A data element occupies the space provided by fields in a record or blocks on a form. It has an identifying name and value or values for expressing a specific fact. For example, a data element named "Color of Eyes" could have recorded values of "Blue (a name)", "BL (an abbreviation)" or "06 (a code)." Similarly, a data element named "Age of Employee" could have a recorded value of "28 (a numeric value)."

Data Element Abbreviation—An abbreviated form of the data element name.

Data Element Definition—A statement of the meaning of a data element.

Data Element Name—A name used to identify a data element.

Data Element Source—An identification of the source or provider of the particular data element, i.e., individual, organization, sensor, computation, etc.

Data Element Tag (Data Element Code)—A symbolic tag used to identify a data element.

Data Item—The expression of a particular fact of a data element e.g., "Blue" may be a data item of the data element named "Color of eyes".

Data Item Abbreviation—An abbreviated form of the data item name.

Data Item Definition—A statement of the meaning of a data item.

Data Item Name—A name used to identify a data item.

Dependent Code—A code that has segments which are dependent upon other segments in order to provide unique identification of the coded item. Usually, codes having classification significance are dependent codes.

Field—In a record, a specific area used for representing a particular category of data, e.g., a group of card columns used to express a wage rate.

Field Length—A measure of the length (size) of a field, usually expressed in units of characters, words, or bytes.

Field Length Type—An indication of whether the field of a record is fixed or variable in length.

Fixed Length Field—A field whose length does not vary.

Variable Length Field—A field whose length varies. Usually, the boundaries of this type of field are identified by field separators.

Field Separator—A character or byte used to identify the boundary between fields.

Filler Character—A specific character or bit combination used to fill the remainder of a field after justification.

Formatted Information—An arrangement of information into discrete units and structures in a manner to facilitate its access and processing. Contrasted with narrative information that is arranged according to rules of grammar.

General Definition—A statement of meaning that can be interpreted without regard to a specific situation, background, or environment.

Information Interchange—The transfer of data representing information between or among two or more points (devices, locations, organizations, or persons) of the same or different (dissimilar) information system or systems.

Justification—To adjust the value representation in a field to either the right or left boundary (margin).

Left Justify—Adjustment of a value representation to the left boundary (high order) of a field.

Right Justify—Adjustment of a value representation to the right boundary (low order) of a field.

Non-Significant Code—A code that provides for the identification of a particular fact but does not yield any further information, e.g. random numbers used as codes. Contrasted with significant code.

Numeric Value—The expression of a data item which denotes a measurement, count, or mathematical concept, usually represented by numerals and a limited number of special characters (i.e., plus (+), minus (−), decimal point (.), comma (,), asterisk (*), and slant (/)).

Padding—A technique used to fill a field, record, or block with dummy data (usually zeros or spaces).

Primary Data Element—A data element or elements that is/are the subject of a record. Usually the other elements, called attribute data elements, qualify or quantify the primary data element (e.g., in a personnel field, the element(s) that is/are used to identify the individual are primary; other elements such as “Date of Birth” and “Mailing Address” are attribute data elements).

Radix Point—A character, usually a period, that separates the integer part of a number from the fractional part. In decimal (base 10) notation the radix point is called the decimal point.

Record—A collection of related elements of data treated as a unit.

Record Index—An ordered reference list of the contents of a record together with keys or reference notations for identifying and locating the contents.

Record Layout—A description of the arrangement and structure of information in a record, including the sequence and size of each identified component.

Record Length—A measure of the length (size) of a record, usually expressed in units of characters, words, or bytes.

Record Length Type—An indication of whether the records of a file are fixed or variable in length.

Fixed Length Record—Pertaining to a file in which the records are uniform in length.

Variable Length Record—Pertaining to a file in which the records are not uniform in length.

Representation—A number, letter or symbol used to express a particular concept or meaning. It may be in the form of a name, abbreviation, code, or numeric value.

Rounding (Roundoff)—To delete the least significant digit or digits of a numeral, and to adjust the part retained in accordance with some rule.

Self-Checking Code—A code that is appended to another code to provide for validity checking. A self-checking code is derived mathematically from the characteristics of the base code.

Significant Code—A code which in addition to identifying a particular fact also yields further information, e.g., catalog numbers in addition to identifying a particular item also often indicate the classification of the item. Contrasted with non-significant code.

Truncate—To delete characters from a character string, usually from either end of the string.

Type of Code Significance—An indication of the type of significance that a particular code yields.

Collating Significance—A code designed in such a way that it facilitates ordering of the coded item.

Mnemonic Significance—A code designed in such a way as to facilitate the human recall of the name of the coded items.

Classification Significance—A code designed in such a way as to facilitate the classifying of the coded items into classes and sub-classes.

Variable Name Data Element—A data element that identifies a set (array) of similar values (data items). By varying certain identifiers in the name the entire set (array) of values can be identified. For example, a set of values that give population by State and Year could be identified by the data element "Population of (State) in (Year)" where State and Year are variable names. The variable names are used to identify particular values in an array (e.g., "Population of (New Jersey) in 1970" was 7,168,164.) In this example "New Jersey" and "1970" are variable names used to identify a specific value "7,168,164" in an array.

4.8. Terms of Reference for the Federal Telecommunication Standards Committee and its Technical Subcommittees ¹

1. FEDERAL TELECOMMUNICATION STANDARDS PROGRAM. This program was established pursuant to the responsibilities under the Federal Standardization Program which were assigned to the Executive Agent, NCS, by the Administrator of the General Services Administration in a letter, dated 14 August 1972. The objectives of the Federal Telecommunication Standards Program are:

a. To develop, coordinate, and promulgate the technical and procedural standards required to achieve interoperability among functionally similar telecommunication networks of the National Communications System.

b. In concert with the National Bureau of Standards, to develop and coordinate technical and procedural standards for data transmission and the computer-telecommunications interface.

c. Increase cohesiveness and effectiveness of the Federal telecommunication community's participation in national/international standards programs and on the Federal Information Processing Standards Program.

2. FEDERAL TELECOMMUNICATION STANDARDS COMMITTEE

MISSION: The Federal Telecommunication Standards Committee (FTSC) is the interagency advisory body established to assist the Executive Agent, NCS, in insuring the timely, coordinated movement of the Federal Telecommunication Standards Program toward its stated objectives.

FUNCTIONS: The functions of the FTSC are to:

(1) Assess the relative priority of proposed standards development projects and assign the development and informal technical coordination of standards development projects to subordinate technical committees of the FTSC.

(2) Periodically review progress of standards development projects assigned to the technical subcommittees, and resolve issues or obtain additional manpower on ad hoc basis to assist the committee (or an assigned preparing activity) as appropriate.

(3) Review and approve drafts of proposed standards emerging from the technical subcommittee prior to their release by the Chairman of the FTSC for formal coordination with Federal agencies and the solicitation from cognizant national standards bodies.

(4) Review and resolve insofar as possible any "essential" comments received on a particular draft standard during its formal coordination which could not be resolved at the technical committee level.

(5) Approve for transmittal to Office of Telecommunications Policy (OTP), through the Manager and Executive Agent, NCS, all fully coordinated proposed Federal telecommunication standards (including minority report if applicable).

(6) Formulate and transmit to OTP and to GSA Standards Division, through the Manager and the Executive Agent, NCS, periodic reports on the Federal Telecommunications Standards Program.

¹ (From NCS Circular 175-1, Federal Telecommunications Standards Program, dated June 6, 1973.)

(7) Foster among the Federal telecommunication community more cohesive positions regarding standards issues arising from standardization activities of the ANSI, ISO, and the ITU, as well as foster more effective participation in these standards bodies. (NOTE: See paragraph V of FTSC Doc. No. 1)

(8) In performing the above functions, consider, review and examine long term telecommunication goals of the Federal Government and anticipated technological developments to determine the need for specific telecommunication standards.

MEMBERSHIP: The voting membership of the Federal Telecommunication Standards Committee (FTSC) will consist of:

(1) The Assistant Manager of NCS Technology and Standards, Office of the Manager, NCS, Chairman.

(2) Representatives of each major NCS Operating Agency (i.e., Department of Defense, Department of State, Diplomatic Telecommunications Service, General Services Administration, Federal Aviation Administration, National Aeronautics and Space Administration) and Department of Commerce and Atomic Energy Commission.

(3) A representative of the Director of the National Bureau of Standards.

(4) A representative of the Office of Standards and Quality Control, General Services Administration.

(5) A representative of the Director, National Security Agency.

(6) A representative of the Chief Engineer, Federal Communications Commission.

(7) Representatives of such other Federal agencies as a majority of the FTSC may consider appropriate.

In addition to the voting members, a representative of the Office of Telecommunications Policy, Executive Office of the President, will be a nonvoting member and the chairmen of the technical subcommittees will be advisory members.

The Chairman of the FTSC will be responsible for liaison with the Institute for Computer Sciences and Technology of the National Bureau of Standards in the implementation of the mutual (NCS/NBS) responsibilities for the development of Federal standards related to data transmission and teleprocessing. These responsibilities are published in Appendix 1 of the paper entitled, "Objectives and Requirements of the Federal Telecommunications Standards Program."

3. SUBCOMMITTEES: Subcommittees will be established from time to time by the FTSC to deal with the development of telecommunication standards. These subcommittees will cover the areas of communication switching and transmission, communication terminal equipment and multiplexing equipment, formats, procedures and coding and other areas as they become apparent. Members of the FTSC will arrange for participation of qualified technical representatives to the subcommittees. In addition, the Chairman, FTSC, will send a letter to other appropriate departments and agencies (selected in accordance with the nature of the specific problem) to request qualified participants.

MISSION: The subcommittees will conduct a background search for relevant national, international, industry and departmental standards, and then develop the initial statement of the scope and a broad program of work for each task assigned by the

FTSC. Upon approval of this action by the FTSC, the subcommittee will develop the detailed work plan, including target dates for completion of its tasks. This work plan will be submitted to the FTSC for review. The FTSC will then request GSA Standards Division to assign a Project and Project Control Number to the task. The subcommittee will then proceed with the development and informal coordination of the proposed standard. Subsequent revision to work statements, completion dates, etc., will be subject to review and approval of the FTSC. If changes are made in completion dates, these will be reported to GSA Standards Division. Subcommittees may take one of the following methods to develop a standard:

- (1) Develop the standard as a matter of subcommittee business.
- (2) Assign the task of development to an ad hoc committee within the subcommittee.
- (3) Assign the task of development to one of the participating agencies, with the subcommittee reviewing the work and forwarding the results with their recommendation to FTSC.

FUNCTIONS: The functions of the subcommittees are to:

- (1) Accomplish tasks assigned in approved work statements.
- (2) Assign the task of development of a given standard, and monitor this development.
- (3) Informally coordinate proposed draft standards, and try to resolve issues.
- (4) Recommend proposed Federal telecommunication standards to the FTSC, including the forwarding of unresolved issues.

INTERNAL SUBCOMMITTEE OPERATION: The effort of each subcommittee will be directed toward accomplishing the tasks assigned in its approved work statement. In conducting the business of the subcommittee the keeping of formal minutes and other associated documents should be kept to a minimum consistent with the accomplishment of the subcommittee work. The subcommittee may form ad hoc committees as discussed in the Mission Statement above. Subcommittee recommendations will be transmitted to the FTSC for review and approval. When a consensus cannot be reached within a subcommittee, a majority view will form the basis of the recommendation; however, minority positions, together with their rationale, will accompany the recommendation forwarded to the FTSC. Upon completion of all assigned tasks, a subcommittee will be dissolved.

SUBCOMMITTEE MEMBERSHIP: Subcommittee membership will be drawn from the NCS Operating Agencies, and other interested agencies. Members will participate as qualified technical experts having knowledge of their agency's interest in the subject under study. Since coordination of recommendations within a committee is informal, no agency is bound by the individual views of its representatives on the committees.

4. QUORUM AND CONSENSUS: The following rules with regard to official meetings of the FTSC and its subcommittees will apply:

- a. Quorum. For the FTSC, two-thirds of the voting members (or alternates) must be present for an official meeting. For the subcommittees, one-half of the members (or alternates) must be present.

b. Consensus. For both the FTSC and the subcommittees, a majority vote shall carry on all matters relating to committee business. Ballot may be taken by letter on the subject of committee approval of a proposed standard.

c. Abstentions. Abstentions are allowed on a vote for forwarding a standard for only two reasons: (1) no interest; and (2) extension of time for comment. In the case of no interest, the membership of a committee is reduced by the number of no interest abstentions in calculating the consensus.

4.9. Federal Standards for Which the National Bureau of Standards and the National Communications System Are Jointly Responsible

Background and procedures for the Identification, Development, Coordination, Approval, Publication, and Distribution of Standards Common to the Federal Information Processing Standards and Federal Telecommunications Standards Programs

References:

- a. P.L. 89-306, Brooks Bill (FIPS PUB 12-2).
- b. Presidential letter dated April 30, 1971, delegating approval of Federal Information Processing Standards to the Director, OMB (FIPS PUB 12-2).
- c. Department of Commerce Organization Order 30-2B of June 12, 1972, as amended on November 2, 1972 (NBS Administrative Manual, Chapter 9).
- d. OTP letter of June 22, 1972, to the Acting Administrator of GSA.
- e. Exclusive and mutual responsibilities of the National Communications System and the National Bureau of Standards for the development of Federal standards related to data transmission and teleprocessing. (This document appears in references d., h., and i. and is reproduced as an appendix of this memorandum.)
- f. GSA letter of August 14, 1972, to Executive Agent, NCS.
- g. FPMR 101-29, Federal Standardization, a GSA Handbook.
- h. Objectives and Requirements of the Federal Information Processing Standards Program, FIPS PUB 23, February 14, 1973.
- i. Objectives and Requirements of the Federal Telecommunications Standards Program, NCS Circular 175-1.
- j. Executive Order 11717 of May 9, 1973, Transferring Certain Functions from the Office of Management and Budget to the General Services Administration and the Department of Commerce.

Background

Public Law 89-306 (reference a) authorized the Secretary of Commerce to make appropriate recommendations to the President relating to the establishment of uniform Federal automatic data processing standards. The responsibility for approving such standards was later delegated by the President to the Director, Office of Management and Budget (reference b). Subsequently, Executive Order 11717 (reference j) transferred to the Secretary of Commerce the function of standards approval on behalf of the President pursuant to section 111(f)(2) of the Federal Property and Administrative Services Act of 1949, as amended. Within the Department of Commerce, the Institute for Computer Sciences and Technology (ICST) of

the National Bureau of Standards was assigned the standards responsibility (reference c).

As a separate action, the Director, Office of Telecommunications Policy, Executive Office of the President, identified the Executive Agent, NCS, as the focal point to prepare recommended Federal standards for the interoperability of NCS networks and to assure an effective interface between computers and communication systems. He cited the relationship of the proposed NCS activity to that of the NBS, and recommended to GSA that the Executive Agent, NCS, be designated the responsible agent for such standards under the Federal standards program (reference d), in conformance with the delineation of mutual and exclusive responsibilities worked out between these agencies (reference e). In response to the request, a designation of responsibility was made to NCS by the Acting Administrator, General Services Administration (reference f), with the understanding that the standards would be developed and processed in accordance with FPMR 101-29 and its associated Federal Standardization Handbook (reference g), and transmitted to GSA for publication through the Office of Telecommunications Policy for review and approval.

Under the NBS/NCS agreement (reference e), NBS is responsible for uniform Federal automatic data processing standards. These encompass, among other requirements, standards relating to automated data processing equipment, techniques and computer languages. NCS is responsible for Federal standards for transmission and switching equipment and techniques, and for equipment and techniques pertaining to modulation conversion for transmission, and for any necessary Federal standard for manual or automatic operation procedures for the setting up, holding, and clearing of calls for data transmission. Mutual responsibilities exist in respect to Federal standards for (1) the junction (interface) between terminal modem and data terminal equipments, (2) alphabets and characters used for teleprocessing purposes, (3) error detection codes and requisite signaling, and (4) certain aspects of signal coding, transmission performance and signal margin requirements.

Procedure

Identification

The requirements for standards in the Federal Information Processing Standards Program are given in FIPS PUB 23 (reference h). An initial list of requirements for standards in the Federal Telecommunications Standards Program is given as an enclosure to NCS Circular 175-1 (reference i).

- A. The NBS will review the standards requirements in FIPS PUB 23 to identify those standards considered to fall in the area of mutual responsibility.
- B. The NCS will review the standards requirements depicted in NCS Circular 175-1 and impending additions thereto to identify those standards considered to fall in the area of mutual responsibility.
- C. Representatives of NBS and NCS will review the identified standards and other standards requirements documents in order to jointly develop an agreed initial list of standards falling within the area of mutual responsibility.
- D. NBS and NCS will meet as necessary to update the list.
- E. FIPS PUB 23 and Circular 175-1 will, when revised, reflect the agreed list of standards falling within the area of mutual responsibility.

Development

- A. Representatives of NBS and NCS will determine on a case-by-case basis the development approach for each standard on the agreed list. Alternatives are in-house NBS, in-house NCS, FTSC Task Force or Subcommittee, FIPS Task Group, joint task group, and other. Availability of qualified personnel, workload and qualifications of existing task groups, and status of related Federal and industry standards will be considered in making the assignments.
- B. NBS and NCS will jointly assign a priority and establish a target date for the completion of each standard on the agreed list.
- C. NBS and NCS will both approve a statement of the scope and program of work for the development project for each proposed standard.

Coordination

A single letter will go to each agency requesting comments from both the ADP and telecommunication points of view. The letter may be transmitted by either NBS or NCS depending on the assignment of the responsibility for developing the standard.

Approval

The coordinated standard will be considered as a joint NBS/NCS recommendation and will be forwarded simultaneously to the Secretary of Commerce by NBS and by NCS to the Administrator of GSA through OTP for approval.

Publication and Distribution

The approved standard will be issued as a single document clearly identified as belonging to both the Federal Information Processing Standards Series and the Federal Telecommunication Standards Series. It will be processed for publication through NBS and the Government Printing Office (GPO), and will be distributed by GPO and GSA according to procedures already established for Federal Information Processing Standards Publications (FIPS PUBS).

RICHARD W. ROBERTS,
Director, National Bureau of Standards

Dated: May 11, 1973.

FREDERICK B. DENT,
Secretary of Commerce

Dated: December 13, 1973.

EBERHARDT RECHTIN,
Executive Agent, National Communica-
tions System

Dated: June 27, 1973.

CLAY T. WHITEHEAD,
Director, Office of Telecommunications
Policy

Dated: July 19, 1973

ARTHUR F. SAMPSON
Administrator, General Services
Administration

Dated: October 5, 1973.

Appendix

Exclusive and Mutual Responsibilities of the National Communications System and the National Bureau of Standards for the Development of Federal Standards Related to Data Transmission and Teleprocessing

General

For the purposes of this paper, NCS is taken to mean the Office of the Manager of the National Communications System. NBS is taken to mean the Institute for Computer Sciences and Technology of the National Bureau of Standards. Teleprocessing is taken to mean automated data processing which makes direct use of data transmission via switched or long distance non-switched telecommunication facilities.

The delineations of responsibilities presented below are adapted from, and correspond to the division of responsibilities laid out in ITU-CCITT Recommendation A-20, affecting the responsibilities of the International Telecommunications Union and the International Organization for Standardization and the International Electrotechnical Commission. The international aspects are analogous to the relationships between the existing Federal Information Processing Standards (FIPS) Program and the Federal Telecommunication Standards Program.

Exclusive Responsibilities

NBS—Teleprocessing

Pursuant to P.L. 89-306, the National Bureau of Standards (NBS) currently is responsible for recommending uniform Federal automatic data processing standards. This responsibility is fulfilled through the Federal Information Processing Standards (FIPS) Program and encompasses Federal standards related to automated data processing equipment, techniques, and computer languages; the provision of technical advice and assistance with respect to standards for data elements and codes and maintaining appropriate Registers and Reference files therefor. The NBS is also responsible for the guidance and monitorship of programs to promote the development and testing of voluntary commercial standards for ADP equipment, techniques, and computer languages, and for recommending procedures to be used in the Federal Government for adopting Federal standards and developing and implementing plans therefor.

NCS—Data Transmission

It will be the responsibility of the National Communications System (NCS) to recommend uniform Federal standards for transmission and switching employed in telecommunication networks used for data transmission. This responsibility will be fulfilled through a Federal Telecommunication Standards Program, and will encompass Federal standards related to transmission and switching equipment and techniques, and to equipment and techniques pertaining to modulation conversion for transmission. The NCS will also be responsible for the specification of any necessary Federal standard for manual or automatic operation procedures for the setting up, holding, and clearing of calls for data transmission within Federal multipurpose switched networks.

Mutual Responsibilities

The development of Federal standards for the junction (interface) between terminal modem and data terminal equipments shall be as agreed between the NCS and the NBS.

The development of Federal standards relating to alphabets and characters¹ used for teleprocessing purposes shall be as agreed between the NBS and the NCS.

Devices designed to detect and/or correct errors must account for the following factors: (i) the error rates tolerable to the user; (ii) the line transmission conditions; and (iii) the error detection codes which must cope with the exigencies of the data alphabet and characters, as well as with error control and requisite signalling.

In this regard: Federal standards relating to limits for tolerable error rates for teleprocessing purposes shall be the responsibility of the NBS; Federal standards relating to limits for line transmission conditions for data transmission purposes shall be the responsibility of the NCS; and Federal standards relating to the error detection codes and requisite signalling shall be as agreed between NCS and NBS.

Coding² is a field which cannot be decided unilaterally because of possible restrictions to teleprocessing which transmission and switching peculiarities may impose. The NCS with assistance from the NBS shall undertake any requisite standardization with respect to Federal multi-purpose switched networks which are used for data communications and which may be subject to such restrictions. Federal standards relating to limits of transmission path performance including modems shall be the responsibility of the NCS. Federal standards relating to limits for the transmission performance and signal margin requirements of transmitting and receiving terminal data equipment shall be the responsibility of NBS. The limits which would apply in respect to either of the above types of standards shall be determined by agreements between NBS and NCS.

The NCS and the NBS shall cooperate in the development of Federal standards requisite to the effective utilization of new technological developments in the Telecommunication and Computer fields so as to optimize data transmission capabilities in support of teleprocessing activities.

¹The ITU List of Definitions No. 31.08, "A table of correspondence between the written characters together with some of the functions and the data signals which represent them." By way of example, the International Alphabet No. 5 (in the U.S., the ASCII) developed jointly by CCITT and the ISO for general (but not exclusive) use for data and message transmission, and was standardized as a common alphabet by the two organizations.

²A system of rules and conventions according to which the signals corresponding to a text should be formed, received and translated—ITU List of Definitions No. 31.07—hence a transformation of the format of the signals in the alphabet for taking account of synchronous methods, and introduction of redundancy in accordance with the error control system.

**4.10. Bulletin No. 74-4, Transferring Circular responsibility to the
General Services Administration (August 31, 1973)**

EXECUTIVE OFFICE OF THE PRESIDENT
OFFICE OF MANAGEMENT AND BUDGET
WASHINGTON, D.C. 20503

BULLETIN NO. 74-4

August 31, 1973

TO THE HEADS OF EXECUTIVE DEPARTMENTS AND ESTABLISHMENTS

SUBJECT: Transferring Circular responsibility to the General Services Administration

1. Purpose. This Bulletin announces the transfer of responsibility for selected Office of Management and Budget Circulars to the General Services Administration.

2. Basis. This Bulletin has been prepared pursuant to Executive Order No. 11717, "Transferring certain functions from the Office of Management and Budget to the General Services Administration," which transferred to the Administrator of General Services, effective April 16, 1973, all functions being performed on April 13, 1973 by

a. the Financial Management Branch, the Procurement and Property Management

Branch, and the Management Systems Branch of the Organization and Management Systems Division; and

b. the Management Information and Computer Systems Division with respect to policy control over automatic data processing (except those functions relating to the establishment of government-wide automatic data processing standards).

3. Transfer of Circular Responsibility. Responsibility for the Office of Management and Budget Circulars listed below is transferred to the General Services Administration:

a. A-2—Utilization, disposition, and acquisition of Federal real property.

b. A-21—Principles for determining costs applicable to research and development under grants and contracts with educational institutions.

c. A-22—Limousines, heavy sedans, and medium sedans in agencies of the executive branch.

d. A-27—Policies and responsibilities on the sharing of electronic computer time and service in the executive branch.

e. A-54—Policies on selection and acquisition of automatic data processing (ADP) equipment.

f. A-68—Establishment of central supporting service facilities to GSA in headquarters and field office locations.

g. A-73—Audit of Federal grants-in-aid to State and local governments.

h. A-83—ADP Management Information System.

i. A-87—Principles for determining costs applicable to grants and contracts with State and local governments.

j. A-88—Policies for coordinating the determination of indirect costs rates and auditing in connection with grants and contracts with educational institutions.

k. A-100—Cost sharing on research supported by Federal agencies.

l. A-101—Administration of grants, contracts, or other agreements with educational institutions.

m. A-102—Uniform administrative requirements for grants-in-aid to State and local governments.

n. A-103—Guidance for agency implementation of the Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970.

4. Requirements.

a. The Administrator of General Services shall convert the Circulars listed above to GSA's regulatory system and OMB shall simultaneously rescind the related OMB Circulars.

b. The reporting requirements of the Circulars listed above remain in effect. These reports should be submitted, as appropriate, to the General Services Administration, attention: Office of Federal Management Policy.

5. Effective Date. This Bulletin is effective immediately.

ROY L. ASH
DIRECTOR

4.11. OMB Circular A-63, Advisory Committee Management, dated March 27, 1974

EXECUTIVE OFFICE OF THE PRESIDENT
OFFICE OF MANAGEMENT AND BUDGET
WASHINGTON, D.C. 20503

March 27, 1974

CIRCULAR NO. A-63
Revised

TO THE HEADS OF EXECUTIVE DEPARTMENTS AND ESTABLISHMENTS

SUBJECT: Advisory Committee Management

1. Purpose. This Circular provides guidance for implementation of the Federal Advisory Committee Act, Public Law No. 92-463, 5 U.S.C. App. I, (hereinafter referred to as the "Act") and Executive Order No. 11769, entitled "Advisory Committee Management."

2. Rescission. This Circular rescinds and supersedes the December 26, 1972 revision of Circular No. A-63 and the OMB/Department of Justice Memorandum on implementation of the Federal Advisory Committee Act (see 38 Fed. Reg. 2306 (1973)).

3. Policy. In the application of this Circular, these principles should be followed.

a. Advisory Committee meetings should be open to the public. Exceptions should be held to the minimum, carefully grounded in law and explained in detail. The emphasis should be on the free flow of information to the public.

b. Advisory committees should be limited to those that are essential. Any advisory committees which are not fulfilling their purposes should be terminated.

c. The recommendations of advisory committees should be considered by those who sought advice, while responsible Federal officers retain authority for decisions.

d. Standards and uniform procedures for the creation, operation, and duration of advisory committees should be established.

4. Definitions. For purposes of this Circular—

a. “Act” means the Federal Advisory Committee Act.

b. “Advisory Committee” has the meaning set forth in Section 3 of the Act.

5. Responsibilities.

a. **The Office of Management and Budget (OMB).** In general, the functions of the Director under the Act and under Executive Order 11769 shall be carried out by the Committee Management Secretariat of OMB.

b. **Departments and agencies.**

(1) The head of each agency which uses an advisory committee shall insure compliance with the Act and this Circular and shall issue regulations which apply to all advisory committees established or used by the agency.

(2) The head of each agency which uses an advisory committee shall designate an Advisory Committee Management Officer who shall carry out the functions specified in Section 8(b) of the Act and this Circular. The name of each Advisory Committee Management Officer shall be provided to the OMB Secretariat.

(3) Each agency shall maintain information on the nature, functions, and operations of each of its advisory committees. This shall include a complete set of the charters of the agency’s advisory committees, and copies of the annual reports on its advisory committees in a single location.

6. Creation of advisory committees.

a. When an agency proposes to establish an advisory committee not specifically authorized by statute or by the President, the agency head must consult with the OMB Secretariat. Such “consultation” may be in the form of a letter from the agency head describing the nature and purpose of the proposed advisory committee, including an explanation of why the functions of the proposed committee could not be performed by the agency or by an existing committee. The letter, in addition, should describe the agency’s plan to attain balanced membership on the proposed committee. If the OMB Secretariat is satisfied that establishment of the advisory committee would be in accord with the Act, the agency head shall certify in writing that creation of the advisory committee is in the public interest. This certification and a description of the nature and purpose of the committee shall be published in the Federal Register at least 15 days prior to the filing of the committee’s charter. The OMB Secretariat may, for good cause, authorize a shorter period of time between publication of the notice and the filing of the charter.

If not satisfied that establishment of the advisory committee would be in accordance with the Act, the OMB Secretariat shall inform the agency head in writing within 15 days of receipt of the agency letter.

b. Unless specifically provided otherwise by statute or Presidential directive, advisory committees shall be utilized solely for advisory functions.

c. (1) Each advisory committee shall file a charter complying with Section 9(c) of the Act. This requirement applies to committees "utilized" as advisory committees, though not established for that purpose.

(2) A copy of each charter shall be furnished to the Library of Congress at the time of filing. Copies should be sent to:

Library of Congress
Exchange and Gift Division
Federal Advisory Committee Desk
Washington, D.C. 20540

7. Termination and renewal of advisory committees.

a. Each nonstatutory advisory committee (i.e., not established by statute or reorganization plan) which is in existence on January 5, 1973, shall terminate no later than January 5, 1975, unless it is renewed by the President or the agency head prior to January 5, 1975.

Before such a committee can be renewed by an agency, the agency head must determine that renewal is necessary and shall inform the OMB Secretariat of his determination and the reasons for it not more than 60 days before the committee expires. If the Secretariat concurs, the agency head shall publish notice of the renewal in the Federal Register and shall file a new charter.

Any advisory committee which is renewed shall continue for not more than two years unless, prior to expiration of that period, it is renewed. Each such advisory committee established by the President or a Federal officer after January 5, 1973, shall terminate not later than two years after its establishment unless prior to that time it is renewed.

b. Each advisory committee established by statute or reorganization plan which is in existence on January 5, 1973, shall terminate by January 5, 1975, unless its duration is otherwise provided for by law.

(1) Each such advisory committee which is established after January 5, 1973, shall terminate not later than two years after its establishment unless its duration is otherwise provided for by law.

(2) Any such statutory advisory committee shall file a new charter upon the expiration of each successive two-year period following the date of enactment of the statute establishing the committee.

c. No advisory committee required by Section 14(b) of the Act to file a new charter shall take any action, other than preparation and filing of such charter, between the date the new charter is required, and the date it is filed.

8. Operation of advisory committees.

a. Calling of meetings.

(1) No advisory committee shall hold any meeting except at the call of or with the advance approval of the Federal official designated in accordance with Sec. 10(e) of the Act and this Circular. (See 8f.)

(2) Except with respect to Presidential advisory committees, each meeting of an advisory committee shall be conducted in accordance with an agenda approved by the Federal official. The agenda shall list the matters to be considered at the meeting. It shall also indicate when any part of the meeting will concern matters within the exemptions of the Freedom of Information Act, 5 U.S.C. 552(b).

b. Notice of meetings.

(1) Except when the director determines otherwise for reasons of national security, timely notice of each advisory committee meeting, whether open or closed to the public, shall be published in the Federal Register. In addition to the notice in the Federal Register, other forms of notice should be used, for example, press releases and notices by mail. Where practicable, agencies should maintain lists of people and organizations interested in particular advisory committees and notify them of meetings by mail.

(2) Such notice should state the name of the advisory committee, the time, place and purpose of the meeting (including where appropriate, a summary of the agenda). Notices ordinarily should state that meetings are open to the public, or, explain why any part is closed.

(3) Such notice should be published at least 15 days before the date of the meeting except that shorter notice may be provided in emergency situations, and the reasons for such emergency exceptions shall be made part of the meeting notice. Agencies should keep in mind the time the Federal Register needs to get notices into print, and plan accordingly.

(4) Notice is not required when the Director has determined that it should not be published for reasons of national security. Any agency advisory committee which seeks such a determination, shall submit its request and a statement of reasons to the Director at least 30 days before the meeting is scheduled.

c. Public participation. The agency head or, in the case of a Presidential advisory committee, the chairman of the committee shall, for any advisory committee meeting, all or part of which is open to the public, assure compliance with the following rules:

(1) Meetings shall be held at a reasonable time and at a place that is reasonably accessible to the public.

(2) The size of the meeting room shall be determined by such factors as the size of the committee, the number of members of the public who could reasonably be expected to attend, the number of persons who attended similar meetings in the past and the resources and facilities available.

(3) Any member of the public shall be permitted to file a written statement with the committee.

(4) Interested persons may be permitted by the committee chairman to speak at the meeting in accordance with procedures established by the committee.

d. Closed meetings.

(1) Section 10(d) of the Act states that the provisions concerning open meetings and public participation "shall not apply to any advisory committee meeting which the President, or the heads of the agency to which the advisory committee reports, determines is concerned with matters listed in . . ." 5 U.S.C. 552(b), the exemptions of the Freedom of Information Act.

(2) An advisory committee which seeks to have all or part of a meeting closed on the basis of 5 U.S.C. 552(b) shall notify the agency head or, in the case of a Presidential advisory committee, the Director at least 30 days before the scheduled date of the meeting. The notification shall be in writing and shall specify all the reasons why any part of the meeting should be closed.

If the agency head or the Director finds the request to be warranted and in accordance with the policy of the Act, the request shall be granted. The determination of the agency head or the Director shall be in writing and shall state the specific reasons for closing all or part of the meeting. The determination itself shall be made available to the public on request. The agency head or the Director may delegate responsibility for making the above determinations. However, in any case where a determination to close a meeting is made by a delegate of the agency head, the determination should be reviewed by the agency General Counsel.

(3) When a meeting is closed, the advisory committee shall issue a report at least annually setting forth a summary of its activities and related matters which are informative to the public consistent with the policy of 5 U.S.C. 552(b). Notice of availability of such annual report shall be published in the Federal Register no later than 60 days after its completion. The notice shall include instructions which will allow the public access to the report.

e. **Minutes.** Detailed minutes shall be kept of each advisory committee meeting. The minutes shall include: the time and place of the meeting; a list of advisory committee members and staff and agency employees present at the meeting; a complete summary of matters discussed and conclusions reached; copies of all reports received, issued, or approved by the advisory committee; a description of the extent to which the meeting was open to the public; and a description of public participation, including a list of members of the public who presented oral or written statements and an estimate of the number of members of the public who attended the meeting.

The chairman of the advisory committee shall certify to the accuracy of the minutes.

f. Designated Federal employee.

(1) With regard to an advisory committee used by an agency, the agency head shall designate a Federal officer or employee as set forth in Section 10(e) of the Act and determine whether he is to chair or attend the meetings. With regard to Presidential advisory committees such officer or employee may be designated, and his role determined by the Director. Ordinarily, the designated Federal employee should serve on a continuing basis.

(2) No advisory committee shall conduct a meeting in the absence of the designated Federal employee.

(3) The designated Federal employee shall be authorized to adjourn any advisory committee meeting, whenever he determines adjournment to be in the public interest.

9. Reports on advisory committees.

a. The President has delegated, in Executive Order 11769, responsibility for preparation of the annual report required by Section 6(c) of the Act to the Administrator of General Services. The General Services Administration (GSA) will provide appropriate reporting instructions.

b. Two copies of each public report of each Presidential advisory committee shall

be submitted to the OMB Committee Management Secretariat at the time of the submission to the President.

10. Comprehensive Review. The annual review required by Section 7(b) of the Act shall be conducted on a calendar-year basis. Agencies may schedule the review so that its results are incorporated in the annual report of advisory committees. The review should examine all advisory committees, and terminate those no longer useful. Advisory committees specifically created by statute or Executive Order should be reviewed, and if appropriate, their termination recommended. The comprehensive review should include, among other things, a summary of the total number of advisory committee meetings, the number of closed or partially closed meetings, and a recapitulation of the exemptions in the Freedom of Information Act used as a basis for closing meetings. The review should also comment in some detail on agency efforts and procedures to insure balanced membership on its advisory committees. The results of the comprehensive review should be included in the annual report to the Administrator of General Services.

11. Uniform pay guidelines.

a. Pay for members of an advisory committee.

(1) Subject to the provisions of this paragraph, an agency shall fix the pay of the members of an advisory committee to the daily equivalent of a rate of the General Schedule in 5 U.S.C. 5332 unless the members are appointed as consultants and compensated as provided in 11c below.

(2) In determining an appropriate rate of pay for the members of an advisory committee, an agency shall give consideration to the significance, scope, and technical complexity of the matters with which the advisory committee is concerned and the qualifications required of the members of the advisory committee.

(3) An agency may not fix the pay of the members of an advisory committee at a rate higher than the daily equivalent of the maximum rate for GS-15 unless the head of the agency has personally determined that, under the factors set forth in paragraph 11b(2), a higher rate of pay is justified and necessary. Such a determination must be reviewed by the head of the agency annually.

b. Pay for the staff of an advisory committee.

(1) Subject to the provisions of b(2), below, an agency shall fix the pay of each member of the staff of an advisory committee at a rate of the General Schedule in which the staff member's position would appropriately be placed were the General Schedule classification system in chapter 51 of title 5, United States Code, applicable to the position.

(2) An agency may not fix the pay of a member of the staff of an advisory committee at a rate higher than the daily equivalent of the maximum rate for GS-15 unless the head of the agency has determined that, under the General Schedule Classification system, the staff member's position would appropriately be placed in the General Schedule grade higher than GS-15. Such a determination must be reviewed by the head of the agency annually.

c. Pay for consultants to an advisory committee. An agency shall fix the pay of a consultant to an advisory committee after giving consideration to the qualifications required of the consultant and the significance, scope, and technical complexity

of the work. The rate of pay shall not exceed the maximum rate of pay which the agency may pay experts and consultants under 5 U.S.C. 3109.

d. **Voluntary services of an advisory committee member.** The provisions of this section shall not prevent an agency from accepting the voluntary services of a member of an advisory committee, or a member of the staff of an advisory committee, provided that the agency has authority to accept such services without compensation.

e. **Reimbursable travel expenses for advisory committee members and staff.** The members of an advisory committee, and the staff thereof, while engaged in the performance of their duties away from their homes or regular places of business, may be allowed travel expenses, including per diem in lieu of subsistence, as authorized by 5 U.S.C. 5703 for persons employed intermittently in the Government service.

12. **Effective date.** The provisions of this Circular are effective on May 1, 1974.

13. **Inquiries.** For information concerning this Circular, contact the Office of Management and Budget, Committee Management Secretariat, phone 395-5193 (IDS Code 103).

ROY L. ASH
DIRECTOR

4.12. OMB Circular A-71, Responsibilities for the Administration and Management of Automatic Data Processing Activities (March 6, 1965)

EXECUTIVE OFFICE OF THE PRESIDENT

BUREAU OF THE BUDGET
WASHINGTON, D.C. 20503

March 6, 1965

CIRCULAR NO. A-71

TO THE HEADS OF EXECUTIVE DEPARTMENTS AND ESTABLISHMENTS

SUBJECT: Responsibilities for the Administration and Management of Automatic Data Processing Activities

1. **Purpose.** This Circular identifies certain responsibilities of executive agencies for the administration and management of automatic data processing (ADP) activities, and is intended to provide for maximum cooperation and coordination between and among the staff and operating agencies of the executive branch.

2. **Scope.** The ADP equipment affected by this Circular is that equipment identified in paragraph 2 of Bureau of the Budget Circular No. A-54, Policies on the selection and acquisition of automatic data processing (ADP) equipment, October 14, 1961.

3. **Responsibilities of the Bureau of the Budget.** The Bureau of the Budget will provide overall leadership and coordination of executive branch-wide activities pertaining to the management of automatic data processing equipment and related resources and will develop programs and issue instructions for achieving increased cost effectiveness

through improved practices and techniques for the selection, acquisition and utilization of automatic data processing equipment and resources. In this connection, the Bureau of the Budget will:

a. Provide policies and criteria, procedures, regulations, information, technical advice and assistance to executive agencies.

b. Evaluate, through the review of agency programs and budgets and through other means, the effectiveness of executive agencies and the executive branch as a whole in managing automatic data processing equipment and resources.

c. Foster adequate Federal Government support of programs for developing voluntary commercial standards for automatic data processing equipment and techniques, arrange for the approval and promulgation of voluntary commercial standards when it is in the best interests of the Government to do so, and arrange for the development, approval and promulgation of Federal standards for automatic data processing equipment and techniques on an interim basis, or permanent basis, when voluntary commercial standards are not available or usable.

d. Support the development and promulgation of standard data elements and codes in Government systems, when such data elements and codes are in common use in some or all executive agencies.

e. Encourage the use of advanced techniques in the design of data systems and support research in advanced system design through demonstration projects.

f. Advocate intra-agency and interagency integration of systems.

g. Sponsor the development of a system which provides to line and staff officials at all levels of Government the information needed for effective management of automatic data processing equipment and related resources.

4. Responsibilities of the General Services Administration. The General Services Administration is responsible for aiding in the achievement of increased cost effectiveness in the selection, acquisition and utilization of automatic data processing equipment and appropriate related resources and will perform the following functions:

a. In connection with the selection of automatic data processing equipment, provide to executive agencies, on request, comparative information on the characteristics and performance capabilities of equipment and on the contractual performance of the firms that supply equipment and programming aids to the Government.

b. In connection with the acquisition of automatic data processing equipment (1) provide Federal Schedules of Supply for renting, purchasing and maintaining automatic data processing equipment, for use by executive agencies each fiscal year, (2) take such steps as may be feasible and necessary to insure to the extent practicable, that the Federal Schedules of Supply for ADP equipment each year will be available for use on the first day of that year, and (3) through continuous study and negotiation, seek improvements in the terms, conditions, and prices stated in Federal Schedules of Supply for automatic data processing equipment and services.

c. In connection with the utilization of automatic data processing equipment (1) develop and publish guidelines and criteria governing the replacement of equipment to avoid usage of such equipment beyond the point of economic advantage, (2) provide overall coordination and leadership of the executive branch in fostering the effective utilization of excess and disposal of surplus automatic data processing equipment, including rented, leased or owned equipment, and promulgate such regulations as may

be needed to insure effective Government-wide screening and utilization of excess ADP equipment; and, further, to plan and undertake appropriate measures for coping with emerging problems associated with the management of excess and surplus automatic data processing equipment, (3) prepare Government-wide inventory reports and other statistical information pertaining to ADP equipment utilization, based upon reports submitted in accordance with applicable Bureau of the Budget circulars; and, further, to cooperate in the continuous refinement and improvement of management information systems relating to automatic data processing activities, (4) exercise leadership for the executive branch in the development and operation of arrangements which are designed to promote the sharing and joint utilization of automatic data processing equipment time and services within and among the executive agencies, and obtain such information on sharing practices as is necessary to evaluate the sharing program on a Government-wide and regional basis, including acquisition of equipment in connection with joint utilization programs, and (5) provide policies, guidelines and evaluation criteria for use by executive agencies in the maintenance of automatic data processing equipment.

d. In connection with the standardization of automatic data processing equipment and techniques, (1) promulgate standard purchase specifications based upon ADP standards which have been approved for adoption by the Federal Government, and (2) support programs for the development of voluntary commercial or Federal standards as they pertain to automatic data processing equipment and techniques and coordinate these activities with other executive agencies similarly involved.

e. In connection with automatic data processing equipment used with data communications systems, insure that planning for the Federal Telecommunications System embraces consideration of the rising need for data communication facilities which provide for high-speed data transmission between computer-based systems.

5. Responsibilities of the Department of Commerce. The Department of Commerce is responsible for aiding in the achievement of increased cost effectiveness in the selection, acquisition and utilization of automatic data processing equipment, and in this connection will perform the following functions:

a. Provide advisory and consultative services to executive agencies on the methods for developing information systems based on the use of computers and the programming and languages thereof.

b. Undertake research on computer sciences and techniques, including system design, oriented primarily toward Government applications.

c. Provide day-to-day guidance and monitorship of an executive branch program for supporting the development, measurement and testing of voluntary commercial standards for automatic data processing equipment, techniques and computer languages.

d. Improve compatibility in automatic data processing equipment procured by the Federal Government by recommending uniform Federal standards for automatic data processing equipment, techniques and computer languages.

6. Responsibilities of the Civil Service Commission. The Civil Service Commission is responsible for providing executive branch-wide leadership and assistance in the personnel management and manpower aspects of automatic data processing. In this connection, the Commission will foster programs designed to:

a. Staff automatic data processing activities effectively by, among other things, (1) formulating position classification and qualification standards, (2) developing necessary

special recruiting techniques, (3) devising improved testing and selection devices, and (4) stimulating and coordinating necessary training.

b. Educate executives and other key personnel to achieve greater effectiveness in ADP management.

c. Anticipate and minimize, to the greatest practicable extent, any adverse effects of automatic data processing upon the people involved.

d. Provide a medium within the executive branch to focus and coordinate preparation for the future personnel management and manpower effects and requirements of automatic data processing.

7. Responsibilities of the heads of executive agencies. The heads of all executive departments and establishments are responsible for the administration and management of their automatic data processing activities including:

a. Agency-wide planning, coordination and control of equipment utilization.

b. Determination and use of those equipment applications that offer the greatest return in terms of increased effectiveness in mission accomplishment and higher productivity.

c. Development of data systems that employ the use of the most advanced design techniques.

d. Merger or integration of data systems irrespective of intra-agency or interagency organizational lines, when cost effectiveness in equipment utilization, data systems management, or program accomplishment can be increased.

e. Determination of automatic data processing equipment requirements.

f. Sharing equipment time and services within the agency, and with other agencies through support of the Government-wide program for sharing exchanges; cooperation in the establishment of service centers and other interagency joint use arrangements.

g. Consideration of the potential impact of the introduction of ADP equipment on the agency work force and taking such steps as are necessary to alleviate adverse effects to the greatest extent practicable.

h. Participation in Government-wide studies and programs for improving the administration and management of automatic data processing activities in the executive branch.

8. Effective date. The provisions of this Circular are effective immediately.

KERMIT GORDON
Director

**4.13. ADP Management Information System (ADP/MIS), Part 281 of Title 34 CFR
(Code of Federal Regulations)**

Title 34—Government Management

**CHAPTER II—OFFICE OF FEDERAL MANAGEMENT POLICY,
GENERAL SERVICES ADMINISTRATION**

SUBCHAPTER F—AUTOMATIC DATA PROCESSING MANAGEMENT

PART 281—ADP MANAGEMENT INFORMATION SYSTEM (ADP/MIS)

This document converts Office of Management and Budget Circular A-83 into a General Services Administration Federal Management Circular (FMC 74-2) in accordance with Executive Order 11717 and Office of Management and Budget Bulletin 74-4 which transfer certain Office of Management and Budget responsibilities to the General Services Administration. FMC 74-2, dated February 25, 1974, prescribes the policy and criteria for the continuing development of a management information system (MIS) for automatic data processing ADP activities in the Federal Government.

Part 281, ADP management information system (ADP/MIS), is added to read as set forth below.

Effective date. This regulation is effective February 25, 1974.
Dated: February 25, 1974.

ARTHUR F. SAMPSON
Administrator of General Services

<i>Sec.</i>	<i>Sec.</i>
281.1 Purpose.	281.6 Policies and procedures.
281.2 Supersession.	281.7 Responsibilities.
281.3 Policy intent.	281.8 Reporting requirement.
281.4 Applicability and scope.	281.9 Inquiries.
281.5 Definitions.	

AUTHORITY: Executive Order 11717 (38 FR 12315, May 11, 1973)

§281.1 Purpose.

This part prescribes the policy and criteria for the continuing development of a management information system (MIS) for automatic data processing (ADP) activities in the Federal Government.

§281.2 Supersession.

This part supersedes Office of Management and Budget (OMB) Circular A-83, dated October 5, 1971.

§281.3 Policy intent.

This part continues the requirement for developing, operating, and maintaining an ADP/MIS to assist the General Services Administration (GSA) and other Federal agencies in carrying out their management responsibilities for the most effective and efficient utilization of ADP.

§281.4 Applicability and scope.

(a) **Applicability.** The provisions of this part are applicable to all Federal agencies (as defined in 34 CFR 200) having organizations (referred to herein as ADP units) that:

(1) Use or plan to use ADP equipment; or

(2) Acquire or plan to acquire ADP services offered from Government or other sources; or

(3) Perform ADP functions, such as coordinating ADP programs, and/or incur obligations in such activities as designing, developing, programing, and implementing ADP systems; reviewing, recommending, or selecting ADP equipment; approving the acquisition of ADP equipment or services; or providing ADP services on a consulting or project basis for agency ADP units; or

(4) Have Government contractors (including educational institutions and other not-for-profit contractors or organizations) who operate ADP equipment in the performance of work under reimbursement-type contracts or subcontracts when the equipment is:

(a) Leased, and full lease costs are paid by the Government under one or more contracts; or

(b) Furnished to the contractor by the Government or is purchased by the contractor for the account of the Government or title will pass to the Government; or

(c) Installed in Government-owned, contractor-operated facilities; or

(5) Have contracts involving any of the elements prescribed in this part.

Information required on ADP equipment that is contractor owned or leased will be reported by the agency having primary contract administered cognizance or, in the absence of an assignment of primary cognizance, by the agency having the preponderance of business with the contractor in terms of dollar value of contract sales.

(b) **Exemptions.** The following classes of ADP equipment are fully or partially exempt from the reporting requirements of this part.

(1) **Full exemptions.** (i) Analog computers even though a part of a hybrid system (The digital computer portion of the hybrid computer system is not exempt.); and

(ii) ADP equipment which is both integral to a combat weapon or space system and built or modified to special Government design.

(2) **Partial exemptions.** (i) Control systems equipment is exempt from system utilization reporting and from related summary ADP manpower and cost reporting but not from management/function/use and all other inventory information reporting;

(ii) Classified systems equipment is exempt from system utilization reporting and from related summary ADP manpower and cost reporting; and

(iii) Mobile systems equipment is exempt from system utilization reporting only.

§281.5 Definitions.

(a) "Analog computer" is a computer which operates on continuous data as distinguished from discrete data. It translates physical conditions such as flow, tempera-

ture, pressure, angular position, or voltage into related mechanical quantities and uses mechanical or electrical equivalent circuits as an analog for the physical phenomenon being investigated.

(b) "Automatic data processing (ADP) equipment" for the purpose of this part includes general purpose and special purpose (built to Government specifications) electronic data processing equipment and punch card accounting machines irrespective of use, application, or source of funding.

(c) "Classified system equipment" is ADP equipment, the physical location of which is classified.

(d) "Control systems equipment" is ADP equipment which is an integral part of a total facility or larger complex of equipment and has the primary purpose of controlling, monitoring, analyzing, or measuring a process or other equipment.

(e) "Hybrid computer" is a computer for data processing using both analog representation and discrete representation of data.

(f) "Digital computer" is a computer that operates on discrete data by performing arithmetic and logic processes on these data.

(g) "Hardware system" is an operational or managerial entity of component units (Central Processing Units [CPU's], input/output devices, storage units, terminals, communication devices, etc.).

(h) "Management/function/use classifications" are specific functional areas identified, defined, and coded by Federal agencies in a manner that best describes each agency's mission and program objectives.

(i) "Mobile systems equipment" is ADP equipment installed on ships, planes, vans, or with military units which are deployed or subject to deployment in areas of active military operations against an enemy force.

§281.6 Policies and procedures.

(a) **Objective.** The ADP/MIS will provide an inventory and financial management information data base that will:

(1) Facilitate the management of ADP resources and data networks by Federal agencies;

(2) Assist OMB, GSA, the Civil Service Commission, and the Department of Commerce in carrying out their specific Government-wide responsibilities relating to ADP as delineated in OMB Circular A-71, Responsibilities for the administration and management of automatic data processing activities;

(3) Respond to the requirements of OMB Circular A-11, Preparation and submission of annual budget estimates;

(4) Provide for the identification and evaluation of ADP obligations according to the major management/function/use classifications which they support (e.g., the system will identify that portion of the total ADP expenditures of a department or agency directly attributable to major activities such as supply, agricultural production capacity, isotope development, military pay, etc.); and

(5) Provide for future development of additional subsystems which may become a part of the ADP/MIS or may be separate elements in the overall ADP/MIS. These

future subsystems will be developed under Office of Federal Management Policy, GSA, direction with participation of involved agencies as the need arises.

(b) ADP/MIS structure. The ADP/MIS is composed of two major systems: First, inventory management data; and second, financial management data. Both of these major systems will be composed of a series of subsystems (as shown below) designed to meet specific information requirements.

(1) ADP inventory management data system. This system is based on a set of Federal agency reports which feed the computer-based ADP inventory management data bank maintained by the Automated Data and Telecommunications Service (ADTS), GSA, for the use of all Federal agencies. The essential subsystem of this data bank is a perpetual inventory of all Federal ADP equipment by ADP unit. Other subsystems include:

- (i) Manpower;
- (ii) Cost;
- (iii) Hardware system utilization; and
- (iv) Distribution of system use according to management/function/use classifications.

Overall policy direction for this system is in this part, but detailed ADP/MIS reporting procedures are issued separately by ADTS.

(2) ADP financial management data system. This system is based on a set of agency reports providing basic financial data. Subsystems are:

- (i) Obligations for capital investments, in-house operations, contract services, and intra/inter-agency services;
- (ii) Man-years; and
- (iii) Summary totals of computers and systems.

Requirements for agency reporting are the responsibility of OMB and are being developed in cooperation with the Office of Federal Management Policy. These instructions will be issued at a later date and will be in the form of an addition to this part. Other ADP financial management data requirements of OMB will remain in effect unless they are specifically rescinded.

(3) Dissemination and release of ADP data bank information. Coordination by GSA with the agency concerned is required prior to the release of data relating to cost, manpower, hardware system utilization, and management/function/use of that particular agency, except that individual agencies may, if they so desire, delegate full or partial authority to ADTS to release such data without prior coordination.

§281.7 Responsibilities.

- (a) The Office of Federal Management Policy, GSA, is responsible for:
 - (1) Approving the development and implementation of reporting subsystems and approving the reporting procedures for carrying out the provisions of this part related to the ADP inventory management data system; and
 - (2) Coordinating the implementation of ADP financial management data system reporting requirements developed by OMB.

(b) The Automated Data and Telecommunications Service, GSA, is responsible for:

(1) Developing and issuing the necessary reporting procedures for carrying out the provisions of this part relating to inventory management data which are part of the data bank, including inventory of hardware, manpower, cost, hardware system utilization, management/function/use, and such other subsystems as may be approved for implementation;

(2) Establishing the hardware inventory on a perpetual basis;

(3) Maintaining the subsystems designated as part of the data bank;

(4) Responding to requests from agencies and others for data from the data banks; and

(5) Developing and/or participating in the development of reporting subsystems.

(c) All agencies are responsible for:

(1) Developing internal implementing instructions to carry out the objectives of this part;

(2) Furnishing the necessary data on an accurate and timely basis to comply with this policy directive;

(3) Ensuring the use of these data to improve management practices; and

(4) Recommending such changes, additions, or deletions to the ADP/MIS as they deem necessary to improve the effectiveness of the system.

§281.8 Reporting requirement.

(a) **ADP inventory management data.** The base date for reporting of inventory management data was June 30, 1971. Changes to these data will be submitted as they occur. Agency reports will be transmitted in accordance with the reporting schedule set forth in the ADP/MIS Reporting Procedures to:

General Services Administration (CPM) Washington, D.C. 20405.

(b) **ADP financial management data.** Reporting requirements will be developed in cooperation with OMB and will be issued at a later date.

§281.9 Inquiries.

Further information concerning this part may be obtained by contacting:

General Services Administration (AMD), Washington, D.C. 20405.

Telephone: IDS 193-43370, FTS (202) 254-3370.

4.14. Federal Property Management Regulations Relating to FIPS PUBS, Part 101 of Title 41 CFR (Code of Federal Regulations)

Title 41—Property Management

SUBTITLE C, PART 101, SUBPART 101-32.13—CODE OF FEDERAL REGULATIONS Federal Property Management Regulations Relating to FIPS PUBS

Certain ADP standards are applicable not only for use by Federal departments and agencies, but also apply to procurement. This particular subpart 101-32.13 of the CODE

OF FEDERAL REGULATIONS deals with FPMR's that provide standard terminology for use in ADP acquisition. At the time this FIPS PUB was published the following are the regulations in effect:

Subpart 101-32.13—Implementation of Federal Information Processing Standards Publications (FIPS PUBS) Into Solicitation Documents

§ 101-32.1300 Scope of subpart.

This subpart provides standard terminology for use in purchase agreements, solicitations, and offers for acquisition of ADP equipment (ADPE), related software, services, and communications equipment to give effect to Federal Standards announced in FIPS PUBS. This subpart supplements the provisions of Subpart 101-32.4 and is applicable, where particular FIPS PUBS apply, to equipment acquired under Part 101-35.

§ 101-32.1301 Applicability.

The provisions of this subpart are applicable to all Federal agencies unless the agencies are otherwise excepted. Waiver procedures and exceptions are prescribed in the applicable FIPS PUBS.

§ 101-32.1302 Federal Information Processing Standards Publications (FIPS PUBS).

Federal Information Processing Standards Publications (FIPS PUBS) and Federal Information Processing Standards (FIPS) are official Federal Government publications relating to standards adopted and promulgated under the provisions of section 111 of the Federal Property and Administrative Services Act of 1949 and Office of Management and Budget (OMB) Circular A-86, Standardization of data elements and codes in data systems. These publications are issued by the National Bureau of Standards and collectively constitute the Federal Information Processing Standards Register. As an aid in implementing this Subpart 101-32.13, all agencies should establish and maintain a FIPS PUB/FIPS Register in accordance with FIPS PUB 0, General Description of the Federal Information Processing Standards Register, November 1, 1968. This FIPS PUB may be ordered from the Superintendent of Documents, U.S. Government Printing Office, Washington, D.C. 20402. The price is 20 cents. Subscription service for an indefinite period for all new FIPS publications and supplements is also available from the Superintendent of Documents at \$21.50 (\$5.50 additional for foreign mailing). In some instances the technical specifications (FIPS) of the standard are included in the FIPS PUB while in other instances they are not. When the FIPS are not included they may be ordered from the General Services Administration Region 3 (3FRSBS), Washington, D.C. 20407.

§ 101-32.1303 Definitions.

As used in this Subpart 101-32.13, the following terms shall have the meanings as set forth in this § 101-32.1303. For terms not defined, see the American National Standard Vocabulary for Information Processing, FIPS 1 and subsequent revisions thereto.

§ 101-32.1303-1 Standard terminology.

“Standard terminology” means that language which is used in purchase agree-

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ments, solicitations, and offers for acquisition of ADPE and related software and services to insure conformance with Federal Information Processing Standards.

§ 101-32.1303-2 Hardware standards.

“Hardware standards” means that category of standards which includes areas of standardization such as character recognition, interchange codes and media, transmission, interface, and keyboards.

§ 101-32.1303-3 Software standards.

“Software standards” means that category of standards which includes areas of standardization such as programming languages, operating systems, operating procedures, and documentation.

§ 101-32.1304-4 Applications standards.

“Applications standards” means that category of standards which includes areas of standardization such as payroll, flowcharting, and data base management.

§ 101-32.1303-5 Data standards.

“Data standards” means that category of standards which includes areas of standardization such as data elements, data formats, and data representations and data codes.

§ 101-32.1304 Hardware standards.

This section provides standard terminology for use in the procurement of ADPE and gives effect to the applicable FIPS PUBS covering areas of standardization listed in § 101-32.1303-2.

§ 101-32.1304-1 FIPS PUB 1, Code for Information Interchange.

(a) FIPS PUB 1 promulgates the American Standard Code for Information Interchange (ASCII) and specifies the code and character set for use in Federal information processing systems, communications systems, and associated equipment. (Technical specifications of the standard are not included with FIPS PUB 1.)

(b) The standard terminology for use in solicitation documents is:

ASCII SYSTEM REQUIREMENTS

The system, upon receiving a hardware or software command, must accept data on magnetic tape, paper tape, or any other input media covered by an approved Federal Information Processing Standards Publication (FIPS PUB) in ASCII code and collating sequence prescribed in FIPS PUB 1 and in the format prescribed in FIPS PUBS 2, 3, or other applicable FIPS PUBS. Such data may be translated, if necessary, into a form upon which the proposed equipment can internally process: *Provided*, That, upon receiving a hardware or software command, the output of the processed data to magnetic tape, paper tape, and other output media will be in the ASCII code and collating sequence prescribed in FIPS PUB 1 and in the format prescribed in FIPS PUBS 2, 3, or other applicable FIPS PUBS.

§ 101-32.1304-2 FIPS PUB 2, Perforated Tape Code for Information Interchange.

(a) FIPS PUB 2 specifies the representation of the ASCII code and format on perforated tape to be used in Federal information processing systems, communications systems, and associated equipment. (Technical specifications of the standard are not included with FIPS PUB 2.)

(b) The standard terminology for use in solicitation documents is:

PUNCHED PAPER TAPE READERS AND PUNCHES

Punched paper tape equipment must be capable of reading and punching in the prescribed ASCII code and format specified in FIPS PUBS 1 and 2.

§ 101-32.1304-3 FIPS PUB 3-1, Recorded Magnetic Tape for Information Interchange (800 CPI, NRZI).

(a) FIPS PUB 3-1 supersedes FIPS PUB 3, reflects a change in scope from the earlier version of X3.22-1967, and encompasses the recorded tape requirements only. The unrecorded tape standard will include the requirements for the physical property of the tape and reels that were previously included in FIPS 3. FIPS PUB 3-1 specifies the recorded characteristics of 9-track 1/2-inch-wide magnetic computer tape, including the data format for implementing the Federal Standard Code for Information Interchange at the recording density of 800 characters per inch (CPI). (Technical specifications of the standard are not included with FIPS PUB 3-1.)

(b) The standard terminology to be used in solicitation documents is:

All 9-track digital magnetic tape recording and reproducing equipments resulting from this solicitation employing 1/2-inch-wide tape at the recording density of 800 characters per inch (CPI), including associated programs, shall provide the capability to accept and generate recorded tapes in compliance with the requirements set forth in FIPS PUB 3-1.

§ 101-32.1304-4 FIPS PUB 7, Implementation of the Code for Information Interchange and Related Media Standards.

(a) FIPS PUB 7 supplements FIPS PUBS 1, 2, and 3 and provides details concerning their implementation and applicability. (Technical specifications of a standard are not required in connection with FIPS PUB 7.)

(b) The standard terminology for use in solicitation documents: Not applicable.

§ 101-32.1304-5 FIPS PUB 13, Rectangular Holes in 12-Row Punched Cards.

(a) FIPS PUB 13 specifies the size and location of rectangular holes in 12-row 3 1/4-inch-wide punched cards. The standard applies to card reading and punching equipment used in data processing, communications, and similar operations. It does not apply to other types of equipment such as those which punch round holes or cards of other width dimensions. (Technical specifications of the standard are not included with FIPS PUB 13.)

(b) The standard terminology for use in solicitation documents is:

All punching or reading equipment utilizing 12-row 3 1/4-inch wide punched cards

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used in data processing, communication, and similar operations must be capable of punching and reading rectangular holes of a size and location specified in FIPS PUB 13.

§ 101-32.1304-6 FIPS PUB 14, Hollerith Punched Card Code.

(a) FIPS PUB 14 specifies the representation of the Federal Standard Code for Information Interchange, FIPS PUB 1, in 12-row $3\frac{1}{4}$ -inch wide, rectangular hole, punched cards used in Federal information processing systems, communications systems, and associated equipment. This standard does not apply to other types of punched cards such as those with round holes or to "edge-punched" cards whose holes resemble those used in perforated tape. (Technical specifications of the standard are not included with FIPS PUB 14.)

(b) The standard terminology for use in solicitation documents is:

All punching or reading equipment utilizing 12-row $3\frac{1}{4}$ -inch wide, rectangular hole punched cards used in data processing, communications, and similar operations must be capable of punching or reading the Federal Standard Code for Information Interchange, FIPS PUB 1, or one of the approved Subsets of the Standard Code for Information Interchange, FIPS PUB 15, in the hole pattern specified in FIPS PUB 14, Hollerith Punched Card Code.

§ 101-32-1304-7 FIPS PUB 15, Subsets of the Standard Code for Information Interchange.

(a) FIPS PUB 15 amends FIPS PUB 7 and requires that all printers, display devices, punched card, and other data processing or communications equipment brought into the Federal inventory which utilize a character set less than that provided by the 128-character set of FIPS PUB 1 must conform to one of the three subsets provided in FIPS PUB 15. (Technical specifications of the standard are included with FIPS PUB 15.)

(b) The standard terminology for use in solicitation documents is:

Printers; display devices; data acquisition, preparation, and transcription devices; data communication terminal devices; punched card equipment; and other data processing or communications equipment that may result from this solicitation not requiring the full 128-character set of the Federal Code for Information Interchange, FIPS PUB 1, must conform to one of the approved character Subsets of the Standard Code for Information Interchange, FIPS PUB 15. Printers of the "chain" or "train" or other replaceable symbol technology may also be provided with optional subsets having a different number of characters than those specified in FIPS PUB 15 in order to increase the printer's repertoire of symbols or the printer's speed as required for local use, provided the ability to interchange information by the selected character subset (FIPS PUB 15) is retained in the data processing system.

§ 101-32.1304-8 FIPS PUB 16, Bit Sequencing of the Code for Information Interchange in Serial-By-Bit Data Transmission.

(a) FIPS PUB 16 specifies the method of transmitting the Standard Code for Information Interchange, FIPS PUB 1, in serial-by-bit, serial-by-character data transmission. The standard is applicable to the transmission of the standard code in a serial bit stream form at the interface between data terminal equipment and data communications equipment. Data terminal equipment transmitting an approved Federal subset or

superset of FIPS PUB 1 must comply with FIPS PUB 16. (Technical specifications of the standard are not included with FIPS PUB 16.)

(b) The standard terminology for use in solicitation documents is:

All applicable equipment that may result from this solicitation, transmitting in a serial-by-bit, serial-by-character mode must be capable of bit sequencing as prescribed in FIPS PUB 16 for the transmission of the Code for Information Interchange, FIPS PUB 1, at the interface between data terminal equipment and data communications equipment.

§ 101-32.1301-9 FIPS PUB 17, Character Structure and Character Parity Sense for Serial-By-Bit Data Communications in the Code for Information Interchange.

(a) FIPS PUB 17 specifies the method of transmitting the standard Code for Information Interchange, FIPS PUB 1, in the serial-by-bit, serial-by-character data transmission. The standard is applicable at the interface between data terminal equipment and data communications equipment. Data terminal equipment transmitting an approved Federal subset or superset of FIPS PUB 1 must comply with FIPS PUB 17. (Technical specifications of the standard are not included with FIPS PUB 17.)

(b) The standard terminology for use in solicitation documents is:

All applicable equipment that may result from this solicitation, transmitting in a serial-by-bit, serial-by-character synchronous or asynchronous mode must be capable of transmitting the character structure and sense of character parity prescribed in FIPS PUB 17 for the transmission of the Code for Information Interchange, FIPS PUB 1, at the interface between data terminal equipment and data communications equipment.

§ 101-32.1304-10 FIPS PUB 18, Character Structure and Character Parity Sense for Parallel-By-Bit Data Communications in the Code for Information Interchange.

(a) FIPS PUB 18 specifies the channel assignment for transmitting the standard Code for Information Interchange FIPS PUB 1, in parallel-by-bit, serial-by-character data transmission. The standard is applicable at the interface between data terminal equipment and data communications equipment. Data terminal equipment transmitting an approved Federal subset or superset of FIPS PUB 1 must comply with FIPS PUB 18. (Technical specifications of the standard are not included with FIPS PUB 18.)

(b) The standard terminology for use in solicitation documents is:

All applicable equipment that may result from this solicitation, transmitting in a parallel-by-bit, serial-by-character mode must be capable of transmitting the character structure and sense of character parity prescribed in FIPS PUB 18 for the transmission of the Code for Information Interchange, FIPS PUB 1, or an approved Federal subset (FIPS PUB 15) at the interface between data terminal equipment and data communications equipment.

§ 101-32.1304-11 FIPS PUB 22, Synchronous Signaling Rates between Data Terminal and Data Communication Equipment.

(a) FIPS PUB 22 specifies the rates of transferring binary encoded information in synchronous serial or parallel from between data processing terminal and data communication equipment that employ voice band communication facilities. (Technical specifications of the standard are not included with FIPS PUB 22.)

(b) The standard terminology for use in solicitation documents is:

All applicable equipment resulting from this solicitation that is employed with synchronous data communication equipment designed to operate on binary encoded information in either serial or parallel fashions over voice grade communication channels of nominal 4 kHz bandwidth must comply with FIPS PUB 22.

§ 101-32.1304-12 FIPS PUB 25, Recorded Magnetic Tape for Information Interchange (1600 CPI, Phase Encoded).

(a) FIPS PUB 25 specifies the recorded characteristics of 9-track digital 1/2-inch-wide magnetic computer tape, including the data format for implementing the Federal Standard Code for Information Interchange at the recording density of 1,600 characters per inch (CPI). (Technical specifications of the standard are not included with FIPS PUB 25.)

(b) The standard terminology for use in solicitation documents is:

All 9-track digital magnetic tape recording and reproducing equipments resulting from this solicitation employing 1/2-inch-wide tape at the recording density of 1,600 characters per inch (CPI, Phase Encoded), including associated programs, shall provide the capability to accept and generate recorded tapes in compliance with the requirements set forth in FIPS PUB 25.

§ 101-32.1304-13 FIPS PUB 26, One-Inch Perforated Tape for Information Interchange.

(a) FIPS PUB 26 specifies the physical dimensions and tolerances of 1-inch-wide paper tape, including the size and location of the perforations used for recording information. (Technical specifications of the standard are not included with FIPS PUB 26.)

(b) The standard terminology for use in solicitation documents is:

All 1-inch-wide perforated tape and related 8-channel paper tape punch and reading equipment resulting from this solicitation utilized in Federal information systems, communication systems, and associated terminals employing perforated tape equipment shall provide the capability to accept and generate tapes in compliance with the requirements set forth in FIPS PUB 26.

§ 101-32.1304-14 FIPS PUB 27, Take-Up Reels for One-Inch Perforated Tape for Information Interchange.

(a) FIPS PUB 27 specifies the physical dimensions of paper tape take-up (or storage) reels with either fixed or separate flanges. The two types of reels specified differ in the size and shape of the drive hub, but both are intended for use with 1-inch perforated tape paper devices. (Technical specifications of the standard are not included with FIPS PUB 27.)

(b) The standard terminology for use in solicitation documents is:

All 1-inch perforated tape take-up reels and related devices employing such reels, including paper tape readers, punches, and related tape handling equipment, resulting from this solicitation utilized in Federal information processing systems and associated equipment employing such devices shall provide the capability to accept one of the two types of reels specified in FIPS PUB 27.

§ 101-32.1305 Software standards.

This section provides standard terminology for use in solicitation documents in the areas of standardization listed in § 101-32.1303-3.

§ 101-32.1305-1 FIPS PUB 21, American National Standard COBOL as the Federal Standard COBOL.

(a) FIPS PUB 21 specifies the use of the American National Standard COBOL as the Federal Standard COBOL which defines the elements of Common Business Oriented Language (COBOL) and the rules for their use. The COBOL language is intended to be used with business-oriented applications. (Technical specifications of the standard are not included with FIPS PUB 21.)

(b) The standard terminology for use in solicitation documents is:

ACQUISITION OF COBOL COMPILERS

Common Business Oriented Language (COBOL) compilers offered as a result of the requirements set forth in this solicitation will be identified as implementing one of the levels specified in FIPS PUB 21. Each compiler will include all of the language elements of the identified level, except that a compiler acquired exclusively to produce object programs for computers without random access devices need not include the random access module regardless of level. Offers that include language elements over and above those of the identified level (whether or not they are part of the Federal COBOL Standard) will not be considered unless the additional elements, when used, are automatically identified and flagged (annotated) on the source program listing by the compiling system (i.e., compiler or preprocessor).

ACQUISITION OF COBOL PROGRAMS AND/OR PROGRAMING SERVICES

Business-oriented computer application programs (i.e., those applications or programs that emphasize the manipulation of characters, files, and input/output as contrasted with those concerned primarily with computation of numeric values) offered or prepared as a result of the requirements set forth in this solicitation will be written in one of the levels of Common Business Oriented Language (COBOL) defined in FIPS PUB 21 including optional language elements, if any, as specified herein.

§ 101-32.1305-2 FIPS PUB 24, Flowchart Symbols and Their Usage in Information Processing.

(a) FIPS PUB 24 establishes standard flowchart symbols and specifies their use in the preparation of flowcharts in documenting information processing systems. (Technical specifications of the standard are not included with FIPS PUB 24.)

(b) The standard terminology for use in solicitation documents is:

All new information processing system documentation involving the use of flowcharts that may result from this solicitation document must comply with FIPS PUB 24.

§ 101-32.1306 Applications standards.

This § 101-32.1306 is reserved for future reference to FIPS PUBS and to standard

FIPS PUB 12-2

terminology for use in solicitation documents in the areas of standardization listed in § 101-32.1303-4.

§ 101-32.1307 Data standards.

This § 101-32.1307 is reserved for future reference to FIPS PUBS and to standard terminology for use in solicitation documents in the areas of standardization listed in § 101-32.1303-5.

**4.15. Federal Information Processing Standards Coordinating and Advisory Committee
(FIPSCAC)**

Establishment:

The Secretary of Commerce, having determined that it was in the public interest, established the Federal Information Processing Standards Coordinating and Advisory Committee (FIPSCAC) pursuant to Executive Order 11671 on January 3, 1973.

Objectives and Duties:

1. The committee advises the Secretary of Commerce on matters relating to the nation's needs with respect to Federal information processing (automatic data processing) standards, and assists the Secretary of Commerce in carrying out his responsibilities under 40 U.S.C. 759.
2. The committee will serve as a vehicle for coordinating the work assignments of a series of FIPS (Federal Information Processing Standards) Task Groups and as a general advisory group to the Department of Commerce on information processing standards. The committee's activities will include providing advice on specific draft proposals in the automatic data processing (ADP) standards area, making recommendations on specific ADP standards problems, reviewing draft proposals developed by FIPS Task Groups, and advising on current and emerging issues relating to ADP standards.
3. The committee functions solely as an advisory body.
4. The Secretary of Commerce, or the committee with the concurrence of the Secretary, may establish task groups as may be deemed appropriate to assist the committee and the Secretary in the performance of their duties. These task groups may be advisory committees or inter-agency committees.

Members and Chairman:

1. The committee consists of at least 15, but not more than 30, members who shall be qualified experts on ADP, to serve for a period of two years. Members are selected from U.S. Government agencies and other public and private organizations.
2. The members and chairman of the committee are appointed by the Assistant Secretary of Commerce for Science and Technology.

5. Standardization Activities

5.1. Federal Government

5.1.1. Interagency Committee on ADP (IAC/ADP)

The Interagency Committee on Automatic Data Processing was initially organized by the Office of Management and Budget in the late 1950's to provide a medium for consideration of common problems being encountered by agencies in making effective use of the new computer technology. It has continued in existence without interruption under various forms of organization. Today its membership consists of 48 Federal agencies from which a chairman and vice chairman are elected annually. Staff support is provided by the General Services Administration.

The committee, which meets monthly, provides a medium for the exchange of information on management and technological developments, serves as a forum for the discussion of policies and regulations being proposed by the central management agencies, and initiates studies on matters on which the Committee wishes to formulate views and recommendations for consideration.

Chairman: Mr. Harry J. Clarke
Director, Research Service (36)
Veterans Administration
Washington, D.C. 20420
202-389-3151

<i>Principal Members</i>	<i>Department or Agency</i>
Mr. David B. Albright	Department of Housing and Urban Development
Mr. Ralph L. Bell	Securities and Exchange Commission
Mr. Charles Briggs	Central Intelligence Agency
Mr. Maury D. Brown	Agency for International Development
Mr. Robin A. Caldwell	Civil Aeronautics Board
Mr. V. J. Cavagrotti	U.S. Civil Service Commission
Mr. Harry J. Clarke	Veterans Administration
Mr. Harold G. Davis	U.S. Information Agency
Mr. William E. Davis	Administrative Office of the U.S. Courts
Mr. J. A. Delaney	Federal Trade Commission
	<i>Principal Members</i>
	Mr. F. P. DiBlasi, Jr.
	Mr. Edward Dolan
	Mr. J. Patrick Dugan
	Mr. Jules B. DuPeza
	Major R. L. Fisher
	Mr. H. P. Gibbons
	Mr. James W. Gray
	Mr. Bernard T. Harlow, Jr.
	Mr. Robert J. Hartel
	Mr. Robert V. Head
	Mr. Martin Hochdorf
	Mr. Robert L. Johnson
	Mr. Richard E. Kear
	Mr. Stanley A. Kovy
	Mr. Ludwig Kuttner
	Mr. S. P. Lejko
	Mr. Donald P. Libera
	Mr. Charles C. Lowe
	Mr. Edward J. Mahoney
	Mr. Vincent A. Mariner
	Mr. Wharton L. McGreer
	Mr. Howard M. Nathanson
	Mr. George Pilarinos
	Mrs. Sorine A. Preli
	Mr. Paul C. Redmer
	Mr. Harris G. Reiche
	Mr. Paul R. Reimers
	Mr. Richard G. Shook
	Mr. Jerold E. Slocum
	Mr. Jacob Steiger
	Mr. Nicholas J. Suszynski, Jr.
	Mr. Volney M. Taylor
	Mr. Joseph F. Tilko
	Mr. William Torpey
	Mr. Richard C. Tuey
	<i>Department or Agency</i>
	Department of State
	Department of Justice
	Export-Import Bank of the U.S.
	Department of Transportation
	Selective Service System
	U.S. Railroad Retirement Board
	Department of Labor
	Selective Service System
	Interstate Commerce Commission
	Department of Agriculture
	Tennessee Valley Authority
	Department of Commerce
	Federal Power Commission
	Smithsonian Institution
	Department of Health, Education and Welfare
	Federal Mediation and Conciliation Service
	National Capital Housing Authority
	Government Printing Office
	General Accounting Office
	U.S. Tariff Commission
	Department of Defense
	Federal Home Loan Bank Board
	National Science Foundation
	Federal Mediation and Conciliation Service
	Farm Credit Administration
	Department of the Interior
	Library of Congress
	Atomic Energy Commission
	Federal Reserve System
	National Labor Relations Board
	Federal Deposit Insurance Corporation
	Department of Treasury
	Small Business Administration
	U.S. Postal Service
	Federal Communications Commission

<i>Principal Members</i>	<i>Department or Agency</i>
Mr. Daniel A. Walton	District of Columbia
Mr. George R. Watts	Action
Mr. William H. Weaver	Office of Economic Opportunity
Mr. Kenneth R. Webster	National Aeronautics and Space Administration
Mr. Sidney Weinstein	General Services Administration

5.1.2. Federal Information Processing Standards Coordinating and Advisory Committee (FIPSCAC)

The Secretary of Commerce, having determined that it was in the public interest, established the Federal Information Processing Standards Coordinating and Advisory Committee (FIPSCAC) pursuant to Executive Order 11671 on January 3, 1973.

This committee advises the Secretary of Commerce on matters relating to the nation's needs with respect to Federal information processing (automatic data processing) standards, and assists the Secretary of Commerce in carrying out his responsibilities under 40 U.S.C. 759.

This committee serves as a vehicle for coordinating the work assignments of a series of FIPS (Federal Information Processing Standards) Task Groups and as a general advisory group to the Department of Commerce on information processing standards. This committee's activities include providing advice on specific draft proposals in the automatic data processing (ADP) standards area, making recommendations on specific ADP standards problems, reviewing draft proposals developed by FIPS Task Groups, and advising on current and emerging issues relating to ADP standards.

This committee functions solely as an advisory body.

The Secretary of Commerce, or this committee with the concurrence of the Secretary, may establish task groups as may be deemed appropriate to assist the committee and the Secretary in the performance of their duties. These task groups may be advisory committees or interagency committees.

This committee reports to the Associate Director for ADP Standards, Institute for Computer Sciences and Technology, National Bureau of Standards.

Chairman: Dr. Joseph O. Harrison, Jr.
 Institute for Computer Sciences and Technology
 National Bureau of Standards
 Washington, D.C. 20234
 301-921-3551

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**FIPS TASK GROUP 2
DATA TERMINALS AND DATA INTERCHANGE
SYSTEM REQUIREMENTS**

Scope :

Examine the function and logical requirements of general purpose data terminal devices for computers, data interchange systems, and their interface relationships with Federal Government telecommunications systems; and recommend to NBS standardization guidance including implementation of these standards.

5.1.3. Federal Information Processing Standards (FIPS) Task Groups

The role of FIPS Task Groups is explained in 4.15 above. Task Groups are composed of technical personnel with a knowledge of each agency's requirements who assist the NBS in matters relating to the development, adoption, and implementation of standards and in providing better coordination of the Federal ADP Standards Program.

**FIPS TASK GROUP 1
OBJECTIVES AND REQUIREMENTS
FOR STANDARDS**

Scope:

Assist the National Bureau of Standards in translating the general objectives of Public Law 89-306 into specific objectives and requirements for uniform Federal Information Processing Standards (FIPS 1).

Work Program:

1. Development of the general objectives for the overall FIPS program.
2. Development of specific objectives (sub-objectives) needed to support the general objectives.
3. Identification of specific standards requirements and priorities in the areas of: hardware, software, applications, and data.

Note: Work of FIPS Task Group 1 has been completed.

Program of Work :

1. Examine the existing FIPS and develop and provide to NBS the minimum requirements of data terminals and data communication systems for conformance with these FIPS.

2. Develop the common functional and logical requirements of general purpose data terminals and data communications systems, including:

- (a) the data interchange requirements and
- (b) equipment-to-system interface requirements (equipment interchange).

3. Review the existing and proposed standards (ANSI, Mil. Stds., FIPS) related to data terminals and communications systems and identify any FIPS requirements for additional standards or modification(s) to existing standards.

4. Recommend to NBS the establishment of these standards activities as may be required to effectively insure data interchange among federal telecommunications systems, data terminals and data processing systems; and provide with these recommendations a) the benefits to be derived and b) the technical feasibility.

5. Recommend to NBS an implementation schedule for existing FIPS and standardization guidance related to any additional stated requirements.

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FIPS TASK GROUP 3
CHARACTER SUBSETS, SIGN CONVENTIONS
AND PACKING TECHNIQUES

Scope:

Develop recommendations to the National Bureau of Standards on character subsets of the Federal Standard Code for Information Interchange (FIPS 1) (Same as ASCII, American National Standard X3.4-1967), sign conventions and field formatting for data input-output and processing, and packing conventions for numeric data.

Program of Work:

1. Character subsets
2. Representation of Decimal Numeric Data
3. Representation of Binary Numeric Data
4. Develop a FIPS PUB on code conversion to provide guidelines and techniques for converting non-standard codes to ASCII.

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FIPS TASK GROUP 4
SUBSECTIONS ON STANDARDS FOR USE IN
REQUESTS FOR PROPOSALS

Scope:

To develop instructions to provide uniform phraseology to be used in Requests for Proposals and Invitations for Bids for use by agencies when effecting procurements falling within the scope of the approved standards (FIPS 1, 2, and 3) and implementing instructions (FIPS PUB 7).

Note: Work of FIPS Task Group 4 has been completed.

FIPS TASK GROUP 5
FEDERAL INFORMATION PROCESSING
VOCABULARY

Scope:

1. Provide for the continuing review and coordination of Federal agency contributions to the American National Dictionary for Information Processing.

2. Identify areas of insufficient coverage in the Dictionary, and individual agency need of terms.

3. Initiate appropriate definitions for candidate terms.

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FIPS TASK GROUP 6

COMPUTER MAGNETIC TAPES

Scope:

1. Identify the problems involved in exchanging recorded magnetic tapes among Government ADP installations.

2. Propose requirements for reference tapes and/or calibration services to assist in solving such problems.

3. Develop and recommend to FIPSCAC draft Federal magnetic tape standards for information interchange, based on the proposed ANSI magnetic tape standards, modified if necessary. Develop draft FIPS PUB to accompany the standard(s).

Program of Work:

1. Identify those magnetic tape interchange problems related to the use of (a) different makes and models of tape handling equipment and (b) different types of manufacturers' magnetic tapes.

2. Determine the extent to which such problems contribute to the difficulties in exchanging recorded magnetic tapes.

3. Review the proposed ANSI magnetic tape standards and adapt them for Federal use. This may include the statement of additional performance requirements and criteria for acceptable interchange tape and related equipments. It may also involve the specification of performance test and measurement techniques for these FIPS.

4. Develop a draft FIPS PUB(s) announcing the adoption of these standards and specify the conditions for their use.

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FIPS TASK GROUP 7

**MAGNETIC TAPE LABELS FOR
 INFORMATION INTERCHANGE**

Scope:

To develop a draft FIPS PUB covering a proposed Federal Standard for Magnetic Tape Labels for Information Interchange.

Program of Work:

1. Review as the basis for developing the Federal Information Processing Standard the proposed American National Standard for Magnetic Tape Labels for Information Interchange (ANS document X3L5/365T, September 27, 1973).

2. Identify those elements of the proposed American National Standard for Magnetic Tape Labels together with the minimum systems processing requirements necessary to permit the interchange of information recorded on magnetic tape among Federal agencies.

3. Determine the extent to which options to be agreed upon by the exchanging parties should be provided for in the proposed Federal standard.

4. Determine the format and content for humanly readable documentation (excluding the file data documentation) which must accompany magnetic tapes being interchanged (e.g. type of recording, density, blocking, code, etc.).

5. Develop recommendations for the implementation of the proposed Federal standard applicable to Federal use.

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FIPS TASK GROUP 8

**GUIDELINES FOR DESCRIBING DATA
 INTERCHANGE FORMATS**

Scope:

Develop guidelines for describing in man-to-man terms (documentation) the data formats involved in information interchange.

Work Program:

1. To identify the types of formats that need to be described. (Priority to be given to those formats currently used in punched card and magnetic tape interchange.)

2. To identify the criteria that should be satisfied by the guidelines.

3. To obtain, to the extent practicable, material from information processing activities

concerning their current procedures for describing data formats.

4. To evaluate current procedures in terms of the criteria to determine if any current practice(s) meet(s) the requirements in order to determine if further development is necessary or whether existing procedures can be used.

5. To advise NBS concerning Federal input to activities of a similar nature being conducted under the sponsorship of the American National Standards Institute.

Note: Work of FIPS Task Group 8 has been completed, with resulting FIPS PUB 20 published early in 1972.

FIPS TASK GROUP 9

COBOL STANDARD

Scope:

Develop recommendations to the National Bureau of Standards on the content of the Federal COBOL Standard in order to maintain the standard responsive to Government users needs. This includes adoption of the national standard as prescribed in FIPS PUB 23. Establish a dialogue with the Government COBOL community that insures a wide spectrum of user participation in the work of the task group.

Program of Work:

1. Identify and recommend desirable changes to maintain the Federal COBOL Standard responsive to Government users needs.

2. Develop appropriate Government recommendations for inclusion into the future COBOL standards work of ANSI and CODASYL.

3. Identify and review ANSI and CODASYL proposed standards changes on COBOL and develop recommended Federal Government positions as required. Minority positions within the task group will be reported.

4. Prepare technical changes to COBOL FIPS PUB relating to language specifications.

5. Recommend desirable changes and location of new language elements in existing subsets and levels.

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FIPS PUB 12-2

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FIPS TASK GROUP 10

GUIDELINES FOR COMPUTER SYSTEM AND COMPONENT PERFORMANCE EVALUATION

Scope:

1. To review, promote development of, and recommend standards, guidelines, and measures in the area of computer performance evaluation (CPE) for federal agencies. CPE includes the measurement and analysis of the interactions of computer systems and operations for the purpose of improving the performance of a computer system or set of systems.

2. To sponsor a self-governing Computer Performance Evaluation Users Group (CPEUG) to disseminate improved techniques in performance evaluation through liaison among vendors, industry, federal, state and local government ADPE users; to provide a forum for performance evaluation experiences and proposed applications; and to encourage improvements and standardization in the tools and techniques of computer performance evaluation.

3. Because of the degree of commonality with respect to problems addressed, Task Group 10 will keep close liaison with Task Group 13 (Workload Definition/Benchmarking).

Program of Work:

1. Function on a continuing basis as an interagency forum for CPE information interchange.

2. Assist NBS in identifying and defining technically valid CPE techniques and criteria.

3. Assist government agencies in validating CPE standards and guidelines.

4. Prepare recommendations for the FIPS-CAC on the government-wide application of standards or guidelines that may be proposed by the NBS or others for use of CPE.

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FIPS TASK GROUP 11

OPTICAL CHARACTER RECOGNITION

Scope:

Determine the need for standards and guidelines in the subject area and, as deemed necessary, develop detailed recommendations to the National Bureau of Standards for proposed Federal Information Processing Standards and/or tutorial papers and guidelines for OCR users.

Program of Work:

1. Survey Federal Community on the use or intended use of OCR with specific attention to character sets and codes and their relationship to ASCII Standards.

2. Review proposed FIPS PUB on Layout of Forms for OCR Input to determine its adequacy and need as a Federal Standard or Guideline.

3. Identify and review industry standard proposals relating to OCR and develop recommended Federal Government positions on these as required.

4. Identify documents or elements thereof which should be proposed as Federal Standards.

5. Develop, if required, proposed FIPS PUBS.

6. Determine the need for, and develop procedures to promote the submission and publication of tutorial papers and guidelines on OCR as advisory documents for users.

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FIPS PUB 12-2

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FIPS TASK GROUP 12

**SIGNIFICANCE AND IMPACT OF ASCII AS A
FEDERAL STANDARD**

Scope:

1. Make a survey of government users, non-government users, and producers of computer systems on the significance and impact of ASCII as a Federal standard.

2. Analyze the results of the survey, and prepare a report summarizing the findings.

Program of Work:

1. Plan for the survey to be conducted in accordance with the NBS plan as contained in the memorandum "Determination of the Significance and Impact of ASCII as a Federal Standard", FC 12, dated September 13, 1972.

2. Develop further details of this program of work.

3. Notify FIPSCAC of plan for survey and recommend further details of program of work.

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FIPS TASK GROUP 13

WORKLOAD DEFINITION/BENCHMARKING

Scope:

Identify and recommend to the FIPSCAC guidelines for computer workload characterization, determination, prediction, and representation for benchmarking purposes in evaluating and selecting computer systems and computer services throughout the Federal Government to aid in:

1. Computer systems evaluation and selection.

2. Cost-performance analysis of time shared services.

Program of Work:

1. Establish and function, on a continuing basis, as an interagency forum and central exchange of information on problems and methods of workload definition and representation for benchmarking purposes. Information will be solicited from Government and industry users and user's groups, computer selection agencies, and equipment manufacturers.

2. Identify and evaluate currently used techniques and procedures for workload definition and benchmarking. Identify the major technical and operational problems of each.

3. Identify and evaluate proposed new concepts, techniques, and procedures for workload/benchmark activities including:

- a. Problem statement languages
- b. Resource monitors
- c. Computer aids
- d. Synthetic job streams
- e. Application benchmark libraries

4. Develop a plan for a mechanism for sharing benchmark programs.

5. Prepare Federal uniform practices or standards recommendations for FIPSCAC consideration in the area of workload definition/benchmarks.

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FIPS TASK GROUP 14

DOCUMENTATION FOR INFORMATION PROCESSING SYSTEMS

Scope:

To develop standards and guidelines for the documentation of individual computer programs, automated data systems* and information processing systems.**

* An automated data system is defined as an assembly of computer programs.

** An information processing system is defined as an organized collection of people, machines and computer programs.

Program of Work:

Identify and review prior and on-going work relevant to the stated scope of this effort. Identify the set of documents necessary to describe the software and systems cited above. First priority will be given to (1) documentation of abstracts and second priority to (2) documentation of computer programs.

Documentation of Abstracts

Identify, define and recommend a formatted set of descriptive data elements for abstracts of each of the following:

- individual computer programs
- automated data systems
- information processing systems

The order of work will be determined by the group.

Computer Program Documentation

Identify significant factors and criteria to be considered in the development of guidelines or standards for describing computer programs, i.e., anticipated audience, program complexity, program generality, program application, etc.

Develop and recommend a series of FIPS PUBS relevant to the stated scope (see above) for use throughout the Federal Government designed to promote cost-effective management of software resources.

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FIPS PUB 12-2

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FIPS TASK GROUP 15

COMPUTER SYSTEMS SECURITY

Scope:

To recommend standards and guidelines for Federal agencies in the area of computer systems security.

Program of Work:

1. Drawing on the experience and responsibilities of their respective agencies, the task group will:

a. Define the Computer Security responsibilities and requirements of their respective agencies.

b. Identify the purpose and projected goals of any current security activities and programs.

c. Assist NBS in the development of a taxonomy of Federal ADP installation and users according to their computer security requirements.

2. Identify common computer security requirements and problems.

3. Study and/or review significant Federal Government, local government, industry, and university programs in controlled accessibility for possible contributions to or incorporation in (5).

4. Review current and planned programs within and outside the government in the area of physical security measures; and review, upgrade, propose new, or reference, physical security guidelines and standards to be used in concert with (5).

5. Propose standards and guidelines in controlled accessibility for Federal agencies.

6. Assist in validating these standards and guidelines within the agencies represented.

FIPS TASK GROUP 16

BASIC STANDARD PROGRAMMING LANGUAGE

Scope:

Develop recommendations to the National Bureau of Standards for a Federal BASIC Standard which is responsive to Government users needs. Establish a dialogue with the Government BASIC community that insures a wide spectrum of user participation in the work of the task group. Maintain the Federal BASIC Standard consistent with Government users needs. Cooperate with and participate in American National Standards Institute Committee efforts to develop a voluntary industry standard for BASIC.

Program of Work:

1. Study and develop recommendations concerning the suitability of the NBS "FUNDAMENTAL BASIC" specifications as a Federal Standard.

2. Develop a FUNDAMENTAL BASIC programming language standard comprised of a

nucleus and a series of upward compatible modules suitable for implementation as subsets when combined with the nucleus.

a. Develop a nucleus language in a form suitable for processing as a proposed Federal standard.

b. Identify those language features best suited as module components for enhancing the use of the standard.

c. Develop modular groupings using those language features identified as best suited for enhancement.

d. Develop an updated Federal standard for the total FUNDAMENTAL BASIC language in the form of a nucleus and upward compatible levels of modular subsets.

3. Identify and monitor ANSI efforts on BASIC standards. Develop appropriate Government recommendations for inclusion into BASIC standards work of ANSI committees.

4. Identify and recommend desirable changes to maintain the Federal BASIC standard responsive to Government users needs, (e.g., location of new language elements in subsets and levels).

5.1.4. Federal Programs Standards Groups for Data Element and Codes

5.1.4.1. Federal Telecommunications Program Standards Committee

Program:

In accordance with OMB Circular A-86, the National Communications System (NCS) was designated by the Office of Management and Budget (OMB) as the head agency to be responsible for the development and maintenance of Federal program standards regarding data elements and codes in Federal telecommunications systems. The Federal Telecommunications Program Standards Committee, composed of interested Federal agency representatives is presently concerned with the development of data standards in the areas of frequency management and the NCS Circuit Directory.

Chairman: Mr. Dennis Bodson
National Communications System
NCS-TS
Washington, D.C. 20305
202-692-2131

<i>Federal Participants</i>	<i>Department and/or Agency</i>
Mr. E. K. Akers	Veterans Administration
Mr. Cletus L. Eadie	General Services Administration
Mr. George Garber	Office of Telecommunications, DOC
Mr. James P. Hammond	National Aeronautics and Space Administration
Mr. Stanley Kovy	Smithsonian Institution
Mr. F. E. Landers	Veterans Administration
Mr. J. D. McPherson	U.S. Atomic Energy Commission
Mr. Jack Rubley	U.S. Information Agency
Mr. Raymond W. Seddon	Federal Communications Commission
Cdr. R. G. Stammerjohn	Department of Defense, DCA

5.1.4.2. Federal Telecommunications Standards Committee (FTSC)

Program:

The National Communications System was given the responsibility, by the General Services Administrator, for the development of telecommunication standards for the NCS interoperability and the computer-communications interface. The objectives of the Federal Telecommunications Standards Committee (FTSC) are: (1) to develop, coordinate and promulgate the technical and procedural standards required to achieve operational compatibility among functionally similar networks of the National Communications System; (2) in concert with the NBS, to develop and coordinate technical and procedural standards for data transmission and the computer-telecommunication interface; and (3) increase cohesiveness and effectiveness of the Federal telecommunication community's influence on national/international standards programs and on the FIPS Program.

FIPS PUB 12-2

Chairman: Mr. Marshall Cain
Assistant Manager for Technology
& Standards
National Communications System
NCS-TS
Washington, D.C. 20305
202-692-2124

<i>Principal Members</i>	<i>Department and/or Agency</i>
Dr. James H. Babcock	Central Intelligence Agency
Mr. Charles N. Brashears	U.S. Atomic Energy Commission
Mr. Roger Daniero	General Services Administration
Mr. Alfred Giovetti	Department of State
Mr. David Hall	Office of Telecommunications Policy
Dr. Joseph O. Harrison, Jr.	Department of Commerce, NBS
Mr. Andrew Hartigan	Department of Defense
Dr. Michael Muntner	General Services Administration
Mr. Robert Powell	Department of Commerce, OT
Mr. Frank Rose	Federal Communications Commission
Mr. Charles A. Taylor	National Aeronautics and Space Administration
Mr. W. C. Unkenholz	Department of Defense, NSA
Mr. Joseph Yevonishon	Department of Transportation, FAA

5.1.5. Agency Points of Contact for Federal Information Processing Standards, Other Than Data Elements and Codes (FIPS CONTACTS)

At the request of the National Bureau of Standards, the following offices have been designated by Federal Departments and Agencies as central points of contact for matters concerning Federal Information Processing Standards (other than data elements and codes). In some cases these offices are also the points of contact for FIPS PUB 28, Standardization of Data Elements and Representations.

Chief of Systems and Programming Computer Services
ACTION
1717 H Street, N.W.—Room 314
Washington, D.C. 20525
ATTN: Mr. Paul E. Steinhauer

Chief, Division of Information Systems
ADMINISTRATIVE OFFICE OF THE U.S. COURTS
Supreme Court Building
Washington, D.C. 20544
ATTN: Mr. William E. Davis
202-393-1640, Ext. 381

Office of Data Management
Room 725, SA-12
AGENCY FOR INTERNATIONAL DEVELOPMENT
Washington, D.C. 20523
ATTN: Mr. John S. Marshall
202-632-0032

AMERICAN BATTLE MONUMENTS COMMISSION
Room 2067 Tempo A
Washington, D.C. 20315
ATTN: Mrs. Mallwitz
202-693-6099

APPALACHIAN REGIONAL COMMISSION
1666 Connecticut Avenue, N.W.
Washington, D.C. 20235
ATTN: FIPS Point of Contact
202-967-3237

ATOMIC ENERGY COMMISSION
MIT ADMIN CA 435
Washington, D.C. 20545
ATTN: Mr. Robert L. Mayer
301-973-5131

CANAL ZONE GOVERNMENT
312 Pennsylvania Building
Washington, D.C. 20004
ATTN: FIPS Point of Contact
202-382-6453

Comptroller
CENTRAL INTELLIGENCE AGENCY
Washington, D.C. 20505
703-351-4456

Data Processing Division
Bureau of Accounts and Statistics
CIVIL AERONAUTICS BOARD
1825 Connecticut Avenue, N.W.
Washington, D.C. 20428
ATTN: Mr. Robin A. Caldwell
202-382-3451

Director of the Office of Management
UNITED STATES COMMISSION ON CIVIL RIGHTS
1121 Vermont Avenue, N.W.
Washington, D.C. 20425
ATTN: Mr. Bert Silver
202-254-6616

COUNCIL OF ECONOMIC ADVISORS
Executive Office Building
Washington, D.C. 20506
ATTN: FIPS Point of Contact
202-395-3000

Chief Administrative Officer
 DELAWARE RIVER BASIN COMMISSION
 P.O. Box 360
 Trenton, NJ 08603
 ATTN: Mr. Arthur Peeck
 609-883-9500

Office of Automated Systems
 DEPARTMENT OF AGRICULTURE
 Room 3131-5, ADS
 14th & Independence Avenue, S.W.
 Washington, D.C. 20250
 ATTN: Mr. Thomas Q. Stevenson
 202-447-2119

Chief, ADP Management Division, OOMS
 U.S. DEPARTMENT OF COMMERCE
 Room 5312, Main Commerce
 Washington, D.C. 20230
 ATTN: Mr. Robert L. Johnson
 202-967-3201

DEPARTMENT OF DEFENSE
 Automation Policy, Technology and Standards
 Office, Secretary of Defense (Comptroller)
 Washington, D.C. 20301
 ATTN: Mr. Wharton L. McGreer
 202-697-8630

DEPARTMENT OF HEALTH, EDUCATION AND
 WELFARE
 Room 3354—North Bldg.
 Washington, D.C. 20201
 ATTN: Mr. Wallace McPherson
 202-245-6803

Director, ADP Technology & Standards Staff
 Room 4156
 DEPARTMENT OF HOUSING AND URBAN
 DEVELOPMENT
 451 7th Street, S.W.
 Washington, D.C. 20410
 ATTN: Mr. Chet H. Harris
 202-755-5961

Office of Management Consulting
 DEPARTMENT OF THE INTERIOR
 18th & C Streets, N.W.
 Washington, D.C. 20240
 ATTN: Mr. Harris G. Reiche
 202-343-6051

Office of ADP, Telecommunications Policy & Develop-
 ment
 DEPARTMENT OF JUSTICE
 10th & Constitution Avenue, N.W.
 Washington, D.C. 20530
 ATTN: Mr. Daniel B. Schneider
 202-739-3134

DEPARTMENT OF LABOR
 GAO Building
 441 G Street, N.W.
 Washington, D.C. 20548
 ATTN: Mr. Fred J. Cole
 202-961-3776

Automated Data Processing Division
 DEPARTMENT OF STATE
 Washington, D.C. 20520
 ATTN: Mr. W. Wallace Francis
 202-632-2278

Information Systems Division
 DEPARTMENT OF TRANSPORTATION
 Office of the Secretary, TAD-25
 Washington, D.C. 20590
 ATTN: FIPS Point of Contact
 202-426-4721

Office of Computer Sciences
 DEPARTMENT OF THE TREASURY
 Room 5116, Main Treasury Building
 Washington, D.C. 20220
 ATTN: Mr. Volney M. Taylor
 202-964-5751

Office of Planning and Management
 Division of Systems Development and
 Computer Services
 DISTRICT OF COLUMBIA
 509 7th Street, N.W.
 Washington, D.C. 20004
 ATTN: Mr. Daniel A. Walton
 202-628-3282

Director, Office of Management and Evaluation
 D.C. REDEVELOPMENT LAND AGENCY
 1325 G Street, N.W.
 Washington, D.C. 20005
 ATTN: Mr. D. C. Drohat
 202-382-5567

Division of Management and Organization
 Office of Administration
 EQUAL EMPLOYMENT OPPORTUNITY
 COMMISSION
 Washington, D.C. 20506
 ATTN: Mr. Martin O. Alexander
 202-343-6198

ADP Section
 EXPORT-IMPORT BANK OF THE U.S.
 811 Vermont Avenue, N.W.
 Washington, D.C. 20571
 ATTN: Mr. Joseph Magyar
 202-382-1707

Accounting, Budget and Data Management Division
 FARM CREDIT ADMINISTRATION
 485 L'Enfant Plaza West, S.W.—Room 22
 Washington, D.C. 20578
 ATTN: Mr. Paul C. Redmer
 202-755-2150

FIPS PUB 12-2

FEDERAL COMMUNICATIONS COMMISSION
Data Automation Division
Support & Evaluation Section
Office of Management Systems and Financial Audits
1919 M Street—Room 438
Washington, D.C. 20554
ATTN: Mr. Roland Page
202-254-5410

**FEDERAL DEPOSIT INSURANCE
CORPORATION**
550 17th Street, N.W.—Room 2029
Washington, D.C. 20429
ATTN: Mr. John N. Weiss
202-389-4417

FEDERAL HOME LOAN BANK BOARD
Data Management Division
101 Indiana Avenue, N.W.
Washington, D.C. 20552
ATTN: Mr. Howard Nathanson
202-382-4097

Division of Office Services
FEDERAL MARITIME COMMISSION
1405 I Street, N.W.
Washington, D.C. 20573
ATTN: Mr. John C. Woodburn
202-783-3504

Administrative Management
**FEDERAL MEDIATION AND CONCILIATION
SERVICE**
Room 1218, Department of Labor Building
Washington, D.C. 20427
ATTN: Mr. S. P. Lejko
202-961-3557

Computer Systems Branch
Office of the Comptroller
FEDERAL POWER COMMISSION
Union Center Building
1825 North Capitol Street, N.E.
Washington, D.C. 20426
ATTN: Mr. Richard E. Kear
202-386-3260

**DIRECTOR BOARD OF GOVERNORS OF THE
FEDERAL RESERVE SYSTEM**
Division of Data Processing
Washington, D.C. 20551
ATTN: Mr. Charles L. Hampton

FEDERAL TRADE COMMISSION
Pennsylvania Avenue & 6th Street, N.W.
Washington, D.C. 20580
ATTN: Mr. J. A. Delaney
202-962-8583

**FOREIGN CLAIMS SETTLEMENT COMMISSION
OF THE UNITED STATES**
1111 20th Street, N.W.
Washington, D.C. 20579
ATTN: FIPS Point of Contact
202-382-7700

Assistant Director, FGMSD
GENERAL ACCOUNTING OFFICE
Room 6524
441 G Street, N.W.
Washington, D.C. 20548
ATTN: Mr. Kenneth A. Pollock
202-386-3592

GENERAL ACCOUNTING OFFICE
Room 7822
441 G Street, N.W.
Washington, D.C. 20548
ATTN: Mr. Robert J. Kraus
202-386-3592

Automated Data & Telecommunications Service
Assistant Commissioner for Agency Assistance,
Planning & Policy
GENERAL SERVICES ADMINISTRATION
Washington, D.C. 20405
ATTN: Mr. Sidney Weinstein
202-254-3370

Director, Data Systems Service
U.S. GOVERNMENT PRINTING OFFICE
Washington, D.C. 20401
ATTN: Mr. Raymond J. Pluto
202-426-7905

INDIAN CLAIMS COMMISSION
1730 K Street, N.W.
Washington, D.C. 20006
ATTN: FIPS Point of Contact
202-382-6433

Section of Systems Development
INTERSTATE COMMERCE COMMISSION
12th & Constitution Avenue
Washington, D.C. 20423
ATTN: Mr. Robert J. Hartel
202-343-6589

Administrative Department
Information Systems Office
LIBRARY OF CONGRESS
10 First Street, S.W.
Washington, D.C. 20540
ATTN: Mr. Paul R. Reimers
202-426-5114

**NATIONAL AERONAUTICS & SPACE
ADMINISTRATION**
Office of Tracking and Data Acquisition
Washington, D.C. 20546
ATTN: Mr. Kenneth R. Webster
202-755-2333

NATIONAL CAPITAL HOUSING AUTHORITY
 1170 12th Street, N.W.
 Washington, D.C. 20430
 ATTN: FIPS Point of Contact
 202-393-3111

NATIONAL CAPITAL PLANNING COMMISSION
 726 Jackson Place, N.W.
 Washington, D.C. 20576
 ATTN: FIPS Point of Contact
 202-382-1161

NATIONAL COMMUNICATIONS SYSTEM
 NCS-TS
 Arlington, Va. 22204
 ATTN: Mr. George W. White
 202-692-2127

NATIONAL COUNCIL ON INDIAN OPPORTUNITY
 726 Jackson Place, N.W.
 Washington, D.C. 20506
 ATTN: FIPS Point of Contact
 202-395-3412

NATIONAL FOUNDATION ON THE ARTS
 AND THE HUMANITIES
 806 15th Street, N.W.
 Washington, D.C. 20506
 ATTN: Systems Accountant
 202-382-7504

NATIONAL LABOR RELATIONS BOARD
 1717 Pennsylvania Avenue, N.W.
 Washington, D.C. 20570
 ATTN: FIPS Point of Contact
 202-393-3111

Executive Secretary
NATIONAL MEDIATION BOARD
 1230 16th Street, N.W.
 Washington, D.C. 20572
 ATTN: Mr. Thomas A. Tracy
 202-343-8781

NATIONAL SCIENCE FOUNDATION
 1800 G Street, N.W.
 Washington, D.C. 20550
 ATTN: Mr. Richard W. H. Lee
 202-632-5845

NATIONAL SECURITY COUNCIL
 Executive Office Building
 Washington, D.C. 20506
 ATTN: FIPS Point of Contact
 202-395-3000

NATIONAL SELECTIVE SERVICE APPEAL
 BOARD
 Room 509
 1724 F Street, N.W.
 Washington, D.C. 20435
 ATTN: FIPS Point of Contact
 202-343-1100

OFFICE OF ECONOMIC OPPORTUNITY
 A/MS—Room 419
 1200 19th Street, N.W.
 Washington, D.C. 20506
 ATTN: Mr. William Joslyn
 202-254-5300

OFFICE OF MANAGEMENT AND BUDGET
 NEOB, Room 9002
 17th & Pennsylvania Avenue, N.W.
 Washington, D.C. 20503
 ATTN: Mr. Walter Haase
 202-395-4745

OFFICE OF THE SPECIAL REPRESENTATIVE
 FOR TRADE NEGOTIATIONS
 1800 G Street, N.W.—Room 727
 Washington, D.C. 20506
 ATTN: Mr. James I. Walsh
 202-395-3582

Office of Management Control
RAILROAD RETIREMENT BOARD
 844 Rush Street
 Chicago, IL 60611
 ATTN: Mr. John S. Suker
 312-944-5500

THE RENEGOTIATION BOARD
 2000 M Street, N.W.
 Washington, D.C. 20446
 ATTN: Mr. Harold E. Stone, Director
 Office of Administration
 202-254-8266

SECURITIES AND EXCHANGE COMMISSION
 Office of Data Processing—Room 257
 500 North Capitol Street, N.W.
 Washington, D.C. 20549
 ATTN: Mr. Ralph L. Bell
 202-755-1152

Computer Service Center
SELECTIVE SERVICE SYSTEM
 1724 F Street, N.W.
 Washington, D.C. 20435
 ATTN: Mr. Bernard T. Harlow, Jr. (AXSS)
 703-557-1942

Data Management Division
SMALL BUSINESS ADMINISTRATION
 1441 L Street, N.W.—Room 920
 Washington, D.C. 20416
 ATTN: Mr. Fred S. Williams
 202-383-3321

Information Systems Division
 Room 1315, A&I Building
SMITHSONIAN INSTITUTION
 Washington, D.C. 20560
 ATTN: Mr. Stanley A. Kovy
 202-381-5417

FIPS PUB 12-2

Executive Secretary
SUBVERSIVE ACTIVITIES CONTROL BOARD
427 Lafayette Building
811 Vermont Avenue, N.W.
Washington, D.C. 20445
ATTN: Mr. Francis J. McNamara
202-393-6224

TAX COURT OF THE U.S.
Administrative Office of the Court
1111 Constitution Avenue, N.W.
Washington, D.C. 20044
ATTN: FIPS Point of Contact
202-964-3018

TENNESSEE VALLEY AUTHORITY
Computing Services Branch
101 Old Post Office Building
Chattanooga, Tennessee 37401
ATTN: Mr. Martin O. Hochdorf
615-755-2968

Reference Information Center
U.S. ARMS CONTROL AND DISARMAMENT
AGENCY
Room 5720, Department of State Bldg.
Washington, D.C. 20451
ATTN: Mr. Robert Whipp
202-632-8666

Bureau of Manpower Information Systems
U.S. CIVIL SERVICE COMMISSION
1900 E Street, N.W.—Room 6623
Washington, D.C. 20415
ATTN: Mr. Victor J. Cavagrotti
202-632-6814

U.S. ENVIRONMENTAL PROTECTION AGENCY
Chief, Data Systems Branch
401 M Street, S.W.
Washington, D.C. 20460
ATTN: Mr. Kermit Day

Office of Administration
Computer Services Center
U.S. INFORMATION AGENCY
Room 811
1750 Pennsylvania Avenue, N.W.
Washington, D.C. 20547
ATTN: Mr. Harold G. Davis
202-632-5378

UNITED STATES POSTAL SERVICE
Room 3003
L'Enfant Plaza West
Washington, D.C. 20260
ATTN: Mr. William Torpey
202-245-5578

U.S. TARIFF COMMISSION
8th & E Streets, N.W.
Washington, D.C. 20436
ATTN: Mr. Vincent A. Mariner
202-628-3947

VETERANS ADMINISTRATION
Department of Data Management
Technical Assistance Service (313)
810 Vermont Avenue, N.W.
Washington, D.C. 20420
ATTN: Mr. Philip H. Diamond
202-389-5141

Administrative Officer
WATER RESOURCES COUNCIL
Suite 900
1025 Vermont Avenue
Washington, D.C. 20005
ATTN: Mr. Richard N. Vannoy
202-382-6104

Naval Communications Command
Code MS0914
4401 Massachusetts Avenue
Washington, D.C. 20390
ATTN: Mr. Benjamin David Tallis

Director, House Information Systems
Committee on House Administration
1632 Longworth Building
Washington, D.C. 20515
ATTN: Dr. Frank B. Ryan

5.1.6. Points of Contact for Data Standards¹

The following agency points of contact have been designated by Federal Departments and Agencies for matters relating to the standardization of data elements and representations:

Chief of Systems and Programming Computer
Services
ACTION
1717 H Street, N.W.—Room 314
ATTN: Mr. Paul E. Steinhauser

Chief, Division of Information Systems
ADMINISTRATIVE OFFICE OF THE U.S.
COURTS
Supreme Court Building
Washington, D.C. 20544
ATTN: Mr. William E. Davis
202-393-1640, Ext. 381

*Director
Office of Data Management, SER/DM
Room 725, SA-12
AGENCY FOR INTERNATIONAL DEVELOP-
MENT
Washington, D.C. 20523
ATTN: Mr. Maury D. Brown
202-632-7962

¹Points of contact preceded by an asterisk (*) are those designated to date in accordance with Part 6 to Title 15 Code of Federal Regulations. Other contacts are those previously designated under OMB Circular A-86 which was rescinded on 1973 August 29.

AMERICAN BATTLE MONUMENTS
COMMISSION

2067 Tempo A
Washington, D.C. 20360
ATTN: Mrs. Mallwitz
202-693-6099

*ATOMIC ENERGY COMMISSION

MIT ADMIN CA 435
Washington, D.C. 20545
ATTN: Mr. Robert L. Mayer
301-973-5131

*Comptroller

CENTRAL INTELLIGENCE AGENCY
Washington, D.C. 20505

*Comptroller

CANAL ZONE GOVERNMENT
Balboa Heights, Canal Zone

*Chief, Data Processing Division
Bureau of Accounts and Statistics
CIVIL AERONAUTICS BOARD
1825 Connecticut Avenue, N.W.
Washington, D.C. 20428
ATTN: Mr. Robin A. Caldwell
202-382-3451

Office of Automated Systems
DEPARTMENT OF AGRICULTURE
Room 3131-5, ADS, South Building
14th & Independence Avenues, S.W.
Washington, D.C. 20250
ATTN: Mr. Thomas Q. Stevenson
202-447-2119

DEPARTMENT OF COMMERCE
Chief, ADP Management Division, OOMS
Room 5312, Main Commerce
Washington, D.C. 20230
ATTN: Mr. Robert L. Johnson
202-976-3201

*DEPARTMENT OF DEFENSE

Office of Deputy Comptroller for Data Automation
Room 1A658, Pentagon
Washington, D.C. 20301
ATTN: Mr. William B. Robertson
202-697-8636

*DEPARTMENT OF HEALTH, EDUCATION AND
WELFARE

Room 3354, North Building
Third and C Streets, S.W.
Washington, D.C. 20201
ATTN: Mr. Wallace McPherson
202-245-6803

DEPARTMENT OF HOUSING AND URBAN
DEVELOPMENT

Office of Organization & Management Information
Management & Data Evaluation Div.
451 7th Street, S.W.
Washington, D.C. 20410
ATTN: Mr. John J. Kalagher
202-755-2257

DEPARTMENT OF THE INTERIOR

Office of Management Consulting
18th & C Streets, N.W.
Washington, D.C. 20240
ATTN: Mr. Harris G. Reiche
202-343-6051

DEPARTMENT OF JUSTICE

Office of ADP, Telecommunications Policy and
Development
10th & Constitution Avenue, N.W.
Washington, D.C. 20530
ATTN: Mr. Daniel B. Schneider
202-739-3134

*DEPARTMENT OF LABOR

GAO Building
441 G Street, N.W.
Washington, D.C. 20548
ATTN: Mr. Fred J. Cole
202-961-3776

DEPARTMENT OF STATE

Automated Data Processing Division
Washington, D.C. 20520
ATTN: Mr. W. Wallace Francis
202-632-2278

DEPARTMENT OF TRANSPORTATION

Office of the Secretary
400 Seventh Street, S.W.
Washington, D.C. 20590
ATTN: Dr. Bruce Allen
202-426-1887

Office of Computer Science
DEPARTMENT OF THE TREASURY
Room 5116, Main Treasury Building
Washington, D.C. 20220
ATTN: Mr. Volney M. Taylor
202-964-5751

DISTRICT OF COLUMBIA

Personnel Office—Room 203
509 Seventh Street, N.W.
Washington, D.C. 20004
ATTN: Mr. Edwin Pitts
202-628-3283

EQUAL EMPLOYMENT OPPORTUNITY
COMMISSION

Division of Management and Organization
Office of Administration
1800 G Street, N.W.
Washington, D.C. 20506
ATTN: Mr. Martin O. Alexander
202-343-6198

FIPS PUB 12-2

***EXPORT-IMPORT BANK OF THE U.S.**

ADP Section
811 Vermont Avenue, N.W.
Washington, D.C. 20571
ATTN: Mr. Joseph Magyar
202-382-1707

***FARM CREDIT ADMINISTRATION**

Accounting, Budget and Data Management Division
Room 22—485 L'Enfant Plaza West, S.W.
Washington, D.C. 20578
ATTN: Mr. Paul C. Redmer
202-755-2150

FEDERAL COMMUNICATIONS COMMISSION

Chief Data Processing Division
1919 M Street, N.W.
Washington, D.C. 20554
ATTN: Mr. Richard C. Tuey
202-632-7115

FEDERAL DEPOSIT INSURANCE CORPORATION

Assistant Director, Division of Research
550 17th Street, N.W.
Washington, D.C. 20429
ATTN: Mr. Nicholas J. Suszynski, Jr.
202-389-4402

FEDERAL HOME LOAN BANK BOARD

Data Management Division
101 Indiana Avenue, N.W.
Washington, D.C. 20552
ATTN: Mr. Howard Nathanson
202-382-4097

FEDERAL MARITIME COMMISSION

Office of the Managing Director
1405 I Street, N.W.
Washington, D.C. 20573
ATTN: Mr. Andrew Drance
202-393-3496

FEDERAL MEDIATION AND CONCILIATION SERVICE

Administrative Management
Room 1218—Department of Labor Building
Washington, D.C. 20427
ATTN: Mr. S. P. Lejko
202-961-3557

FEDERAL POWER COMMISSION

Office of Finance and Management
Union Center Building
1825 North Capitol Street, N.E.
Washington, D.C. 20426
ATTN: Mr. Marsh H. Moy
202-386-3531

FEDERAL RESERVE SYSTEM

Board of Governors
Division of Data Processing—Room 1210
20th Street & Constitution Avenue, N.W.
Washington, D.C. 20551
ATTN: Mr. Jerold E. Slocum, Director
202-737-1100, Ext. 3595

***Chief, Management Division**

FEDERAL TRADE COMMISSION
Pennsylvania Avenue at Sixth Street, N.W.
Washington, D.C. 20580
ATTN: Mr. James E. Hughes

FOREIGN CLAIMS SETTLEMENT COMMISSION

Vanguard Building, Room 417
1111 20th Street, N.W.
Washington, D.C. 20579
ATTN: Mr. Francis T. Masterson
202-382-3137

GENERAL ACCOUNTING OFFICE—FGMSD

Deputy Director for ADP
Room 6106, GAO Building
Washington, D.C. 20548
ATTN: Mr. Kenneth A. Pollock
202-386-3974

GENERAL SERVICES ADMINISTRATION

Automated Data & Telecommunications Service,
CPPS
Washington, D.C. 20405
ATTN: Mr. Delbert L. Shoemaker
202-254-5178

GOVERNMENT PRINTING OFFICE

Director, Data Systems Service
Washington, D.C. 20401
ATTN: Mr. Raymond J. Pluto
202-426-7905

INTERSTATE COMMERCE COMMISSION

Office of the Managing Director
12th & Constitution Avenue, N.W.
Washington, D.C. 20423
ATTN: Mr. Robert L. Rebein
202-737-9765, Ext. 434

Library of Congress

Administrative Department
Information Systems Office
10 First Street, S.E.
Washington, D.C. 20540
ATTN: Mr. Paul R. Reimers
202-426-5114

***Chief of the Reports and Project Management Division (Code DSC)**

Office of Management Systems
NATIONAL AERONAUTICS AND SPACE ADMINISTRATION
Washington, D.C. 20546
ATTN: Mr. Wallace E. Velander
202-755-3525

NATIONAL BUREAU OF STANDARDS

Institute for Computer Sciences and Technology
Washington, D.C. 20234
ATTN: Mr. Harry S. White, Jr.
301-921-3157

NATIONAL COMMUNICATIONS SYSTEM

NCS-TS
 Washington, D.C. 20305
 ATTN: Mr. Dennis Bodson
 202-692-2131

NATIONAL FOUNDATION ON THE ARTS AND
THE HUMANITIES

806 16th Street, N.W.
 Washington, D.C. 20506
 ATTN: Mr. David C. Johnstone
 202-382-0617

*Chief, Data Systems Branch

NATIONAL LABOR RELATIONS BOARD

Washington, D.C. 20570
 ATTN: Mr. Jacob Stieger
 202-254-9226

NATIONAL SCIENCE FOUNDATION

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 Washington, D.C. 20550
 ATTN: Mr. George Pilarinos
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NATIONAL SECURITY COUNCIL

Room 383—Executive Office Building
 Washington, D.C. 20506
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OFFICE OF ECONOMIC OPPORTUNITY

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 1200 19th Street, N.W.
 Washington, D.C. 20506
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OFFICE OF MANAGEMENT AND BUDGET

NEOB, Room 9002
 17th & Pennsylvania Avenue, N.W.
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RAILROAD RETIREMENT BOARD

Office of Management Control
 844 Rush Street
 Chicago, Illinois 60611
 ATTN: Mr. John S. Suker
 312-944-5500

THE RENEGOTIATION BOARD

2000 M Street, N.W.
 Washington, D.C. 20446
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 202-254-8266

SECURITIES AND EXCHANGE COMMISSION

Office of Data Processing
 500 North Capitol Street—Room 257
 Washington, D.C. 20549
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 202-755-1152

*SELECTIVE SERVICE SYSTEM

Computer Service Center
 2550 Huntington Avenue
 Alexandria, Virginia 22303
 ATTN: Lt. Col. Douglas Anderson
 703-557-1934

SMALL BUSINESS ADMINISTRATION

Data Management Division
 1441 L Street, N.W.—Room 920
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SMITHSONIAN INSTITUTION
 Room 1315, A&I Building
 Washington, D.C. 20560
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TAX COURT OF THE U.S.

12th & Constitution Avenue, N.W.
 Washington, D.C. 20224
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TENNESSEE VALLEY AUTHORITY

Computing Services Branch
 101 Old Post Office Building
 Chattanooga, Tennessee 37401
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U.S. ARMS CONTROL AND DISARMAMENT
AGENCY

Reference Information Center
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 Washington, D.C. 20451
 ATTN: Mr. Robert Whipp
 202-632-8666

U.S. CIVIL SERVICE COMMISSION

Bureau of Manpower Information System
 1900 E Street, N.W.—Room 6455
 Washington, D.C. 20415
 ATTN: Data Standards
 202-632-6890

U.S. ENVIRONMENTAL PROTECTION AGENCY

Director, Management Information System
 Division
 401 M Street, S.W.
 Washington, D.C. 20460
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U.S. INFORMATION AGENCY

Office of Administration
 Computer Services Center
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FIPS PUB 12-2

*Director, Office of Planning & Evaluation
U.S. POSTAL SERVICE
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8th & E Streets, N.W.
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VETERANS ADMINISTRATION
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Washington, D.C. 20390
ATTN: Mr. Benjamin David Tallis

Director, House Information Systems
Committee on House Administration
1632 Longworth Building
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ATTN: Dr. Frank B. Ryan

5.2. American National Standards Institute

The development of standards is an activity on which the national economy depends. To industry, standardization provides dollar savings through mass production, production of uniform goods, and reduction of time and materials through standard designs, equipment, procedures, and testing. To the purchasing agent, standards offer increased efficiency by freeing him from preparing individual sketches, descriptions, and specifications for each purchase. The distributor benefits from having to stock fewer varieties and sizes of commodities and from simplified inventories. Every branch of industry and commerce recognizes that standards promote fair trade by providing a common language between buyer and seller and a basis for evaluating competitive vendors.

The above statements are directed at standards in general, but are most pertinent to computers and information processing. As the computer industry grows to maturity, standardization is becoming a more essential factor. Early emphasis during the growth of the industry was in getting each component of a system to work. Now that this has been attained, entire systems must be made to work together. For this, standards must be considered in the initial design of data systems, rather than after they are built.

Today the industry is paying for its earlier neglect of standards by expending untold resources (time, money, and manpower) to build a multitude of black boxes (hardware and software) to provide the interfaces between systems and components. An estimated 25 percent of the present computer power is used to provide systems compatibility. In fact, entire new industries have been established to provide conversion services. Because this situation had reached such tremendous proportions, a committee was formed in 1960 to address this national problem under the auspices of the now American National Standards Institute (formerly the American Standards Association and, from 1966 to 1969, the United States of America Standards Institute). This committee, which was named the USA Standards Committee for Computers and Information Processing with the committee designation X3, was given

the task of standardization related to systems, computers, equipments, devices, and media for information processing systems.

The Federal Government is a major contributor to the work of the American National Standards Institute (ANSI). The Director of the National Bureau of Standards is a member of its Board of Directors. Representatives from various government departments and agencies participate through the many ANSI councils, boards, committees, subcommittees, and task groups.

Soon after the NBS Center for Computer Sciences and Technology was formed in 1965 and given the responsibility for Federal standardization in this area, the Bureau of the Budget provided policy direction by stating that NBS would participate on and cooperate in the development of national voluntary standards to the extent that such activities were beneficial to the Federal Government. Also, NBS was given the responsibility of monitoring the participation of government representatives on the different ANSI standardization groups to ensure that the interests of the entire Federal establishment were presented and protected in the field of information processing. The NBS Office of ADP Standards Management in the Institute for Computer Sciences and Technology is responsible for this task.

In developing standards for use in the Federal Government that provide economic and effective use of computers and related systems, major emphasis is given to the development and adoption of national voluntary standards that also meet the needs of Federal activities. Developing separate Federal standards would be much faster and simpler than spending months or, in some cases, years in contributing to the development of national voluntary standards. However, separate and different Federal standards eventually cost the Government more in that they lead to tailor-made or customized equipment and services of use only to Government. Not only must the Government guard its interests, but it must also be aware of the industry's need for standards and the role of standardization in promoting international trade and commerce.

Because of the Government's concern with ANSI's role in standardization, some basic information about ANSI is pertinent.

ANSI is the national clearinghouse and coordinating agency for voluntary standards in the United States. It is a nonprofit (membership) organization incorporated under the laws of the State of New York and is located at 1430 Broadway in New York City. It is a federation of approximately 140 trade associations and professional societies, and over 750 companies, which are dues paying members. Donald L. Peyton is the Managing Director of the Institute.

ANSI was originally organized as the American Engineering Standards Committee (AESC) in 1918 by five engineering societies: American Institute of Electrical Engineers, American Society of Mechanical Engineers, American Society of Civil Engineers, American Society of Mining and Metallurgical Engineers, and American Society for Testing Materials. The AESC's initial purpose was to provide means for coordinating the standards issued by its founders, eliminating confusion and duplication among those standards. Its first act was to invite three Federal Government departments to join and work with the founding societies: the War Department, the Navy Department, and the Department of Commerce accepted the invitation. Enlarged in 1920 by the addition of trade associations, as well as more technical and professional societies, the AESC in 1928 was reorganized as the American Standards Association (ASA) to provide a more workable structure. The principles and procedures that were developed by the founders basically applied to the work of the American Standards Association through 1966, when ASA became the United States of America Standards Institute (USASI). In 1969, the present, American National Standards Institute, was adopted.

As the national clearinghouse for standards, ANSI provides the machinery for developing and approving standards that are supported by a national consensus. Its constitution states: "In standardization practice a consensus is achieved when substantial agreement is reached by concerned interests according to the judgment of a duly appointed authority.

Consensus implies much more than the concept of a simple majority, but not necessarily unanimity."

Technical societies, trade associations, consumer groups, and the like make up the Member Bodies of ANSI. Other classes of members are Company Members, Sustaining Members (individuals or organizations not otherwise eligible for membership but interested in standards development), and Honorary Members. Three councils make up the operating arms of ANSI—the Member Body Council, the Company Member Council, and the Consumer Council. Each council may establish such boards and committees as are considered necessary to accomplish its program. The Member Body Council is responsible for approving standards, and develops and maintains all procedures relating to the preparation, approval, acceptance, and designation of standards, and the constitution of standards boards and committees. The Company Member Council develops programs to maintain liaison with, and represent the interests of, commerce and industry in ANSI's work. The Consumer Council is responsible for the representation and protection of consumer interest in ANSI's work. The Consumer Council is also concerned with the application of ANSI's procedures for certifying and labeling consumer goods. Both the Company Member Council and the Consumer Council may recommend standards projects to be developed.

The Board of Directors is ANSI's governing body. It may delegate any part of its authority over the conduct of ANSI's affairs. Of the 45 members of the Board, 16 are drawn from the Member Body Council, 12 are nominated by the Company Member Council, four are nominated by the Consumer Council, and four are directors-at-large nominated by the Board of Directors. In addition, the president, the three vice presidents, the Director of the National Bureau of Standards, if willing to serve (ex officio, with vote), the chairman of the three councils, and the past president of ANSI are members of the Board.

Over 2800 American National Standards have been published. Of these, more than one-third were submitted by competent organizations that had developed standards through their own procedures, and supplied evidence of con-

sensus in support of such standards. The balance resulted from the work of sectional committees.

ANSI is the United States Member Body of the International Organization of Standardization (ISO). The United States' viewpoints to be presented in the technical work of the ISO may be developed through the interested ANSI sectional committee, through a competent committee of another standards organization, or through a committee specifically organized as an Advisory Committee to an ISO Technical Committee. The work of the Technical Committees eventually results in ISO Recommendations that may be embodied in the national standards of the ISO Member Bodies. A number of ISO Recommendations have been embodied in American National Standards. For international standardization in the electrical field, ANSI provides services to the United States National Committee of the International Electrotechnical Commission (IEC). The IEC, an autonomous (non-governmental) organization formed in 1904, serves as the electrical branch of the ISO and devotes its activities solely to the electrical field.

Financial support for ANSI comes from dues paid by Company Members, Member Bodies, and Sustaining Members. An additional source of income comes from the sale of American National Standards.

Annually, ANSI holds a National Conference on Standards that includes presentation of standards problems at the international, national, industry, and company level. The proceedings of these conferences are published and are available to the public.

5.2.1. Information Systems Technical Advisory Board (ISTAB)

To provide direct supervision of the hundreds of American National Standards Institute Technical Activities, there exists within ANSI a number of Standards Boards, each responsible for several efforts in a general area of standardization. X3, along with the standards committees for office machines, vocabulary for automatic control, and library sciences and documentation, reports to the Information

Systems Technical Advisory Board. The scope of the ISTAB is as follows:

All aspects of systems that transmit, store, or process analog symbolic or encoded representations of information, including satellite or control systems, peripheral equipment, and auxiliary devices that significantly influence the effective utilization of composite information processing systems.

Federal Participants

Mr. Wharton L. McGreer, (A), Department of Defense
 Dr. Michael Muntner, (A), General Services Administration
 Mr. Delbert Shoemaker, (P), General Services Administration
 Mr. Harry S. White, Jr., (P), Department of Commerce, NBS

5.2.2. American National Standards Committee X3

Committee X3 is sponsored by the Computer and Business Equipment Manufacturers Association (CBEMA). As sponsor, CBEMA acts as the secretariat, provides essential administrative support, and is responsible to ANSI for the general administration of X3.

With the express purpose of accelerating and simplifying the processing of EDP standards, the X3 Systems Advisory Committee (SAC) proposed in 1968 that X3 be reorganized. This recommendation was made after thoroughly studying more than six years of X3 operations. Under the SAC proposal the X3 subcommittees would be realigned and their responsibilities absorbed by: (a) Standards Planning and Requirements Committee (SPARC), (b) Standards Steering Committee (SSC), (c) three Group Directors for Hardware, Software, and Systems Groups, and (d) eight Section Managers for related Working Groups. It was SAC's contention that eliminating an intermediate phase of voting at the technical level would accelerate the standards process.

Committee X3 approved the SAC proposal in principle and recommended as a first step the formation of the SPARC and SSC Committees and the dissolution of the Systems Advisory Committee.

CBEMA accepted the reorganization plan in principle, but did not agree to the immediate dissolution of the subcommittees. Instead CBEMA proposed that the reorganization be accomplished in two phases—setting up SPARC and SSC (and dissolving SAC) as the first phase, and realining the subcommittees only after the two new committees were functioning. It was CBEMA's view that the formation of the Groups and the appointment of Group Directors and Section Managers required careful timing to minimize adverse effects on the ongoing standards development work.

SPARC and SSC were formed and began functioning in the first half of 1969. At the October 1969 meeting of X3 a resolution was approved and proposed a letter ballot on the dissolution of Subcommittee X3.4, but the resolution provided that such letter ballot would not be necessary if CBEMA would now agree to move ahead with the second phase of the reorganization. Later in October 1969, CBEMA agreed.

It is important to recognize that American National Standards Institute procedures provide that all members of technical committees (all groups below the X3 level in this case) serve as technically qualified *individuals*. At the X3 level, members represent associations, professional societies, government agencies, companies, or other bodies having an interest in standards. These procedures further provide that at the standards committee level (X3 in this case, the member bodies are to be categorized as *consumers*, *producers*, or *general interest* members and that no category shall have a majority of votes. It will be noted by reference to the list of present X3 Member Bodies (table 1) that a balance exists between the categories with no category having a simple majority. The reorganization of X3 will have no effect on this balance or the X3 membership.

Government agencies represented on X3 are the National Bureau of Standards (NBS), General Services Administration (GSA), and the Department of Defense (DOD).

TABLE 1. Member Body Representation on X3 Standards Committee as of October 1973

PRODUCERS MEMBERS	CONSUMERS MEMBERS
Addressograph Multigraph Corporation	Air Transport Association
Burroughs Corporation	American Bankers Association
Control Data Corporation	American Library Association
General Electric Company	American Newspaper Publishers Assoc.
Honeywell Information Systems, Inc.	Association of American Railroads
IBM Corporation	Department of Defense
Litton Industries	Edison Electric Institute
National Cash Register Company	General Services Administration
Olivetti Corporation of America	GUIDE International
Pitney-Bowes, Inc.	Insurance Acctg. & Statistical Association
Recognition Equipment, Inc.	Life Office Management Association
Univac, Div. of Sperry Rand Corp.	National Association of State Information Systems
Xerox Corporation	National Retail Merchants Association
	Printing Industries of America, Inc.
	Scientific Apparatus Makers Association
	SHARE
GENERAL INTEREST MEMBERS	
American Institute of Certified Public Accountants	
American Nuclear Society	
American Society of Mechanical Engineers	
Association for Computer Programmers and Analysts	
Association for Computing Machinery	
Association for Educational Data Systems	
Association for Systems Management	
Association of Data Processing Service Organizations	
Data Processing Management Association	
Electronic Industries Association	
Institute of Electrical and Electronic Engineers	
Joint Users Group	
National Bureau of Standards	
Society for Certified Data Processors	
Telephone Group	

ANSI X3 STANDARDS COMMITTEE ORGANIZATION

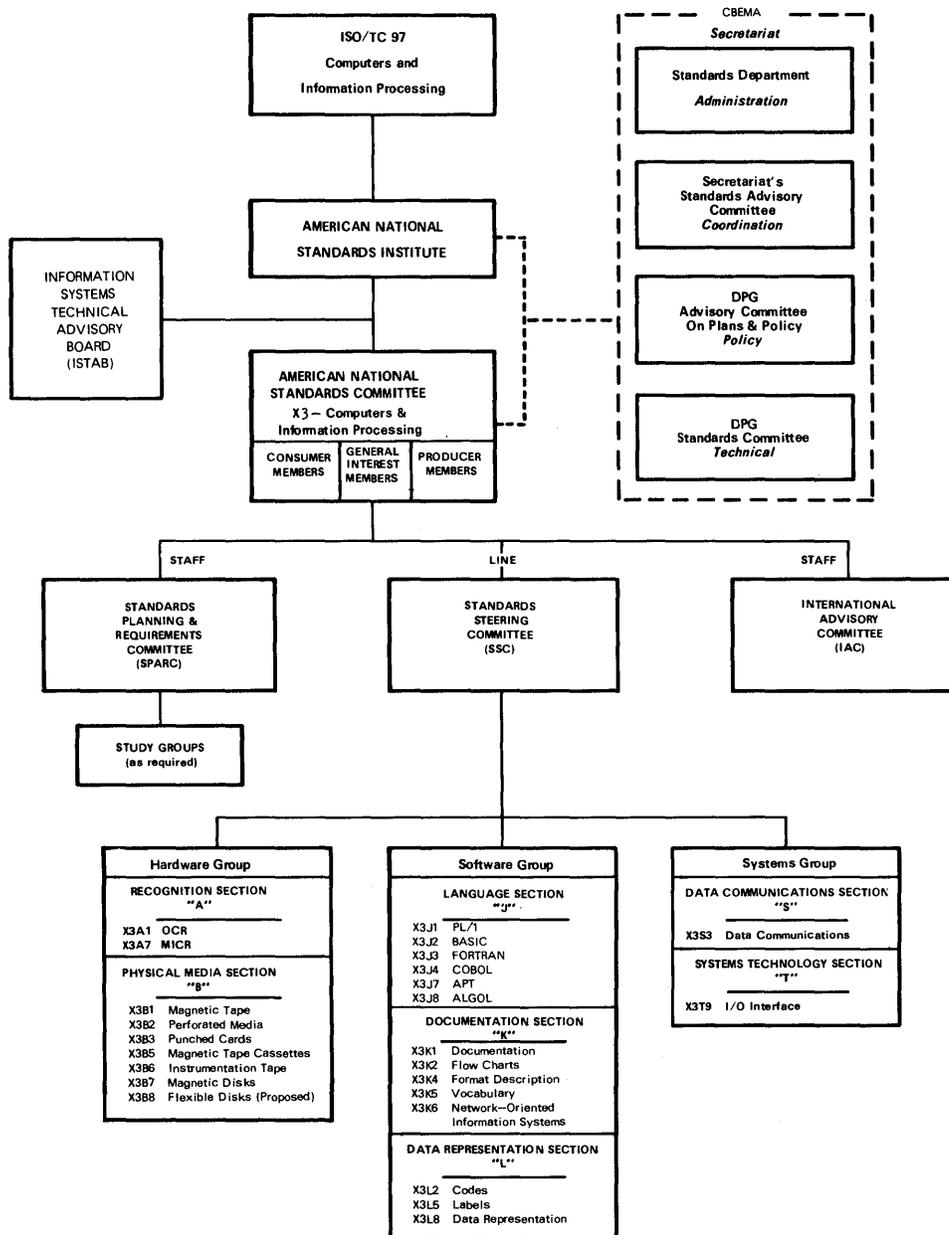


Figure 1.

5.2.2.1. Listing of Committee X3 Organizations

<i>Committee Designation</i>	<i>Committee Name</i>	<i>Page</i>
ISTAB	Information Systems Technical Advisory Board	101
X3	Computers and Information Processing	105
X3/IAC	International Advisory Committee	105
X3/SPARC	Standards Planning and Requirements Committee	105
X3/SPARC/DISP	Display Parameters	107
X3/SPARC/DOCN	Documentation	107
X3/SPARC/OSCL	Operating System Control Languages	107
X3/SSC	Standards Steering Committee	107
X3A1	Optical Character Recognition (OCR)	108
X3A7	Magnetic Ink Character Recognition	108
X3B1	Magnetic Tape	109
X3B2	Perforated Media	109
X3B3	Punched Cards (Physical)	109
X3B5	Magnetic Tape Cassettes/Cartridges	110
X3B6	Instrumentation Tape	110
X3B7	Interchangeable Magnetic Disk Media	111
X3B71	Mechanical Characteristics of Magnetic Discs	111
X3B8	Interchangeable Magnetic Flexible Disc Media	112
X3J1	PL/I	112
X3J2	BASIC	113
X3J3	FORTRAN	113
X3J4	COBOL STANDARDS	113
X3J41	COBOL AUDIT ROUTINES	114
X3J7	APT	114
X3J8	ALGOL	114
X3K1	Project Documentation	115
X3K2	Flowcharts	115
X3K5	Terminology and Glossary	115
X3K6	Network-Oriented Project Management	115
X3L2	Character Codes	116
X3L5	Labels	116
X3L8	Representations of Data Elements	117
X3L81	Data Standardization Criteria	118
X3L82	Time Designations	119
X3L83	Individual and Business Identifications	119
X3L84	Geographic Units	119
X3L86	Quantitative Expressions	120
X3S3	Data Communication	120
X3S33	Data Communications Formats	121
X3S34	Data Communication Control Procedures	121
X3S35	System Performance	122
X3S36	Digital Data Signaling Rates	122
X3S37	Public Data Networks	122
X3T9	I/O Interface Standards	123

5.2.2.2. Scopes, Programs of Work, and Federal Participants of ANSI X3 Committees ¹**X3/IAC
INTERNATIONAL ADVISORY
COMMITTEE****Scope:**

To advise X3 on matters of policy and overall participation in international standards activities related to X3 interests.

Program of Work:

Formulate for approval by X3 and its Secretariat the USA policy and program for participation in ISO/TC97, its subcommittees and working groups and other international standards activities whose work falls within the scope of X3.

Review and advise on USA contributions and recommendations to the Plenary conferences of ISO/TC97, and recommend to X3 the USA delegation to such conferences.

Recommend to X3 steps to be taken to fulfill USA responsibilities and interests in international activities of interest to X3, including ISO, IEC, ECMA and other international and regional bodies.

Assist the X3 Secretariat staff in orientation for USA delegations to international standards meetings.

Federal Participants

Mr. Forris M. Hollowell, (O), Department of Transportation
Mr. Wharton L. McGreer, (P), Department of Defense

**X3
COMPUTERS AND INFORMATION
PROCESSING****Scope:**

Standardization related to systems, computers, equipments, devices, languages, communication characteristics, and physical (non-

¹ The Scopes and Programs of Work of ANSI X3 Committees are quoted documents. References to ASA (American Standards Association) and to USASI (United States of America Standards Institute) should be understood to mean ANSI (American National Standards Institute).

electric) characteristics, of computers and data processing devices, equipments and systems, and media for information processing. (A full understanding of the committee's scope requires reference to the committee's program of work to be reviewed and approved quarterly by the American National Standards Information Systems Technical Advisory Board (ISTAB).)

Program of Work:

X3 is responsible for the planning, review and approval of all domestic standardizations within its scope and serves, with its subgroups, as technical advisor to its USA Member Body of ISO/TC 97, Computers and Information Processing, in the area of international standardization.

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Federal Participants

Mr. Marvin W. Burris, (A), General Services Administration
Mr. Wharton L. McGreer, (P), Department of Defense, OSD
Mr. William C. Rinehuls, (A), Department of Defense
Mr. William B. Robertson, (A), Department of Defense
Mr. Robert E. Rountree, Jr., (A), Department of Commerce, NBS
Mr. Delbert Shoemaker, (P), General Services Administration
Mr. Harry S. White, Jr., (P), Department of Commerce, NBS

**X3/SPARC
STANDARDS PLANNING AND
REQUIREMENTS COMMITTEE****Scope:**

1. Evaluates the needs for systems standards as may be required to effect the practical and economic interchange of data, files, software and equipment.

2. Initiates, analyzes, and makes recommendations on new standards projects as input for X3 consideration.

3. Audits the program of standards development from a functional and economic point of view, as contrasted with a technical point of view.

4. At the time of submission to X3, reviews the proposed standards regarding their conformance to the original objectives and reports the results of their review to X3.

Program of Work:

1. SPARC will maintain a Master Program of X3 work including priorities, goals, schedules, implementation guides and progress review procedures for regular review and approval by X3. Such master programs shall be available from the Vice Chairman of X3. Suitable press releases of this work and candidate project standards will be prepared and issued by the Chairman of X3.

2. Study all existing ANSI standards and proposed ANSI standards under development dealing with computers and information processing in order to determine the interrelationships between such standards from user and manufacturer viewpoints.

3. Recommend to X3 the establishment of new projects for the purpose of developing new standards or modifications of existing standards needed to take into account the effects of the present and evolving technical and systems environment. These recommendations are to include criteria to be used in developing the new standards or modifications and the benefits to be derived from the proposed standards projects.

4. Each proposal for a new standards development effort will be supported by appropriate studies. The final recommendation for a new effort must include an analysis of:

Economic motivation of the user and manufacturer.

Implementation and transition considerations.

Applicational utility in the systems environment.

Analysis of costs of conversion and conformance.

Relationship to existing or underdevelopment standards.

Technical feasibility.

5. SPARC shall solicit and accept input from all qualified organizations, individuals, and government agencies who can contribute to its work. As a monitoring group, review and evaluate from a user and manufacturer viewpoint proposals and recommendations for industry standards pertaining to computers and information processing and report its findings and recommendations to X3 to insure that the proposed standards or work in progress indeed meet the objectives and scope assigned to them by X3. SPARC shall not, or itself, develop or write any standards.

6. SPARC will examine proposed American National Standards to insure that they are implementable, clear, have demonstrated technical and economic feasibility and speak to the criteria.

7. SPARC will advise X3 as to the need and recommended composition of appropriate maintenance committees deemed needed to maintain and interpret approved standards.

8. Advise X3 relative to proposed international recommendations and/or standards according to the criteria: Acceptability by the users and manufacturers of the United States.

9. Coordinate with X3 International Advisory Committee on such international matters.

10. Report on the degree of adoption and implementation of American National Standards (issued by X3) by the Information Processing Community.

Federal Participants

- Mr. William C. Rinehuls, (P), Department of Defense
- Mr. Robert E. Rountree, Jr., (A), Department of Commerce, NBS
- Mr. Delbert L. Shoemaker, (P), General Services Administration
- Mr. Harry S. White, Jr., (P), Department of Commerce, NBS

X3/SPARC/DISP DISPLAY PARAMETERS

Scope:

Development of a SPARC/90 Report on the feasibility and benefits of developing standards relating to display parameters. If their recommendation is favorable, the report should also contain a recommended scope, program of work and schedule for guidance to a new X3 subcommittee on this subject.

Program of Work:

Analyze feasibility and benefits of developing standards for display parameters. Types of displays included are CRT types and larger surface displays for group viewing. The objective is to identify and produce a uniformity of description for those parameters which would permit uniform criteria to be applied in determining the relative characteristics of different displays and their use in different systems.

X3/SPARC/DOCN DOCUMENTATION

Scope:

To study the documentation requirements imposed by information processing activities including computer activities; to isolate specific areas in which standardization would benefit the information processing community and to make recommendations relative to such standards.

Federal Participants

Mr. Robert Hegland, (P), Department of Defense
Mr. Wayne Worrell, (P), Department of Defense

X3/SPARC/OSCL OPERATING SYSTEM CONTROL LANGUAGES

Scope:

To investigate the need for and feasibility of a standard computer-operating-system control language. (The phrase, "computer-operating-system control language," means control and status aspects of at least interactive, time-sharing and batch-processing systems.) To investigate as suitable candidates for standardization: existing and proposed languages, elements of languages, and functions to be implemented in languages.

Program of Work: (Rev. 70/06/23 by SPARC)

1. The committee should first conduct a survey of language functions for control and status reporting offered by major operating and single-language systems (e.g., GECOS-III, OS, TSS, BASIC, QUICKTRAN, ATS). The committee should develop summaries of the similarities and of the essential and superficial differences of language functions in various categories of existing and proposed systems.

2. The committee should determine more specifically the categories of use which the language(s) will serve, e.g., applications programming, systems programming, data base management, query uses, machine operation, systems engineering, system maintenance, satellite computer uses, etc.; and thus delineate the present and, if possible, the potential application areas.

3. The committee should consider and report on the hardware implications of the language functions identified.

4. The committee should make recommendations regarding the need for a standard, the suitability of candidates, the possible desirability of multiple standards, and piecemeal versus complete standardization.

Federal Participants

Lt. D. G. Dobbins, (A), Department of Defense, DCA
Mr. Rocco Ivorno, (P), Department of Defense, USAF
Mr. John J. Strain, (P), Department of Defense, Army

X3/SSC STANDARDS STEERING COMMITTEE

Scope:

To provide technical management for X3 of the standards development work of the Technical Committees to insure timely completion, technical competence, administrative sufficiency and domestic and international coordination of the standards proposals developed under X3-approved projects.

Program of Work:

1. Provide comments to SPARC and X3 on proposals for new standards projects, particularly concerning any relation to and impact on existing standards project.

2. Assign X3-approved projects to the technical committees, organizing new ones if ap-

propriate; develop preliminary work plan and review completed work plan.

3. Monitor progress of the technical committee and their adherence to technical criteria established by X3.

4. Identify technical or managerial problems within or between projects, or any other impediments to timely work completion; recommend solutions to the groups involved and report to X3 any undesirable situations which persist.

5. Direct and assist in coordination and cooperation between all X3 technical committees and between these and their international counterparts and other domestic and international groups having common interests.

6. Review all proposals of the technical committees for technical quality, adherence to X3 direction, coordination with and response to other technical committees affected, and administrative sufficiency; refer inadequacies to the originating committee for correction; provide X3 the results of this review and recommendation for action.

7. Monitor the timely and effective participation by the technical committees in the counterpart subcommittees of ISO/TC97, including submission of USA contributions, response to ballots and calls for input of comments, preparation for scheduled meetings and identification of delegates.

8. Prepare and maintain up to date, the X3 technical work plan describing the work progress within X3, in terms of status, accomplishments and forecasts, by project.

Federal Participants

Mr. G. Kent Godwin, (P), Department of Agriculture
 Mr. C. Roger Shoch, (P), Department of Defense, Navy

**X3A1
 OPTICAL CHARACTER
 RECOGNITION (OCR)**

Scope:

Standardization of printed and handprinted input and printed turnaround forms for interchange of information between central processors and associated equipment of information processing systems. Includes machine printed and hand shapes printed character for machine input media and excludes magnetic ink character systems.

Study Projects:

- 57 X3.17-1966 Character Set for Optical Character Recognition (Character Extension & Lower Case and Print Quality Measurement Methods) (Revision)
- 59 X3.17-1966 Character Set for Optical Character Recognition (ASCII Character Extension) (Revision)
- 61 OCR-B for USA
- 62 Alphanumeric Handprinted Characters
- 69 OCR Print Quality

Federal Participants

Mr. Thomas Bagg, (P), Department of Commerce, NBS
 Mr. Marvin W. Burris, (P), General Services Administration
 Mr. Lewis Calderone, (A), Department of Agriculture
 Mr. Edward W. Casper, (A), Department of Defense
 Mr. Cletus L. Eadie, (A), General Services Administration
 Mr. Charles P. Eliot, (P), U.S. Postal Service
 Mr. George W. Gardner, (A), Department of Health, Education, and Welfare, SSA
 Mr. G. Kent Godwin, (A), Department of Agriculture
 Mr. James G. Griffis, (P), Department of Defense, DCEO
 Mr. Stanley Homa, Jr., (P), Department of Defense, Army
 Mr. Roger W. Hunt, (P), Department of Agriculture
 Mr. John J. Mampe, (A), U.S. Postal Service
 Mr. Thomas A. Sagar, (A), Department of Agriculture

**X3A7
 MAGNETIC INK
 CHARACTER RECOGNITION**

Scope:

- 1. Development and maintenance for Magnetic Ink Character Recognition (MICR).
- 2. Resolution of problems which may arise in industry which involve MICR processing equipment and the printing of MICR documents.

Study Projects:

- 17 X3.2-1970 Print Specifications for Magnetic Ink Character Recognition
- 18 X3.3-1970 Bank Check Specifications for Magnetic Ink Character Recognition

Federal Participants

Mr. G. Kent Godwin, (L), Department of Agriculture

X3B1 MAGNETIC TAPE

Scope:

The standardization of those recorded and unrecorded characteristics of input/output magnetic tape media required for the interchange of information among information processing systems, communications systems, and associated equipment in the field of digital magnetic tape recording including:

1. The coordination, maintenance, revision and support of the current magnetic tape standard(s) and standards proposals for one-half inch 9-channel tape.

Program of Work:

1. Identify, analyze and select an applicable range of tape performance requirements.
2. Define the most suitable unrecorded tape media parameters which fulfill the performance requirements.
3. Define the most suitable recorded parameters which fulfill the performance requirements.
4. a. Develop a physical interchange standard(s).
- b. Develop an unrecorded media standard(s) for the physical and magnetic characteristics of the recording media.
- c. Develop a recorded media standard(s) for use in the interchange of data among similar recording and reproducing equipments.
5. Maintain close liaison with other related organizations and standards bodies.
6. Support the international work on standardization of digital magnetic tape.

Standards Development Projects:

- 70 Unrecorded Magnetic Tape (200, 800, 1600 CPI)—Back Coated
- 71 X3.14-1969 Recorded Magnetic Tape for Information Interchange (200 CPI, NRZI)
- 72 X3.22-1967 Recorded Magnetic Tape for Information Interchange (800 CPI, NRZI)
- 73 Recorded Magnetic Tape (1600 CPI, PE)

Federal Participants

- Mr. Roger D. Daniero, (A), General Services Administration
- Mr. Julius J. Fiori, (A), General Services Administration
- Mr. Philip S. Johnson, (A), Department of Commerce, NBS
- Mr. Paul Mantek, (P), Department of Commerce, NBS
- Mr. Delbert Shoemaker, (P), General Services Administration

X3B2 PERFORATED MEDIA

Scope:

The standardization of those physical and coding characteristics of input/output perforated media which are required for the interchange of information among data processing systems and systems of associated equipment in the field of perforated media.

Program of Work:

Current activity—Paper material standard, tape handling conventions, tapes of high durability, ISO activities in paper materials, tape handling conventions, cores and reels, and tapes of high density.

Study Projects:

- 76 X3.18-1967 One Inch Perforated Tape
- 77 X3.19-1967 Eleven-Sixteenths Perforated Paper Tape
- 78 X3.20-1967 Take-Up Reels for One Inch Perforated Tape
- 79 X3.29-1971 Properties of Unpunched Oiled Paper Perforator Tape (Maintenance)
- 80 Interchange Rolls, Perforated Tape
- 74 Edge Punched Cards (ISO/TC97/SC4 (Liaison))

Federal Participants

- Mr. W. F. Dieterichs, (P), General Services Administration

X3B3 PUNCHED CARDS (PHYSICAL)

Scope:

The standardization of those physical and coding characteristics of input/output media

which are required for the interchange of information among data processing systems and systems of associated equipment in the field of punched cards (physical characteristics of punched cards).

Program of Work:

1. Special purpose paper card specifications (short cards, irregular edge cards).
2. ISO 97/4/2 N 51 specifications for unpunched paper cards.
3. ISO 97/4/2 N 52 dimensions and location of rectangular punched holes in 80 column punched paper cards.
4. Review of X3.11-1966 general purpose paper cards for information processing.
5. Monitor X3.21-1967, size and location of rectangular punched holes.

Study Projects:

- 29 Special Purpose Cards (X3.33)
- 101 X3.11-1969 Specifications for General Purpose Paper Cards for Information Processing (Maintenance)
- 102 X3.21-1967 Rectangular Holes in Twelve-Row Punched Cards (Maintenance)

Federal Participants

Mr. W. F. Dieterichs, (P), General Services Administration

**X3B5
MAGNETIC TAPE
CASSETTES/CARTRIDGES**

Scope:

The standardization of those recorded and unrecorded characteristics of input/output magnetic tape cassettes/cartridges required for the interchange of information among information processing systems, communications systems, and associated equipment in the field of digital magnetic tape cassettes/cartridges recording including:

1. The development of a standard or standards for magnetic tape cassette device(s) for digital information interchange which includes consideration of the container, media, recording characteristics and format.

Program of Work:

1. Identify, analyze and select an applicable range of magnetic tape cassettes/cartridges performance requirements.
2. Define the most suitable unrecorded cassette/cartridge parameters which fulfill the performance requirements.
3. Define the most suitable recorded parameters which fulfill the performance requirements.
4. a. Develop a physical interchange standard(s) for cassette/cartridge.
b. Develop an unrecorded media standard(s) for the physical and magnetic characteristics of the recording media.
c. Develop a recorded media standard(s) for use in the interchange of data among similar recording and reproducing equipments.
d. Develop a format/label standard(s) for representing and recording information on tape cassettes/cartridges.
5. Maintain close liaison with other related organizations and standards bodies.
6. Support the international work on standardization of tape cassettes/cartridges.

Standards Development Projects:

- 213 Magnetic Tape Cassette (0.150") BSR X3.48
- 221 Magnetic Tape Cartridge (0.250")

Federal Participants

Mr. Philip S. Johnson, (A), Department of Commerce, NBS

Mr. Paul A. Mantek, (P), Department of Commerce, NBS

**X3B6
INSTRUMENTATION TAPE**

Scope:

The standardization of those recorded and unrecorded characteristics of input/output instrumentation magnetic tape required for the interchange of information among information processing systems, communications systems,

and associated equipment in the field of digital instrumentation magnetic tape recording including:

1. The development of a standard or standards for instrumentation device(s) for digital information interchange which includes consideration of the container, media, recording characteristics and format.

Program of Work:

1. Identify, analyze and select an applicable range of instrumentation magnetic tape performance requirements.
2. Define the most suitable unrecorded instrumentation tape parameters which fulfill the performance requirements.
3. Define the most suitable recorded parameters which fulfill the performance requirements.
4. a. Develop a physical interchange standard(s) for instrumentation tape.
b. Develop an unrecorded media standard(s) for the physical and magnetic characteristics of the recording media.
c. Develop a recorded media standard(s) for use in the interchange of data among similar recording and reproducing equipments.
5. Maintain close liaison with other related organizations and standards bodies.
6. Support the international work on standardization of instrumentation magnetic tape.

Standards Development Projects:

230 Instrumentation Magnetic Tape (ISO/TC97/SC12)

Federal Participants

Mr. Paul A. Mantek, (O), Department of Commerce, NBS

**X3B7
INTERCHANGEABLE MAGNETIC
DISC MEDIA**

Scope:

To identify and develop an adequate family of removable disk media standards, including as a minimum the development of standards for

the One-high, Six-high and Eleven-high Disk Packs. Develop and coordinate the related national and international activities.

Program of Work:

1. To direct and coordinate the work of ad hoc groups X3.2.7A, X3.2.7B and X3.2.7C.
2. To determine the elements to be contained in each of a family of standards providing for interchange of information on magnetic discs and to incorporate the specifications provided by the ad hoc groups into the required standards.
3. To maintain liaison with X3.2.5 with respect to its work on data formats to be used for information interchange on discs.
4. To support international work on standardization of removable magnetic discs.
5. To investigate requirements for standardization of removable discs other than those compatible with the IBM 2311-I disc drive.

Study Projects:

- 64 Unrecorded 6-High Disc Pack
- 65 Unrecorded 11-High Disc Pack
- 66 Unrecorded 1-High Disc Pack

Federal Participants

Mr. J. L. DeProspero, (A), General Services Administration
Mr. John Eastman, (P), General Services Administration
Mr. Nicholas Goumas, (P), Department of Commerce, NBS
Mr. Philip S. Johnson, (A), Department of Commerce, NBS
Mr. Delbert L. Shoemaker, (O), General Services Administration
Mr. John J. Thomasson, (A), General Services Administration

**X3B71
MECHANICAL CHARACTERISTICS OF
MAGNETIC DISCS**

Scope:

To define and develop specifications for the physical characteristics of interchangeable magnetic discs which are necessary for mechanical interchange of the medium among information processing systems.

Program of Work:

1. To develop specifications for the following significant mechanical parameters of six-disc packs:

- a. Operating, storage and testing environments
- b. Shipping and handling requirements
- c. Materials
- d. Physical dimensions
- e. Weight
- f. Moment of inertia
- g. Balance
- h. Rotational speed
- i. Locking pull
- j. Air feed openings
- k. Air filter

1. Roughness and durability of magnetic surface.

2. To provide supporting diagrams and glossary for above specifications.

3. To define test procedures to determine conformity with the specifications.

4. To advise X3B7 with respect to mechanical aspects of international standards proposals.

Study Projects:

64 Mechanical Characteristic (six-high)

**X3B8
INTERCHANGEABLE MAGNETIC
FLEXIBLE DISC MEDIA**

Scope:

To identify and develop an adequate family of removable flexible disc media standards. Develop and coordinate the related national and international activities.

Program of Work:

1. To determine the elements to be contained in each of a family of standards providing for interchange of information on flexible magnetic discs and to incorporate the specifications into the required standards.

2. To maintain liaison with X3.2.5 with respect to its work on data formats to be used for information interchange on discs.

3. To support international work on standardization of flexible magnetic discs.

**X3J1
PL/I**

Scope:

Proposal of a draft American National and ISO Standard for the composite programming language PL/I, in cooperation with ECMA Technical Committee 10 and with the technical cognizance of IFIP Technical Committee 2.

Program of Work:

1. To establish and maintain a mechanism for effective cooperation with and participation in the work of Technical Committee 10 of ECMA, and a mechanism for liaison with Technical Committee 2 of IFIP and other interested technical agencies and standards bodies, in order to minimize duplication of effort and to assure the proposal of consistent standards.

2. To consider the 1968 March 11 PL/I Language Specifications and other relevant documents with a view to eliminating ambiguous interpretation, and for the purpose of evaluating the language.

3. To incorporate clarifications, changes, deletions and extensions consistent with the basic philosophy of the language.

4. To establish and apply criteria to ensure that the resulting language takes into account particular national requirements and allows widespread implementations and use.

5. To prepare, as a result of this work, a complete definition of the language and a statement of the areas of application of the language.

6. To propose the language, and, if appropriate, one or more subsets, to X3 for processing as American National Standards and to ISO/TC 97 as an international recommendation.

7. To report in writing all activities directly to X3, with copies to ECMA/TC 10 and IFIP/TC 2 as appropriate.

Study Projects:

212 PL/I

Federal Participants

Mr. E. H. Cooper, (P), Department of Defense, DCA

X3J2**BASIC****Scope:**

To determine the existence of a viable BASIC modular language suitable for Standardization.

Program of Work:

The primary objective is to standardize on a language that will meet the existing and future needs in computing for all types of academic and industrial institutions. The interactive time-sharing aspect of BASIC should be particularly emphasized without neglecting the value of the language for "Batch", text editing and simulation-type programming. The standard BASIC should be in modular form in order to be usable on all sizes of computers and for all types of programming. It is not required that all features and modules of the standard language be applicable to all users. Finally, the standard should be sufficiently general so that users should be able to "add-to" as may be required for specialized situations.

X3J3**FORTRAN****Scope:**

To prepare and maintain standards for FORTRAN; to perform those standardization activities necessary to sustain the continuing public usefulness of FORTRAN standards:

1. Determine the essential nature and delimiting characteristics of FORTRAN.
2. Remain cognizant of the circumstances of FORTRAN usage.
3. Determine language features needed for the statement of processes appropriately expressed in FORTRAN.
4. Initiate appropriate standardization activities.
5. Provide for orderly evolution of FORTRAN standards.
6. Maintain, clarify and disseminate those documents constituting the instruments of FORTRAN standardization.

Study Projects:

67 Revision of X3.9-1966, FORTRAN

68 Revision of X3.10-1966, Basic FORTRAN

Federal Participants

Mr. Lloyd W. Campbell, (P), Department of Defense, Army

Mr. John J. Daly, (P), Department of Defense, Army

Mr. Donald Elefante, (P), Department of Defense, USAF

Mr. Howard R. Fletcher, (P), Department of Commerce, Census

Miss Carol A. Giammo, (P), Department of Defense, DCA

Mrs. Frances E. Holberton, (P), Department of Commerce, NBS

Mrs. Elizabeth Parker, (A), Department of Commerce, NBS

Mr. Edmond Senn, (P), National Aeronautics and Space Administration

Mr. David Trad, (A), Department of Defense, USAF

X3J4**COBOL STANDARDS****Scope:**

Create and carry out procedures to maintain the continuous responsiveness of the standard language to user needs. Continue support of the Standard Audit Routines and publication of the COBOL Information Bulletin.

Program of Work:

1. Define the formal procedures necessary to insure the continued responsiveness of the language after issuance of the standard (post-standardization continuity). Include provisions for measuring and evaluating language changes—both as to growth (extension of facilities and use of the language) and contraction; and eliminating ambiguities through interpretation and clarification of the standard language.
2. Provide liaison with cognizant national and international organizations to maintain a current awareness of language activity and requirements.
3. By means of the procedures mentioned in number 1 above, ascertain those features required in (or to be deleted from) the standard language to keep it responsive to user needs. This procedure may include defining and conducting (or monitoring) user surveys to help measure the value of applying relevant changes to the standard.

4. Establish a dialogue with the COBOL community regarding language activity including post-standardization continuity. As a means of promoting this dialogue and to make public the results of it, publish the COBOL Information Bulletin, and disseminate it to the widest possible audience.

5. Maintain and publish the COBOL Standard Audit Routines, keeping them in concordance with the standard language.

6. Revise and augment the standard and the standard audit routines, according to the developed procedures for post-standardization continuity. These revisions and augmentations to be accomplished on an "as necessary" basis.

7. Establish task groups as necessary to accomplish this program of work.

Study Projects:

20 COBOL Audit Routines

22 Revision of X3.23-1968 COBOL

Federal Participants

Mr. George E. Baird, (A), Department of Defense, Navy

Mr. Joseph C. Collica, (A), Department of Commerce, NBS

Mr. Joe E. Cousins, (A), Department of Defense, USAF

Mr. Olen O. Ellis, (A), Department of Defense, USAF

Mr. Richard Fredette, (P), Department of Defense, Navy

Mr. William C. Rinehuls, (A), Department of Defense

Mr. John J. Strain, (A), Department of Defense, Army

Mr. Duane L. Tucker, (P), Department of Defense, Army

Miss Mabel V. Vickers, (P), Department of Commerce, NBS

Mr. Charles E. Wilder, (P), Department of Defense, USAF

**X3J41
COBOL AUDIT ROUTINES**

Scope:

Inform X3J4 on the effectiveness, utilization and desirability of language features in the American National Standard COBOL. Submit to X3J4 for information, the evaluated results of COBOL user studies and surveys.

Program of Work:

1. Conduct surveys and special studies of COBOL users, where authorized by X3J4.

2. With the approval of X3J4, consider organizations which may be used to assist X3J41 in the conduct of required surveys and studies.

3. Maintain an awareness of and participate in relevant survey activities outside the ANSI environment.

4. Report on new elements which users would like included in COBOL as well as current elements which users would like dropped from COBOL.

5. Establish and submit to X3J4 for approval membership, attendance, and voting rules.

6. Establish and submit to X3J4 for approval other technical and administrative procedures necessary to carry out this program of work.

Federal Participants

Mr. George Baird, (P), Department of Defense

**X3J7
APT**

Scope:

Preparation of a draft proposed standard for APT programming language.

Program of Work:

See Scope above.

Study Projects:

55 APT

115 APT Post Processor

Federal Participants

Mr. Anthony Diomede, (P), Department of Defense

Mr. Robert P. Griffith, (A), Department of Defense, USAF

Mr. Nick Maddage, (P), Department of Defense

Mr. Gilbert A. Myers, Jr., (P), Department of Defense

Mr. Bobbie J. Parkinson, (P), Department of Defense, USAF

**X3J8
ALGOL**

Scope:

In coordination with ISO, prepare a draft proposed USA ALGOL Standard.

Study Projects:

30 ALGOL

X3K1
PROJECT DOCUMENTATION

Scope:

To address the technical information that must be recorded during the process of developing a computer program or series of related computer programs.

Study Projects:

16 Project Documentation

Federal Participants

Mr. Robert Hegland, (P), Department of Defense, Navy

Mr. Jack D. Kearns, (P), Department of Defense, Army

Mrs. Billy Salazar, (A), Department of Defense, Army
Mr. Wayne Worrell, (P), Department of Defense

X3K2
FLOWCHARTS

Scope:

To develop standards in the design and use of flowcharts and the techniques of flowcharting for problem definition and analyses in information processing systems (including the identification of the types of flowcharts, the structure of flowcharts, the symbology used on flowcharts and flowchart presentation techniques).

Program of Work:

1. Study area and establish appropriate task groups.
2. Incorporate ISO 13 Symbols and present to X3.
3. Review existing standard for major editing and rework.
4. Development of a standard for new symbols and conventions.

Study Projects:

81 X3.5-1970 Flowchart Symbols and Their
Usage in Information Processing

Federal Participants

Mr. R. Strausberg, (P), Department of Defense, Navy

X3K5
TERMINOLOGY AND GLOSSARY

Scope:

(a) To coordinate and advise the other technical committees of X3 in the establishment of definitions required for their proposed standards. (b) To recommend to X3 a general vocabulary for computers and information processing. (c) To support the development of an international vocabulary for computers and information processing.

Study Projects:

25 X3.12-1970 Vocabulary for Information Processing (Maintenance)

26 Dictionary (Development)

27 ISO Vocabulary of Data Processing ISO/TC97/SC1 (Liaison)

Federal Participants

Mrs. Edna Anderson, (P), Department of Defense, USMC

Mr. Cletus L. Eadie, (P), General Services Administration

Mr. Robert Hegland, (P), Department of Defense, Navy

Mr. Theodore E. Leach, (P), Library of Congress

Mr. Albrecht Neumann, (A), Department of Commerce, NBS

Miss Josephine L. Walkowicz, (P), Department of Commerce, NBS

X3K6
**NETWORK-ORIENTED
PROJECT MANAGEMENT**

Scope:

To formulate and propose standard characteristics and properties of network orientation information systems (Including various fields of network applications including PERT and COM.).

Program of Work:

1. Select working group chairman and reorganize.
2. Review scope and establish specific areas and work plan schedule.
3. Present plan of work to X3K6.
4. Develop work paper and present to X3K6 for ballot.

5. Present proposed standard to X3 for ballot and publication.

Study Projects:

- 31 Network Glossary
- 32 Graphical Representation of Networks
- 33 Simulation-Oriented Network Glossary
- 34 INTERNET (Liaison)
- 36 Network-Oriented Computer Systems Guide

**X3L2
CHARACTER CODES**

Scope:

Standardization of coded character sets, input/output media (except OCR, MICR, and transmission) including code representation, recording formats and format indicators and those characteristics of input/output equipment as required to interchange media between systems and equipment.

Study Projects:

- 3 Graphic Subsets
- 4 Control Codes for 8-Bit Sets
- 5 Graphics for 8-Bit Sets
- 6 Graphics for Control Codes (X3.32)
- 7 Rules for Definition of 4-Bit Subsets ISO/TC97/SC2 & ECMA (Liaison only)
- 8 Packed Decimal and Binary Representation ISO/TC97/SC2
- 12 X3.4-1968 Code for Information Interchange (Maintenance)
- 13 Registration of Escape Sequences
- 15 Guidelines for Composite Character Design
- 103 X3.26-1969 Hollerith Punched Card Code (Maintenance)
- 105 8-Bit Code & Code Extension Procedures
- 106 Candidates for Registry
- 107 X3.6-1965 Perforated Tape Code for Information Interchange (Maintenance)
- 108 Codes for Discs ISO/TC97/SC2 (Liaison)
- 216 Magnetic Tape Cassette Code

Federal Participants

Mr. C. C. Chandler, (P), Department of Defense, DCA
Mr. William Huf, (P), Department of Defense, Navy
Mr. John L. Little, (P), Department of Commerce, NBS
Mr. John E. Thomas, Jr., (A), Department of Defense, DCA

**X3L5
LABELS**

Scope:

1. Standardization of the labels that identify the disc and the existence of files and records as well as any other software generated labels that are necessary in order to assure proper access by the user.

2. To standardize the method of representing a numeric value on various input/output media used in information interchange.

3. To propose features and elements representing enhancements to the standards as well as proposed levels of adherence where these additional features and elements are not in contradiction with those already in the standards.

Program of Work:

- 1. A. Survey of usage of the interchange environment.
- B. Circumstances under which disc pack interchange takes place.
- C. Determine level of interchange to be standardized.
- D. Select items to provide pre-determined level of interchange.
 - 1. Items suitable for USA standardization
 - 2. Elements required for processing as related to the file characteristics
 - 3. Make distinction between processing information and interchange information related to file characteristics
 - 4. Consider hardware characteristics which are interwoven with file structure and file handling.

- E. Consider linkage from magnetic tapes to disc packs to other storage media.
- 2. A. Itemize accepted number formats used in ANSI approved standard programming languages.
- B. Determine a number format that is in most common use among programming languages as well as most common formats with respect to input/output media.
- C. Establish liaison with ANSI language programming task groups to determine programming effects of changing existing formats and to develop a repertoire.
- D. Propose a standard that is consistent with programming language techniques and reasonably conforms to existing format standards on input/output media.
- 3. A. Itemize those elements and functions expressed by the membership that should be contained in a proposed enhancement.
- B. Prepare justification and rebuttal on each of these elements and functions and forward the documentation to the groups in ECMA and ISO that have been established to participate in this activity.
- C. Establish justification for defining levels of standardization with the documentation of this area, and send to ECMA and ISO for agreement or rebuttal.

Study Projects:

- 38 X3.27-1969 Magnetic Tape Labels for Information Interchange (Revision)
- 104 Representation of Numeric Values in Character Strings for Information Interchange
- 109 Labels for Discs ISO/TC97/SC2 (Liaison)
- 217 Magnetic Tape Cassette Label
- 218 Carriage Control

Federal Participants

- Mr. Marvin W. Burris, (P), General Services Administration
- Mrs. Frances E. Holberton, (P), Department of Commerce, NBS
- Mr. Delbert L. Shoemaker, (A), General Services Administration

X3L8

REPRESENTATIONS OF DATA ELEMENTS

Scope:

1. To develop standards for (1) describing the representations of data elements involved in data interchange; and (2) representing data elements of common interest, such as the elements concerned with the representations of times, locations, individuals, organizations and materials.

2. To develop recommended procedures, criteria, and guidelines in order to provide an organized approach to the standardization of the representations of data elements.

Program of Work:

1. To develop recommended procedures, and criteria for the development, maintenance, issuance, and use of American National Standards for representation of data elements.

2. To develop proposed standards for the following items:

- a. Representation of time elements to include dates, times, and time zones.
- b. For identifying organizations, individuals, and accounts to include standards for name formatting.
- c. Representations for States, Counties, Places and Congressional Districts of the United States, Countries of the World and their Subdivisions, Shipping and Mailing Addresses, and Point Locations.
- d. Representing quantitative numeric expressions.

Study Projects:

- 43 Guidelines for the Development of Standard Representation of Data Elements

- 45 Units of Measurement, Packaging and Count
- 82 Abbreviation of Units (XI) for Limited Character Sets (ISO)
- 83 Representation of Calendar Date (X3.30)
- 84 Representation of Time Elements
- 85 Representation of Universal Time and Time Zones
- 86 Identifiers for Individuals
- 87 Identifiers for Organizations
- 88 Identifiers for Accounts
- 89 Names for Non-individual and Non-organization Entities
- 90 Codes for States of U.S.
- 91 Codes for Counties of States of U.S. (X3.31)
- 92 Codes for Cities, Towns, Places of U.S.
- 93 Codes for Point Locations in U.S.
- 95 Representation of Mailing and Shipping Addresses
- 96 Codes for Countries of the World (Liaison with Z39/SC27)
- 97 Codes for Subdivisions of Countries
- 98 Codes for Continents and Water Areas

Federal Participants

- Mr. Marvin Burris, (P), General Services Administration
- Mr. Fred J. Cole, (P), Department of Labor
- Mr. A. R. Demarest, (A), U.S. Civil Service Commission
- Mr. Philip H. Diamond, (P), Veterans Administration
- Mr. Sol Dolleck, (O), Department of Commerce, Census
- Mr. Cletus L. Eadie, (A), General Services Administration
- Mr. James W. Gillespie, (A), Department of Defense
- Mr. Eli Hellerman, (P), Bureau of the Census
- Mr. Henry A. Herz, (P), Department of Defense
- Mr. Robert L. Mayer, (O), Atomic Energy Commission
- Mrs. Hazel E. McEwen, (P), Department of Commerce, NBS
- Mr. Wallace McPherson, (P), Department of Health, Education and Welfare
- Mr. William J. Parks, Jr., (A), Department of Labor

- Mr. Bernard Radack, (P), Department of the Treasury, IRS
- Miss Nevaire Serrajian, (P), Department of Defense
- Mr. C. Ronald Trueworthy, (P), U.S. Civil Service Commission
- Mr. Richard Watt, (O), Federal Reserve System
- Mr. Harry S. White, Jr., (CH), Department of Commerce, NBS

**X3L81
DATA STANDARDIZATION CRITERIA**

Scope:

To develop recommended procedures, and criteria for the development, maintenance, issuance, and use of American National Standards for representations of data elements.

Program of Work:

1. Draft Guidelines for the development of standard representations of data elements.
2. As required, the development of uniform terms and definitions not available in the American National Standard Vocabulary or Dictionary.
3. If required, development of recommendations on publication and distribution of standard representation of data elements.

Study Projects:

- 43 Guidelines for the Development of Standard Representation of Data Elements

Federal Participants

- Mr. Fred Cole, (P), Department of Labor
- Mr. Cletus L. Eadie, (P), General Services Administration
- Mr. James W. Gillespie, (P), Department of Defense, Navy
- Mr. Robert L. Mayer, (O), Atomic Energy Commission
- Mrs. Hazel E. McEwen, (P), Department of Commerce, NBS
- Mr. William J. Parks, Jr., (A), Department of Labor
- Mr. Paul M. Robinson, Jr., (A), Department of Defense

**X3L82
TIME DESIGNATIONS**

Scope:

Develop data standards for time, point, and time intervals.

Program of Work:

Development of data standards for representation of year, day of year, week of year, month of year, quarter of year, Julian Day number, time (hour, minutes, seconds, and Time Zone), and time intervals.

Study Projects:

- 83 Representation of Calendar Dates
- 84 Representation of Time Elements
- 85 Representation of Universal Time and Time Zones

Federal Participants

Mr. H. N. Acrivos, (A), Department of Defense, Navy
 Mr. Cletus L. Eadie, (P), General Services Administration
 Mr. James W. Gillespie, (CH), Department of Defense, Navy
 Mr. Wallace McPherson, (P), Department of Health, Education, and Welfare
 Miss Nevaire Serrajian, (P), Department of Defense

**X3L83
INDIVIDUAL AND BUSINESS
IDENTIFICATIONS**

Scope:

Development of data standards for the identification of individuals and organizations for data interchange.

Program of Work:

Determination of all the elements required to uniquely identify individuals and organizations for purposes of assignment of unique codes. (The identification is required for the purpose of assigning unique codes. It may also be used in lieu of the standard code, when such code is not available.)

Study Projects:

- 86 Identification of Individuals
- 87 Structure for Identification for Organizations
- 88 Identifiers for Accounts
- 89 Names of Non-Individual and Non-Organization Entities

Federal Participants

Mr. Philip H. Diamond, (P), Veterans Administration
 Mr. Cletus L. Eadie, (P), General Services Administration
 Mr. Frank E. McGowan, (A), Department of Health, Education, and Welfare
 Mr. Wallace McPherson, (P), Department of Health, Education, and Welfare
 Mr. Bernard Radack, (P), Department of the Treasury, IRS
 Mr. Langston Spell, (P), Department of Transportation

**X3L84
GEOGRAPHIC UNITS**

Scope:

Development of data standards for representing geographical and geopolitical entities.

Program of Work:

Development of standard codes for the States and counties of the United States. In addition, continue liaison with the Federal Government Task Forces in the matters of countries of the world, and place codes.

Study Projects:

- 90 Identification of States of U.S.
- 91 Identification of Counties of States of U.S. (X3.31)
- 92 Codes for Cities, Towns, Places of U.S.
- 93 Identification of Point Locations in U.S.
- 95 Representation of Mailing and Shipping Addresses
- 96 Codes for Countries of the World (Liaison with Z39)
- 97 Identification of Subdivision of Countries

98 Identification of Continents and Water Areas

Federal Participants

- Mr. Cletus L. Eadie, (P), General Services Administration
- Mr. Richard L. Forstall, (P), Department of Commerce, Census
- Mr. Henry A. Herz, (A), Department of Defense
- Mrs. Hazel McEwen, (P), Department of Commerce, NBS
- Mr. Terry McIntyre, (P), Department of State
- Mr. Alan E. Pisarski, (P), Department of Transportation
- Mr. Paul H. Rose, (A), U.S. Postal Service
- Miss Nevaire Serrajian, (P), Department of Defense
- Mr. C. Roger Shoch, (A), Department of Defense, Navy
- Mr. Clyde W. Swadley, Jr., (P), U.S. Postal Service
- Mr. Frank J. Tagler, (P), Department of Defense, Navy
- Mr. Henry D. Walker, (P), Department of the Interior

X3L86
QUANTITATIVE EXPRESSIONS

Scope:

The development of data standards for representing quantitative expressions and units of measure.

Program of Work:

1. Review and prepare recommendations on German working paper.
2. Development of draft proposed USA standards for representing "quantitative expressions."
3. Development of draft proposed USA standards for representing "units of measure."
4. Development of proposed USA standards for representing "units of issue."

Study Projects:

- 45 Units of Measurement, Packaging, and Count
- 82 Representation for SI Units to be Used in Systems with Limited Character Sets ISO/TC97/WG14

Federal Participants

- Mr. Cletus L. Eadie, (P), General Services Administration
- Mr. Duane Marquis, (CH), Office of Telecommunications DOC

X3S3
DATA COMMUNICATION

Scope:

Determine and define the operational characteristics governing the performance of digital data generating and receiving systems combined with communication systems.

Study Projects:

- 28 Systems Performance
- 47 Heading Format for Data Transmission
- 48 X3.28-1971 Procedures for the Use of the Communication (Revision) Control Characters (Revision)
- 49 Code Independent Control Procedures
- 50 Network Control Procedure
- 51 Wideband Data Transmission Signaling Rates
- 110 X3.1-1969 Synchronous Signaling Rates for Data Transmission (Maintenance)
- 111 X3.15-1966 Bit Sequencing of ASCII in Serial-By-Bit Data Transmission (Maintenance)
- 112 X3.16-1966 Character Structure and Character Parity Sense for Serial-By-Bit Data Communication in ASCII (Maintenance)
- 113 X3.24-1968 Signal Quality at Interface Between Data Processing Terminal Equipment & Synchronous Data Communication Equipment for Serial Data Transmission (Revision)
- 114 X3.25-1968 Character Structure & Character Parity Sense for Parallel-By-Bit Communication in ASCII (Maintenance)
- 116 Interfaces between DCE & DTE (EIA RS 232C)

- 117 Interfaces between ACU & DTE (EIA RS 344)
- 118 Control Procedures for Simple Operated Terminals
- 119 Communication Aspects of Display Systems
- 120 Concentration & Multiplexing Systems
- 121 Interfaces between Connecting Arrangements & DTE
- 122 Connector Pin Allocations

Federal Participants

- Mr. Marshall Cain, (P), National Communications System
- Mr. A. A. Childers, (A), Department of Defense, DCA
- Mr. George E. Clark, (P), Department of Commerce, NBS
- Mr. Harold J. Crowley, (P), Department of Defense, USAF
- Mr. Fred W. Fairchild, (P), Department of Defense, Army
- Lt. Col. Reginald C. Grier, (A), Department of Defense, DCA
- Mr. John V. Holberton, (A), General Services Administration
- Mr. George Hopping, (P), General Services Administration
- Mr. Raymond T. Moore, (A), Department of Commerce, NBS
- Mr. William J. Retzbach, (P), Department of Defense, DCEO
- Mr. Gerald Schultz, (P), Department of Transportation
- Mr. Romans Skujians, (A), Department of Defense, DCEO
- Mr. James T. Tracy, (P), Department of Defense, Army
- Mr. George W. White, (A), National Communications System

X3S33

DATA COMMUNICATIONS FORMATS

Scope:

1. Define formats for Data Communication of bits within characters and of characters within a hierarchy of groups and recommend standards where appropriate.
2. Define functional control requirements and procedures for data control of a data link and recommend standards where appropriate.

Program of Work:

1. Prepare a tutorial paper on Data Communication Heading Formats on simple systems as well as complex systems, and on direct transmission as well as store-and-forward transmission systems. A proposed standard will be written if it is determined to be desirable and necessary.
2. Prepare a proposed standard for Message Heading Format for interchange of Data in ASCII.

Study Projects:

- 47 Heading Format for Data Transmission

Federal Participants

- Mr. James G. Griffis, (A), Department of Defense, DCEO
- Mr. Frank McClelland, (A), National Communications System
- Mr. George W. White, (P), National Communications System

X3S34

DATA COMMUNICATION CONTROL PROCEDURES

Scope:

1. Define the data communications environment, including, network concepts and systems architectures and configurations, in which categories or classes of communication control procedures standards are appropriate or required.
2. Develop control procedure standards for data communication networks systems and links.
3. Provide technical support to parent subcommittee (X3S3) in areas of special competence by reviewing national trends and international activities to develop USA (ANSI) positions as necessary.

Study Projects:

- 48 X3.28-1971 Procedures for the Use of the Communication Control Characters of American National Standards Code for Information Interchange in Specified Data Communication Links
- 49 Code Independent Control Procedures

50 Network Control Procedure

Federal Participants

- Mr. George E. Clark, Jr., (P), Department of Commerce, NBS
Mr. James G. Griffis, (P), Department of Defense, DCEO
Mr. William Hahn, (P), National Aeronautics and Space Administration
Mr. Frank McClelland, (P), National Communications System
Mr. George W. White, (A), National Communications System
Mr. George Zoolakis, (A), Department of Defense

**X3S35
SYSTEM PERFORMANCE**

Scope:

Define the nomenclature, presentation, and measurement of those characteristics which determine the performance of general purpose digital communication systems, and develop standards where appropriate.

Program of Work:

1. Complete the proposed American National Standard "Determination of Data Communication System Performance."
2. Analyze and assess the impact of new or additional control procedure categories on above proposed American National Standard.
3. Investigate suitable extensions to the initial standard for coverage at multilink and more complex system configurations.
4. Ensure proper liaison with other U.S. and foreign standards committees through the respective coordination groups.

Study Projects:

28 Systems Performance

Federal Participants

- Mr. William B. Dickinson, (P), National Aeronautics and Space Administration
Mr. Vincent Dovydaitis, Jr., (P), Department of Defense, USAF
Mr. Raymond T. Moore, (P), Department of Commerce, NBS

- Mr. J. Pape, (A), Department of Defense, USAF
Mr. Gerald Schutz, (P), Department of Transportation, OS
Mr. Donald D. Wilson, (A), National Aeronautics and Space Administration

**X3S36
DIGITAL DATA SIGNALING RATES**

Scope:

Define digital data signaling rates at the interface between data terminal equipment and data communication equipment, and recommend standards where appropriate.

Program of Work:

The present program of work is concerned with the subject of wideband data transmission signaling rates. The task group has reviewed this subject periodically over the past 4 or more years, but has been unable to recommend a standard previously due to a general lack of applicable data. Due to the recent increase of activity in this area, it now appears that we may have sufficient data on which to recommend a standard in the near future. The work of this task group will also be coordinated with the EIA Committee working on wideband interface characteristics.

Study Projects:

51 Wideband Data Transmission Signaling Rates

Federal Participants

- Mr. Marshall L. Cain, (A), National Communications System
Mr. Harold J. Crowley, (CH), Department of Defense, USAF
Mr. George W. White, (P), National Communications System

**X3S37
PUBLIC DATA NETWORKS**

Scope:

Broadly, to define the system functions, procedures and parameters at the user/network interface to facilitate the establishment of con-

nections and transfer of data between data systems and Public Data Networks.

Specifically, study and develop U.S. National Standards for the functional, electrical and operational characteristics at the interface between users terminal devices or private digital data networks and Public Data Networks.

To effect USA liaison, submit proposals and responses to international Public Data Network standards proposals and recommendations developed in the technical committees of ISO, ECMA and working groups of CCITT and CCIR.

Program of Work:

A two-phase program of work is proposed:

Phase I

- a. Development of a USA National Standards proposal for the procedural characteristics of an interface for synchronous signaling between DTE and DCE on a Public Data Network for dedicated point-to-point and multi-point service.
- b. Development of USA National Standards proposal for the functional characteristics of an interface for synchronous signaling between DTE and DCE and a Public Data Network providing switched services, including selection of alphabet and code for switching control (addressing).
- c. Development of a USA National Standard for the electrical and functional characteristics of the interfaces above.
- d. Study and liaison with existing standards development working groups on subjects related to Signaling Rates, Performance, Message Formats, Control Procedures, Codes and Character Sets (alphabets) as they apply to Public Data Networks.

Phase II

Ongoing study, evaluation and liaison to assess the characteristics of New Public Data Networks and develop candidate areas for standardization effort.

Initially the work would concentrate on responses to developments in ECMA, CCITT, etc., and the establishment of U.S. positional papers on evolutionary network developments.

Study Project:

50 Network Control Procedure

Federal Participants

Mr. George E. Clark, Jr., (A), Department of Commerce, NBS

Mr. Ira Cotton, (P), Department of Commerce, NBS

Mr. H. C. Folts, (CH), National Communications System

Mr. George W. White, (A), National Communications System

X3T9

I/O INTERFACE STANDARDS

Scope:

To identify, define, and where feasible and practicable, recommend standards for the significant logical, physical, and electrical interface parameters (excluding interfaces between data processing terminal equipment and data communication facilities) to provide improved effectiveness by interconnection and compatibility of central data processing equipment, control units, and input/output devices such as tape drives (both magnetic and paper), card readers and punches, printers, auxiliary memories, and multiplexors. The purpose of this identification and definition will be to develop standards for the significant logical, physical, and electrical parameters of I/O interface(s).

Program of Work:

1. Study equipment system philosophies with goal of establishing basic rules for interface specification(s).
 - a. List Physical, Operation, Hardware, Software Implications and Installation and Maintenance factors which should be considered in development of these basic rules.
 - b. Evaluate these factors and select those applicable to the interface.

- c. Examine implementations of these factors for commonality.
- 2. Determine level(s) of interface standardization feasible and practicable.
- 3. Collect and examine relevant information on such things as existing interfaces and standardization activities.
- 4. Prepare standards proposals.

Study Projects:

- 52 Channel Interface—Functional
- 53 Channel Interface—Electrical
- 54 Channel Interface—Mechanical

Federal Participants

- Mr. Charles W. Burlingame, (P), National Aeronautics and Space Administration
- Mr. James G. Griffis, (A), Department of Defense, DCEO
- Mr. Philip S. Johnson, (P), Department of Commerce, NBS
- Mr. Giora Pelled, (P), Department of Defense, Army
- Mr. Paul Robinson, (P), Department of Defense, Navy
- Mr. D. L. Shoemaker, (P), General Services Administration
- Mr. George C. Thomas, (P), Department of Defense, DCEO
- Mr. W. Truitt, (A), Department of Commerce, NBS

5.2.2.3. Status of X3 American National Standards Published or Under Development

Note 1: Legend for Type of Review

N —(new) proposed American National Standard
 R —revision of American National Standard
 F —Reaffirmation of American National Standard
 W—withdrawal of American National Standard

Note 2: Legend for Status

O —no activity
 C —committee being organized
 P —under preparation
 V —out for vote
 T —draft published for trial
 S —submitted to ANSI for approval

Designation	Subject or Title	Type Review	Status	Est. Subm to ANSI	X3 Project	Remarks
X2.3.4-1959	Method of Charting Paper-work Procedures	W	S	73-12	---	Submittal being prepared.
X3.1-1969	Synchronous Signalling Rates for Data Transmission	R or F	P	74-11	110	
X3.4-1968	Code for Information Interchange	R	P	74-09	12	
X3.9-1966	FORTRAN	R	P	74-11	67	Draft expected 74-03.
X3.10-1966	Basic FORTRAN	W	P	74-11	68	To be combined into X3.9.
X3.11-1969	General Purpose Paper Cards for Information	F	C	74-11	101	
X3.15-1966	Bit Sequencing of ASCII in Serial-by-Bit Data Transmission	F	V	74-03	111	Subcommittee recommends reaffirmation.
X3.16-1966	Character Structure and Character Parity Sense in Serial-by-Bit Data Communication in ASCII	F	V	74-03	112	Subcommittee recommends reaffirmation.
X3.17-1966	Character Set and Print Quality for Optical Character Recognition (OCR-A)	R	S	73-11	57	
X3.17-1966	(same)	R	P	74-10	59	Extension to include full ASCII character set.
X3.18-1967	One Inch Perforated Paper Tape for Information Interchange	R	S	73-11	76	
X3.19-1967	Eleven-Sixteenths Perforated Paper Tape for Information Interchange	R	S	73-11	77	
X3.20-1967	Take-Up Reels for One-Inch Perforated Tape for Information Interchange	F	S	73-11	78	
X3.21-1967	Rectangular Holes in Twelve-Row Punched Cards	R or F	C	74-11	102	Attempting to resolve differences with ISO 1682.
X3.23-1968	COBOL	R	V	73-12	22	Resolving one negative vote.

Designation	Subject or Title	Type Review	Status	Est. Subm to ANSI	X3 Project	Remarks
X3.24-1968	Signal Quality at Interface between Data Processing Terminal Equipment and Synchronous Data Communication Equipment for Serial Data Transmission	F	P	74-04	113	
X3.25-1968	Character Structure and Character Parity sense for Paralell-by-Bit Data Communication in ASCII	F	P	74-04	114	SC recommends reaffirmation.
X3.27-1969	Magnetic Tape Labels for Information Interchange	R	P	74-09	38	SC draft completed for public review.
X3.28-1971	Procedures for the Use of the Communication Control Characters of ASCII in Specified Data Communication Links	R	P	74-10	48	Draft being circulated for public review.
X3.33	Special Purpose Paper Cards	N	P	74-11	29	Resolving negative comments.
X3.35	Structure for Identification of Organizations for Information Interchange	N	V	74-06	87	New draft as result of negative votes being sent out for X3 vote.
X3.36	Synchronous High Speed Data Signalling Rates	N	V	74-01	51	Awaiting resolution of DoD negative vote.
X3.37	Programming Language APT	N	S	73-12	55	Submittal being prepared.
X3.41	Code Extension Techniques for Use with the 7-Bit Coded Character Set of ASCII	N	V	74-01	105	Editorial preparation for submission to ANSI.
X3.42	Representation of Numeric Values in Character Strings for Information Interchange	N	V	74-03	104	Delayed to respond to ISO/TC97/SC comments. X3 ballot being issued.
X3.43	Representation of Local Time of Day for Information Interchange	N	S	73-12	84	Submittal being prepared.
X3.44	Determination of Performance of Data	N	V	74-01	28	Submittal being prepared.
X3.45	Character Set for Handprinting	N	S	73-12	62	Submittal being prepared.
X3.46	Unrecorded Magnetic Six-Disc Pack (General, Physical, and Magnetic Characteristics)	N	S	73-11	64	Submittal being prepared.

Designation	Subject or Title	Type Review	Status	Est. Subm to ANSI	X3 Project	Remarks
X3.47	Structure for Identification of Named Populated Places of the U.S.	N	P	74-03	92	Awaiting determination of "maintenance activity" to publish the directory.
X3.48	Digital Magnetic Tape Cassette (0.150")	N	P	74-07	213	Draft being circulated for public review, prior to X3 ballot.
X3.49	Character Set for OCR-B	N	P	74-02	61	X3 ballot to be issued 73-12.
	X3A1—OCR					
	OCR Print Quality	R	P	74-10	69	To extend and replace the print quality portion of X3.17. Will apply to printing of all OCR fonts.
	X3B5—Digital Tape Cassettes					
	Magnetic Tape Cartridge	N	P	74-12	221	
	X3B7—Magnetic Discs					
	Unrecorded 11-High Disc Pack	N	P	74-12	65	
	Unrecorded One-High Disc Pack	N	P	74-09	66	
	Unrecorded Single Disc Cartridge (Front Loading)	N	P	74-	224	
	Twelve Disc Packs	N	P	74-	225	
	X3J1—PL/I					
	PL/I	N	P	75-03	212	
	PL/I for Industrial Computers	N	P	76-	222	
	X3J2—BASIC					
	Programming Language BASIC	N	C	75-	215	Technical subcommittee holds first meeting 74-01.
	X3J7—APT					

Designation	Subject or Title	Type Review	Status	Est. Subm to ANSI	X3 Project	Remarks
X3.37	Programming Language APT	R	P	75-	55	Extension of initial standard.
	APT Post Processor Language	N	P	75-	115	
X3-TR-1	X3K1—Project Documentation Guidelines for Project Documentation	N	P	74-	16	To be published as an X3 Technical Report.
X3-TR-1	X3K5—Vocabulary Dictionary of Information Processing	N	P	74-	26	To be published an an X3 Technical Report, with subsequent withdrawal of X3.12-1970.
X3-TR-1	X3K6—Network Oriented Project Management Systems Graphical Representation of Networks	N	P	74-	32	
X3-TR-1	Network Oriented Computer System Guide	N	P	75-	36	To be published as an X3 Technical Report.
X3-TR-1	Usage of Networks	N	P	75-	229	To be published as an X3 Technical Report.
	X3L2—Codes and Character Sets Graphic Subsets of ASCII	N	P	74-10	3	Resolving conflicts with OCR & Keyboard standards.
	Control Codes for 8-Bit Sets	N	P	75-	4	
	Graphics for 8-Bit Sets	N	P	75-	5	
	Code Registration Practices	N	P	75-	13	
	Guidelines for Composite Character Design	N	P	75-	15	
	X3L5—Labels and Formats Magnetic Tape Cassette Labels	N	P	75-	217	
	Carriage Control	N	P	75-	218	

Designation	Subject or Title	Type Review	Status	Est. Subm to ANSI	X3 Project	Remarks
X3-TR-2	X3L8—Data Representation					
	Guide for the Development, Implementation and Maintenance of Standards for the Representation of Computer Processed Data Elements	N	V	74-03	43	To be published as an X3 Technical Report.
	Representation of U.S. Customary, SI and Other Units to be Used in Systems with Limited Character Sets	N	P	74-10	45	
	Representation of Time Zones for Information Interchange	N	P	74-08	85	
	Identification of Individuals for Information Interchange	N	O	-----	86	Draft withdrawn, pending resolution of public policy on rights to privacy.
	Formatting of Names of Individuals for Information Interchange	N	P	74-	86	
	Identification of Point Locations in the U.S.	N	P	75-	93	
	Representation of Mailing & Shipping Addresses	N	P	75-	95	
	X3S3—Data Communications					
	Message Heading Formats for Information Interchange	N	P	74-11	47	
	Code Independent Data Transmission Control Procedures	N	P	75-	49	
	Public Data Networks	N	P	75-	223	
	X3T9—I/O Interface					
	Channel Interface—Functional, Electrical and Mechanical Characteristics	-	-----	N	52	At X3 instruction, X3T9 is now documenting reasons why standardization is not appropriate at this time. Also studying interest and justification for standard on Mini-computer interface, in response to ISO/TC97/SC13 request.

Designation	Subject or Title	Type Review	Status	Est. Subm to ANSI	X3 Project	Remarks
	X3/SPARC—Pre-Standardization Feasibility and Need Studies					
	Interchangeable ASCII Data Files	N	*	—	40	Reviewing comments on incomplete X3 vote.
	Operating Systems Control Language	N	*	—	202	Inactive, seeking study group chairman.
	Display Parameters	N	*	—	204	Proposal under study.
	Program Abstracts	N	*	—	211	X3 ballot being issued on approval of new standards development project.
	Data Base Systems	N	*	—	226	Study actively proceeding. Interim progress report expected 74-01.
	Magnetic Tape (6250 CPI)	N	*	—	233	Proposal under active study.

* Pre-Standardization study of formal proposals submitted to X3

5.2.3. American National Standards Committee X4

5.2.3.1. Committee X4 Organizations and Federal Participants

X4 OFFICE MACHINES

For any information on the activities of the following committees you may contact:

Secretariat: CBEMA
 1828 L Street, N.W.
 Washington, D.C. 20036
 (202) 466-2288

Federal Participants

- Mr. F. O. Bias, (P), General Services Administration
- Mr. Donald D. Curry, (A), Department of Defense, Army
- Mr. Victor G. Kehler, (P), Department of Defense, USAF
- Mr. Edmund Trione, (A), General Services Administration
- Mr. Harry S. White, Jr., (P), Department of Commerce, NBS

X4-A5—DUPLICATING, REPRODUCING AND COPYING MACHINES

X4-A6—DICTATION EQUIPMENT

X4-A7—BASIC PAPER LAYOUT/FORMS

Federal Participants

Mr. Artel Ricks, (P), General Services Administration

X4-A8—OFFICE MACHINES ELECTRICAL

Federal Participants

Mr. Philip D. Shupe, (P), Department of Commerce, NBS

X4-A9—KEYBOARDS

Federal Participants

Mr. Lloyd M. Burstein, (P), Department of Transportation, FAA

X4-A10—ADDRESSING, MAILING, AND FRANKING MACHINES

X4-A11—CREDIT CARD STANDARDIZATION

X4-A15—ALPHANUMERIC MACHINES

Federal Participants

- Mr. Hugh M. Beck, (A), Department of Defense, Navy
- Mr. Donald D. Curry, (P), Department of Defense, Army
- Mr. G. Kent Godwin, (L), Department of Agriculture
- Mr. William Huf, (P), Department of Defense, Navy

5.2.3.2. Status of X4 American National Standards Published or Under Development

Designation	Subject/Title	Estimated Transmittal	Type of Review	Status	Remarks
X4.1	Definition of a Cash Register	N/A	N/A	Reaffirmed	BSR approval in 1973
X4.2	Definition of a Calculating Machine	N/A	N/A	Reaffirmed	BSR approval in 1973
X4.3	Size Designations for Index Cards and Recordkeeping Cards	N/A	N/A	Reaffirmed	BSR approval in 1973
X4.4	Basic Sheet Sizes and Standard Stock Sizes for Bond Papers and Index Bristols	N/A	N/A	Reaffirmed	BSR approval in 1973
X4.5	Definition of an Accounting Machine	N/A	N/A	Reaffirmed	BSR approval in 1973
X4.6	10-Key Keyboard for Adding and Calculating Machines	N/A	N/A	Reaffirmed	BSR approval in 1973
X4.7	Typewriter Keyboard Arrangement	N/A	N/A	Revised	BSR approval in 1973
X4.8	Specifications for Single-ply, Non-Carbonized Adding Machine Paper Rolls	N/A	N/A	Revised	BSR approval in 1973
X4.9	Minimum Requirements for Office Dictation Equipment	1974	Revision	Preparation	X4 vote in early '73 resulted in need to revise to update
X4.10	Remote Dictation Thru an Intercommunications Switching System	1975	Revision	Preparation	X4 vote in '73 showed need to revise standard
X4.11	Operating Supply Voltage for Office Equipment	N/A	N/A	Revised	BSR approval in 1973
X4.12	Safety for Office Appliances and Business Equipment	N/A	No activ.	UL Document	Standard not handled by X4
X4.13	Credit Card Specifications	N/A	N/A	N/A	Approved by BSR in 1971
X4.14	ASCII Keyboard Arrangement	N/A	N/A	N/A	Will be replaced by new standards under development
X4.15	Names and Abbreviations for Identifying the Control Character Keys on ASCII Keyboards	1974	New	Neg. Ballots	Conflict with X3 Standard doc.
X4.16	Magnetic Stripe Encoding on Credit Cards	N/A	N/A	N/A	BSR approval in 1973
	Identification Cards	N/A	New	Organizing	Studying need/ reacting to ISO
	Embossed Character Reading for Credit Cards	Late 1974	New	In X4A11	Companion to X4.13
	Imprint Location for Information on Credit Card Sales Drafts	Late 1974	New	In X4A11	

Designation	Subject/Title	Estimated Transmittal	Type of Review	Status	Remarks
	Keyboard arrangement for OCR, ASCII & Correspondance based on X4.7	Early 1975	Revision	In X4/KB	Replacing X4.7 & X4.14
	Keyboard Arrangement for OCR, ASCII & Correspondance based on Dvorak Arrangement	Early 1975	New	In X4/DSK	Comparable to above
	Authorization Messages/ Responses for Credit Card POS Transactions	1975	New	In X4A11	
	Security & Durability of Magnetic Stripes on Credit Cards	Unknown	New	Study	X4A11 studying need for Standard
	Standard for Business Letterhead Sizes	Unknown	New	Study	X4A7 studying need for Standard

5.2.4. American National Standards Committee Z39

5.2.4.1. Committee Z39 Organizations and Federal Participants

Z39

Library Work, Documentation, and Related Publishing Practices

The American National Standards Institute, Inc., Standard Committee Z39 on Library Work, Documentation, and Related Publishing Practices is sponsored by the Council of National Library Associations to develop standards for concepts, definitions, terminology, letters and signs, practices, and methods in the fields of library work in the preparation and utilization of documents, and in those aspects of publishing that affect library methods and use.

Chairman: Dr. Jerrold Orne
 School of Library Science
 University of North Carolina
 Chapel Hill, North Carolina 27514

Federal Participants

Miss Margaret Fox, (P), Department of Commerce, NBS
 Mr. Walter B. Greenwood, (P), Department of Defense
 Mr. Raymond A. Jensen, (P), Department of the Interior

Mr. Robert Klassen, (P), Department of Health, Education, and Welfare
 Mr. Lawrence Livingston, (P), Department of Health, Education, and Welfare
 Dr. Frederick R. Theriault, (A), Department of Defense
 Mr. William J. Welsh, (P), Library of Congress

Z39/SC 1—PROGRAM

Chairman: Mr. Harold Oatfield

Z39/SC 2—MACHINE INPUT RECORDS

Chairman: Mrs. Henriette D. Avram
 Library of Congress
 MARC Development Office
 10 First Street, S.E.
 Washington, D.C. 20540

Federal Participants

Mrs. Henriette Avram, (CH), Library of Congress
 Mr. Kay D. Guiles, (P), Library of Congress
 Mr. Michael Keplinger, (P), Department of Commerce, NBS

Z39/SC 3—PERIODICAL TITLE ABBREVIATION

Chairman: Mr. James L. Wood, Chemical Abstracts Service

Z39/SC 4—BIBLIOGRAPHIC REFERENCES

Chairman: Mr. Ellis Mount, Engineering Library

Z39/SC 5—TRANSLITERATION

Chairman: Mr. Jerrold Orne, School of Library Science, University of North Carolina

Z39/SC 6—ABSTRACTS

Chairman: Mr. Ben H. Weil
Esso Research and Engineering Company
P.O. Box 121
Linden, NJ 07042

Federal Participants

Mr. Paul Krupenie, (P), Department of Commerce
Mr. Harvey Marron, (P), Department of Health, Education, and Welfare

Z39/SC 7—LIBRARY STATISTICS

Chairman: Mr. Frank L. Schick
Library Surveys Branch
U.S. Office of Education
400 Maryland Avenue
Washington, D.C. 20202

Federal Participants

Mr. Frank Cylke, (P), Library of Congress

Z39/SC 8—PROOF CORRECTIONS

Chairman: Mr. Bruce C. Young, University of Chicago Press

Z39/SC 9—TERMINOLOGY

Chairman: Mr. Ben H. Weil, Esso Research and Engineering Company

Z39/SC 10—PERIODICALS: FORMAT AND ARRANGEMENT

Chairman: Anne J. Richter

Z39/SC 12—INDEXING

Chairman: Mr. John Rothman, The New York Times

Z39/SC 13—TRADE CATALOGS AND DIRECTORIES

Chairman: Mr. Karl A. Baer, National Housing Center

Z39/SC 16—BINDING

Chairman: Mr. Matt Roberts, Library of Congress

Z39/SC 17—STANDARD BOOK NUMBERS

Chairmen: Mr. Emery Koltay, R. R. Bowker Company, and Mr. Robert W. Frase

Z39/SC 18—BOOK PUBLISHING STATISTICS

Chairman: Carol A. Nemeyer, Association of American Publishers

Z39/SC 20—STANDARD SERIAL CODING

Chairman: Mr. Fred Croxton
Library of Congress
Washington, D.C. 20540

Federal Participants

Mr. Fred E. Croxton, (CH), Library of Congress
Mr. Lawrence Livingston, (P), Department of Health, Education, and Welfare
Mr. Paul R. Reimers, (P), Library of Congress
Mrs. Elaine W. Woods, (P), Library of Congress

Z39/SC 22—LIBRARY MATERIALS PRICE INDEXES

Chairman: Mr. William H. Kurth, Washington University Libraries

Z39/SC 24—REPORT LITERATURE FORMAT

Chairman: Parmely C. Daniels
5719 Third Street, South
Arlington, VA 22204

Federal Participants

Mr. John H. Wilson, (P), Atomic Energy Commission

Z39/SC 25—THESAURUS RULES AND CONVENTIONS

Chairman: Mr. Frank Y. Speight, American Welding Society

Z39/SC 27—IDENTIFICATION CODES FOR COUNTRIES, LANGUAGES, PUBLISHERS, AREAS AND DATES

Chairman: Miss Patricia E. Parker
MARC Development Office
Library of Congress
Washington, D.C. 20540

Federal Participants

Mr. James T. Cape, (P), Atomic Energy Commission
Mrs. Hazel E. McEwen, (P), Department of Commerce, NBS
Miss Patricia E. Parker, (CH), Library of Congress
Mr. Terry McIntyre, (P), Department of State

Z39/SC 29—PUBLICITY AND PROMOTION

Chairman: M. Ann Heidenbreder, Harcourt Brace Jovanovich, Inc.

Z39/SC 30—STANDARD ACCOUNT NUMBERS

Chairman: Mr. Russell Reynolds, National Association of College Stores

Z39/SC 31—MUSIC INDUSTRY CODE

Chairman: Mr. Kenneth C. Schonberg
MIC Agency
Billboard Publications, Inc.
2160 Patterson Street
Cincinnati, OH 45214

Federal Participants

Mr. Donald L. Leavitt, (P), Library of Congress

Z39/SC 32—TECHNICAL REPORT NUMBERING

Chairman: Mr. Donald P. Hammer
ISAD Executive Director
American Library Association
50 E. Huron Street
Chicago, IL 60611

Federal Participants

Mr. S. T. Waters, (P), Department of Agriculture

Federal Participants

Mr. Thomas Laughlin, (P), Atomic Energy Commission
Dr. Frederick R. Theriault, (P), Department of Defense
Mr. John H. Wilson, Jr., (A), Atomic Energy Commission

Z39/SC 35—ADVERTISING MICROFORM PUBLICATIONS

Chairman: Mr. Carl M. Spaulding, Council of Library Resources

Z39/SC 33—BIBLIOGRAPHIC ENTRIES FOR MICROFICHE HEADERS AND ROLL MICROFILM CONTAINERS

Chairman: Mr. Joseph H. Howard, Library of Congress

Z39/SC 36—STANDARD ORDER FORM

Chairman: Jennifer V. Magnus
Order Division
Library of Congress
Washington, D.C. 20540

Z39/SC 34—JOURNAL ARTICLE CITATIONS

Chairman: Mr. Harold Oatfield
13401 S.E. Oatfield Road
Milwaukie, OR 97222

Federal Participants

Mr. Frank Cylke, (O), Library of Congress
Jennifer Magnus, (CH), Library of Congress
Mr. Robert Sullivan, (O), Library of Congress

5.2.4.2. Status of Z39 American National Standards Published or Under Development

Standards approved by ANSI:

Z39.19 Guidelines for Thesaurus Structure, Construction and Use
Z39.21 Book Numbering

Proposed standards approved by Z39 and submitted to ANSI:

Z39.17 IEEE Recommended Practice for Units in Published Scientific and Technical Works
Z39.18 Scientific and Technical Reports—Format and Production

Proposed standards submitted to the Z39 membership for voting:

Z39.1 Periodicals: Format and Arrangement (Revision of Z39.1-1967)
Z39.20 Criteria for Price Indexes for Library Materials
Z39.22 Proof Corrections
Z39.23 Standard Technical Report Number
Z39.24 Transliteration of Slavic Cyrillic Characters

Standards reviewed (ANSI 5-year review):

Z39.4-1968 Basic Criteria for Indexes (submitted for reaffirmation, November 27, 1973)
Z39.5-1969 Abbreviation of Titles of Periodicals (submitted for reaffirmation, November 27, 1973)
Z39.6-1965 Trade Catalogs (revision underway)
Z39.7-1968 Library Statistics (revision underway)
Z39.8-1968 Compiling Book Publishing Statistics (revision underway)

Draft standards circulated for comment:

Standard Record Number (formerly Music Industry Code)
Bibliographic Information for Microfiche Heading Areas

Draft standards in preparation:

Bibliographic References
Yiddish
Journal Article Citations
Advertising Microform Publications
Standard Order Form
Standard Account Numbers

Subcommittees organized:

Standard Order Form (SC/36)
Binding (SC/16, reorganized after several years)
Standards Account Numbers (SC/30, formerly Code for Libraries and Bookdealer)
Indexing (SC/12, reorganized to prepare supplements to Z39.4-1968)

International Activity:

ISO/TC 46

1. Z39 hosted a meeting of ISO/TC 46/SC 4/WG 1, Character Sets for Documentation and Bibliographic Use, in Washington, D. C., March 1973.
2. Prepared US position on the following:
 - a. DIS 3166, Code for the Representation of Names of Countries (Disapproved)
 - b. DIS 2788, Guidelines for the Establishment and Development of Monolingual Thesauri (Disapproved)
 - c. Draft Proposal 1129, Contents Pages in Periodicals (Disapproved)
 - d. DIS 3297, International Standard Serial Numbering (ISSN) (US position in preparation, expect to Approve)

ISO/TC 37

US membership changed to "O" upon our request. William N. Locke has been named as Representative to TC 37.

Audio Visual Consultant:

Pearce S. Grove was named as a Consultant to Z39 with responsibility for the standards program for audiovisual media.

Membership:

New Members: American Concrete Institute and American Society of Mechanical Engineers. The Center for Applied Linguistics resigned. Total: 53 member organizations

5.3. Conference on Data Systems Languages (CODASYL)

CODASYL ORGANIZATION

CODASYL

The general structure of the Conference on Data Systems Language is:

	EXECUTIVE COMMITTEE	
PLANNING COMMITTEE	SYSTEMS COMMITTEE	PROGRAMMING LANGUAGES COMMITTEE
	DATA DESCRIPTION LANGUAGE COMMITTEE	
	TASK GROUPS	

MEMBERSHIP REQUIREMENTS

The membership requirements below are taken from the CODASYL Constitution approved in December 1968:

The Executive Committee, which is responsible for the overall management of the standing committees, is limited to 15 members "who are accepted from written applications and nominations from individuals who have made significant contributions to the advancements of the goals of CODASYL. No institution shall be represented by more than one individual except in unusual circumstances which result in the CODASYL Executive Committee extending an invitation to an especially well-qualified individual". Membership on the Planning and Systems Committees "is by invitation at the pleasure of the Chairman."

These memberships are designated limited.

The Programming Languages Committee is limited to 25 members with membership based "on the sponsoring institution's expressed support of CODASYL objectives and upon availability of a suitable vacancy (on the Committee)."

EXECUTIVE COMMITTEE, CONFERENCE ON DATA SYSTEMS LANGUAGES

Scope:

To provide policy guidance and direction to the standing committees in accomplishing the

purposes of CODASYL and to coordinate their activities. To approve all formal publications of CODASYL. To provide policy for membership in, and appoint chairmen of, each committee considering nominations from such committee. To review membership on each standing committee periodically.

Chairman: Mr. John L. Jones
Southern Railway Company
125 Spring Street, SW
Atlanta, Georgia 30303
(404) 688-0800, Ext. 312

Projects: See Subordinate committees.

Federal Participants

CDR Grace Hopper, (P), USN

PROGRAMMING LANGUAGE COMMITTEE OF CODASYL

Parent Organization: Executive Committee, CODASYL

Scope:

The purpose of the CODASYL Programming Language Committee is to make possible compatible, uniform source programs and object results with continued reduction in the number of changes necessary for conversion or interchange of course programs and data. The committee will concentrate its efforts in the area of tools, techniques and ideas aimed at the programmer.

Chairman: Mr. Ronald J. Ham
Honeywell Information Systems
MS-849A
300 Concord Road
Billerica, Massachusetts 01821
(617) 667-3111, Ext. 2988

Program of Work:

Maintain and further develop the COBOL Language, including organization, and supervision of all developmental task groups and approval of their efforts.

Federal Participants

Mr. Joseph C. Collica, (A), Department of Commerce, NBS

Mr. Joe E. Cousins, (A), Department of Defense

Mr. Anthony J. Donato, (P), Department of Defense

Mr. Laury Goodall, (A), Department of Defense

Mr. F. Robert Harrower, (P), Department of Defense

Mr. Thomas E. Rice, (P), Department of Defense, Navy
 Mr. William C. Rinehuls, (P), Department of Defense,
 USAF
 Mrs. Helen Southall, (A), Department of Defense,
 DCSC
 Mr. Kin B. Thompson, (A), Department of Defense,
 Navy
 Miss Mabel V. Vickers, (P), Department of Commerce,
 NBS

ASYNCHRONOUS TASK GROUP OF CODASYL

Parent Organization: Programming Language
 Committee

Program of Work:

The ATG is responsible for the following:

1. Rewrite of the Asynchronous Task Group proposal so that the facility can be included in the CODASYL COBOL Journal of Development.
2. Files that are shared in an asynchronous environment.
3. Files are passed parameters.
4. Record protection—file and record exclusive.
5. Maintain and extend the asynchronous processing facility.

Federal Participants

Mr. Richard Fridgin, (P), Department of Defense, Navy
 Mr. Thomas E. Rice, (A), Department of Defense, Navy

COMMUNICATION TASK GROUP OF CODASYL

Parent Organization: Programming Language
 Committee

Scope:

Prepare detailed language specifications for extensions to the COBOL communications facility.

Chairman: Mr. Ronald J. Ham
 Honeywell Information Systems
 MS-849A
 300 Concord Road
 Billerica, Massachusetts 01821
 (617) 667-3111, Ext. 2988

DATA BASE CONCEPTS TASK GROUP OF CODASYL

Parent Organization: Programming Language
 Committee

Scope:

The DBCTG is responsible for offering comments and reviewing the output of the Data Base Language Task Group and for development of long-range extensions to the COBOL data base facility.

Chairman: Mr. T. A. Metaxides
 Bell Telephone Labs
 P.O. Box 2020
 New Brunswick, New Jersey 08903
 (201) 564-7968

Federal Participants

Mr. John M. Muro, (P), Department of Defense, Navy

INPUT-OUTPUT AND DATA REPRESENTATION TASK GROUP OF CODASYL

Parent Organization: Programming Language
 Committee

Scope:

To examine the Input-Output associated with COBOL both in the environment of the compiler and in the environment of the generated object program.

Chairman: Mr. Peter Z. Ingerman
 RCA-ISD
 Building 214-2
 Camden, New Jersey 08101
 (609) 963-8000, Ext. PR 6572

Program of Work:

1. Investigate the USE facility in relation to: automatic editing from input to using form and automatic editing on output; and automatic moving or complementary moving from input to output.
2. Overall problem of environment within the areas of compiler and object program with respect to input-output.

3. Facilities of code conversion in both environments.
4. Facilities in compiler environment for "shorthand."
5. User-defined collating sequence(s).
6. Validity checking of input.
7. Creation of constant fields.

MASS STORAGE TASK GROUP OF CODASYL

Parent Organization: Programming Language Committee

Scope:

The MSTG is responsible for developing recommended language enhancements for synchronous input/output.

Chairman: Mr. Donald G. McCrimmon
Xerox Corporation
Xerox Square 023—Section A25
Rochester, New York 14644
(716) 546-4500, Ext. 84727

Federal Participants

Mr. P. Kreutzer, (P), Department of Defense, Navy

DATA BASE LANGUAGE TASK GROUP OF CODASYL

Parent Organization: Programming Language Committee

Scope:

The DBLTG is responsible for the completion of the proposal that will add a data base facility to COBOL.

Chairman: Mr. M. L. O'Connell
Rockwell International
D/091, AD02
International Airport
Los Angeles, California 90009
(213) 670-9151, Ext. 3034

PROPOSAL EDITING TASK GROUP OF CODASYL

Parent Organization: Programming Language Committee

Scope:

The PETG is a standing task group for the Programming Language Committee. Its main purpose is to review proposals for change to the COBOL language for: completeness of reference; consolidation with other proposals on the same subject; expansion of proposal justification to give complete information on both the advantages and disadvantages of the proposal; and consistency with syntax and semantic conventions.

Chairman: Mr. M. L. O'Connell
Rockwell International
D/091, AD02
International Airport
Los Angeles, California 90009
(213) 670-9151, Ext. 3034

Federal Participants (Limited)

Mr. William Rinehuls, (P), Department of Defense, USAF

DATA DESCRIPTION LANGUAGE COMMITTEE OF CODASYL

Parent Organization: Executive Committee of CODASYL

Scope:

The DDLC is charged with furnishing the specifications for a common Data Description Language independent of any high-level programming language. The Committee's work is seen as an evolutionary process much like the development of COBOL.

Chairman: Mr. Richard C. Kurz
Southern Railway Company
125 Spring Street, S.W.
Atlanta, Georgia 30303
(404) 688-0800, Ext. 2755

Program of Work:

The following objectives must be met if the Data Description Language Committee is to fulfill its charter as defined in the Scope above.

1. The DDLC shall publish its language specifications in a Journal of DDL Development akin to the Journal of Development published by the Programming Language Committee.

2. The DDL C shall maintain and extend its language specification in the Journal of DDL Development. In this work, the Committee is applying to the base document its formal procedures for considering proposals to changes in language specifications.

Federal Participants

Mr. John Berg, (P), Department of Commerce, NBS
 Mr. Frank Manola, (A), Department of Defense, Navy
 Capt. Cecil Martin, (P), Department of Defense, USAF
 Mr. Bruce Wald, (P), Department of Defense, Navy
 Mr. William Wenker, (P), Department of Defense,
 DCA
 Mr. Stanley Wilson, (A), Department of Defense, Navy

PLANNING COMMITTEE OF CODASYL

Parent Committee: Executive Committee of CODASYL

Scope:

The purpose of the CODASYL Planning Committee is to aid in CODASYL planning by gathering, assimilating and disseminating information from implementors and users pertaining to the goals of CODASYL.

Chairman: Mr. Warren G. Simmons
 P.O. Box 124
 Monroeville, Pennsylvania 15146
 (412) 391-2345, Ext. 4750

SYSTEMS COMMITTEE OF CODASYL

Parent Organization: Executive Committee of CODASYL

Scope:

The purpose of the CODASYL Systems Committee is to build up an expertise in, and to develop, advanced languages and techniques for data processing, with the aim of automating as much as possible of the processes currently thought of as system analysis, design and implementation.

Chairman: Mr. Edgar H. Sibley
 Dept. of Industrial Engineering
 West Engineering Building
 University of Michigan
 Ann Arbor, Michigan 48104
 (313) 764-6148

Federal Participants (Limited)

Miss Arla Weinert, (P), Department of Defense, Navy

5.4. International Organization for Standardization (ISO)

In the development of voluntary national standards for information processing, NBS is responsible for monitoring and coordinating Federal government participation on the various subcommittees and task groups of the American National Standards Committee (ANSI) and other industry standardization bodies. ANSI provides the channel through which American interest can participate in the activities of international standardization, which are becoming as important as national standardization activities. On many occasions, government participants are requested to consider international proposals and represent the interests of the United States on various standardization groups of the International Organization for Standardization. Also, government agencies may be queried as to the appropriateness of selected international proposals. Of particular importance to the information processing community is the work being carried on by ISO and its Technical Committee 97 (Computers and Information Processing). A review of ISO's activities in this area should be of interest to the entire information processing community.

5.4.1. Organization and Function of ISO

ISO was established in 1947 to promote the development of standards in order to facilitate international exchange of goods and services, and to develop mutual cooperation in areas of intellectual, scientific, technological, and economic activity.

Its objectives, as specified in its constitution, are: ". . . to facilitate the coordination and unification of the standards of Member Bodies." In connection with this goal, ISO may "organize the exchange of information regarding the work carried out by each Member Body . . . , set forth principles for the guidance of Member Bodies in their work . . . , cooperate with other international organizations dealing with related questions . . . , set up international standards provided, in each case, no Member Body dissents."

Present membership in ISO includes 58 Member Bodies. A Member Body is an organization

of an individual Nation that best represents the standardization activities of its Nation. Only one such body for each country can be an ISO Member Body. The ISO Member Body that represents the United States is the American National Standards Institute (ANSI).

The operations of the Organization are directed by the ISO Council, which consists of the President, currently Dr. Ake T. Vrethem, and representatives of 14 Member Bodies. An Executive Committee, composed of the Vice-President and seven Member Body representatives, supervises the activities of the Central Secretariat and is responsible to the Council.

The principal administrative officer of the Organization is the Secretary-General, who is elected by the Council and is in charge of the Central Secretariat. This post is currently held by Olle Sturen, Sweden. The Secretary-General ensures liaison between Member Bodies and the Council, regulates expenditures, and, in general, represents ISO in its relations with other international organizations.

As coordinator of the activities of the Technical Committees, the Secretary General directs the work of Members and Committees, informs Member Bodies and the Council of the work carried out by Committees, and informs the Committees of activities of other international organizations in related fields.

The standardization work of ISO is accomplished by Technical Committees. Any ISO Member Body or any organization outside ISO may request the study of a technical subject. If the study is approved by a majority, and at least five Member Bodies are willing to take an active part, a Technical Committee is established by the Council.

For each Committee the Council designates one Member Body to act impartially as a Secretariat. This Member Body also has its own delegation in the Technical Committee with the same status as other participating Member Bodies. The Secretariat is responsible for the satisfactory conduct of the Technical Committee's work and annually reports to the Council.

Currently, over 150 Technical Committees

have been established. Their activities cover most technical areas, with the exception of electricity. All matters of an electro-technical nature are considered by the International Electro-technical Commission (IEC), which is affiliated with ISO.

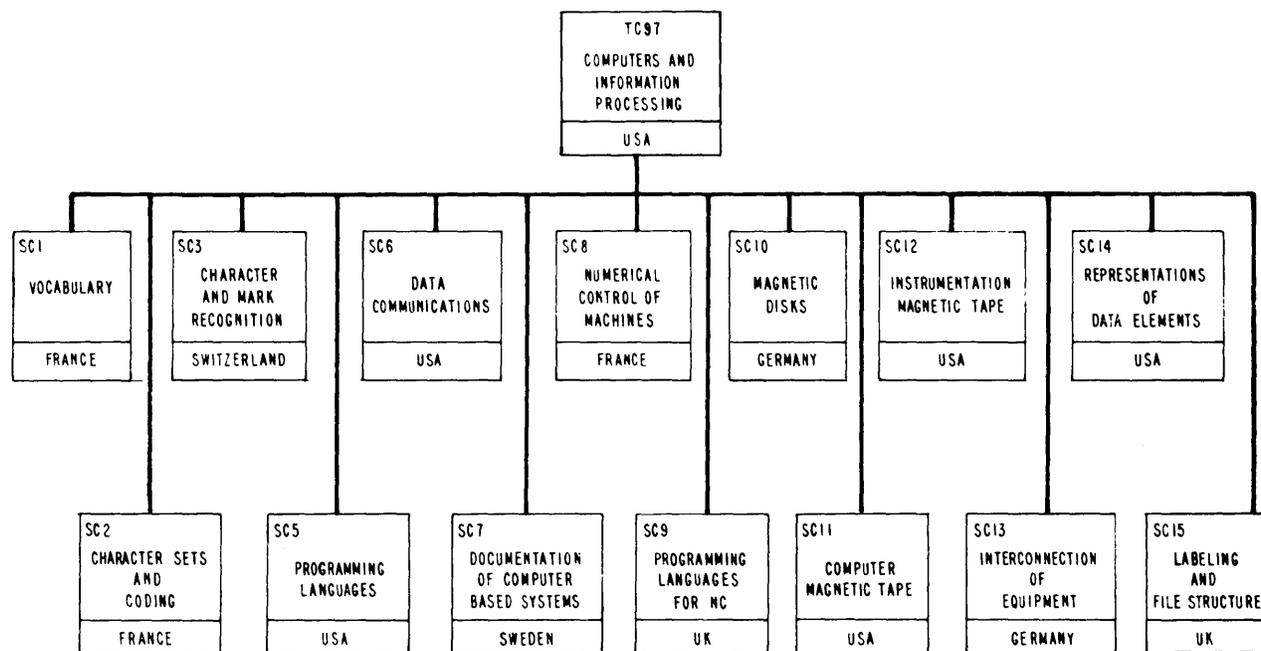
The scope of each Technical Committee is precisely defined and can be altered only with the approval of the ISO Council. Within that scope, each Technical Committee determines its own program of work. Members who take an active part in the work of a Technical Committee are known as (P) Members (participating) and have the right to vote. Members who wish only to be kept informed of the Committee's work are called (O) Members (observers) and may not vote.

Technical Committees may establish Subcommittees to study items on the Committee's work program. Working Groups are set up

under Technical Committees and Subcommittees as required. Reports of Working Groups and Subcommittees are normally in the form of preliminary draft proposals.

Draft proposals intended to become ISO Recommendations are submitted to the (P) Members of a Technical Committee for consideration. Those receiving substantial support are registered by the Central Secretariat as Draft ISO Recommendations and circulated to the Committee's (P) Members for final letter ballot and to all ISO Member Bodies for approval. A Draft ISO Recommendation, adopted by a majority of the (P) Members and approved by 60 percent of all ISO Member Bodies, is submitted to the ISO Council for acceptance as an ISO Recommendation. ISO Recommendations are published by the Central Secretariat for use of Member Bodies in facilitating standardization in their respective countries.

INTERNATIONAL ORGANIZATION FOR STANDARDIZATION (ISO)
 TECHNICAL COMMITTEE 97 (TC 97)



COUNTRIES HOLDING SECRETARIATS INDICATED

5.4.2. ISO/TC 97 (Computers and Information Processing)

Technical Committee ISO/TC 97 is responsible for developing standards recommendations relating to Computers and Information Processing. This Committee's development work is accomplished through the efforts of fourteen Subcommittees.

Members participating at the Committee and Subcommittee levels of ISO/TC 97 include the following countries:

(P) Members

Australia	Hungary	Romania
Brazil	Italy	Sweden
Canada	Japan	Switzerland
Czechoslovakia	Netherlands	United Kingdom
France	Poland	USA
Germany	Spain	USSR

(O) Members

Austria	Greece	Pakistan
Belgium	India	Portugal
Bulgaria	Iran	Rep. of South Africa
Chile	Ireland	Turkey
Denmark	Israel	Yugoslavia
Finland	Norway	

To ensure coordination of work on matters of common interest, ISO/TC 97 has established liaison with other ISO and IEC Technical Committees, including ISO/TC 6, Paper, Board, and Pulp; ISO/TC 37, Terminology (Principles and Coordination); ISO/TC 39, Machine Tools; ISO/TC 46, Documentation; ISO/TC 68, Banking Procedures; ISO/TC 95, Office Machines; and IEC/74, Safety of Electronic Data Processing Equipment and Office Machines.

Also ISO/TC 97 has liaison with several International Organizations such as the European Computer Manufacturers Association (ECMA), International Electro-technical Commission Central Secretariat (IEC) and International Telegraph and Telephone Consultative Committee (CCITT).

In its role of developing standards for Computers and Information Processing, ISO/TC 97 has a defined scope of work as follows:

Standardization in the areas of computers and associated information processing systems and peripheral equipment and devices and media related thereto.

The Subcommittees within ISO/TC 97 and the scope of work of each Subcommittee are:

SC 1—Vocabulary

Scope: The establishment of the ISO Vocabulary of data processing covering the scope of ISO/TC 97 and related subjects, and any related abbreviations.

SC 2—Character Sets and Coding

Scope: The standardization of coded character sets, code extension, definitions of characters for representation by single and multiple bytes, and coded representations of characters recorded in media for the interchange of coded information between devices, equipments, and systems.

SC 3—Character and Mark Recognition

Scope: The standardization of the shapes of characters and marks for input and output of data, for exchange among data processing systems and associated equipment using machine-legible characters or marks printed by hand or by machine, and of the associated print quality requirements.

SC 4—Input/Output (disbanded)

SC 5—Programming Languages

Scope: The standardization of programming languages and other software broad utility, with provision for revision, expansion and strengthening, and for the definition and approval of test problems as aids in assessing the conformity of compilers to one or other of the standardized programming languages.

SC 6—Data Communications

Scope: To define the system functions, procedures and parameters necessary for the transfer of data between data systems over communication networks. To effect liaison with CCITT and CCIR and to prepare proposals for their consideration and for inclusion in CCITT and CCIR Recommendations as appropriate. To prepare International Standards and/or Technical Reports relating to those aspects of data communications for which ISO is responsible.

SC 7—Documentation of Computer-Based Systems

Scope: Standardization of the documentation that is used in association with a data processing system but which is not an integral part of the processing of data, including flowcharts and flowchart symbols and other techniques used in representing data processing problems and in representing their definition, analysis, and method of solution.

SC 8—Numerical Control of Machines

Scope: The standardization of those aspects of data processing, excluding programming languages, that are associated with the numerical control of machines and with the control of industrial processes.

SC 9—Programming Languages for Numerical Control

Scope: The standardization of programming languages for the numerical control of machines and for the control of industrial processes.

SC 10—Magnetic Disks

Scope: Standardization in the field of magnetic disks and the recording of digital data on them for the interchange of information and media among data processing systems and associated equipment. The track format characteristics shall be defined for those disk involved in information interchange.

SC 11—Computer Magnetic Tape

Scope: Standardization in the field of magnetic tape and the recording of digital data on it for the interchange of information and media among data processing systems and associated equipment.

SC 12—Instrumentation Magnetic Tape

Scope: Standardization in the field of magnetic tape and the recording of data on it for the interchange of information and media in reel-to-reel instrumentation applications.

SC 13—Interconnection of Equipment

Scope: Standardization of input-output interfaces, but excluding data transmission modem interfaces.

SC 14—Representations of Data Elements

Scope: Standardization of the representations of commonly interchanged data elements to facilitate information interchange and information processing.

SC 15—Labelling and File Structure

Scope: Standardization of labelling and file structure for the interchange of data recorded on media.

Forty-seven ISO Recommendations relating to Computers and Information Processing have been developed through the efforts of ISO/TC 97 and have been approved by ISO Members.

Approved ISO Recommendations and/or Standards Relating to Computers and Information Processing

ISO 646-1973	6 and 7-Bit Coded Character Sets for Information Processing Interchange
ISO 840-1968	Code for Numerical Control of Machines
ISO 841-1968	Axis and Motion Nomenclature for Numerically Controlled Machines
R 961-1969	Implementation of the 6 and 7-Bit Coded Character Sets on 7-Track, 12,7 mm (½ in) Magnetic Tape
ISO 962-1969	Implementation of the 7-Bit Coded Character Set on 9-Track 12,7 mm (½ in) Magnetic Tape
ISO 963-1969	Guide for the Definition of 4-Bit Character Sets Derived from ISO 7-Bit Coded Character Set for Information Processing Interchange

* Under revision.

*R 1001-1969	Magnetic Tape Labelling and File Structure for Information Interchange
*R 1004-1969	Print Specifications for Magnetic Ink Character Recognition
ISO 1028-1969	Flowchart Symbols for Information Processing
*R 1056-1969	Punched Tape Block Formats for the Numerical Control of Machines, Coding of Preparatory Functions G and Miscellaneous Functions M
ISO 1057-1969	Interchangeable Punched Tape Variable Block Format for Positioning and Straight-Cut Numerically Controlled Machines
ISO 1058-1969	Punched Tape Variable Block Format for Positioning and Straight-Cut Numerically Controlled Machines
ISO 1059-1969	Punched Tape Fixed Format for Positioning and Straight-Cut Numerically Controlled Machines
*R 1073-1969	Alphanumeric Character Sets for Optical Character Recognition
ISO 1113-1969	Representation of 6 and 7-Bit Coded Character Sets on Punched Tape
ISO 1154-1969	Dimensions for Punched Paper Tape for Data Interchange
ISO 1155-1969	The Use of Longitudinal Parity to Detect Errors in Information Messages
ISO 1177-1970	Character Structure for Start/Stop and Synchronous Transmission
R 1538-1972	Programming Language ALGOL
*R 1539-1972	Programming Language FORTRAN
ISO 1679-1970	Representation of ISO 7-Bit Coded Character Set on 12-Row Punched Cards
ISO 1681-1970	Specifications for Unpunched Paper Cards
ISO 1682-1971	Dimensions and Locations of Rectangular Punched Holes in 80-Columns Punched Paper Cards
ISO 1729-1971	Properties of Unpunched Paper Tape
*R 1745-1971	Basic Mode Control Procedures
*R 1831-1971	Printing Specifications for Optical Character Recognition

FIPS PUB 12-2

*R 1858-1971	General Purpose Hubs and Reels with 76 mm (3 in) Centrehole for Magnetic Tape Used in Interchange Information Applications	ISO 2033-1972	Coding of Character Sets for MICR and OCR
*R 1859-1971	Unrecorded Magnetic Tapes for Interchange Instrumentation Applications—General Dimensional Requirements	ISO 2110-1972	Data Communication-Data Terminal and Data Communication Equipment Interchange Circuits—Assignment of Connector Pin Numbers
*R 1860-1971	Precision Reels for Magnetic Tape Used In Interchange Instrumentation Applications	ISO 2111-1972	Data Communication-Basic Mode Control Procedures—Code Independent Information Transfer
*R 1861-1971	7-Track 8 rpmm (200 rpi) Magnetic Tape for Information Interchange	ISO 2195-1972	Data Interchange on Rolled-Up Punched Paper Tape—General Requirements
*R 1862-1971	9-Track 8 rpmm (200 rpi) Magnetic Tape for Information Interchange	ISO 2593-1973	Connector Pin Allocations for the High Speed Data Terminal Equipment
*R 1863-1971	9-Track 32 rpmm (800 rpi) Magnetic Tape for Information Interchange	ISO 2628-1973	Basic Mode Control Procedures—Complements
*R 1864-1971	Unrecorded Magnetic Tape for Information Interchange, 8 and 32 rpmm (200 and 800 rpi), NRZI, and 63 rpmm (1600 rpi), Phase Encoded	ISO 2629-1973	Basic Mode Control Procedures Conversational Information Message Transfer
*R 1989-1971	Programming Language COBOL	ISO 2636-1973	Conventions for Incorporating Flowchart Symbols in Flowcharts
R 2014-1971	Writing of Calendar Dates in All Numeric Form	ISO 2690-1973	Unrecorded Magnetic Tape for Instrumentation Applications—Physical Properties and Test Methods
R 2015-1971	Numbering of Weeks	ISO 2711-1973	Representation of Ordinal Dates
*R 2021-1971	Representation of 8-Bit Patterns on 12-Row Punched Cards		

These ISO Recommendations and Standards are available from the American National Standards Institute, 1430 Broadway, New York, New York 10018.

* Under revision.

6. Standards Committee Participation by Federal Government Agency

The names of the Federal Government participants listed below concerned with information processing standards activity at the Federal, National, and International levels have been submitted by Federal Departments and Agencies for this INDEX at the request of the National Bureau of Standards. Future changes in membership or membership information should be forwarded to the Institute for Computer Sciences and Technology, National Bureau of Standards, Washington, D.C. 20234 through the Agency Points of Contact (See Section 5.1.4 for FIPS Contact).

Participating Member	Committee	Membership Status ¹
ACTION		
Mr. George R. Watts	Interagency Committee on ADP	P
ADMINISTRATIVE OFFICE OF THE U.S. COURTS		
Mr. William E. Davis	Interagency Committee on ADP	P
AGENCY FOR INTERNATIONAL DEVELOPMENT		
Mr. Maury D. Brown	Interagency Committee on ADP	P
ATOMIC ENERGY COMMISSION		
Mr. Ben B. Barnett	TG-2 Data Terminals and Data Interchange System Requirements	
Mr. Charles N. Brashears	FTSC Federal Telecommunication Standards Committee	P
Mr. James T. Cape	Z39/SC27 Identification Codes for Countries, Languages, Publishers, Areas and Dates	P
Mr. Thomas E. Hughes	ISO/TC46/SC4/WG1	
Mr. Thomas W. Laughlin	Z39/SC32 Technical Report Numbering	P
Mr. Robert L. Mayer	TG-3 Character Subsets, Sign Conventions and Packing Techniques TG-5 Federal Information Processing Vocabulary TG-12 Significance and Impact of ASCII as a Federal Standard	
Mr. James D. McPherson	X3L8 Representations of Data Elements X3L81 Data Standardization of Criteria FTPSC/DEC Federal Telecommunication Program Standards Committee for Data Elements and Codes	O O
Mr. J. Archie Ruatto	TG-9 COBOL	
Mr. Richard G. Shook	FIPS Coordinating and Advisory Committee Interagency Committee on ADP	P
Mr. John H. Wilson, Jr.	Z39/SC24 Report Literature Format Z39/SC32 Technical Report Numbering	P A
CENTRAL INTELLIGENCE AGENCY		
Mr. Ronald Adamson	TG-11 Optical Character Recognition	
Dr. James H. Babcock	FTSC Federal Telecommunication Standards Committee	P
Mr. Charles A. Briggs	Interagency Committee on ADP	P
Mr. William R. Brown	TG-11 Optical Character Recognition	
Mr. David V. Kerr	TG-10 Guidelines for Computer System & Component Performance Evaluation	
CIVIL AERONAUTICS BOARD		
Mr. Robin A. Caldwell	Interagency Committee on ADP	P
DEPARTMENT OF AGRICULTURE		
Mr. Lewis Calderone	X3A1 Optical Character Recognition (OCR)	A
Mr. G. Kent Godwin	FIPS Coordinating and Advisory Committee TG-11 Optical Character Recognition	CH

¹ P—Principal Member; A—Alternate; O—Observer; L—Liaison; CH—Chairman.

Participating Member	Committee	Membership Status ¹
	TG-12 Significance and Impact of ASCII as a Federal Standard X3/SSC Standards Steering Committee X3A1 Optical Character Recognition (OCR) X3A7 Magnetic Ink Character Recognition X4A15 Alphanumeric Machines ISO/TC97/SC3	P A L L
Mr. Robert V. Head	Interagency Committee on ADP	P
Mr. Roger W. Hunt	X3A1 Optical Character Recognition (OCR)	P
Mr. Thomas M. Kurihara	TG-14 Documentation for Information Processing Systems	
Miss Mary E. Mahler	TG-9 COBOL	
Mr. Max R. Miller	TG-10 Guidelines for Computer System & Component Performance Evaluation	
Mr. Thomas A. Sagar	X3A1 Optical Character Recognition (OCR)	A
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Mr. Joseph C. Collica (NBS)	TG-9 COBOL X3J4 COBOL Standards CODASYL/PLC	A A
Mr. Ira Cotton (NBS)	X3S37 Public Data Networks	P
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Mr. Sol Dolleck (Census)	X3L8 Representations of Data Elements	O
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Mr. John Halterman (Census)	TG-7 Magnetic Tape Labels for Information Processing	
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Mr. Paul Krupenie (NBS)	Z39/SC6 Abstracts	P
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Mr. Duane Marquis	X3L86 Quantitative Expressions	CH
Mrs. Beatrice Marron (NBS)	TG-14 Documentation for Information Processing Systems	
Mrs. Hazel E. McEwen (NBS)	X3L8 Representations of Data Elements X3L81 Data Standardization Criteria X3L84 Geographic Units Z39/SC27 Identification Codes for Countries, Languages, Publishers, Areas and Dates	P P P P
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Mr. Raymond T. Moore (NBS)	TG-2 Data Terminals and Data Interchange System Requirements X3S3 Data Communication X3S35 System Performance	A P
Mr. Albrecht Neumann (NBS)	X3K5 Terminology and Glossary ISO/TC97/SC1	A
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Mr. Harold J. Crowley (USAF)	TG-2 Data Terminals and Data Interchange System Requirements X3S3 Data Communication X3S36 Digital Data Signalling Rates	P CH
Mr. Donald D. Curry (Army)	X4 Office Machines X4A15 Alphanumeric Machines	A P
Mr. John J. Daly (Army)	X3J3 FORTRAN	P
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Mr. Donald Elefante (USAF)	X3J3 FORTRAN	P
Mr. Olen O. Ellis (USAF)	X3J4 COBOL Standards	A
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Mr. Richard Fredette (Navy)	TG-3 Character Subsets, Sign Conventions and Packing Techniques TG-9 COBOL TG-12 Significance and Impact of ASCII as a Federal Standard TG-14 Documentation for Information Processing Systems X3J4 COBOL Standards	P
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Mr. Walter B. Greenwood (Navy)	Z39 Library Work, Documentation and Related Publishing Practices	P
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Mr. Henry A. Herz (OSD)	X3L8 Representations of Data Elements X3L84 Geographic Units	P A
Mr. Stanley Homa, Jr. (Army)	X3A1 Optical Character Recognition (OCR)	P
Cdr. Grace M. Hopper (Navy)	CODASYL/EXEC. COMM.	P
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Mr. William J. Keane (DCA)	TG-11 Optical Character Recognition	
Mr. Jack D. Kearns (Army)	X3K1 Project Documentation	P
Mr. Victor G. Kehler (USAF)	X4 Office Machines	P
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Mr. Kenneth Rodey (NSA)	TG-14 Documentation for Information Processing Systems	
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Mr. Solomon Rosenthal (USAF)	TG-10 Guidelines for Computer System and Component Performance Evaluation	
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Mrs. Billy Salazar	X3K1 Project Documentation	A
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Mr. Edward L. Snider (Navy)	TG-2 Data Terminals and Data Interchange System Requirements	
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Mr. R. Strausberg (Navy)	X3K2 Flowcharts	P
Mr. Frank J. Tagler (Navy)	X3L84 Geographic Units	P
Dr. Frederick R. Theriault (NSA)	Z39 Library Work, Documentation, and Related Publishing Practices Z39/SC32 Technical Report Numbering	A
Mr. George C. Thomas (DCEO)	X3T9 I/O Interface Standards	P
Mr. John E. Thomas, Jr. (DCEO)	X3L2 Character Codes	A
Mr. Kin Thompson (Navy)	CODASYL/PLC	A
Mr. Kenneth H. Townsend (NSA)	TG-6 Computer Magnetic Tapes	
Mr. James T. Tracy (Army)	X3S3 Data Communication	P
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Mr. Duane L. Tucker (Army)	TG-9 COBOL X3J4 COBOL Standards	P
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Mr. Stanley Wilson (Navy)	CODASYL/DDLC	A
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Mr. George Zolakis (DCEO)	X3S34 Data Communications Control Procedures	A

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Mr. Jim Dean (SSA)	TG-10 Guidelines for Computer System and Component Performance Evaluation	
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Mr. Herman E. Fey (SSA)	TG-3 Character Subsets, Sign Conventions and Packing Techniques TG-7 Magnetic Tape Labels for Information Processing	
Mr. George W. Gardner (SSA)	TG-11 Optical Character Recognition X3A1 Optical Character Recognition (OCR)	A
Mr. Michael Gargano (PHS)	TG-3 Character Subsets, Sign Conventions and Packing Techniques	
Mr. Robert Klassen (OED)	Z39 Library Work, Documentation and Related Publishing Practices	P
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Mr. Lawrence Livingston (NLM)	Z39 Library Work, Documentation and Related Publishing Practices Z39/SC20 Standard Serial Coding	P P
Mr. Harvey Marron (NIE)	Z39/SC6 Abstracts	
Mr. Frank E. McGowan	X3L83 Individual and Business Identifications FIPS Coordinating and Advisory Committee	A
Mr. Wallace McPherson	TG-12 Significance and Impact of ASCII as a Federal Standard X3L8 Representations of Data Elements X3L82 Time Designations X3L83 Individual and Business Identifications	P P P
Mr. William Moog	TG-10 Guidelines for Computer System and Component Performance Evaluation	
Mr. Patrick M. Mooney (SSA)	TG-9 COBOL	
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Mr. Jean Wader	TG-2 Data Terminals and Data Interchange System Requirements	
Mr. Roy A. Young	TG-14 Documentation for Information Processing Systems	
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DEPARTMENT OF LABOR		
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M. Victoria Galifaro	TG-14 Documentation for Information Processing Systems	
Mr. James W. Gray	Interagency Committee on ADP	P
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Mr. William J. Parks	X3L8 Representations of Data Elements X3L81 Data Standardization Criteria	A A
Mr. Alan Piercey	TG-10 Guidelines for Computer System and Component Performance Evaluation	
Mr. Eugene Thomas	TG-10 Guidelines for Computer System and Component Performance Evaluation	
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Mr. Allan V. Littlejohn	TG-11 Optical Character Recognition	
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Mr. James L. DeProspero	X3B7 Interchangeable Magnetic Disc Media	A
Mr. W. H. Dieterichs	X3B2 Perforated Tape X3B3 Punched Cards (Physical)	P P
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Mr. John H. Eastman	TG-6 Computer Magnetic Tapes X3B7 Interchangeable Magnetic Disc Media	P
Mr. Fred Fairchild	X3S3 Data Communication	P
Mr. Julius Fiori	TG-6 Magnetic Computer Tapes X3B1 Magnetic Tape	A
Mr. John V. Holberton	TG-10 Guidelines for Computer System and Component Performance Evaluation X3S3 Data Communication	A
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Mr. George Hopping	X353 Data Communication	P

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Dr. Michael Muntner	FIPS Coordinating and Advisory Committee FTSC Federal Telecommunication Stds. Committee ISTAB Information Systems Technical Advisory Board	P A
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Mr. Artel Ricks	X4A7 Basic Paper Layout/Forms	P
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Mr. John Thomasson	X3B7 Interchangeable Magnetic Disc Media	A
Mr. Edmund Trione	X4 Office Machines	A
Mr. Sidney Weinstein	Interagency Committee on ADP FIPS Coordinating and Advisory Committee	P
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			Mr. William Hahn	FIPS TG-2	
			Goddard Space Flight Center	X3S34	P
			Code 841.2 Greenbelt, Maryland 20771 301-982-4062		
			Mr. David Hall	FTSC	P
			Office of Telecommunica- tions Policy Executive Office of the President Washington, D.C. 20504 202-395-4876		

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Federal Participant	Committee	Membership Status
Mr. John Halterman Bureau of the Census Geography Division Room 3231, FOB 4 Suitland, Maryland 20233 301-763-7328	FIPS TG-7	
Mr. James P. Hammond Goddard Space Flight Center Code 843 Greenbelt, Maryland 20771 301-982-4685	FTPSC/DEC	
Mr. Bernard T. Harlow, Jr. Computer Service Center (AXSS) Selective Service System 1724 F Street, N.W. Washington, D.C. 20435 703-557-1942	IAC/ADP	P
Mr. Fred Harold Director, Tech Support Staff ADP Management Training Center Room 7H27 U.S. Civil Service Commission Washington, D.C. 20415 202-632-5650	FIPS TG-9	
Dr. Joseph O. Harrison, Jr. Institute for Computer Sciences and Technology National Bureau of Standards Washington, D.C. 20234 301-921-3551	FIPSCAC FTSC	CH P
Mr. F. Robert Harrower HQ U.S. Army Computer Systems Command ATTN: CSCS-END-A USACSC HQ Annex Fort Belvoir, VA 22060 703-756-5475	CODASYL/ PLC	P
Mr. Robert J. Hartel Section of Systems Development Interstate Commerce Commission 12th & Constitution Avenue Washington, D.C. 20423 202-343-6589	IAC/ADP	P

Federal Participant	Committee	Membership Status
Mr. Andrew Hartigan Office of Assistant Secretary of Defense (Telecommunications) The Pentagon, Room 3D158 Washington, D.C. 20301 202-695-5091	FTSC	P
Mr. Leroy Hartswick Research Service (362) Veterans Administration 810 Vermont Avenue, N.W. Washington, D.C. 20420 202-389-5141	FIPS TG-3	
Mr. Robert V. Head USDA-OIS Systems Management Room 341-E Administration Bg. 14th & Independence Avenue Washington, D.C. 20250 202-447-7237	IAC/ADP	P
Mr. Robert Hegland Naval Command Systems Support Activity (Code 70) Washington Navy Yard Washington, D.C. 20390 202-433-3571	FIPS TG-14 X3/SPARC/ DOCN X3K1 X3K5	P P P
Mr. Eli Hellerman Bureau of the Census Computer Systems Development Div. Room 1061, FOB #3 Suitland, Maryland 20233 301-763-5680	X3L8	P
Mr. Henry Herz Automation Policy, Technology and Standards Office, Secretary of Defense (Comptroller) Washington, D.C. 20301 202-697-8630	X3L8 X3L84	P A
Mr. Martin Hochdorf Tennessee Valley Authority Computing Services Branch 101 Old Post Office Building Chattanooga, Tennessee 37401 615-755-2968	IAC/ADP	P

Federal Participant	Committee	Membership Status	Federal Participant	Committee	Membership Status
Mrs. Frances E. Holberton Institute for Computer Sciences and Technology National Bureau of Stand- ards Washington, D.C. 20234 301-921-3491	FIPSCAC FIPS TG-7 X3J3 X3L5	CH P P	Mr. George Hopping General Services Adminis- tration Washington, D.C. 20405 202-254-6286	X353	P
Mr. John V. Holberton Automated Data and Tele- communications Service General Services Adminis- tration Washington, D.C. 20405 202-254-6384	FIPS TG-10 X3S3	A	Mr. Steven G. Howard General Services Adminis- tration 7th & D Street, S.W. Washington, D.C. 20406 202-962-0811	FIPS TG-9	
Mr. Forris M. Hollowell Bureau of Aviation Safety National Transportation Safety Board Department of Transporta- tion—Building FOB 10A 800 Independence Avenue, S.W.—Room 824 Washington, D.C. 20591 202-426-3976	X3/IAC	O	Mr. William Huf Naval Telecommunications Systems Architect (NTSA) Code 09N121 4401 Massachusetts Ave., NW Washington, D.C. 20360 202-282-0852	FIPS TG-2 FIPS TG-11 X3L2 X4A15	P P
Mr. Stanley Homa, Jr. (AMSEL-NL-E2) U.S. Army Electronics Command Ft. Monmouth, NJ 07703 201-535-1944	X3A1	P	Mr. Thomas E. Hughes USAEC OIS 1202 CXXI Washington, D.C. 20545 301-973-4035	ISO/TC46/ SC4/WG1	
Mrs. Helena Hood Office of Data Systems General Services Adminis- tration Washington, D.C. 20407 202-962-2797	FIPS TG-14		Mr. Roger W. Hunt USDA-OIS Room 4200 Auditors Build- ing 14th & Independence Ave. Washington, D.C. 20250 202-447-6111	X3A1	P
Mr. Roland Hook Veterans Administration 810 Vermont Avenue, N.W. Washington, D.C. 20420 202-389-5114	FIPS TG-2		Mr. William L. Hyland Federal Aviation Agency RD-232 Washington, D.C. 20590 202-426-8500	FIPS TG-2	
Cdr Grace M. Hopper Office Chief of Naval Opera- tion OP-916D Pentagon, Room 2C-319 Washington, D.C. 20350 202-695-0419	CODASYL/ EXEC COMM	P	Mr. Rocco Ivorno Information Processing Branch Rome Air Development Center Griffiss AFB, NY 13440 315-330-7011	X3/SPARC/ OSCL	P

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Federal Participant	Committee	Membership Status	Federal Participant	Committee	Membership Status
Mr. Eugene P. Javier Computer Specialist (Analyst) ADP Management Staff Treasury Department 15th & Pennsylvania Avenue, NW Washington, D.C. 20220 202-964-5751	FIPS TG-12		Mr. Jack D. Kearns U.S. Army Computer Systems Command ATTN: CSCS-ENT Fort Belvoir, VA 22060 202-756-5492	X3K1	P
Mr. Raymond A. Jensen Room 1308 Interior Bldg. 18th & C Streets, N.W. Washington, D.C. 20240 202-343-8435	Z39	P	Mr. Victor G. Kehler HQ USAF/DAX Washington, D.C. 20330 202-697-4387	X4	P
Mr. James Johnson HQ Defense Supply Agency ATTN: DSAH-LSR Cameron Station Alexandria, VA 22314 202-274-7146	FIPS TG-10		Mr. James L. Kelly Bureau of Accounts Disbursement Division U.S. Treasury Department Madison Pl. & Penn. Avenues Washington, D.C. 20220 202-964-2934	FIPS TG-11	
Mr. Philip S. Johnson Institute for Computer Sciences and Technology National Bureau of Stand- ards Washington, D.C. 20234 301-921-3723	FIPSCAC FIPS TG-6 X3B1 X3B5 X3B7 X3T9	CH A A A P	Mr. Michael Keplinger Institute for Computer Sciences and Technology National Bureau of Stand- ards Washington, D.C. 20234 301-921-3545	Z39/SC2	P
Mr. Robert L. Johnson, Chief ADP Management Division OOMS—U.S. Department of Commerce Room 5312, Main Commerce Washington, D.C. 20230 202-967-3201	IAC/ADP FIPSCAC	P	Mr. David V. Kerr Central Intelligence Agency Washington, D.C. 20505 703-351-4011	FIPS TG-10	
Mr. Bernard Kamins Internal Revenue Service PR:SD Room 3131 1111 Constitution Avenue, N.W. Washington, D.C. 20224 202-964-4493	FIPS TG-10		Mr. Robert Klassen Chief of the Planning Staff U.S. Office of Education— HEW 7th & D Streets, S.W.— Room 5909 Washington, D.C. 20202 202-962-8816	Z39	P
Mr. William J. Keane Defense Communications Agency Code 931 Washington, D.C. 20305 202-962-2921	FIPS TG-11		Mr. Stanley A. Kovy Information Systems Di- vision Room 1315, A&I Bldg. Smithsonian Institution Washington, D.C. 20560 202-381-5417	IAC/ADP FTPSC/DEC	P
Mr. Richard E. Kear, Chief Computer Systems Branch Office of the Comptroller Federal Power Commission GAO Building, Room 4743 Washington, D.C. 20426 202-386-3260	IAC/ADP	P	Mr. Douglas E. Kozlay National Security Agency ATTN: R75 Fort George G. Meade, MD 20755 301-688-7071	FIPS TG-11	
			Mr. Mitchell A. Krasny National Technical Informa- tion Service Room 2012, SILLS 5285 Port Royal Road Springfield, Virginia 22151 703-321-7704	FIPS TG-10 FIPS TG-14	

Federal Participant	Committee	Membership Status	Federal Participant	Committee	Membership Status
Mr. Paul Kreutzer Navy Fleet Material Support Office (Code 9642) Mechanicsburg, PA 17011 717-766-8511, Ext. 3657	CODASYL/ MSTG	P	Mr. Theodore E. Leach Library of Congress Administrative Department Information Systems Office 10 First Street, S.E. Washington, D.C. 20540 202-426-5118	FIPS TG-5 FIPS TG-12 X3K5	P
Mr. Paul Krupenie National Bureau of Standards Room B10, Physics Bldg. Washington, D.C. 20234 301-921-2021	Z39/SC6	P	Mr. Donald L. Leavitt Library of Congress Reference Department Music Division 10 First Street, S.E. Washington, D.C. 20540 202-426-5115	Z39/SC31	P
Mr. Frank A. Kubick Office of Data Management Small Business Administration 1441 L Street, N.W.— Room 120 Washington, D.C. 20416 202-382-3321	FIPS TG-10		Mr. Lee Leifer Department of Health, Education, and Welfare Room 16-72, Parklawn Bldg. 5600 Fishers Lane Rockville, Maryland 20852 301-443-4610	FIPS TG-2	
Mr. Thomas M. Kurihara USDA-ASCS ADP Division Room 4405 Auditors Building 14th & Independence Avenue Washington, D.C. 20250 202-447-6261	FIPS TG-14		Mr. S. P. Lejko, Director Administrative Management Federal Mediation and Conciliation Service Room 1218 Department of Labor Building Washington, D.C. 20427 202-961-3557	IAC/ADP	P
Mr. Ludwig Kuttner Director, Div. of ADP & Telecommunications Resources Department of Health, Education, and Welfare— Room 3360 Washington, D.C. 20201 202-245-6541	IAC/ADP	P	Mr. Robert Lesando Federal Reserve System Data Processing Division Washington, D.C. 20551 202-737-4171, Ext 7563	FIPS TG-10	
Mr. F. E. Landers Department of Data Management Communications Services Veterans Administration H Street and Vermont Avenue, N.W. Washington, D.C. 20420 202-389-5114	FTPSC/ DEC		Mr. William J. Letendre HQ ESD (MCIF) Stop 36 L. G. Hanscom Field Bedford, Massachusetts 01730	FIPS TG-10	
Mr. Thomas W. Laughlin Box 62 USAEC TIC Oak Ridge, Tennessee 37830 615-483-4237	Z39/SC32	P	Mr. Jack Lewellyn NASA Hqs. (Code TN) Washington, D.C. 20546 202-755-2333	FIPS TG-10	
Mr. Stephen A. Lazerow Office of Data Management Small Business Administration 1441 L Street Washington, D.C. 20416 202-382-3321	FIPS TG-9 FIPS TG-10		Mr. Donald P. Libera Director of Administration National Capital Housing Authority 1170 12th Street, N.W. Washington, D.C. 20430 202-382-8023	IAC/ADP	P

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Federal Participant	Committee	Membership Status
Mr. John L. Little Institute for Computer Sciences and Technology National Bureau of Standards Washington, D.C. 20234 301-921-3723	FIPSCAC FIPS TG-3 FIPS TG-12 X3L2	CH P
Mr. Allan V. Littlejohn Operation & Research Staff, Fiscal Service Room 324, Treasury Annex U.S. Treasury Department Washington, D.C. 20220 202-964-2934	FIPS TG-11	
Mr. Lawrence Livingston National Library of Medicine Suite 620 One Dupont Circle, N.W. Washington, D.C. 20036 202-496-4716	Z39 Z39/SC20	P P
Mr. Charles C. Lowe Deputy Director of Data Systems Government Printing Office Washington, D.C. 20401 202-426-7940	IAC/ADP	P
Mrs. Clede G. Macklin U.S. Department of Labor OASA, OSD 441 G Street, N.W.— Room 2870 Washington, D.C. 20212 202-961-5128	FIPS TG-11	
Mr. Nick Maddage Naval Research Laboratory (Code NRL 2360) Washington, D.C. 20375 202-767-3257	X3J7	P
Jennifer Magnus Library of Congress Processing Department Order Division 10 First Street, S.E. Washington, D.C. 20540 202-426-5361	Z39/SC36	CH
Miss Mary E. Mahler Department of Agriculture National Agricultural Library Room 013 Beltsville, Maryland 20705 301-344-3811	FIPS TG-9	

Federal Participant	Committee	Membership Status
Mr. Edward J. Mahoney Deputy Director for ADP General Accounting Office Room 6106, GAO Building, FGMSD Washington, D.C. 20548 202-386-3911	IAC/ADP	P
Mr. John J. Mampe U.S. Postal Service Recognition Equipment Branch 1100 L Street, N.W.— Room 11327 Washington, D.C. 20260 202-737-1026	X3A1	A
Mr. Frank Manola Naval Research Laboratory (Code NRL 5030) Washington, D.C. 20375 202-767-2518	CODASYL/ DDLDC	A
Mr. Paul Mantek National Bureau of Standards Room A-231, Building 225 Washington, D.C. 20234 301-921-3723	X3B1 X3B5 X3B6	P P O
Mr. Vincent A. Mariner U.S. Tariff Commission 8th & E Street, N.W. Washington, D.C. 20436 202-628-3947	IAC/ADP	P
Mr. Duane J. Marquis Office of Telecommunications 1325 G Street, NW Washington, D.C. 20005 202-967-4051	X3L86	CH
Major Harry T. Marren HQ, USMC Code AP/8 Washington, D.C. 20380 202-694-1013	FIPS TG-10	
Mrs. Beatrice Marron Institute for Computer Sciences and Technology National Bureau of Standards Washington, D.C. 20234 301-921-3485	FIPS TG-14	

Federal Participant	Committee	Membership Status	Federal Participant	Committee	Membership Status
Mr. Harvey Marron National Institute of Education Dissemination Task Force Washington, D.C. 20208 202-755-7528	Z39/SC6		Mr. Wharton L. McGreer Automation Policy, Tech- nology and Standards Office, Secretary of De- fense (Comptroller) Washington, D.C. 20301 202-697-8630	FIPSAC FIPSCAC FIPS TG-12 IAC/ADP ISTAB X3 X3/IAC	P A P P
Captain Cecil Martin HQ AFSDC/SY Gunter AFB, Alabama 36114 205-279-2255	CODASYL/ DDLDC	P	Mr. Terry McIntyre Office of the Geographer (INR/RSR/GE) Room 8742 NS Department of State Washington, D.C. 20520 202-632-2022	X3L84 Z39/SC27/	P
Mr. Frank Mauro U.S. Coast Guard Room 8409, NASSIF Building 400 7th Street, S.W. Washington, D.C. 20591 202-426-2431	FIPS TG-10		Mr. James D. McPherson USAEC MIT CA 127 Washington, D.C. 20545 301-973-3674	FTPSC/ DEC	
Mr. Robert L. Mayer MIT ADMIN CA435 Washington, D.C. 20545 301-397-5131	FIPS TG-3 FIPS TG-5 FIPS TG-12 X3L8 X3L81	O O	Mr. Wallace McPherson Department of Health, Education, and Welfare Room 3354, North Bldg. Third & C Streets, S.W. Washington, D.C. 20201 202-245-6803	FIPSAC FIPS TG-12 X3L8 X3L82 X3L83	P P P P
Mr. Frank McClelland National Communications System ATTN: NCS-TS Washington, D.C. 20305 202-692-2124	X3S33 X3S34	A P	Mr. Max R. Miller Washington Computer Center Office of Information Systems Department of Agriculture Room S-164, South Building Washington, D.C. 20250 202-447-4385	FIPS TG-10	
Mr. James E. McEowen Management Information System Directorate System Vice Chief of Staff, Army Pentagon Washington, D.C. 20310 202-OX5-4074	FIPS TG-14		Mr. Robert L. Mills Computer Services Division Bureau of the Census Room 3116 Washington, D.C. 20233 301-763-5539	FIPS TG-2 FIPS TG-3	
Mrs. Hazel McEwen Office of ADP Standards Management Institute for Computer Sciences and Technology National Bureau of Standards Washington, D.C. 20234 301-921-3157	X3L8 X3L81 X3L84 Z39/SC27	P P P P	Mr. William R. Misenheimer U.S. Department of State OPR/ADP—Room 1920 Washington, D.C. 20520 202-632-7982	FIPS TG-10	
Mr. Frank E. McGowan Social Security Administration Office of Administration Division of Administrative Appraisal and Planning Room 1R25, Operations Bldg. 6401 Security Blvd. Baltimore, Maryland 21235 301-594-7773	X3L83	A	Mr. William Moog Social Security Administration Room 2B2, Operations Bldg. 6401 Security Blvd. Baltimore, Maryland 21235 301-594-6040	FIPS TG-10	

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Federal Participant	Committee	Membership Status	Federal Participant	Committee Committee	Status Status
Mr. Patrick M. Mooney Division of Computer Technology OS Management Branch Social Security Administration Baltimore, Maryland 21235 301-594-7680	FIPS TG-9		Mr. David A. Nagy Social Security Administration Room 2B2, Operations Bldg. Baltimore, Maryland 21235 301-594-6005	FIPS TG-11	
Mr. Raymond T. Moore National Bureau of Standards Institute for Computer Sciences and Technology Washington, D.C. 20234 301-921-3427	FIPS TG-2 X3S3 X3S35	A P	Mr. Howard M. Nathanson Federal Home Loan Bank Board 101 Indiana Avenue, NW Washington, D.C. 20552 202-382-4097	IAC/ADP	P
Capt. Michael F. Morris Federal Automatic Data Processing Simulation Center (FEDSIM) Hoffman Building 2461 Eisenhower Avenue Alexandria, Virginia 22314 703-325-0952	FIPSCAC FIPS TG-10	CH	Mr. Joseph D. Naughton Chief, Computer Center National Institutes of Health Building 12, Room 2244 Bethesda, Maryland 20014 301-496-5381	FIPS TG-2 FIPS TG-3	
Mr. George J. Muehleisen Internal Revenue Service ACTS:S:SE 1201 "E" Street Washington, D.C. 20224 202-964-6611	FIPS TG-9		Mrs. P. Julette Neal Bureau of Sports Fisheries & Wildlife Department of the Interior 18th & C Streets, NW Washington, D.C. 20240 202-343-5470	FIPS TG-9	
Mr. Edward F. Mullin Data Systems Service Government Printing Office Washington, D.C. 20401 202-426-7931	FIPS TG-10		Mr. Albrecht Neumann Institute for Computer Sciences and Technology National Bureau of Standards Washington, D.C. 20234 301-921-3491	X3K5 ISO/TC97/ SC1	A
Dr. Michael Muntner Automated Data and Tele- communications Service General Services Administration Washington, D.C. 20405 202-254-3380	FIPSCAC FTSC ISTAB	P A	Mr. Charles Nosal U.S. Postal Service L'Enfant Plaza West Washington, D.C. 20260 202-245-5614	FIPS TG-11	
Mr. John M. Muro NAVSHIPS Navy Com- puter Applications Sup- port and Development Office P.O. Box 196 Union Square Somerville, MA 02143 617-242-1400, Ext. 2522	CODASYL/ DBCTG	P	Mr. William Nugent Assistant Coordinator of Information Systems Information Systems Office Library of Congress Washington, D.C. 20540 202-426-5114	FIPS TG-10	
Mr. Gilbert A. Myers, Jr. Naval Electronics Laboratory Center San Diego, California 92152 714-225-6011	X3J7	P	Mr. Richard Nyren, Jr. Defense Intelligence Agency ATTN: DS-5C3 Washington, D.C. 20301 202-692-5595	FIPS TG-10	

Federal Participant	Committee	Membership Status	Federal Participant	Committee	Membership Status
Mr. James B. Overbay, Sr. Department of Housing and Urban Development 451 7th Street, N.W.— Room 4156 Washington, D.C. 20410 202-755-5962	FIPS TG-11		Mr. Giora Pelled U.S. Army Computer Systems Command (Code TME) Fort Belvoir, VA 22060 703-664-4817	X3T9	P
Mr. J. Pape Rome Air Development Center (ECMA) Griffiss AFB, NY 13440 315-330-7540	X3S35	A	Mr. Henry Petersohn Department of Health, Education, and Welfare Room 3540B, North Bldg. 330 Independence Avenue, S.W. Washington, D.C. 20201 202-962-0292	FIPS TG-10	
Mr. Gerry Parcover Department of Housing and Urban Development 451 7th Street, S.W.— Room 4156 Washington, D.C. 20410 202-755-5963	FIPS TG-9		Mr. Alan Piercey U.S. Department of Labor McLachlen Building, Room 705 11th & G Street, NW Washington, D.C. 20001 202-382-7444	FIPS TG-10	
Mrs. Elizabeth Parker National Bureau of Standards Institute for Computer Sciences and Technology Washington, D.C. 20234 301-921-3491	X3J3	A	Mr. George Pilarinos National Science Foundation 1800 G Street, N.W. Washington, D.C. 20550 202-632-4372	IAC/ADP	P
Miss Patricia E. Parker Library of Congress Processing Department MARC Development Office Washington, D.C. 20540 202-426-5125	Z39/SC27	CH	Mr. Alan E. Pisarski Office Systems Analysis and Information (TPI-10) Office of the Secretary Department of Transpor- tation 400 7th Street, S.W. Washington, D.C. 20590 202-426-4203	X3L84	P
Mr. Bobbie J. Parkinson Oklahoma City Air Materiel Area (OCCSC) Tinker AFB, OK 73145 405-732-7122	X3J7	P	Mr. Jimmy Porter National Security Agency ATTN: C7 Fort George G. Meade, MD 20755 301-688-7043	FIPS TG-10	
Mr. William J. Parks, Jr. U.S. Department of Labor McLachlen Building 666 11th Street, N.W.— Room 705 Washington, D.C. 20001 202-382-3336	X3L8 X3L81	A A	Mrs. Romaine L. Potosky Paperwork Standards and Automation Division National Archives and Records Service Washington, D.C. 20408 202-963-4154	FIPS TG-11	
Mr. Russ Parris Defense Supply Agency Publications Division Building 5, Room 5A116 Cameron Station Alexandria, VA 22314	FIPS TG-11		Mr. J. J. Pottmyer Joint Technical Support Activity (J320) Defense Communications Agency Washington, D.C. 20305 202-692-1064	FIPS TG-9	

Federal Participant	Committee	Membership Status
Mr. Robert C. Powell Telecommunications Analysis Division Office of Telecommunica- tions Department of Commerce 1325 G Street, N.W.— Suite 250 Washington, D.C. 20005 202-967-3908	FTSC	P
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Mr. Sherwood Prescott HQ U.S. Marine Corps Code AP5, Navy Annex 3214 Washington, D.C. 20380 202-694-2106	FIPS TG-5 FIPS TG-7	
Mr. James Quinlan Federal Highway Admin- istration 400 7th Street, S.W.— Room 2412 Washington, D.C. 20590 202-426-1746	FIPS TG-9	
Mr. Bernard Radack Systems Development Officer Systems Development Division Internal Revenue Service Washington, D.C. 20224 202-964-4119	X3L8 X3L83	P P
Mr. Paul C. Redmer Accounting, Budget and Data Management Division 485 L'Enfant Plaza West, S.W. Room 22 Farm Credit Administra- tion Washington, D.C. 20578 202-755-2150	IAC/ADP	P

Federal Participant	Committee	Membership Status
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Mr. Harris G. Reiche Office of Management Consulting Department of the Interior 18th & C Streets, N.W. Washington, D.C. 20240 202-343-6051	IAC/ADP FIPSCAC	P
Mr. Paul R. Reimers Library of Congress Administrative Department Information Systems Office Washington, D.C. 20540 202-426-5114	IAC/ADP Z39/SC20	P P
Mr. William J. Retzbach Defense Communications Engineering Office (H920) Defense Communications Agency 1860 Wiehle Avenue Reston, VA 22079 703-437-2247	X3S3	P
Mr. Robert D. Rice Chief of Naval Operations (OP-09B16) Washington, D.C. 20350 202-697-7094	FIPS TG-10	
Mr. Thomas Rice NAVSHIPS Computer Applications Support and Development Office P.O. Box 196 Union Square Somerville, MA 02143 617-242-1400, Ext. 2522	CODASYL/ PLC CODASYL/ ATG	P A
Mr. Artel Ricks Director, Paperworks Stand- ards and Automation Division National Archives and Records Service Washington, D.C. 20408 202-963-6426	X4A7	P

Federal Participant	Committee	Membership Status	Federal Participant	Committee	Membership Status
Mr. Martin J. Riexsø Planning and Technology Room 6455 U.S. Civil Service Commission 1900 E Street, N.W. Washington, D.C. 20415 202-632-6837	FIPS TG-9		Mr. Paul H. Rose U.S. Postal Service Information Control Division 12th & Pennsylvania Avenue, NW—Room 7202 Washington, D.C. 20260 202-961-6035	X3L84	A
Mr. William C. Rinehuls HQ USAF/ACDX Washington, D.C. 20330 703-695-6470	FIPS TG-9 FIPS TG-12 FIPS TG-14 X3 X3/SPARC X3J4 CODASYL/ PLC CODASYL/ PETG	A P A P P	G. Joyce Rosencranz R 4132, Room 2N067 National Security Agency Fort George G. Meade, MD 20755	FIPS TG-14	
Mr. Dan Ring Defense Intelligence Agency ATTN: DS-5C1 Washington, D.C. 20301 202-692-5577	FIPS TG-9		Mr. Gerald Rosenkrantz Chief, Machine-Readable Archives Branch National Archives and Records Service Washington, D.C. 20408 202-962-1932	FIPS TG-7	
Mr. William B. Robertson Automation Policy, Tech- nology and Standards Office, Secretary of Defense (Comptroller) Washington, D.C. 20301 202-697-8630	X3	A	Mr. Solomon Rosenthal HQ USAF (ACDC) Washington, D.C. 20330 202-697-2722	FIPS TG-10	
Mr. Paul M. Robinson, Jr. Information Systems Division (OP-916E1) Chief of Naval Operations Washington, D.C. 20350 202-697-2405	FIPS TG-3 FIPS TG-5 FIPS TG-11 X3L81 X3T9	A P	Mr. Robert E. Rountree, Jr. Institute for Computer Sciences and Technology National Bureau of Standards Washington, D.C. 20234 301-921-3157	X3 X3/SPARC	A A
Mr. Kenneth Rodey National Security Agency C141 9800 Savage Road Fort George G. Meade, MD 20755 301-688-7922	FIPS TG-14		Mr. Robert L. Roy National Security Agency ATTN: C503 Fort George G. Meade, MD 20755 301-688-7402	FIPS TG-12	
Mr. Frank L. Rose Technical Division Technical Standards Branch Federal Communications Commission 1919 M Street, N.W. Washington, D.C. 20554 202-632-7093	FTSC	P	Mr. J. Archie Ruatto USAEC MIT CA 343 Washington, D.C. 20545 301-973-3795	FIPS TG-9	
			Mr. Jack Rubley Chief, Communications and and Photo Lab Division U.S. Information Agency 1750 Pennsylvania Avenue, N.W. IPS/C Room 323 Washington, D.C. 20547 202-632-6632	FTPSC/ DEC	

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Federal Participant	Committee	Membership Status	Federal Participant	Committee	Membership Status
Mr. Thomas A. Sagar USDA-ASCS AS Division Room 3116 Auditors Building 14th & Independence Ave. Washington, D.C. 20250 202-447-3406	X3A1	A	Mr. Raymond W. Seddon Chief, Communications Resources Branch Emergency Communications Division Federal Communications Commission 1919 M Street, N.W. Washington, D.C. 20554 202-632-7232	FTPSC/ DEC	
Mrs. Billy Salazar U.S. Army Computer Systems Command ATTN: CSCS-ENT Fort Belvoir, VA 22060 202-756-5492	X3K1	A	Mr. Marvin Sendrow Federal Home Loan Bank Board Room 625 101 Indiana Avenue, N.W. Washington, D.C. 20552 202-386-3464	FIPS TG-10	
Mr. Frank Schick Office of Education NCES-LSB Room 2153, FOB #6 Washington, D.C. 20202 202-963-4587	Z39/SC7	CH	Mr. Edmond Senn NASA Langley Research Center Langley Station Hampton, Virginia 23365 804-827-3208	X3J3	P
Mr. Robert S. Schlauch Government Printing Office Room A-843 Washington, D.C. 20401 202-541-3629	FIPS TG-11		Miss Nevaire Serrajian DS-5D2 Defense Intelligence Agency Washington, D.C. 20301 202-692-5384	X3L8 X3L82 X3L84	P P P
Mr. John A. Schmehl Internal Revenue Service A:FM:P 1111 Constitution Avenue, N.W. Washington, D.C. 20224 202-964-3656	FIPS TG-11		Mr. C. Roger Shoch Naval Command Systems Support Activity (Code 70) Washington Navy Yard Washington, D.C. 20374 202-433-3629	X3/SSC X3L84	P A
Mr. Gerald G. Schutz, Chief Systems Division (TST-48) Office of the Secretary Department of Transporta- tion 400 7th Street, S.W.— Room 9412 Washington, D.C. 20591 202-426-4241	FIPS TG-2 X3S3 X3S35	P P	Mr. Delbert L. Shoemaker Automated Data and Tele- communications Service General Services Administration Washington, D.C. 20545 202-254-5178	FIPSCAC FIPS TG-2 FIPS TG-6 FIPS TG-12 ISTAB X3 X3/SPARC X3B1 X3B7 X3L5	P P P O A
Mr. Francis J. Scott Library of Congress Administrative Department Information Systems Office 10 First Street, S.E. Washington, D.C. 20540 202-426-6092	FIPS TG-9		Mr. Walter M. Scott ADP Management Division Room 5312 U.S. Department of Com- merce Washington, D.C. 20230 202-967-3201	X3T9	P
Mr. Richard G. Shook USAEC MIT CA 239 Washington, D.C. 20545 301-973-3191	IAC/ADP FIPSCAC	P			

Federal Participant	Committee	Membership Status	Federal Participant	Committee	Membership Status
Mr. Philip Shupe Institute for Computer Sciences and Technology National Bureau of Standards Washington, D.C. 20234 301-921-3427	X4A8	P	Mrs. Helen J. Southall Defense Systems Automa- tion Office Defense Construction Supply Center ATTN: DSAO-S 3990 E. Broad Street Columbus, Ohio 43215 614-236-2078	FIPS TG-9 CODASYL/ PLC	A
Dr. S. C. Siegal Joint Technical Support Activity (J320) Defense Communications Agency Washington, D.C. 20305 202-692-1064	FIPS TG-10		Mr. David Speer Defense Supply Agency DSAH-LSR Cameron Station Alexandria, Virginia 22314 703-274-7146	FIPS TG-14	
Mr. Mark Silverman Computer Center Division U.S. Geological Survey Reston, Virginia 22092 703-860-7123	FIPS TG-14		Mr. Langston Spell National Highway Traffic Safety Administration 400 7th Street, SW Washington, D.C. 20591 202-426-4844	X3L83	P
Mr. J. B. Skelley Chief of Naval Personnel (PERS N1171) Washington, D.C. 20370 202-694-4280	FIPS TG-11		Cdr R. G. Stammerjohn Defense Communications Operations Center (N330) Defense Communications Agency Washington, D.C. 20305 202-692-6695	FTPSC/ DEC	
Mr. Romans Skujins Defense Communications Engineering Office (H520) Defense Communications Agency 1860 Wiehle Avenue Reston, Virginia 22090 703-437-2361	X3S3	A	Mr. Jacob Steiger National Labor Relations Board 1717 Pennsylvania Avenue, N.W. Washington, D.C. 20570 202-254-9226	IAC/ADP	P
Mr. Jerold E. Slocum, Director Division of Data Processing —Room 1210 Board of Governors Federal Reserve System 20th Street & Constitution Avenue, N.W. Washington, D.C. 20551 202-737-1100, Ext. 3595	IAC/ADP	P	Mr. Thomas Q. Stevenson Office of Automated Systems Room 3131 South Building 14th & Independence Avenue Washington, D.C. 20250 202-447-2119	FIPS TG-3 FIPS TG-12	
Mr. William J. Smith USACSC ATTN: CSCS-QAD-S (Mr. Smith) Fort Belvoir, Virginia 22060 703-756-5486	FIPS TG-14		Mr. John J. Strain HQ Department of Army ATTN: CSSE-ST Nassif Building Falls Church, VA 22041 202-756-1080	FIPS TG-12 X3J4 X3/SPARC/ OSCL	A VC
Mr. Edward L. Snider Chief of Naval Operations (OP-915D) Washington, D.C. 20350 202-695-7383	FIPS TG-2		Mr. R. Strausberg Naval Command Systems Support Activity (Code 20) Washington Navy Yard Washington, D.C. 20374 202-433-3929	X3K2	P

FIPS PUB 12-2

Federal Participant	Committee	Membership Status	Federal Participant	Committee	Membership Status
Mr. Robert Sullivan Library of Congress Processing Department Order Division 10 First Street, S.E. Washington, D.C. 20540 202-426-5362	Z39/SC36	O	Mr. Albert Tando USDA, APHIS Management Improvement Division, ADSB 6525 Belcrest Road Hyattsville, Maryland 20782 301-436-8057	FIPS TG-9	
Mr. Nicholas J. Suszynski, Jr. Director, Information Services Branch Federal Deposit Insurance Corporation Washington, D.C. 20429 202-389-4402	IAC/ADP	P	Mr. Charles A. Taylor NASA 400 Maryland Avenue, S.W. Washington, D.C. 20546 202-755-2336	FTSC	P
Mr. Joseph P. Sutt Data Processing Division Federal Communications Commission 1919 M Street, N.W. Washington, D.C. 20554 202-632-7846	FIPS TG-10		Mr. Volney M. Taylor Office of Computer Science Department of the Treasury Room 5116, Main Treasury Bldg. Washington, D.C. 20220 202-964-5751	FIPSCAC FIPS TG-3 IAC/ADP	 P
Mr. C. W. Swadley, Jr. U.S. Postal Service Headquarters Management Information Systems Department 475 L'Enfant Plaza West, S.W. Washington, D.C. 20260 202-245-4142	X3L84	P	Dr. Frederick R. Theriault National Security Agency (D93) Fort George G. Meade, MD 20755 301-688-6406	Z39 Z39/SC32	A P
Mrs. Gloria Swann Associate Director, ADP Training Center Computer Specialist Training Room 7H27 U.S. Civil Service Com- mission 1900 E Street, N.W. Washington, D.C. 20415 202-632-5650	FIPS TG-9		Mr. Eugene Thomas U.S. Department of Labor 441 G Street, N.W.—Room 2814 Washington, D.C. 20210 202-961-3691	FIPS TG-10	
Mr. Frank J. Tagler Naval Command Systems Support Activity (Code 70) Washington Navy Yard Washington, D.C. 20374 202-433-3571	X3L84	P	Mr. George C. Thomas Defense Communications Engineering Office (H910) Defense Communications Agency 1860 Wiehle Avenue Reston, VA 22090 703-437-2441	X3T9	P
Mr. Lincoln W. Talbot Research Service (362) Veterans Administration 810 Vermont Avenue, N.W. Washington, D.C. 20420 202-389-5141	FIPS TG-9		Mr. John E. Thomas, Jr. Defense Communications Engineering Office (H520) Defense Communications Agency 1860 Wiehle Avenue Reston, VA 22090 703-437-2363	X3L2	A

Federal Participant	Committee	Membership Status	Federal Participant	Committee	Membership Status
Mr. John Thomasson Federal Supply Service, FMSM General Services Administration Crystal Mall, Bldg. #4 Washington, D.C. 20406 202-557-7830	X3B7	A	Mr. Edmund Trione Standardization Division (FMSO) Federal Supply Service General Services Administration Washington, D.C. 20406 703-557-7849	X4	A
Mr. Kin Thompson Office Chief of Naval Operations OP916 Navy Department Washington, D.C. 20350 202-697-1261	CODASYL/ PLC	A	Mr. John Trippe Chief of Naval Operations (OP-914F) Washington, D.C. 20350 202-695-7507	FIPS TG-10	
Mr. Joseph F. Tilko, Director Office of Data Management Small Business Admin- istration 1441 L Street, N.W. Washington, D.C. 20416 202-382-5897	IAC/ADP	P	Mr. C. Ronald Trueworthy U.S. Civil Service Commission Bureau of Manpower Information Systems 1900 E Street, N.W.— Room 6455 Washington, D.C. 20415 202-632-6890	X3L8	P
Mr. Donald F. Tinari Goddard Space Flight Center Code 820.1 Greenbelt, Maryland 20771 301-982-5080	FIPS TG-6		Mr. William Truitt Institute for Computer Sciences and Technology National Bureau of Standards Washington, D.C. 20234 301-921-2601	X3T9	A
Mr. William Torpey U.S. Postal Service Room 3003 L'Enfant Plaza West Washington, D.C. 20260 202-245-5578	IAC/ADP	P	Mr. Duane L. Tucker HQ Department of Army ATTN: CSSE-ST Nassif Building Falls Church, VA 22041 202-756-1080	FIPS TG-9 X3J4	A
Mr. Kenneth H. Townsend National Security Agency ATTN: L31 Fort George G. Meade, MD 20755 301-688-7680	FIPS TG-6		Mr. Richard C. Tuey, Chief Data Processing Division Federal Communications Commission 1919 M Street, N.W. Washington, D.C. 20554 202-632-7132	IAC/ADP FIPS TG-10	P
Mr. James T. Tracy U.S. Army Computer Systems Command ATTN: CSCS-ENE-C Fort Belvoir, VA 22060 703-664-3423	X3S3	P	Mr. W. C. Unkenholz National Security Agency ATTN: SO6 Fort George G. Meade, MD 20755 301-688-6031	FTSC	P
Mr. David Trad Rome Air Development Center ATTN: ISIS Griffiss AFB, NY 13440 315-330-3851	X3J3	A	Miss Mabel V. Vickers Institute for Computer Sciences and Technology National Bureau of Standards Washington, D.C. 20234 301-921-3491	FIPS TG-9 X3J4 CODASYL/ PLC	P P

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Federal Participant	Committee	Membership Status
Dr. Mary C. Wade U.S. Government Printing Office Printing Procurement Department Room C817, Specifications Division Washington, D.C. 20420 202-541-3324	FIPS TG-11	
Mr. Jean Wader Department of Health, Education, and Welfare Room 16-72, Parklawn Bldg. 5600 Fishers Lane Rockville, Maryland 20852 301-443-4610	FIPS TG-2	
Mr. Bruce Wald Naval Research Laboratory (Code NRL 5400) Washington, D.C. 20375 202-767-2903	CODASYL/ DDLDC	P
Mr. Henry D. Walker USGS-Branch of Field Survey Department of the Interior 1340 Old Chain Bridge Road —Rm. 306 McLean, Virginia 22101 202-343-5543	X3L84	P
Miss Josephine Walkowicz Systems and Software Division Institute for Computer Sciences and Technology National Bureau of Standards Washington, D.C. 20234 301-921-3485	FIPSCAC FIPS TG-5 X3K5 ISO/TC97/ SC1	CH P
Mr. Allan Wall Federal Communications Commission 1919 M Street, N.W.— Room 642 Washington, D.C. 20554 202-632-7846	FIPS TG-14	
Mr. Daniel A. Walton Office of Planning & Management Division of Systems Devel- opment and Computer Services District of Columbia 509-7th Street, N.W. Washington, D.C. 20004 202-628-5282	IAC/ADP	P

Federal Participant	Committee	Membership Status
Mr. L. S. Waters Washington Computer Center Office of Information Systems Department of Agriculture Room S-164, South Building Washington, D.C. 20250 202-447-4385	FIPS TG-6	
Mr. S. T. Waters, Deputy Director Resource Development Department of Agriculture National Agricultural Library Room 100 Beltsville, Maryland 20705 301-344-3697	Z39/SC34	P
Mr. Harold Watson Small Business Administration Management Resources Staff 1030 15th Street, N.W. Washington, D.C. 20005 202-382-3321	FIPS TG-14	
Mr. Richard Watt Federal Reserve System Data Processing Division Washington, D.C. 20551 202-737-4171, Ext. 3597	X3L8	O
Mr. George Watts ACTION 1717 H Streets, N.W. Washington, D.C. 20525 202-254-3540	IAC/ADP	P
Mr. William H. Weaver Director, Data Processing Office of Economic Opportunity 7981 Eastern Avenue— Room 3B20 Silver Spring, Maryland 20910 301-427-7523	IAC/ADP	P
Mr. Kenneth R. Webster NASA Hqs. (Code TN) Washington, D.C. 20546 202-755-2333	IAC/ADP FIPSCAC	P
Miss Arla Weinert Naval Command Systems Support Activity (Code 70) Washington Navy Yard Washington, D.C. 20374 202-693-4206	CODASYL/ SYS	P

Federal Participant	Committee	Membership Status
Mr. Sidney Weinstein Automated Data and Tele-communications Service General Services Administration Washington, D.C. 20405 202-254-3370	FIPSCAC IAC/ADP	P
Mr. John N. Weiss Office of Management Systems & Financial Audits Federal Deposit Insurance Corporation 550-17th Street, N.W. Washington, D.C. 20429 202-389-4417	FIPS TG-10	
Mr. Bruce F. Wellborn General Services Administration ROB-Room 2640 7th & D Streets, SW Washington, D.C. 20407 202-962-2445	FIPS TG-3	
Mr. William J. Welsh Library of Congress Processing Department Director Washington, D.C. 20540 202-426-5325	Z39	P
Mr. William J. Wenker National Military Command System Support Center (B301) Washington, D.C. 20301 202-695-2935	CODASYL/ DDL	P
Mr. Richard J. Whitaker Internal Revenue Service ACTS:S:SE 1201 "E" Street Washington, D.C. 20224 202-964-6600	FIPS TG-9	
Mr. George W. White National Communications System NCS-TS Arlington, VA 22204 202-692-2124	FIPSCAC FIPS TG-2 FIPS TG-3 FIPS TG-5 FIPS TG-12 X3S3 X3S33 X3S34 X3S36 X3S37	A P A P A

Federal Participant	Committee	Membership Status
Mr. Harry S. White, Jr. Associate Director for ADP Standards Institute for Computer Sciences and Technology National Bureau of Standards Washington, D.C. 20234 301-921-3157	FIPSCAC ISTAB X3 X3/SPARC X3L8 X4 ISO/TC97/ WG14	P P P CH P CH
Miss Rosalind B. Wicker Data Systems Automation Office Defense Construction Supply Center ATTN: DSAO-T 3990 E. Broad Street Columbus, Ohio 43215 614-236-2560	FIPS TG-12	
Mr. Charles E. Wilder HQ AFSDC/SYD Gunter AFB, Alabama 36114 205-279-4467	X3J4	P
Mr. Donald D. Wilson Goddard Space Flight Center Code 844.1 Greenbelt, Maryland 20771 301-982-6677	X3S35	A
Mr. John H. Wilson, Jr. USAEC OIS 1202 CXXI Washington, D.C. 20545 301-973-4035	Z39/SC24 Z39/SC32	P A
Mr. Sandy A. Wilson Washington Computer Center Office of Information Systems Department of Agriculture Room S-144, South Building Washington, D.C. 20250 202-447-5000	FIPS TG-9	
Mr. Stanley Wilson Naval Research Laboratory (Code NRL 5034) Washington, D.C. 20375 202-767-3585	CODASYL/ DDL	A

FIPS PUB 12-2

Federal Participant	Committee	Membership Status
Major Joseph C. Winther HQ U.S. Marine Corps Code AP8 Washington, D.C. 20380 202-694-5080	FIPS TG-10	
Mr. Myron C. Wolford Chief, Internal Systems (AMS-354) FAA Data Processing Center Department of Transportation 400 7th Street, S.W. Washington, D.C. 20590 202-426-9646	FIPS TG-12	
Mrs. Elaine W. Woods Library of Congress Processing Department MARC Development Office Washington, D.C. 20540 202-426-5302	Z39/SC20	P
Mr. Herbert W. Worden National Security Agency ATTN: D93 Fort George G. Meade, MD 20755 301-688-6406	FIPS TG-12	
Mr. Wayne Worrell Defense Mapping Agency Topographic Center 6500 Brook Lane, N.W. Washington, D.C. 20315 202-227-2328	X3K1 X3/SPARC/ DOCN	P P

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Mr. J. Howard Wright Goddard Space Flight Center Code 502 Greenbelt, Maryland 20771 301-982-4685	FIPS TG-5	
Mr. Joseph Yevonishon Federal Aviation Administration ARD-222 800 Independence Avenue, S.W. Washington, D.C. 20591 202-426-8500	FTSC	P
Mr. Roy A. Young HEW—Office of the Secretary Room 1073 330 Independence Avenue, S.W. Washington, D.C. 20202 202-963-7847	FIPS TG-14	
Mr. George Zoolakis Defense Communications Engineering Office (H910) Defense Communications Agency 1860 Wiehle Avenue Reston, VA 22070 703-437-2441	X3S34	A

8. Listing of State Information Systems Coordinators

The National Bureau of Standards, in promulgating Federal Information Processing Standards, has established contacts with the 50 States through the National Association for State Information Systems (NASIS). Copies of proposed and approved Federal Standards are provided to the State Coordinators of the NASIS for comment on their applicability within State and local governments.

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Accounting Division
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TTPI

Mr. Glenn D. Butteris, Director
Data Processing Division
Department of Administration
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Saipan, TTPI 96950

9. ADP Newsletters and Columns

NATIONAL BUREAU OF STANDARDS

Title: DIMENSIONS

Available on subscription from the Superintendent of Documents, Government Printing Office, Washington, D.C. 20402 at a cost of \$6.50 a year.

Articles prepared by the Institute for Computer Sciences and Technology and commentaries about significant developments in the computer world which impact on the Federal computer customer are published periodically. These articles will address subjects and activities in such areas as software management, performance measurements, the ADP standardization process, teleprocessing and computer networking, computer economics, automation technology, international computer technology, and specific applications of computer technology.

U.S. ATOMIC ENERGY COMMISSION

Title: *Information Systems and Telecommunications News* (Quarterly)

Contact: Mr. Wilbur C. Westlake
U.S. Atomic Energy Commission
MIT CA343
Washington, D.C. 20545
Telephone: 301-973-4477

U.S. CIVIL SERVICE COMMISSION

Title: ADP BILLBOARD, a column published in *The Civil Service Journal* (Quarterly)

Availability: Journal is available on subscription from the Superintendent of Documents, Government Printing Office, Washington, D.C. 20402.

DEPARTMENT OF DEFENSE

Title: *Air Force Data Systems Design Center Newsletter*, AFRP 300-1 (Bimonthly)

Contact: Commander
Air Force Data Systems Design Center
Attn: CE
Gunter AFB, Alabama 36114

Title: *ADC Data Automation Newsletter*
ADC RP 171-7 (Monthly)

Contact: Commander
Air Defense Command
Attn: Data Automation
Ent AFB, Colorado 80912

Title: *ATC Data Automation Newsletter* (Monthly)

Contact: Commander
Air Training Command
Attn: Data Automation
Randolph AFB, Texas 78148

Title: *Center Bits*—HRP 300-1 (Bimonthly)

Contact: Air Force Data Services Center
HQ U.S. Air Force
Attn: AF/ACSF
Washington, D.C. 20330

Title: *DA Pamphlet* 18-10

Contact: HQ Department of Army (CSSE-PA)
Nassif Building
Falls Church, Virginia 22041

Title: *IPS Exchange* (Bimonthly)

Contact: HQDA (CSSE-PM)
Department of the Army
Nassif Building
Falls Church, Virginia 22041

Title: *NA/UYSK5 Newsletter* (Monthly)

Contact: Commander-in-Chief
U.S. Atlantic Fleet
Attn: Information Systems Office
Norfolk, Virginia 23511

Title: *NOMIS News* (2-4 times yearly)

Contact: Naval Ordnance Systems Command (Code 013)
Attn: Mr. Robert Spear
National Center, Building 2
Washington, D.C. 20350

Title: *PACAF Data Automation Newsletter*
PACAF RP 171-1 (Monthly)

Contact: Commander-in-Chief
Pacific Air Force
Attn: Data Automation
APO San Francisco, California 96553

Title: *PULSE* (Monthly)

Contact: Naval Command Systems Support Activity
Code 042
Attn: Mr. Irving Keats, Editor
Washington Navy Yard
Washington, D.C. 20390

Title: *Source Data Automation Newsletter* (Quarterly)

Contact: Director
Defense Supply Agency
Attn: DSAH-LSR (Mr. Massey)
Cameron Station
Alexandria, Virginia 22314

Title: *TAC Data Automation Newsletter*
TAC RP 171-1 (Monthly)

Contact: Commander
Tactical Air Command
Attn: Data Automation
Langley AFB, Virginia 23365

DEPARTMENT OF THE INTERIOR

Title: *Bureau of Reclamation ADP Newsletter* (Monthly)

Contact: D. W. Webber, Chief, Division of Data Processing
Bureau of Reclamation
Post Office Box 25007
Denver Federal Center
Denver, Colorado 80225

GENERAL SERVICES ADMINISTRATION

Excess ADPE Availability List (available at no cost)

This document is published periodically by the GSA Office of Automated Data Management Services, Excess Equipment Utilization Branch to advise recipients of available excess ADPE equipment in the Federal inventory.

Contact: General Services Administration
 Federal Supply Service
 Attention: Excess Equipment
 Washington, D.C. 20406

ADP Sharegram (available at no cost)

This newsletter is published periodically by each GSA Regional ADP Resources Staff Office to notify recipients of excess ADPE/PCAM time that is available from Federal ADP installations. In addition, the newsletter includes general information such as availability of timesharing systems, programming services and application programs. Following is a list of contact offices:

GSA Region 1:

Federal ADP Resources Staff—1FTR
 Automated Data Management Services Div.
 Federal Supply Service
 General Services Administration
 Post Office and Courthouse
 Boston, Massachusetts 02109

GSA Region 2:

Federal ADP Resources Staff—2FTR
 Automated Data Management Services Div.
 Federal Supply Service
 General Services Administration
 26 Federal Plaza
 New York, New York 10007

GSA Region 3:

Federal ADP Resources Staff—3FTR
 Automated Data Management Services Div.
 Federal Supply Service
 General Services Administration
 7th & D Streets, S.W.
 Washington, D.C. 20407

GSA Region 4:

Federal ADP Resources Staff—4FTR
 Automated Data Management Services Div.
 Federal Supply Service
 General Services Administration
 1776 Peachtree Street, N.W.
 Atlanta, Georgia 30309

GSA Region 5:

Federal ADP Resources Staff—5FTR
 Automated Data Management Services Div.
 Federal Supply Service
 General Services Administration
 Everett McKinley Dirksen Building
 219 South Dearborn Street
 Chicago, Illinois 60604

GSA Region 6:

Federal ADP Resources Staff—6FTR
 Automated Data Management Services Div.
 Federal Supply Service
 General Services Administration
 Federal Building
 1500 East Bannister Road
 Kansas City, Missouri 64131

GSA Region 7:

Federal ADP Resources Staff—7FTR
 Automated Data Management Services Div.
 Federal Supply Service
 General Services Administration
 819 Taylor Street
 Fort Worth, Texas 76102

GSA Region 8:

Federal ADP Resources Staff—8FTR
 Automated Data Management Services Div.
 Federal Supply Service
 General Services Administration
 Building 41
 Denver Federal Center
 Denver, Colorado 80225

GSA Region 9:

Federal ADP Resources Staff—9FTR
 Automated Data Management Services Div.
 Federal Supply Service
 General Services Administration
 49th Fourth Street
 San Francisco, California 94103

GSA Region 10:

Federal ADP Resources Staff—10FTR
 Automated Data Management Services Div.
 Federal Supply Service
 General Services Administration
 Regional Headquarters Building
 Auburn, Washington 98002

Appendix A. Procedures for Ordering Publications in the FIPS PUB Series

All FIPS PUBS are available from the Superintendent of Documents, U.S. Government Printing Office, Washington, D.C. 20402. (See Publication Order Form which follows.) There is a 25 percent discount on quantities of 100 or more. Microfiche is available from the National Technical Information Service, U.S. Department of Commerce, Springfield, Virginia 22151 at the cost of 95 cents a FIPS PUB. In addition, certain standards (as indicated in section 2.1 above) are also available from the National Technical Information Service (NTIS) in the form of magnetic tape and/or Hollerith punched cards.

Technical specifications of certain standards (as indicated in the list of publications) are available to Federal Government agencies from the General Services Administration, Specifications Activity, Printed Materials Supply Division, Building 197, Washington Navy Yard Annex, Washington, D.C. 20407 at prices cited. When not available from established sources of

supply within an agency, purchase orders for these technical specifications should be submitted to the GSA Specifications Activity. Non-Government activities may obtain copies of certain "Federalized" industry standards from the American National Standards Institute (ANSI), 1430 Broadway, New York, New York 10018. Discounts are available on quantity orders as cited in the ANSI catalog.

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Arrangements can be made to be notified of all new publications in the series by sending the form provided on the last page of this Appendix (See Announcement of New Publications Form).

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