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NAVY COMMAND CONTROL AND COMMUNICATIONS SYSTEM DESIGN PRINCIPLES AND CONCEPTS

Volume II: Appendix A-Glossary

15 August 1976

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Terms and abbreviations applicable to Navy command control and communications with definitions.

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This is volume II of an eight-volume document dealing with Navy C^3 concepts. This volume is a glossary of terms and abbreviations.

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VOLUME II: APPENDIX A – GLOSSARY

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I. TELECOMMUNICATIONS TERMS

TELECOMMUNICATION TERMS

ACOUSTIC LINK	Acoustic radiation can be used for underwater communication among submarines, other subsurface craft, swimmers, surface ships, other surface craft, relay buoys, etc.
ADDRESS	MIL-STD-188C (section VI of this document)
ALPHANUMERIC (A/N)	MIL-STD-188C
ANALOG SIGNAL	MIL-STD-188C
ANCILLARY NODE	See Tributary Station, National Bureau of Standards (NBS) Technical Note 803 (section 5 of this document)
ARC	That set of unique specifications which allows a transmitting node to communicate with a receiving node is called an Arc.
ARC, ACTUAL	An Actual Arc exists if communications are taking place between two nodes.
ARC, HEAD OF	The Head of an Arc is the end of the arc which is on the receiving node.
ARC, TAIL OF	The Tail of an Arc is the end of the arc which is on the transmitting node.
ARC, VIRTUAL RECEIVING	A Virtual Receiving Arc has been created if the receive equipment has been selected, specified settings are set, and the receiving equipment is *listening to the band.*
ARC, VIRTUAL TRANSMITTING	If the band is clear for use and the transmitting equipment has been selected and is ready to transmit, then the situation is defined as a Virtual Transmitting Arc.
ARQ SYSTEM	See Error-Detecting and Feedback System
ASYNCHRONOUS TRANSMISSION	MIL-STD-188C
AUTOMATIC SWITCHING CENTER (ASC)	AUTODIN Switching Center
AUTODIN	Automatic Digital Network

BACKWARD CHANNEL (SUPERVISORY CHANNEL)	NBS TN803
BAND	The operation of any electromagnetic (EM) equipment may cause interference with the operation of other EM equipment in some selections of the settings. To avoid interference, the equipments are usually designed in such a manner that at least the baseband modulation form uses nearly orthogonal modulation. The generic term used to describe one of these selections is Band.
BASEBAND OR BASEBAND SIGNAL	A complex signal resulting from multiplexing more than one information source signal and any necessary control signals so that it is in a form suitable for transmission via a transmission line or for application to a modulator of a radio transmission link. Also, the multiplexed signal received via a transmission line or from a radio demodulator.
BAUD	MIL-STD-188C NBS TN803
BINARY CODE	MIL-STD-188C NBS TN803
BIT	MIL-STD-188C NBS TN803
BLOCK	MIL-STD-188C NBS TN803
BROADCAST BEACON	When a virtual transmitting arc begins energy broadcasting without knowledge of a virtual receiving arc, the operation is called a Broadcast Beacon.
BROADCAST OPERATION	When one transmitter and several receivers are in use in a communications operation, the usage of the band is Broadcast Operation. See MIL-STD-188C.
BYTE	MIL-STD-188C
CAPACITY, CHANNEL	The nominal capacity of a channel is the rate of bit transmission over the channel in terms of bits per second.

CAPACITY, ESSENTIAL	The Essential Capacity of the channel is the maximum rate of bit transmission over the channel.
CAPACITY, PATH	The Path Capacity is the maximum total of the channel capacities that can be specified over the path.
CARRIER	MIL-STD-188C
CARRIER FREQUENCY	MIL-STD-188C
CENTRAL PROCESSING UNIT (CPU)	The computer that includes the primary foreground programs to perform message processing.
CENTRALIZED COMPUTER COMMUNICATION NETWORK	NBS TN803
CHANNEL	The smallest increment of communication capacity which can be assigned or switched to a user. This may be a pair of wires, a radio transmitter-receiver, or one of N separate information ports of an N-channel multiplier. (See also MIL-STD-188C and NBS TN803.)
CHANNEL SWITCHED SYSTEM	A system in which every system user generates a channel before communication takes place is called a Channel Switched System.
CIRCUIT	MIL-STD-188C NBS TN803
CIRCUIT SWITCHING	MIL-STD-188C NBS TN803
CLOCK	MIL-STD-188C
CLOCK START	Cryptographic timing, or synchronization initiated via a local clocking or timing pulse. (See Message Indicator (Message Start).)
CODEWORD	A key word designated by proper authority to indicate a message which requires limited and controlled distribution. Includes SPECAT and Officers Eyes Only.
COMMON USER CHANNEL	A Common User Channel is a channel provided by a Tx net which is assigned as a pooled resource. Any user may obtain use of this channel by a service

	request (access demand) which is transmitted over the Sig net. In concept, the Common User Channel is similar to a dial telephone.
COMMUNICATION CONTROL SUBSYSTEM (CCS)	A software package to provide all the support functions to interface the system's peripheral equipment to the message processing system.
COMMUNICATION SINK	MIL-STD-188C (See Sink, NBS TN803.)
COMMUNICATION SOURCE	MIL-STD-188C (See Source, NBS TN803.)
COMPUTER NETWORK	NBS TN803
CONFERENCE OPERATION	NBS TN803 (See Teleconferencing, NBS TN803.)
CONNECTION, CONFERENCE	When more than two parties are involved in a voice inter-tie, the operation is called a Conference Connection.
CONNECTION, DELAYED DIRECT	A Delayed Direct Connection is like a direct connection (see Connection, Direct) except that a minimal delay can be tolerated.
CONNECTION, DIRECT	A communication system provides several types of service to the subscriber. If the subscriber requires minimal fixed delay with bit count integrity, then he is said to want a Direct Connection.
CONNECTION, END-TO-END	If the subscriber wants bit count integrity, then it is said that he wants End-to-End Connection.
CONNECTION, EXCHANGE	If the subscriber wants delayed direct connections in both directions, with the system knowing when the data are not being generated and exchange in both directions is not required simultaneously (full-duplex operation), then he is said to want an Exchange Connection. A voice connection is an example of an Exchange Connection.
CONNECTIVITY, CHANNELS OF A	The set of all channels in all the paths of a graph when the ends of the channels are the sources and sinks of information.

CONNECTIVITY, GRAPH OF THE	The description of the connectivity of a subset of NC^3N nodes is denoted as the graph of the Connectivity.
CONNECTIVITY, NC^3N	The collection of all arcs of the NC^3N is called the NC^3N Connectivity. The collection of all arcs of a subset of the nodes of the NC^3N is called the connectivity of that subset. The descriptions of actual, virtual, potential, probable, and possible apply for NC^3N Connectivity and connectivity of such subsets of NC^3N nodes as apply in the definitions for actual path, virtual path, etc.
CONTENTION	NBS TN803
CONTROL STATION (NODE)	NBS TN803
COVERED	Cryptographically secure
CROSSTALK	MIL-STD-188C
DATA	MIL-STD-188C
DATA BUFFER	MIL-STD-188C
DATA LINK	NBS TN803
DATA OR USER NETWORK	A data or user net is employed to provide an information interchange among a set of users to meet a specific requirement. The data or user net might use a channel obtained from the demand access pool, or it might have a dedicated channel. The net itself would provide the control of access to the channel. Examples of Data or User Networks are CUDIXS and NTDS.
DATA TERMINAL OR DATA TERMINAL EQUIPMENT	MIL-STD-188C NBS TN803
DD 173	Standard message form suitable for input to an OCR.
DECENTRALIZED (COMPUTER) NETWORK	NBS TN803
DEDICATED CHANNEL	A channel of a Tx net dedicated to a particular user or function, thus a channel not available in the common user pool. (In concept, the dedicated channel is similar to a leased telephone line.)

DELIVERY ORDER INTEGRITY	The function of the network that ensures that the order received by the sink is the same order generated by the source is called Delivery Order Integrity.
DELTA MODULATION	MIL-STD-188C
DEMAND ACCESS	That mode of operation which permits and provides assignment of pooled resources (common user channels) to a selected set of users based on service requests, priorities, system loading, and available capacity.
DESTRUCTIVE INTERFERENCE	When two signals at the same carrier frequency overlap in time at a receiver (radio), Destructive Interference is assumed in that neither signal is correctly received.
DIGITAL SIGNAL	MIL-STD-188C
DISTRIBUTED COMPUTER COMMUNICATION NETWORK	NBS TN803
DISTRIBUTED NETWORK	NBS TN803
DIVERSITY	MIL-STD-188C
DUPLEX CIRCUIT (OR SYSTEM)	MIL-STD-188C
DUPLEX OPERATION	MIL-STD-188C
DUPLICATE SEARCH (DUPSEARCH)	When one multiple routing is used, more than one copy of the message will arrive at the node of the true sink. Since the sink may not be interested in multiple copies of the same message, the node will have to collect the late copies and select first, best, or a combined better copy to deliver to the true sink. This process of selection is called dupsearch.
EDITED COPY	A message that has been edited to remove all communication procedure markings prior to printing.
EHF	Extremely high frequency, 30 to 300 GHz. MIL-STD-188C

ELEMENT	A basic or irreducible part of a system. Whether a system designer considers a particular portion of a system as an Element or a Subsystem depends on whether or not he views it as irreducible for his purposes.
ELF	Extremely low frequency, below 300 Hz MIL-STD-188C
ENCRYPTION, END-TO-END	User device to user device encryption; ie, a crypto device on user terminal at each end of link.
ENCRYPTION, LINK	Facility-to-facility encryption; ie, multiple users covered by crypto device at red/black facility interface at end of each link or portion thereof.
ERROR-CORRECTING SYSTEM	MIL-STD-188C
ERROR-DETECTING AND FEEDBACK SYSTEM	MIL-STD-188C
ERROR-DETECTING SYSTEM	MIL-STD-188C
EXCHANGE NET	Conference connections with delays in the order of several seconds are called Exchange Nets. See Connection, Conference; and Connection, Exchange.
EXECUTIVE CONTROL SUBSYSTEM (ECS)	A program residing in the central processor which maintains control of program loading and execution, resource allocation, I/O functions, etc.
FADING	MIL-STD-188C
FLAGWORD	A key word, phrase, or symbols which have been determined to be a reliable enough indication of the subject of a message to allow automatic assignment of the internal distribution of the message. The computer system scans the first five lines of message text for a recognizable Flagword.
FONT	A size and style of letter type.
FORMAT LINE	A line of characters in a message, followed by digital codes which cause carriage return and line feed action. ANNEX C to JANAP 128(C) describes 16 Format Lines and their standardized utilization.
FORWARD CHANNEL	NBS TN803

FREQUENCY DIVERSITY	MIL-STD-188C
FREQUENCY SHIFT KEYING (FSK)	MIL-STD-188C
FULL-DUPLEX OPERATION	See Duplex Operation.
FULLY CONNECTED NETWORK (LATTICE CONNECTIVITY)	NBS TN803
FUNCTION	Function in the context of this document refers to the operational functions of the NC^3N, a normal or characteristic activity or process of a system.
GENERATIVE TRANSFORMATIONAL GRAMMARS	A conditional language in that context is a determinate of meaning.
GHz	Gigahertz, 10^9 Hz. MIL-STD-188C
GRAPH, ARC OF THE	The arc of the connectivity is an Arc of the Graph. See Connectivity, Graph of the; and CONNECTIVITY, NC^3N
GRAPH, PATH OF THE	A path of the connectivity is a Path of the Graph. See item above.
GRAPH, VERTEX OF THE	A node of the network is called a Vertex of the Graph.
GRAPHICS	MIL-STD-188C
GUARD BAND, FREQUENCY	MIL-STD-188C
GUARD BAND, TIME	MIL-STD-188C
HALF-DUPLEX CIRCUIT (OR SYSTEM)	MIL-STD-188C
HALF-DUPLEX OPERATION	MIL-STD-188C NBS TN803
Hz	Hertz. MIL-STD-188C
HF	High frequency, 3 to 30 MHz. MIL-STD-188C
HIERARCHICAL (COMPUTER) NETWORK	NBS TN803
ILF	Infralow frequency, 300 to 3000 Hz. MIL-STD-188C

INFORMATION CENTERS	Information Centers are clusters of users and supporting electronic assets having some commonality of interest.
INFORMATION (TRANSFER) CHANNEL	NBS TN803
INFORMATION PATH	NBS TN803
INFORMATION TRANSFER	MIL-STD-188C
INPUT-OUTPUT (I/O) DEVICE	MIL-STD-188C
INTERFACE	MIL-STD-188C NBS TN803
KERNEL	Those functional elements of the NC^3N which must be protected in order to guarantee system integrity; ie, time, frequency, crypto standards, location, platform motion.
kHz	Kilohertz, 10^3 hz. MIL-STD-188C
LATTICE CONNECTIVITY	See Fully Connected Network, NBS TN803.
LF	Low frequency, 30 to 300 kHz. MIL-STD-188C
LINK	MIL-STD-188C NBS TN803
LINK, ACTUAL	Two arcs connecting two nodes and represented as a pair make up a link. If both arcs are actual arcs, then an Actual Link has been created.
LINK REDUNDANCY LEVEL	NBS TN803
LOOP SYSTEM	MIL-STD-188C
MEANS	Means refers to the way, mode, or facilities to accomplish or obtain a service.
MEDIA	The transmission facilities of transmission links may be provided over metallic lines or over radio. The latter may be divided into relatively stable media such as optical, millimeter, and microwave; varying media such as tropospheric scatter and ionospheric scatter; and those media subject to wide and often prolonged variations, such as high-frequency (hf) radio.

MESSAGE	MIL-STD-188C
MESSAGE INDICATOR (MESSAGE START)	Cryptographic timing or synchronization is initiated by Start of Message. (See Clock Start.)
MESSAGE PROCESSING SUBSYSTEM (MPS)	Consists of the various computer programs required to perform the different functions associated with processing a message, such as validation, routing, and filing.
MESSAGE START	See Message Indicator (Message Start).
MESSAGE SWITCHING	MIL-STD-188C NBS TN803
MIL-STD-188C	Military Communication System Technical Standards
MF	Medium frequency, 0.3 to 3 MHz. MIL-STD-188C
MODEM	MIL-STD-188C NBS TN803
MULTIACCESS CHANNEL	A channel over which any number of users may transmit information.
MULTIPLEX	NBS TN803
MULTIPLEXING, FREQUENCY DIVISION (FDM)	When two or more pairs of equipment use different bands, they are commonly said to be using Frequency Division Multiplexing. This terminology may not be accurate in some cases; several modulation schemes are orthogonal in their usage but are not strictly different in frequency. It will be called Frequency Division Multiplexing for purposes of this document.
MULTIPLEXING, SPACE DIVISION (SDM)	Sometimes if the equipments communicating are located far enough from other equipments that are also communicating, the same band may be used. In this instance Space Division Multiplexing is being used. When wire lines can be used, the characteristics of the EM signals in the wire, for practical purposes, isolate the signals from EM signals in space and EM signals in other wires. The separation of signals using wires will also be called Space Division Multiplexing.
MULTIPLEXING, TIME DIVISION (TDM)	When an equipment within a transmitting or receiving terminal has several distinct information groups assigned different times on a single signal-carrying line, this is also called Time Division Multiplexing.

MULTIPOINT CONNECTION	NBS TN803
NAVAL COMMAND CONTROL AND COMMUNICATIONS NETWORK	(NC^3N)
NET OPERATION (NETTED OPERATIONS)	MIL-STD-188C
NETWORK CONTROL	This term has multiple meanings, one for each type of network (Tx net, Sig net, and Data net). The control concept of each of the network types is tailored to the needs and objectives of that network.
NETWORK REDUNDANCY	NBS TN803
NETWORK SECURITY	NBS TN803
NETWORK TOPOLOGY	NBS TN803
NODE	A Node is that set of C^3 dedicated equipment located or installed on station. (See also MIL-STD-188C and NBS TN803.)
OPERATOR	System Operator is part of the system and his interfaces are internal to the system. He is responsible for the correct working of the system to ensure that it satisfies the demands of the command control and administrative subscribers.
OPTICAL CHARACTER RECOGNITION UNIT (OCR)	An input device that identifies printed characters through the use of light-sensitive components.
ORDERWIRE	That information required to establish new channels and routings is called Orderwire.
ORIGINATING STATION ROUTING INDICATOR (OSRI)	A group of alphabetic characters which specifically identify the communication station that originated the message. For example, AUTODIN type traffic contains the message OSRI in format line 2 of the message header.
PACKET	NBS TN803
PACKET SWITCHING	NBS TN803
PARALLEL TRANSMISSION	MIL-STD-188C
PATH, ACTUAL	An Actual Path exists if all the arcs of its sequence are actual. An Actual Path is not necessarily used. There may be no relationship between data transmitted in the different arcs of an actual path. In

	this case information is not being transmitted between the ends of the path. In a used path it is necessary that only a part of the data transmitted over the path be coherent. In essence, if information is being transmitted over the path from the beginning to the end, the path is being used.
PATH, CHANNEL OF A	When considering a used path, the collection of the specifications for that portion of each arc of the sequence which is specified for the coherent information is called a Channel of a Path.
PATH, ELEMENTARY	A path is an Elementary Path if each of the nodes is encountered once and only once in the sequence. Paths are assumed to be elementary unless stated otherwise.
PATH, POSSIBLE	A Possible Path exists if all the arcs in the path are actual, virtual, or possible arcs.
PATH, POTENTIAL	A Potential Path exists if all the arcs in the path are either actual, virtual, or potential arcs.
PATH, PROBABLE	A Probable Path exists if all the arcs in the path are actual, virtual, or probable arcs.
PATH, USED	A path is a Used Path if coherently organized data are being transmitted through its arcs in sequence.
PATH, VIRTUAL	A path is a Virtual Path if at least one of the arcs in the path is a virtual arc.
PHYSICAL CIRCUIT	NBS TN803
PILOT	Communication instructions appearing in message format line 1 relative to the transmission or handling of that message.
PITCH	Number of type characters per inch.
POINT-TO-POINT CONNECTION	NBS TN803
POLLING	NBS TN803 (Compare Selecting.)
PRIMARY STATION (PRIMARY NODE)	NBS TN803

PROCESS	A particular method of doing something involving many steps or operations.
PROTOCOL	NBS TN803
RADIO BROADCAST	Information generated by a radio transmitter may be received over a wide area by any number of receivers.
RECEIPT	The particular status report that tells the source subscriber that his message was delivered is called a Receipt.
RESOURCE	NBS TN803
RESOURCE SHARING	NBS TN803
RESPONSE TIME	MIL-STD-188C
RING BACK	That particular status report that tells the subscriber that a channel is ready is called a Ring Back.
RINGING	That particular information status report delivered to a sink reporting that a message or channel is ready is called a Ringing.
RING NETWORK	NBS TN803
ROUTE, IN (IN-ROUTE)	A message is in-route if the message has been accepted by the communication system but has not been delivered.
ROUTING	The sequence of channels and storage mechanisms required to deliver information from a true source to a true sink is called a Routing.
ROUTING, ACTUAL	An Actual Routing is a description of the specification actually used in the delivery of information.
ROUTING, ESTABLISHED	A routing has been established if a proposed routing exists and if the system proceeds to execute the plan immediately upon the generation of any new data by the true source.

ROUTING INDICATOR (RI)	A group of letters assigned to a message heading to indicate the geographical location of a station to facilitate the routing of traffic over tape relay networks.
ROUTING, MULTIPLE	A plan where by the message is to be duplicated and sent on a number of proposed or symbolic routings is called a Multiple Routing.
ROUTING, PROPOSED	A Proposed Routing is a plan consisting of a set of specifications which could be used to deliver information from a true source to a true sink.
ROUTING, SENT ON A	A message is said to be Sent on a Routing if the system attempts to execute the plan of the proposed routing to deliver the message.
ROUTING, SYMBOLIC	A Symbolic Routing is an incomplete proposed routing whereby only the initial part of the plan is completely defined and the remainder of the plan is described symbolically.
SECONDARY STATION (SECONDARY OR ANCILLARY NODE)	NBS TN803
SELECTING	NBS TN803 (Compare Polling.)
SERIAL TRANSMISSION	MIL-STD-188C
SERVER NODE	A note primarily providing network resources.
SERVICE	Service refers to the information entry, transport, and presentation (users or subscribers) of the NC^3N.
SERVICE MESSAGE (SVC)	A short, concise message between communication personnel relating to message traffic handling.
SHF	Superhigh frequency, 3 to 30 GHz. MIL-STD-188C
SIGNALING	MIL-STD-188C (See also Pilot, MIL-STD-188C.)
SIGNALING, INBAND	MIL-STD-188C

SIGNALING NETWORK (SIG NET)	The organized and coordinated signaling channel provided by, and for the control of, a specific Tx net. The Sig net also includes the net control processor necessary to provide the Sig net control (protocol).
SIMPLEX	MIL-STD-188C
SIMPLEX CIRCUIT (OR SYSTEM)	MIL-STD-188C
SIMPLEX OPERATION	MIL-STD-188C NBS TN803 (See also Simplex Operation (US).) NBS TN803
SINK	NBS TN803
SINK, EXTERNAL	External Sinks will relate to customers, users, or subscribers to the network.
SINK, INTERNAL	Internal Sinks will relate to the network and the system operators.
SINK, STORED	When data are stored and later reinserted into a communication channel, the storage mechanism is considered to be a sink of the information and then at a later time a source (Source, Stored) of information even though the data are the same as those which were transmitted earlier. The sink associated with this storage mechanism is defined as a Stored Sink.
SINK, TRUE	The final sink of the data. The purpose of a communication network is to move data from a true source to a True Sink.
SITUATION DESCRIPTIONS	That orderwire information which describes the changes in the arcs, channels, and routings is called Situation Descriptions.
SOFTWARE	NBS TN803
SOURCE	NBS TN803
SOURCE, EXTERNAL	Sources external to the communication network. The primary service is to External Sources. External Sources relate to the subscribers, users, or customers served by the network.

SOURCE, INTERNAL	The communication network itself is an Internal Source of information. Internal Source relates to the communication network and its operators.
SOURCE, STORED	When data are stored and then later reinserted into a communication channel, the storage mechanism is considered to be a sink of information and then at the later time a source of information even though the data were the same as those which had been transmitted earlier. The source associated with the storage mechanism is defined as the Stored Source.
SOURCE, TRUE	The original source of the data. The purpose of a communication network is to move data from a True Source to a true sink.
SPACE DIVERSITY	MIL-STD-188C
SPECIAL CATEGORY (SPECAT)	A message with an internal handling instruction appearing in the first line of the text immediately following the security classification. For example, NOFORN, US-UK EYES ONLY, FOR ADMIRAL JAMES ONLY.
STANDARD SUBJECT IDENTIFICATION CODE (SSIC)	A group of digits located in a message text used to identify the subject of the message (see SECNAV-INST 5210.11a). The SSIC provides an effective method for automatic distribution assignment by computer programs.
STAR NETWORK	NBS TN803
STATION (NODE)	NBS TN803
STATION SERIAL NUMBER (SSN)	A four-digit number suffixed to the originating station's routing indicator and designating the numerical sequence of that message's transmission from the originating station.
STATISTICAL LOAD AVERAGING	Concept of dynamically shared channel utilization among many users such that the required channel bandwidth to satisfy a given operational delay constraint may be much less than if the users are provided dedicated channels.
STATUS REPORT	That information which is generated or collected and assembled by the system and delivered to a subscriber, user, or customer is defined as Status Reports.

STORE AND FORWARD	MIL-STD-188C NBS TN803
STORE-AND-FORWARD PACKET SWITCHING	See Packet Switching. NBS TN803
STRATEGIC NETWORK	A network designated for strategic communication purposes.
SUBNETWORK	A network which is itself a component of a larger network.
SUBSYSTEM	A portion (but not an elemental portion) of a system. In the NC^3N context, a physical element of the system or an identifiable construction in hardware and/or software which can be precisely defined in terms of its physical boundaries and its input/output parameters.
SUBSCRIBER	A user of NC^3N information services.
SUPPORT PROCESSING SUBSYSTEM (SPS)	*Includes the programs required to support the foreground processing of traffic through the system. These programs include file maintenance, message retrieval, report generation, and message editing.*
SUSPECTED DUPLICATE (SUSDUPE)	A message that is apparently the same as a previously received message.
SWITCHING CENTER	MIL-STD-188C
SYNCHRONOUS SYSTEMS	MIL-STD-188C
SYNCHRONOUS TRANSMISSION	MIL-STD-188C NBS TN803
SYSTEM	A set or arrangement of things so related and connected as to form a unity or organic whole. A particular System or subsystem is defined by a statement of the system physical boundaries and input/output specifications. It is described in terms of its processes and functions and a network which describes the arrangement, relationships, and connections among the things contained within it.

TELEPROCESSING	NBS TN803
TELECOMMUNICATION	MIL-STD-188C NBS TN803
TEST PATTERN	That information which is used to test the performance of an arc is called a Test Pattern.
TRANSMISSION NETWORK (Tx NET)	The organized and coordinated operation of a number of transmitters and receivers to provide one or more channels among the nodes which are members of the Tx net. An example would be a Satcom net having terminals on six ships and two shore sites. A total of 50 channels might be available via the Tx net.
TRUNK	MIL-STD-188C NBS TN803
UHF	Ultra high frequency, 300 to 3000 MHz. MIL-STD-188C
UNEDITED COPY	A message with all the communications prosigns and procedure markings intact.
USER	A user or subscriber to NC^3N information services.
USER NETWORK	(See Data or User Network.)
VHF	Very high frequency, 30 to 300 MHz. MIL-STD-188C
VIRTUAL CIRCUIT	NBS TN803
VLF	Very low frequency, 3 to 30 kHz. MIL-STD-188C

II. DIGITAL COMPUTER TERMS

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ABNORMAL TERMINATION	Termination of a job or task due to an error condition (contrasted with Normal Termination).
ABSOLUTE	Pertaining to an address fully defined by a memory address number, or to a program which contains such addresses (as opposed to one containing symbolic addresses).
ABSOLUTE MODULE	An object or load module which cannot be relocated in core (contrasted with Relocatable Module.)
ABORT	Abnormal termination.
ACCUMULATOR	A register in which numbers are totaled, manipulated, or temporarily stored for transfers to and from memory or external devices.
ACTIVE STATE	The state of a program which has not completed its execution; ie, which is executing or potentially executing.
ADD	Restrictive: "two's complement" addition of binary numbers. General: any arithmetic addition.
ADDRESS	(1) (n) A number which identifies one location in memory. (2) (v) To direct the computer to read a specified memory location (synonymous with "reference").
ADDRESS MODIFICATION	A programming technique of changing the address specified by a memory reference instruction so that each time that particular instruction is executed, it will affect a different memory location.
ADDRESS TRANSLATION	Virtual instructions and data addresses to physical main storage addresses.
ADDRESS TRANSLATOR	A software or hardware feature which dynamically translates virtual instruction and data addresses to physical main storage addresses. (See Virtual Address, Real Address.)
ADDRESS WORD	A computer word which contains only the address of a memory location.

ALGOL	(Algebraic-Oriented Language) An international algebraic procedural language for a computer programming system.
ALGORITHM	A prescribed set of well defined rules or processes for the solutiion of a problem in a finite number of steps; an ordered sequence of operations.
ALGORITHMIC DISPATCHING	Dispatching according to a series of rules and decisions.
ALGORITHMIC SCHEDULING	Scheduling according to a series of rules and decisions.
ALLOCATE	To grant a resource to, or reserve it for, a job or task.
ALPHANUMERIC	Pertaining to a character set that contains both letters and numerals, and usually other characters.
ALTER	A modification of the contents of an accumulator or extend bit; eg, clear, complement, increment.
ALTERNATE ROUTING	Use of a secondary device when the primary device is unavailable.
AND	A logical operation in which the resultant quantity (or signal) is true if all the input values are true and false if at least one of the input values is false.
APPLICATION SOFTWARE	That software oriented to specific problem solution. (See also Problem Program.)
ARGUMENT	(1) A variable or constant which is given in the call of a subroutine as information to it. (2) A variable upon whose value the value of a function depends. (3) The known reference factor necessary to find an item in a table or array; ie, the index.
ARITHMETIC LOGIC	The circuitry involved in manipulating the information contained in a computer's accumulators.

ARITHMETIC OPERATION	(1) Restrictive: mathematical operation involving fundamental arithmetic (addition, subtraction, multiplication, division), specifically excluding logical and shifting operations. (2) General: any manipulation of numbers.
ARM (INTERRUPT)	To allow or enable the occurrence of an interrupt (opposite of Disarm (Interrupt)).
ARRAY	A set of lists of elements, usually variables or data.
ASCII	American Standard Code for Information Interchange.
ASSEMBLE	To translate from a symbolic program to a binary program by substituting binary operation codes for symbolic operation codes and absolute or relocatable addresses for symbolic addresses.
ASSEMBLER	A language processor which converts symbolic mnemonic coding – ie, a machine-oriented language (MOL) – into a form suitable for execution on a computer. A program for a computer which converts a program prepared in symbolic form to binary machine language.
ASSEMBLY LANGUAGE	The symbolic mnemonic language which the assembler interprets. Synonymous with machine-oriented language (MOL). The source language used as input to an assembler and translated by the assembly into machine language.
ASYNCHRONOUS	Without regular or having an arbitrary time relationship; hence, as applied to processes, unpredictable with respect to time or instruction sequence relationships among the processes. For example, although two or more asynchronous processes (eg, job processes in a multiprogramming system) running interleaved on a single processor exhibit a fixed time relation between their elements in a given implementation, this fixed time relation is largely arbitrary and/or accidental; eg, changing it will not influence the behavior of any of the processes. (Opposite of Synchronous.)
ATTACH	To reserve a system resource for the exclusive use of a single program.

AUTOMATIC RESTART	A restart which is initiated by the system supervisor independently of either user or operator direction.
AUXILIARY STORAGE	Storage that supplements core memory, such as disk tape.
BACKGROUND	A partition or group of partitions used for processing non-real-time or batch jobs. The background is normally assigned the lowest priority in a multi-programming environment. (See also Foreground.)
BACKGROUND PROCESSING	The automatic execution of a low-priority computer program when higher-priority programs are not using the system resources.
BASE	The number of different digits used in a particular numbering system. The base in the binary numbering system is 2; thus, there are 2 digits (0 and 1). In the decimal system (base 10), there are 10 digits (0 through 9).
BASE ADDRESS	A given address from which an absolute address is derived by combination with a relative address.
BASE PAGE	The lowest-numbered page of a computer memory. It can be directly addressed from any other page.
BATCH PROCESSING	Processing of jobs which are submitted to run independently of events outside the system (as opposed to real-time or interactive jobs) and are normally processed on a deferred or time-independent basis (eg, whenever the processing work load is light).
BATCH QUERY	A query processed in the batch processing mode. (See Query.)
BAUDET CODE	The standard five-channel teletypewriter code consisting of a start impulse and five character impulses, all of equal length; and a stop impulse whose length is 1.42 times that of the start impulse. This code is also known as the 1.42 unit code.
BENCHMARK	A standard program used to evaluate the performance of computers relative to preselected criteria.
BINARY	Denoting the numbering system based on the radix 2. Binary digits are restricted to the values 0 and 1.

BINARY-CODED DECIMAL (bcd)	Coding method for representing each decimal digit (0–9) by a specific combination of four bits. For example, the 8-4-2-1 bcd code commonly used with computers represents 1 as 0001 and 9 as 1001.
BINARY PROGRAM	A program (or its recording form) in which all information is in binary machine language.
BINDING	Transforming one or more object modules into a composite program which is acceptable for execution. (Also called "collecting" (Univac) and "linkage editing" (IBM and RCA).
BISTABLE	Pertaining to an electronic circuit having two stable states, controllable by external switching signals, analogous to an on-off switch.
BIT (*b*)	A single digit in a binary number, or in the recorded representation of such a number (by hole punches, magnetic states, etc). The digit can have one of only values, 0 and 1.
BIT DENSITY	A physical specification referring to the number of bits which can be recorded per unit of length or area.
BIT SERIAL	One bit at a time, as opposed to bit parallel, in which all bits of a character can be handled simultaneously.
BLOCK	A set of consecutive machine words, characters, or digits handled as a unit, particularly with reference to I/O.
BLOCK (RECORDS)	(1) (v) To partition or group records for the purpose of conserving storage space or increasing the efficiency of access or processing. (2) (n) A physical record so constituted or a portion of a telecommunications message defined to be a unit of data transmission.
BLOCKING	The partitioning and/or grouping of logical records into physical records.
BOOTSTRAP	A technique for loading the first few instructions of a routine into storage; then using these instructions to load the rest of the routine. A technique or device designed to bring itself into a desired state by means of its own action; eg, a routine whose few

	instructions are sufficient to bring the rest of itself into the computer from an input device.
BRANCH	A point in a routine at which one or two or more choices is made under control of the routine.
BREAKPOINT	A point in a computer program at which conditional interruption of processing to permit visual check, printing out, or other analysis may occur. Breakpoints are usually used in debugging operations.
BUFFER	(1) (n) A storage area into which data are written, or from which data are read. A buffer is generally an intermediate storage area. A register used for intermediate storage of data in the transfer sequence between the computer's accumulators and a peripheral device or a designated area of memory used to temporarily hold data. (2) (v) To write into a buffer or to move data by way of an intermediate storage area.
BUFFER POOL	A group of buffers which may be allocated as needed to various jobs.
BUG	A mistake in the design or implementation of a program resulting in erroneous results.
BULK MEMORY	Storage in addition to the main memory of the computer; eg, magnetic tape, disk, drum.
BUS	A major electrical path connecting two or more electrical circuits.
BYTE	A group of binary digits usually operated upon as a unit, frequently 8 bits. A generic term used to indicate a quantum of consecutive binary digits; eg, an 8-bit or a 6-bit byte (most commonly, 8 bits). (See also Word.)
CALLING SEQUENCE	A specified set of instructions and data necessary to set up and call a given routine.
CARRY	A digit, or equivalent signal, resulting from an arithmetic operation which causes a positional digit to equal or exceed the base of the effective numbering system.
CATALOG	(1) (n) A directory to locations of files and libraries; eg, a directory which relates mnemonic file names to physical storage addresses. (2) (v) To enter an item into a directory.

CATALOGUED PROCEDURE	A set of job control statements which has been placed in a special file and which may be used for job control by being named on a special control card.
CENTRAL PROCESSING UNIT	The unit of a computing system that includes the circuits controlling the interpretation and execution of instructions – the computer proper, excluding I/O and other peripheral devices.
CHAINED SEGMENT BUFFER	A buffer composed of a chain of fragmented core areas with each area containing a pointer to the next area in the chain. Normally used to process records of varying lengths such as teleprocessing messages.
CHANNEL	A device or route which is used to transmit data; eg, from core to an external device or from an external device to core. Note: channel is often used as an abbreviation for Programmable Channel. (See also IOP.)
CHANNEL PROGRAM	A program which directs the activity of an IOP.
CHANNEL QUEUE	A queue of requests for service from a data channel.
CHANNEL SCHEDULER	A part of a supervisory program which schedules (ie, enqueues) requests for service from a particular data channel.
CHARACTER	The general term to include all symbols such as alphabetic letters, numerals, punctuation marks, mathematical operators. Also, the coded representation of such symbols.
CHARACTER STRING (RECORD)	An unformatted record composed of a series of contiguous characters; usually applied to messages. (See also Message.)
CHECK	The occurrence of an abnormal condition which halts the ongoing process (eg, machine check, program check). A check will usually cause an interrupt if detected by the hardware.
CHECKPOINT	(1) (n) A point at which sufficient information about a program is recorded to permit subsequent resumption of processing from that point. (2) A point in time during a program run at which processing is momentarily halted to make a record, on an external storage medium, of the conditions

	of the variables of the program being executed. (3) (v) To record such information. (See also Restart.)
CHECKPOINT RECOVERY	An address specified in a checkpoint, as if resuming at a previous point in time. Depending upon the system changes since the checkpointing, some of the previous conditions (such as I/O device status) may need to be reslotted by the operator.
CIRCULAR BUFFER(ING)	A Circular Buffer is one in which the last physical buffer address is chained to the first physical buffer address. During circular buffering, data are entered (or taken) from the circular buffer just ahead of the buffer data being processed. The processing program and data movement are synchronized by the operating system to prevent conflict.
CLEAR	To erase the contents of a storage location by replacing the contents, normally with zeros or spaces; to set to zero.
CLOCK TIME	Any advancing time value which bears some fixed relation to the time of day.
CODE	A system of symbols which can be used by machines, such as computers, and which in specific arrangements have special external meanings.
CODING	Writing instructions for a computer using symbols meaningful to the computer, or to an assembler, compiler, or other language processor.
COMMAND PROCESSING	The reading, analyzing, and performing of commands submitted via a console device, an input job stream, or other source.
COMMON; COMMON STORAGE	A storage area shared by two or more independent segments of code.
COMMON SUBROUTINE	A subroutine which may be used by more than one executing task.
COMMUNICATION REGION	An area set aside for interprogram and intraprogram communication.
COMPATIBILITY	The ability of an instruction or source language to be used on more than one computer.

COMPILE	To produce a binary-coded program from a program written in source (symbolic) language, by selecting appropriate subroutines from a subroutine library, as directed by the instructions or other symbols of the source program. The linkage is supplied for combining the subroutines into a workable program, and the subroutines and linkage are translated into binary code.
COMPILER	A language processor which translates a problem-oriented language (POL) into a machine language or a machine-oriented language. A language translation program, used to transform symbols meaningful to a human operator into codes meaningful to a computer. More restrictively, a program which translates a machine-independent source language into the machine language of a specific computer, thus excluding assemblers.
COMPILER INTERFACES	The software mechanisms used for linking a compiler with other parts of the operating system.
COMPLEMENT	(1) (one's) To replace all 0 bits with 1 bits and vice versa. (2) (two's) To form the one's complement and add 1.
COMPRESSED FORMAT	A format for storing data in a minimal area, generally achieved through recoding.
COMPUTATION	The processing of information within the computer.
COMPUTER (DIGITAL)	An electronic instrument capable of accepting, storing, and arithmetically manipulating information which includes both data and the controlling program. The information is handled in the form of coded binary digits (0 and 1), represented by dual voltage levels, magnetic states, punched holes, etc.
COMPUTER WORD	See Word.
CONCURRENT	Existing together within some arbitrary time frame. Refers to two or more entities which can each be said to be in some state intermediate between initiation and termination at the same time.

CONCURRENT PROCESSING	Processing a job or task before all others have completed. Concurrent Processing is the opposite of Serial Processing. (See also Parallel Processing.) Note: Concurrent Processing on two single CPUs involves the execution of independent threads of code on an interleaved basis.
CONDITIONED ASSEMBLY	Assembly of certain parts of a symbolic program only if certain conditions have been met.
CONDITIONAL SCHEDULING	A system of scheduling tasks in which the programmer can specify scheduling criteria (eg, error in previous program, event occurrences) which must be satisfied before the task will be scheduled.
CONFIGURATION	The arrangement of hardware instruments or software routines when combined to operate as a system.
CONSOLE	The interface, or communication device, between a user operator and the computing system (eg, operator's console, remote terminal/console).
CONSTANT	Numeric data used but not changed by the program.
CONTENTION	Rivalry for use of a system resource.
CONTENTS	The information stored in a register or a memory location.
CONTROL BLOCK	A block of data which contains control and/or descriptive information about a procedure or data structure which is used for controlling access to or use of the procedure or data structure.
CONTROL MESSAGE	A finite sequence of letters, digits, symbols, etc, transmitted to convey regulatory information.
CONTROL PROGRAM	A collective or general term for all routines or programs which are used to control or regulate the activity of other routines or programs.
CONTROL STORE	A special storage area (generally read-only) accessible to the CPU which contains microcode programs for controlling the CPU in interpreting and executing machine language instructions.

CONTROL STORE (WRITABLE)	A control store whose contents can be altered (ie, which can be written into) either as the result of a special I/O operation or as the result of a special main storage move operation. Changing the contents of the control store generally has the effect of changing the machine language of the computer.
CONVERT	(1) To change numeric data from one radix to another. (2) To transfer data from one recorded format to another.
CORE	The smallest element of a core storage memory module. It may be a ring of ferrite material that can be magnetized in a clockwise or a counterclockwise direction to represent one of the two binary digits, 0 and 1.
CORE MEMORY	The main high-speed storage of a computer, in which binary data are represented by the switching polarity of magnetic cores.
CORE STORAGE ACCESS CONTROL	The technique or mechanism of ensuring that all storage references by an executing program for the purpose of executing, writing, and/or reading are legal. (See also Storage Protection.)
CONVERSATIONAL	Synonymous with Interactive.
CORE DUMP	To transfer the contents of all or part of main storage to a peripheral device.
CORE IMAGE LIBRARY	A library of object load modules.
CORE RESIDENT	The condition of a program or table which is in main storage.
CORE RESIDENT ROUTINES	Routines which execute from and remain permanently in main storage (opposite of Transient Routines).
CORE STORAGE	See Main Storage.
CRITICAL REAL TIME	A real-time environment in which the computing system response time to external events is a significant factor in the overall system operation.
CUE-RESPONSE QUERY	A form of interactive interrogation in which the user participates in a question and answer dialog with the system. (See Query.)

CURRENT LOCATION COUNTER	A counter kept by an assembler to determine the address assigned to an instruction or constant being assembled.
CURRENT PAGE	All those locations which are on the same memory page as a given instruction.
CYCLE TIME	The length of time it takes the computer to reference one word of memory.
DATA	A general term used to denote any or all facts, numbers, letters, and symbols. It connotes basic elements of information which can be processed or produced by a computer.
DATA ACCESS CONTROL	Any of the data management techniques available to the user for transferring data between main storage and an I/O device (eg, direct, indexed, keyed, queued, or sequential access).
DATA ACQUISITION	The gathering, measuring, digitizing, and recording of continuous-form (analog) information.
DATA BASE	(1) Generic: the entire collection of information available to a computing system. (2) Specific: a structured collection of information as an entity or collection of related files treated as an entity.
DATA CODE TRANSLATION	Translation of data from one symbolic representation to another; eg, from EBCDIC to USASC11-8.
DATA HANDLING UTILITIES	Utility programs which provide a variety of independent services to manipulate and/or display various groupings of data elements.
DATA MANAGEMENT	Comprehensive facilities which provide support for programmed access to the data files within the system. These facilities may be of two forms: routines supporting application program access to the data base and the independent data management system supporting user access to the data base.
DATA MANAGEMENT SYSTEM	A group of integrated routines developed to create and maintain a large, organized, and structured collection of related data (known as the data base) and to interrogate the data base and produce various types of formatted reports.

DATA MANIPULATION FUNCTIONS	The components of the operating system that permit the user to access and process data. These functions may be either independent utility programs or subroutines incorporated within a user program.
DATA QUALIFICATION	The process of isolating an element of a data file, usually for some purpose such as retrieval or file maintenance.
DATA REDUCTION	The transformation of raw information gathered by measuring or recording equipment into a more condensed, organized, or useful form.
DATA SET	Synonymous with File.
DATA TRANSCRIPTION	The process of converting data from one peripheral medium to another (eg, card to tape or mass storage to printer).
DATA TRANSFER	The movement of data from one storage area or medium to another.
DATA WORD	A computer word consisting of a number, a fact, or other information which is to be processed by the computer.
DEADLOCK	Sometimes referred to as the "deadly embrace." A condition in whcih one or more processes become permanently blocked because some needed resource becomes permanently unavailable. Deadlock almost always refers to the situation in which one or more processes become blocked for want of resources held by other processes which in turn are blocked because they need resources held by the original processes.
DEALLOCATE	To restore the availability of a system resource.
DEBLOCK	To isolate the individual logical records within a physical block. (See Block (Records) and Blocking.)
DEBUG, DEBUGGING	Testing or verifying software. Refers to the process of testing software and removing all anomalies and errors.
DECIMAL	Denoting the numbering system based on the radix 10.

DECREMENT	To change the value of a number in the negative direction. If not otherwise stated, a decrement by 1 is usually assumed.
DEDICATED MEMORY	Physical core memory locations reserved by the system for special purposes, such as interrupt trap locations.
DEFAULT OPTION	An option which will automatically be assumed if not overridden by a parameter specification.
DEFERRED RESTART	A restart which is initiated by operator or user action.
DELIMITER	A character that separates, terminates, and organizes elements of a statement or programs.
DEMAND PAGING	A technique of loading pages at the time their content is referenced by an active-state program.
DEVICE	A term used to refer to a computer hardware component.
DEVICE CATEGORY (I/O)	A collective term used to describe several different I/O devices having common processing characteristics, such as direct access devices and sequential devices.
DEVICE MANIPULATION (I/O)	Control functions that allow a physical I/O device to be positioned without involving data transfer. These functions typically include rewinding and/or unloading tapes, ejecting printer pages, and stacking punched cards.
DEVICE NAME	The general name for a device, specified at the time the system is generated and used for all symbolic references to the device.
DEVICE QUEUE	A queue of requests for processing service from an I/O device.
DEVICE-READY INTERRUPT	An interrupt issued from an I/O device to the control program to advise it that a requested I/O device is now available.
DEVICE RESOLUTION	Determination of a specific physical device from a symbolic device name.
DEVICE TYPE (I/O)	A term used to collectively describe several different I/O devices having common physical characteristics, such as tape devices and disk devices.

DIAGNOSTIC	(1) Pertaining to the detection and isolation of hardware or software malfunction. (2) A message or record recording the occurrence of a hardware or software error.
DIAGNOSTIC ERROR PROCESSING	The recognition of the occurrence of error conditions within the system along with the corresponding corrective actions.
DIAGNOSTIC LOGOUT	The detailed record of hardware status, including hardware registers and switches, taken at the occurrence of a hardware or software failure.
DIGIT	A character used to represent one of the nonnegative integers smaller than the radix; eg, in binary notation, either 0 or 1.
DIRECT ACCESS	(1) An address that specifies the location of an instruction operand. (2) Method of accessing data records directly, without regard to the sequence in which they are recorded. *(See also Access Control.)*
DIRECT MEMORY ACCESS	A means of transferring a block of information words directly between an external device and the computer's memory, bypassing the need for repeating a service routine for each word. This method greatly speeds the transfer process.
DIRECTORY	See Catalog (n).
DISABLE	A signal condition which prohibits some specific event from proceeding.
DISARM (INTERRUPT)	To disallow or disable the occurrence of an interrupt (opposite of Arm).
DISK STORAGE	A means of storing binary digits in the form of magnetized spots on a circular metal plate coated with a magnetic material. The information is stored and retrieved by read-write heads which may be positioned over the surface of the disk by moving either the heads or the disk itself.
DISPATCHER	An OS routine that handles the allocation of the processor to processes ready for execution.
DISPATCHER QUEUE	A queue of processes that are ready for dispatching.

DISPATCHING	Allocation of a processor to a specific task. Tasks that are eligible for dispatching have already been placed in an execution-ready state by the scheduler and are not waiting for I/O activity, operator responses, etc.
DOCUMENTATION	Manuals and other printed materials (tables, listings, diagrams) which provide instructive information for usage and maintenance of a manufactured product, including both hardware and software.
DOUBLE BUFFERING	A buffering technique whereby data are read into one or more buffers while the data from one or more previously filled buffers are being processed. When used for I/O, this technique permits true parallel operation of a CPU and IOP.
DOUBLE-LENGTH WORD	A word which, due to its length, requires two computer words to represent it. Double-length words are normally stored in two adjacent memory locations.
DOUBLE PRECISION	Pertaining to the use of two computer words to represent one number.
DOWNTIME	The time interval during which a device is inoperative.
DRIVER	A program which controls the use of a peripheral device and/or a program which controls a peripheral device.
DUMMY	Used as an adjective to indicate an artificial address, instruction, or record of information inserted solely to fulfill prescribed conditions, as in a "dummy" variable.
DUMP	(1) (n) Synonymous with Storage Dump. (2) (v) To perform a storage dump. To copy the contents of all or part of core memory, usually onto an external storage medium.
DYNAMIC ALLOCATION	Providing resources (storage space, I/O devices) to a program or task in response to a demand by the program or task during execution.
DYNAMIC BUFFERING	A buffering technique which provides buffers to a program or task in response to a demand for buffers by the program or task during execution.

DYNAMIC DUMP	A dump which is performed during the execution of a program.
DYNAMIC PROGRAM LOADING	The process of loading a program module into main storage upon the demand for that program module by an executing program.
DYNAMIC RECONFIGURATION	The on-line capability whereby a system automatically reconfigures itself: (1) To adjust to operator addition or deletion of some of its processing elements. (2) To fall back into a degraded state of operation upon the failure of some of its processing elements. (See also System Maintenance, System Degradation, and System Reconfiguration.)
DYNAMIC RELOCATION	(1) Moving or relocating a program in an active state to another part of storage without modifying it and still permitting subsequent execution. (2) Moving or relocating data used by an active-state program without interfering with their use. The ability to move programs or data from auxiliary memory into main memory at any convenient location. Normally the addresses of programs and data are fixed when the program is compiled.
DYNAMIC STORAGE	Storage which is dynamically allocated to tasks during program execution. It is normally used for subroutines, buffer pools, etc.
EFFECTIVE ADDRESS	The address of a memory location ultimately affected by a memory reference instruction. It is possible for one instruction to go through several indirect addresses to reach the effective address.
ENABLE	A signal condition which permits some specific event to proceed whenever it is ready to do so.
ENCRYPTION	The protection of data on external files or en route to remote data terminals by cryptographically transforming the original data into a coded form.
ERROR INTERRUPT	A break in the normal flow of the program which is caused by a program operating system or machine error.
ERROR POSTING	Recording severe errors which were nonrecoverable.

ERROR RECOVERY	Synonymous with Recovery Processing.
ERROR SEVERITY CODE	A code indicating the severity of errors noted by an assembler or compiler and used to determine subsequent processing of the resulting object module.
EVENT	An occurrence of significance to a task; typically an interrupt or the completion of an asynchronous operation, such as input/output.
EVENT MONITORING	Managing event recording, notification, etc; includes processing all interrupts, trapping all error conditions, notifying programs of conditions requiring attention.
EVENT POSTING	The entering on a record of information about an event.
EVENT SYNCHRONIZATION	Delaying task execution until some specified event occurs or triggering a task upon the occurrence of a specified event.
EXCEPTION	Some interruption (hardware or software) of a normally advancing process. An exception is a logical interrupt.
EXCEPTION RESOLUTION	The process of determining the course of an exception.
EXCHANGE BUFFERING	A buffering technique which eliminates the need to move data in main storage by exchanging a system buffer area for a user buffer area.
EXCLUSIVE-OR	A logical operation in which the resultant quantity (or signal) is true if at least one (but not all) of the input values is true, and is false if the input values are all true or all false.
EXECUTE	To carry out an instruction or run a program on the computer. To fully perform a specific operation, such as could be accomplished by an instruction or a program.
EXECUTING STATE	The state of a program during the time it is using the CPU. (See also Active State.)
EXECUTIVE/CONTROL FUNCTIONS	The components of the operating system that maintain real-time execution control over the system environment.

EXECUTIVE ROUTINE SUPPORT	Special facilities which may be provided by the executive that are not available to users' problem-oriented programs; eg, the use of communication tables within the resident executive.
EXIT SEQUENCE	A series of instructions to conclude operation in one area of a program and to move to another area.
EXTERNAL INTERRUPT	Break in the normal flow of the program which is caused by some external stimuli such as an operator-initiated signal.
EXTERNAL STORAGE	A separate facility or device on which data usable by the computer are stored, such as paper tape, magnetic tape, or disk.
FAIL-SAFE	Dynamic system reconfiguration whereby a malfunctioning hardware device is replaceable by a backup device.
FAIL-SOFT	Dynamic reconfiguration whereby a malfunctioning hardware device is avoided, thus necessitating a reduction of the computer work load.
FAULT ANALYSIS	The analysis of hardware or software malfunctions by the system for purposes of error recovery (including system reconfiguration).
FAULT DETECTION	The system recognition of a hardware or software malfunction for the purpose of permitting error recovery.
FIELD	(1) One or more characters treated as a unit. (2) A specified area of a record used for a single type of data.
FILE	A collection of related records treated as a unit. (1) Logical: an entity of information; and information structure which is treated by the system as a unit. A file may be treated as having some system-determined structures (eg, subunits known as records which may or may not be sequenced), or as having no structure known (ie, available) to the system. (2) Physical: a physical block of data which is constructed and handled in some standard ways by the system.

FILE ACCESS CONTROL	Preventing unauthorized access to a file. The protection may extend to read access, write access execution access, or other logically defined access.
FILE CONTROL	The aspect of the executive which makes the utilities available which create the files and maintain, delete, and make then accessible.
FILE CREATION	The defining of the internal structure which the file is to have (ie, sequential, hierarchical, indexed, list, ring) and the allocation of space on a storage device.
FILE DELETION	The act of destroying the contents of a file and removing its name from the system catalog.
FILE LOCATION	The identification of the location and/or address of a permanent file via its system-assigned or user-assigned label(s) and/or other designator(s).
FILE MAINTENANCE	The facility that provides for the updating of a file.
FILE MANAGEMENT ROUTINES	The collection of operating system routines that are used to accomplish all the various file services provided by the system, such as file location, control, cataloging, and protection.
FILE NAME	Alphanumeric characters used to identify a particular file.
FILE PURGING	The act of destroying the contents of a file. The name of the file may or may not be removed from the system catalog.
FILE SECURITY CONTROL	Restricting access to a file to only those users authorized to use it in the specified way.
FIRMWARE	Programs written in microcode. Most often used to refer to microcode programs residing in a read-only memory (ROM). The portion of the computer in which the firmware resides is called the Control Store.
FIXED-LENGTH RECORD	A record whose length is fixed by the system or user without regard to the content of the record (contrasted with Variable-Length Record).
FIXED-LOGIC QUERY	A query in which the operands and operators cannot be altered by the user of execution time (as opposed to skeletal or interactive queries). (See Query.)

FIXED POINT	A numerical notation in which the fractional point (whether decimal, octal, or binary) appears at a constant predetermined position. (Compare with Floating Point.)
FLAG	A variable or register used to record the status of a program or device – in the latter case, sometimes called "device flag."
FLIP-FLOP	An electronic circuit having two stable states, and thus capable of storing a binary digit. Its states are controlled by signal elvels at the circuit input and are sensed by signal levels at the circuit output.
FLOATING POINT	A numerical notation in which the integer and the exponent of a number are separately represented (frequently by two computer words), so that the implied position of the fractional point (decimal, octal, or binary) can be freely varied with respect to the integer digits. (Compare with Fixed Point.)
FLOWCHART	A schematic representation of an algorithm. A diagram representing the operation of a computer program.
FOREGROUND	The partition or partitions which are normally used for real-time, communications, and time-sharing applications. The foreground is usually given priority over the background in a multiprogramming environment. (See also Background.)
FOREGROUND PROCESSING	Higher-priority processing that takes precedence over Background Processing and can interrupt such processing. It results from real-time events or enquiries. Processing of programs in the foreground partitions.
FOREGROUND SCHEDULER	A routine which analyzes processing requests and executes the appropriate foreground programs.
FORMAT	Arrangement or structure. A predetermined arrangement of bits and characters.
FORTRAN	A programming language (or the compiler which translates this language) which permits programs to be written in a form resembling algebra, rather than in detailed instruction-by-instruction format.

FORWARD REFERENCING	The need to refer to a symbol in a program prior to its definition (ie, trying to assemble the instruction Jump Place, where Place is a location symbol further down in the program code).
FOURTH GENERATION	Does not yet apply to any commonly recognized or defined class of characteristics or techniques, but is generally used to refer to advanced and/or uncommonly sophisticated hardware, software, and/or architecture. For example, the use of large-scale-integrated (LSI) circuits, some error-correcting architectures, and magnetic bubble or laser memories.
FREE CORE POOLS	Areas of main storage which may be dynamically allocated as I/O buffers or program areas.
FULL DUPLEX	Describes a communication channel capable of simultaneous and independent transmission and reception.
GATE	An electronic circuit capable of performing logical functions such as AND, OR, and NOR.
HALF DUPLEX	Describes a communication channel capable of transmission and/or reception, but not both simultaneously.
HARDWARE	Electronic or electromechanical components, instruments, or systems. Physical equipment; eg, mechanical, electrical, or electronic devices (contrasted with software).
HARDWARE CONTROLLED	An environment in which all transactions are initiated by hardware and the software response is dictated by hardware. (See Software Controlled.)
HEADER LABEL	The record at the beginning of a file or volume containing control information about the file or volume. (See also Trailer Label.)
HIERARCHICAL FILE	A file whose elements are classified and stored as a hierarchical structure.
HIGH CORE	Core memory locations having high-number addresses.

INCLUSIVE-OR	A logical operation in which the resultant quantity (or signal) is true if at least one of the input values is true, and is false if the input values are all false.
INCREMENT	To change the value of a number in the positive direction. If not otherwise stated, an increment by one is usually assumed.
INCREMENTAL MAGNETIC TAPE	A form of magnetic tape recording in which the recording transport advances by small increments (eg, 0.005 in), stopping the tape advancement long enough to record one character at the spot located under the recording head.
INDEXED ACCESS	An access method in which record locations are determined from an index or table.
INDEXED FILE	A file in which one or more fields within the file are indexed. In addition to storing the individual records, indexed files maintain a directory of the values of indexed fields and the corresponding locations of all records containing each value.
INDEX REGISTER	A memory device containing an index. (See Address Modification.)
INDIRECT ADDRESS	The address initially specified by an instruction when it is desired to use that location to redirect the computer to some other location to find the Effective Address for the instruction.
INFORMATION	A unit or set of knowledge represented in the form of discrete "words," consisting of an arrangement of symbols or (so far as the digital computer is concerned) binary digits.
INHIBIT	To prevent a specific event from occurring.
INITIAL PROGRAM LOAD (IPL)	Refers to the process of loading a program into a blank machine. In most machines, the process, which begins with loading a program called a bootstrap loader, results in the loading and initialization of the operating system.

INITIALIZE	To set various counters, switches, and addresses to prescribed starting values at the beginning of, or at specified points within, a computer routine. The procedure for setting various parts of a stored program to starting values, so that the program will behave the same way each time it is repeated. The procedures are included as part of the program itself.
INPUT	Data transferred or to be transferred from an external storage medium into the internal storage of the system or the computer. Information transferred from a peripheral device into the computer. Also applied to the transfer process itself.
INPUT/OUTPUT (I/O)	Relating to the equipment or method used for transmitting information into and out of the computer. The initiation, execution, monitoring, and control of data transfers into and out of the system.
INPUT/OUTPUT CHANNEL	The complete input or output facility for one individual device or function, including its assigned position in the computer, the interface circuitry, and the external device.
INPUT/OUTPUT (I/O) CHANNEL SCHEDULER	Same as Channel Scheduler.
INPUT/OUTPUT (I/O) MANAGEMENT	Facilities which schedule and/or allocate I/O resources for optimal performance.
INPUT/OUTPUT (I/O) MESSAGE HANDLER/CONTROL	Same as Message Control.
INPUT/OUTPUT PROCESSOR (IOP)	A programmable computer hardware element which controls the activity of an input/output channel.
INPUT/OUTPUT (I/O) SPOOLING	The method of storing the queue of input to the CPU and output to peripheral devices on secondary storage. This frees the CPU from time-dependence on I/O device speeds, which are much slower than those associated with secondary storage.
INPUT/OUTPUT UNIT (IOU)	Synonymous with IOP.
INPUT QUEUE	The logical source of input data to one or more jobs or to the system.

INPUT READER	A program which reads the input job stream and writes the information onto mass storage, where it is kept until resources are available for execution of the program.
INPUT (JOB) STREAM	The sequence of control statements and data submitted to the operating system on one or more input units especially designated for this purpose.
INPUT STREAM INTERPRETATION	The act of distinguishing between the control and data cards in the input stream; if a control card is found, control is transferred to the proper routine.
INPUT TRANSACTION PROCESSING	A term which refers to the updating of designated records via a set of specific transactions. The updating may consist of the addition, deletion, or modification of one or more fields within each record. Each transaction contains the identification of the record it is to update.
INQUIRY	A technique whereby interrogation of a computer system or program may be initiated.
INSTRUCTION	A written statement or the equivalent computer acceptance code, which tells the computer to execute a specified single operation.
INSTRUCTION CODE	The arrangement of binary digits which tells the computer to execute a particular instruction.
INSTRUCTION LOGIC	The circuitry involved in moving binary information between registers, memory, and buffers in prescribed manners, according to instruction codes.
INSTRUCTION WORD	A computer word containing an instruction code. The code bits may occupy all or (as in the case of memory reference instruction words) only part of the word.
INTERACTIVE	A conversational mode of processing which permits interaction or dialog between a user and an active-state program or the operating system.
INTERACTIVE QUERY	A query formulated and posed on-line to or from a system. (See Query.)

INTERFACE

The connecting circuitry which links the central processor of a computer system to its peripheral devices.
(1) The place at which two different systems (or subsystems) meet and interact with each other.
(2) The linkages and conventions established for communication between two independent elements, usually between a program and another program, computer operator, terminal user, etc.

INTERFILE SEARCH

A multifile search in which the answers obtained from the results of querying one file are used to interrogate a second file. (See Multifile Search.)

INTERLEAVE

To arrange parts of one sequence of things or events so that they alternate with parts of one or more other sequences of things or events and so that each sequence retains its identify.

INTERNAL STORAGE

The storage facilities forming an integral physical part of the computer and directly controlled by the computer. Also called Main Memory and Core Memory.

INTERPRETER

A processor which brings the unmodified source language into core and then interprets the program one statement at a time. A program which translates and executes source language statements at run time.

INTERRUPT

The process, initiated by an external device, which causes the computer to interrupt a program in progress, generally for the purpose of transferring information between that device and the computer.
(1) (n) A break in the normal flow of a system or routine such that the flow can be resumed from that point at a later time. An interrupt is usually caused by a hardware-generated signal.
(2) (v) To cause an interrupt.
(See also Arm, Disarm, Mask, Unmask.)

INTERRUPT DETERMINATION

Same as Exception Resolution.

INTERRUPT LOCATION

A memory location whose contents (always an instruction) are executed upon interrupt by a specific device.

INTERRUPT STACKING	Recording the occurrence of one or more interrupts and allowing them to remain pending while processing continues.
INTERVAL TIME	A counter which is automatically incremented or decremented at regular time intervals and which normally causes an interrupt when reaching zero or some predetermined value. (See also Real-Time Clock.)
ITERATION	Repetition of a group of instructions.
JOB	A unit of code which solves a problem; ie, a program and all its related subroutines and data. A total application process comprised of one or more related programs, such as a weekly payroll, a day's business transactions, or the reduction of a collection of test data.
JOB CLASS	A parameter which, in some systems, determines the way in which the job will be handled by the system.
JOB CONTROL	A general term which collectively describes those functions of the operating system that control the processing of a job in the system.
JOB CONTROL LANGUAGE (JCL)	The language used to provide job specifications to the job control routines.
JOB CONTROL LANGUAGE (JCL) INTERPRETATION	Interpretation of JCL, such as distinguishing between JCL which controls: (1) general information for jobs, (2) I/O device requirements, or (3) division of jobs into subunits.
JOB DEADLINE	A time by which a job must have been begun.
JOB DISPATCHER	The operating system function which takes jobs from a job-ready queue and initiates task processing as CPU time becomes available.
JOB MANAGEMENT	The initiation, scheduling, monitoring, and control of all normal system activity related to jobs.
JOB PRIORITY	A parameter specified for each job to control the relative order in which the jobs are to be allocated system resources.

JOB PROCESSING	The reading of control statements from an input stream, the initiating of job steps defined in these statements, the writing of output messages, and all other system activities involving jobs as a unit.
JOB QUEUE	A stack of jobs to be processed in some particular manner by an operating system.
JOB SCHEDULER	The operating system function which obtains resources for jobs and job steps, and places jobs ready for execution into a job-ready queue.
JOB STATUS	The status of a job at a given point in time (eg, job queue location, state of activity).
JOB STEP	That unit of work associated with a job subdivision. Job steps are always processed serially within a job.
JOB TERMINATION	Normal or abnormal termination.
JUMP	An instruction which breaks the strict sequential location-by-location operation of a program and directs the computer to continue at another specified location anywhere in memory.
k	One thousand and twenty-four. For example, 4k words of memory means 4096 words.
KEY	(1) A data item which serves to uniquely identify a data record or other data item. (2) A code used by a program to gain access to protected main storage areas, I/O files, or I/O devices. (See also Lock and Password.)
KEYED ACCESS	(1) An access method in which record locations are determined algorithmically from keys. (2) An access method dependent upon hardware recognition of physically recorded keys.
KEYED FILE	A file in which a data item is used to uniquely identify each data record. The search for a specific record by using the record key is implemented by hardware on some systems, by software on others.
KEY-IN	(1) (n) Information entered via keyboard. (2) (v) To enter information via keyboard.

LABEL	A unit of information normally recorded as part of a file or volume which contains information about the file or volume. Any arrangement of symbols, usually alphanumeric, used in place of an absolute memory address in computer programming.
LABEL CHECKING	A security measure for checking both standard and nonstandard labels whenever a data file is opened or closed.
LABEL PROCESSING	Those facilities provided for writing and checking both standard and nonstandard labels when a file is opened or closed or when a volume is mounted.
LANGUAGE	A set of characters, words formed by these characters, and the rules of syntax which govern the combination of these words. The set of symbols, rules, and conventions used to convey information, either at the human level or at the computer level.
LANGUAGE PROCESSOR	A compiler, assembler, or program generator which transforms source language modules into object language modules.
LAYER	A system subdivision which identifies a virtual machine with certain well defined and carefully bounded capabilities. A layered operating system is generally constructed as a hierarchy or nest of layers where the distance from the bottom of the hierarchy or center of the nest determines the degree of abstractness of the virtual machine defined by a layer.
LEADER	The blank section of tape at the beginning of the tape.
LEAST-SIGNIFICANT DIGIT	The rightmost digit of a number.
LIBRARY	In general, a collection of objects (eg, files, volumes, card decks) associated with a particular use, and the location of which is identified in a directory of some type (eg, core image, private, public, or system libraries.)
LIBRARY AND DIRECTORY MAINTENANCE	The capabilities provided to create and update different types of libraries and directories.
LIBRARY ROUTINE	A routine designed to accomplish some commonly used mathematical function and kept permanently available on a library program tape (eg, Fortran library).

LINE FEED	The teletype operation which advances the paper by one line.
LINE NUMBER	In source languages such as Focal, Basic, and Fortran, a number which begins a line of the source program for purposes of identification. A numeric label.
LINK	The act of resolving intermodule linkage on the machine language level.
LINKAGE	The means by which communication is effected between routines or modules. In programming, code that connects two separately coded routines.
LINKAGE EDITOR/LOADER	A program which produces a load module by transforming object modules into a format acceptable for execution and resolving all intermodule linkages. In some systems the resulting load module is located in main storage and may be immediately executed; in others, the load modules must be subsequently loaded for execution.
LIST	(1) (n) A set of items. (2) (v) To print out a listing on the line printer or teletype. (See Pushdown List.)
LIST FILE	A file in which each data element points to a successor element.
LITERAL	A symbol which defines itself.
LOAD	To put information into – memory, a register, etc. Also – eg, loading tape – to put an information medium into the appropriate device. To read a load module into main storage.
LOAD MODULE	A program in a format suitable for loading into main storage for execution or other use. (See also Module, Object Module, and Source Module.)
LOAD MODULE GENERATION	The process of converting an object module into a format capable of being loaded directly into main storage for immediate use.
LOAD TIME	That time at which an assembled program is placed in the computer and readied for execution.

LOADER	A program which reads load modules into main storage. A program designed to assist in transferring information from an external device into a computer's memory.
LOCATE MODE	A buffering technique in which data are pointed to rather than moved.
LOCATION	A group of storage elements in the computer's memory which can store one computer word. Each such location is identified by a number to facilitate storage and retrieval of information in selectable locations.
LOCK	A mechanism used by an operating system to provide protection against improper use of or multiple access to system elements. Locks are commonly used to prevent access to system elements (resources, data structures, etc) while these elements are currently in use. (In a multiprocessing system, locks are also used to prevent two or more processors from accessing common system elements simultaneously.)
LOCKOUT	To prevent use of or access to something by means of a closed lock.
LOG	(1) (v) To record the occurrence of an event. (2) (n) The record of the occurrence of one or more events.
LOGGING	Recording, by the computer system itself, of everything pertinent to a machine run (ie, resource utilization, errors, messages, statistics).
LOGICAL ABSTRACTION	A nonrepresentative entity with recognizable elements; a set of logical extensions and/or compounds of actual (eg, hardware) characteristics.
LOGICAL INPUT/OUTPUT	Conceptual I/O operations which are performed by user programs through use of the system and which may, in fact, involve no physical I/O (contrasted with physical I/O).
LOGICAL OPERATION	A mathematical process based on the principles of truth tables (eg, AND, INCLUSIVE-OR, and EXCLUSIVE-OR operations).

LOGICAL RECORD	A record which is defined in terms of its use without regard to the way in which it is recorded.
LOGIC DIAGRAM	A diagram which represents the detailed internal functioning of electronic hardware, using binary logic symbols rather than electronic component symbols.
LOGIC EQUATION	A written mathematical statement, using symbols and rules derived from Boolean algebra. Specifically (hardware design), a means of stating the conditions required to obtain a given signal.
LOOP	A sequence of instructions in which the last instruction is a jump back to the first instruction.
LOW CORE	Core memory locations having low-number addresses.
MACHINE	Pertaining to the computer hardware (eg, machine timing, machine language).
MACHINE CHECK	An error due to hardware malfunction; usually causes an interrupt. (See Check.)
MACHINE LANGUAGE	The form of coded information (consisting of binary digits) which can be directly accepted and used by the computer. Other languages require translation to this form, generally with the aid of translation programs (assemblers and compilers). The bit pattern code (normally expressed in octal or hexadecimal base for ease of reading) interpreted by the CPU which causes the computer to perform basic arithmetic, logical, I/O, and control operations.
MACHINE-ORIENTED LANGUAGE (MOL)	A symbolic mnemonic language used by a programmer to represent machine language instructions and pseudo instructions. Synonymous with Assembly Language.
MACHINE TIMING	The regular cycle of events in the operation of internal computer circuitry. The actual events will differ for various processes, but the timing is constant through each recurring cycle.
MACRO	An assembly-time facility that allows lines of text to be named and saved by the assembler, to be retrieved and modified by the substitution of text for dummy names in the saved text. The resulting modified text is assembled at the point of retrieval.

MACROINSTRUCTION	An instruction, similar in binary coding to the computer's basic machine language instructions, which is capable of producing a variable number of machine language instructions.
MAGNITUDE	That portion of a computer word which indicates the absolute value of a number, thus excluding the sign bit.
MAIN MEMORY	Synonymous with Main Storage.
MAIN MEMORY MANAGEMENT	Comprehensive facilities which control use of main memory.
MAIN STORAGE	A digital computer's principal working storage from which instructions can be executed or operands fetched for data manipulation. Also frequently referred to as memory or core storage (contrasted with Secondary Storage).
MANAGEMENT SUPPORT UTILITIES	Utility programs provided for the use of the system manager. These programs perform a wide variety of functions in support of initializing, testing, and monitoring the system.
MANUAL RECONFIGURATION	System reconfiguration performed through key-ins which modify the involved system elements directly and not through any intermediary software especially designed to control and verify the process.
MAPPING	Same as Address Translation.
MAPPING DEVICE	A hardware address translator.
MASK	A bit pattern which selects those bits from a word of data which are to be used in some subsequent operation. (1) (n) A control word whose fields or bits are used as switches to control some operation or activity. (2) (v) To use a mask to control a set of operations or activities. (3) (v) To suspend or inhibit an operation or activity (especially with regard to interrupts). Used in the sense of setting the inhibit bits or fields in a mask. (4) (v) To control some operation or activity.

MASS STORAGE	Relates to a device, such as tape or disk, which stores large volumes of data readily accessible to the central processing unit. Secondary (slow) storage capable of holding large volumes of data; generally, a direct-access device (eg, disc, drum), rarely a sequential-access device such as tape.
MASTER/SLAVE SYSTEM	A system design whereby one master computer is given complete control over both I/O and the assignment of tasks to a slave computer.
MEDIA CONVERSION	The transferral of recorded information from one recording medium (eg, punched paper tape, magnetic tape) to another recording medium.
MEMORY	An organized collection of storage elements (eg, ferrite cores) into which a unit of information consisting of a binary digit can be stored and from which it can later be retrieved. Also, a device not necessarily having individual storage elements, but which has the same storage and retrieval capabilities (eg, magnetic disks). (1) Synonymous with Main Storage. (2) A device in which data can be stored and from which data can be retrieved.
MEMORY CYCLE	That portion of the computer's internal timing during which the contents of one location of memory are read out (into the transfer register) and written back into that location.
MEMORY DUMP	(1) The transfer of the contents of main storage to an external device. (2) A printout (generally edited or formatted) resulting from a memory dump.
MEMORY MODULE	A complete segment of core storage, capable of storing a definable number of computer words (eg, 4096 or 8192 words). Computer storage capacity is incremental by modules and is frequently rounded off and abbreviated as 4k (4096 or approximately 4000 words), 8k (8192 or 8000), 16k, etc.
MEMORY PROTECT	A means of preventing inadvertent alteration of a selectable segment of memory.

MEMORY REFERENCE	The address of the memory location specified by a memory reference instruction; ie, the location affected by the instruction.
MESSAGE	A quantity of transmitted information that is physically contiguous and processed as a unit. Generally contains information about the processing of other kinds of information.
MESSAGE BLOCK	A set of characters transmitted as a unit to or from some point in a communications environment. A message block is usually variable in length.
MESSAGE CONTROL	A function of the operating system which controls the transfer of messages between points in a system.
MESSAGE CONTROL BLOCK (MCB)	Information generated for each incoming or outgoing message in a communications environment. The MCB governs the transfer and processing of the message. Included in the MCB are the identification of the destination and source and the address of each block of the message to be processed. (See also Control Block.)
MESSAGE QUEUE	A list of communication messages.
MESSAGE ROUTING	The process of directing a message to its destination.
MICROCODE	A code used in some computers to control the elemental CPU functions. In such machines, a microcode program is used to interpret and implement each machine language instruction recognized by the CPU. Microcode programs are contained in a control store which is specially accessed by the CPU. (Note: Microcode is often incorrectly used to refer to machine language instructions which can be combined and performed within the same execution cycle.)
MICROINSTRUCTION	An instruction which forms part of a larger composite instruction.
MICROPROGRAM	A program written in a microcode or in a symbolic representation of a microcode.
MICROPROGRAMMABLE COMPUTER	A computer with a writable control store. Generally, a computer whose machine language may be altered by changing the contents of its control store. (Note:

	Microprogrammable Computer is often incorrectly used to refer to a computer which permits machine language instructions to be combined and performed within the same execution cycle.)
MINICOMPUTER	A general term used to describe small computers. In this sense, small usually implies both the computer's physical size and its word size (data path width). Most minicomputers are designed with a 16-bit word size, but word sizes from 8 to 18 bits are considered in the minicomputer range.
MODULE	Any stand-alone unit of hardware or software; ie, a unit which is replaceable as such without major surgery. Generally used to refer to the smallest such units within a category. (See Program Module, Object Module, and Source Module.)
MONITOR	An operating programming system which provides a uniform method for handling the real-time aspects of program timing, such as scheduling and basic input/output functions.
MOST-SIGNIFICANT DIGIT	The leftmost nonzero digit.
MOVE MODE	A buffering technique by which data are moved between the buffer and the user's work area.
MULTIFILE SEARCH	A data retrieval which interrogates several files.
MULTIJOBBING	Synonymous with Multiprogramming.
MULTILEVEL INDIRECT	Indirect addressing using two or more indirect addresses in sequence to find the effective address for the current instruction.
MULTIPLE BUFFERING	A buffering technique whereby data are read into one or more buffers while the data from one or more previously filled buffers are being processed. When used for I/O, this technique permits true parallel operation of a CPU and IOP.
MULTIPLE PRECISION	Referring to arithmetic in which the computer, for greatest accuracy, uses two or more words to represent one number.

MULTIPROCESSING	Utilization of several computers or processors to logically or functionally divide jobs or processes and to execute them simultaneously. The employment of multiple interconnected central processing units (CPUs) to execute two or more different tasks simultaneously.
MULTIPROCESSOR	A computer which has two or more logic and arithmetic units which can be used simultaneously.
MULTIPROGRAMMING	A general term that expresses use of the computing system to execute two or more different jobs or tasks concurrently. A system of execution of two or more programs kept in core at the same time. Execution cycles between the programs.
MULTITASKING	A processing technique whereby a number of tasks within the same or different jobs can be executed simultaneously by interleaving their execution. This requires that the tasks within a job be nonsequential.
NETWORKING	A type of computer system which has two or more CPUs, each having its own unshared allotment of main storage.
NONINTERACTIVE	Processing during which there is no dialog between the user and the system (contrasted with Interactive).
NORMAL TERMINATION	Termination of a job or a task upon successful completion of processing (contrasted with Abnormal Termination).
NORMALIZE	To adjust the exponent and fraction of a floating-point quantity so that the fraction appears in a prescribed format.
OBJECT CODE	Synonymous with machine language.
OBJECT MODULE	The output of a single execution of a language processor which is either a relocatable module or a load module. (See also Module and Source Module.)
OBJECT PROGRAMMING	The binary-coded program which is the output after translation from the source language; the binary program which runs on the computer.
OCTAL	Denoting a numbering system based on the radix 8. Octal digits are restricted to the values 0 through 7.

OCTAL CODE	A notation for writing machine language programs with the use of octal numbers instead of binary numbers.
OFF LINE	A generic reference to a device or operation which is not directly controlled by the computing system which it is associated. Pertaining to the operation of peripheral equipment not under control of the computer.
ONE'S COMPLEMENT	A number so modified that the addition of the modified number and its original value, plus one, will equal an even power of two. A one's complement number is obtained mathematically by subtracting the original value from a string of 1's, and electronically by inverting the states of all bits in the number.
ON LINE	A generic reference to a device or operation which is directly controlled by the computing system with which it is associated. Pertaining to the operation of peripheral equipment under computer control.
ON-LINE DIAGNOSTICS	Diagnostic messages which are output to an operator or user console which refer to current activity.
OPERAND	That which is affected, manipulated, or operated upon. The address or symbolic name portion of an assembler instruction.
OPERATING SYSTEM (OS)	An integrated collection of routines for supervising the sequencing of programs by a computer; eg: debugging, input/output, operation, compilation, storage assignment.
OPERATING SYSTEM MANAGEMENT	The generation and maintenance of the computer operating system.
OPERATION	A well defined transition from one formally definable state to another (eg, a transformation performed on an element of information).
OPERATION (OP) CODE	That part of an instruction designating the operation to be performed.
OPERATOR	That symbol or code which indicates an action (or operation) to be performed. The individual who monitors the computer system and performs necessary physical actions, such as mounting tapes and setting switches, as required by the system.

OPERATOR COMMAND	A statement to the operating system, issued via a console device, which causes the operating system to provide requested information, after normal operations, initiate new operations, terminate existing operations, etc.
OPERATOR'S CONSOLE	A console used by the computer operator, generally having special controls and/or capabilities not available on a user's console.
OPTIMUM CODE	A set of machine language instructions which is particularly efficient with regard to a particular aspect; eg, minimum time to execute, minimum or efficient use of storage space.
OR	Inclusive: a logical operation such that the result is true if either or both operands are true, and false if both operands are false. Exclusive: a logical operation such that the result is true if only one operand is true, and false if both operands are either true or false.
ORIGIN	The absolute address of the beginning of a section of code.
OUTPUT	Data transferred or to be transferred from the internal storage of the computer to an external device or onto a permanent recording medium (paper, cards, etc). Data transferred from the computer to a peripheral device. Also applied to the transfer process itself.
OUTPUT STREAM	Diagnostic meassages and other output data issued by the operating system or the processing program to output units especially designated for this program.
OUTPUT WORK QUEUE	A queue of control information describing system output files, which specifies to an output writer the location and disposition of system output.
OUTPUT WRITER	A symbiont which transcribes specified output files onto an output unit independently of the program which produced such files.
OVERFLOW	A condition that occurs when a mathematical operation yields a result whose magnitude is larger than the program is capable of handling.

OVERLAP	To do something with some degree of concurrency; eg, to perform input/output operations while instructions are being executed by the central processing unit. (See also Concurrent.)
OVERLAY	The operation of bringing into main memory and executing a segment which is a subprogram (ie, a more or less separate entity) of a larger program.
OVERLAY PROGRAM	A segmented program in which certain segments may use the same main storage areas. Such segments are called into main storage as needed, overlaying existing segments. A segment cannot directly access another segment overlying it, but must make use of special operating system routines for such access.
OVERLAY SEGMENT	The smallest overlayable unit which can be loaded during execution of an overlay program.
OWNER	The creator of a file, who may control access to the file by other users. (See File Access Control.)
PACKED WORD	A computer word containing two or more independent units of information. This is done to conserve storage when information requires relatively few bits of the computer word.
PAGE	An artificial division of memory consisting of a fixed number of locations, dictated by the direct addressing range of memory reference instructions. Some fixed number of computer words which is treated as a unit for many kinds of storage moves (eg, between main storage and secondary storage).
PAGE ZERO	The memory page which includes the lowest-number memory addresses.
PAGING	A technique of loading pages as needed. (See also Demand Paging.)
PARALLEL PROCESSING	Processing two or more jobs or tasks simultaneously, each on a different central processing unit (CPU). Note: parallel processing does not imply physical connection between the CPUs, but invariably implies some logical connection between the processes advancing on the CPUs. (See also Multiprocessing.)

PARAMETER

A definable characteristic of an item, device, or process which can be used to control or modify a process.

PARITY BIT

A supplementary bit added to a data word to make the total number of 1 bits always odd or even. This permits checking the accuracy of data transfers. A check bit which is concatenated with a physical unit of bits (eg, a byte or word) so that the number of bits in the unit logically sums to 0 (even parity) or 1 (odd parity). The single parity bit is normally used to ensure against single-mode (1 bit) failure in the unit as it resides in storage or is transmitted, etc. Additional parity bits can be used to guard against and/or correct multibit failures. The parity bit is thus used as a bit of redundant (never original) data for verifying the correctness of the original data.

PARITY CHECK

(1) A machine check which occurs due to the failure of a physical unit of bits to contain an even number of bits (even parity) or an odd number of bits (odd parity).
(2) The test of a physical unit of bits for proper parity.

PARTITION

(1) A subdivision of main storage which is allocated to a job or a system task for job or task execution. A partition may be fixed or variable in size.
(2) A major subdivision within a level or layer of a system.

PASS

The complete process of reading a set of recorded information (one tape, one set of cards, etc) through an input device, from beginning to end.

PASSWORD

A word used to allow the user access to protected storage, files, or I/O devices. (Synonymous with Key, definition 2; related to File Access Control, Storage Protection, and Volume Protection.)

PATCH

To modify a routine in a rough or expedient way.
(1) (n) A section of coding inserted into a routine to correct a mistake or alter the routine. It is often not inserted into the actual sequence of the routine being corrected, but placed somewhere else, with an exit to the patch and a return to the routine provided.
(2) (v) To insert such corrected coding.

PENDED	The state of a task or program whose execution has been halted prior to completion pending the occurrence of some specified event. (See also Suspended.)
PERIODIC INTERRUPTS	Interrupts scheduled to occur at a periodic interval.
PERIPHERAL	(1) A generic term referring to devices that are not a part of the computer main frame (eg, card readers, printers, tape units). (2) Referring to an operation or device which is off-line.
PERIPHERAL DEVICE	An instrument or machine electrically connected to the computer but which is not part of the computer itself.
PHYSICAL I/O	I/O which takes place between main storage and on-line devices (contrasted with Logical I/O).
PHYSICAL RECORD	A record defined in terms of the way it is recorded without regard to its use.
PLANE	An arrangement of ferrite cores on a matrix of control and sensing wires. Several planes stacked together form a Memory Module.
POINTER ADDRESS	Address of a core memory location containing the actual (effective) address of desired data.
POLLING	A technique by which each of the terminals sharing a communications line is periodically interrogated to determine whether it requires servicing. (See Teleprocessing.)
POOL	A collection of interchangeable peripheral devices or core storage locations. When the user requests a device or area from the pool, the system selects an available device or area to associate with the job (eg, buffer, free core pool).
POSTMORTEM DUMP	A memory or file dump performed upon completion of program execution, frequently associated with abnormal termination.

POWER-FAILURE CONTROL	A means of sensing primary power failure so that a special routine may be executed in the finite period of time available before the regulated dc supplies discharge to unusable levels. The special routine may be used to preserve the state of a program in progress or to shut down external processes.
PREEMPTIVE	A manner of scheduling jobs whereby certain jobs always receive highest priority. An example is the preemptive status which many remote data entry terminals enjoy since they probably return for more I/O.
PRESTORED QUERY	A query which has been stored in a system library. At execution time it may be loaded directly from the library. (See Query.)
PRIORITY	An automatic regulation of events so that chosen actions will take precedence over others in case of timing conflict. An order of precedence established for competing events.
PRIORITY QUEUE	A queue maintained in priority sequence.
PRIORITY SCHEDULING	A form of job scheduling which schedules jobs by priority rather than by their sequence in the input job stream.
PRIVATE LIBRARY	A library of programs (generally located on a mass storage device) which is accessible only by a restricted group of users.
PRIVILEGED INSTRUCTION	An instruction which can only be executed in a special computer state or mode.
PROBLEM MODE	A hardware or software supported mode of operation in which certain privileged instructions cannot be executed by a program (contrasted with Supervisor Mode).
PROBLEM-ORIENTED LANGUAGE (POL)	A symbolic mnemonic language used by a programmer to model a problem. The POL is constructed with a syntax and semantic which make it suitable for describing problems of a particular class. Examples of engineering/scientific POLs are Fortran and Algol; an example of a business POL is Cobol. Most POLs are or strive to be more or less machine-independent. (See also Compiler.)

PROBLEM PROGRAM

Any of the class of routines or programs which perform processing of the type for which a computing system is intended, including routines that solve problems, monitor and control industrial processes, sort and merge records, perform computations, process transactions against stored records, etc (similar to User Program, dissimilar to Control Program).

PROCEDURE

The course of action taken for the solution of a problem; also called Algorithm.

PROCESS

The implementation of an algorithm or a set of related algorithms which together form a single complete sequence or thread of operations which is logically and functionally independent of (though not necessarily synchronous with) other such sequences.

PROCESS CONTROL

Automatic control of manufacturing processes by use of a computer.

PROCESS SYNCHRONIZATION

A mechanism whereby two or more asynchronous processes are temporarily brought into synchrony with respect to the accomplishment of a common objective; eg, passing information, using common control or data structures.

PROCESSING SUPPORT

The routines within the operator system which accomplish a variety of miscellaneous services for a user program; eg, provide the time-of-day.

PROCESSOR

The central unit of a computer system (ie, the device which accomplishes the arithmetic manipulations), exclusive of peripheral devices. Frequently (when used as adjective) also excludes interface components, even though normally contained within the processor unit; thus, Processor options exclude interface (Input/Output) options.
(1) From hardware point of view, an active computer element which alters the machine state as a function of interpreting a unit of code. Usually refers to CPU. (See also IOP.)
(2) From software point of view, a system capability which advances processes to which it is allocated. Hence, the reference is usually to the CPU or IOP, but may be to some special unit of software; eg, a language processor.

PRODUCTION MODE	Refers to the running of a program, a collection of programs, or a system for the purpose for which they were produced. (Contrasted with Test Mode.)
PROGRAM	A plan for the solution of a problem by a computer, consisting of a sequence of computer instructions. A unit of code (eg, a sequence of computer instructions) whose interpretation and execution are intended to support and/or fulfill some requirement. Program generally refers to units of code which are recognized as distinct units by some part or all of an operating system. (See also Control Program, and Problem Program.)
PROGRAM CHECK	An error that occurs due to a programming error such as an invalid instruction or invalid address.
PROGRAM EXPANSION AREA POOLS	Areas of main storage which may be dynamically allocated to programs.
PROGRAM GENERATOR	A language processor which combines and tailors general-purpose object modules based on source control statements.
PROGRAM LIBRARY	A collection of available computer programs and routines.
PROGRAM LIMIT MONITORING	Assuring that an executing program or task does not exceed certain system- or user-specified limits. Limits are typically established for CPU time, main storage space, and output cards/lines.
PROGRAM LISTING	A printed record (or equivalent binary output program) of the instructions in a program.
PROGRAM LOADING	The process of placing load modules in main storage. (See also Loader.)
PROGRAM MAINTENANCE	The support functions provided for the maintenance and modification of programs.
PROGRAM MODULE	(1) A program unit that is recognized as a distinct unit by some part or all of an operating system (eg, a compiler, a loader). (2) A generic term for any software module (eg, source module, object module).

PROGRAM TERMINATION PROCESSING

The processing functions that are executed when a program or task comes to either a normal or abnormal termination.

PROGRAMMABLE CHANNEL

A channel which uses a programmable device (eg, an IOP) to control its activity.

PROGRAMMER

A person who writes computer programs. Also (hardware), an interface card or instrument which sets up (or "programs") the various functions of one measuring instrument.

PROGRAMMING

The process of creating a program.

PROMPTING QUERY

An aid provided by some interactive systems which assists a user in formulating meaningful statements by leading him through the interrogation process. (See Query.)

PSEUDO INSTRUCTION

A symbolic statement similar to assembly language instructions in general form but meaningful only to the program containing it, rather than to the computer as a machine instruction.

PUBLIC LIBRARY

A library available to all users of a system.

PUNCHED TAPE

A string of tape, usually paper, on which information is represented by coded patterns of holes punched in columns across the width of the tape. There are commonly eight hole positions (channels) across the tape.

PUSH-DOWN LIST

A list which is constructed and maintained so that the next item to be retrieved is the most recently stored item in the list; ie, last in, first out.

QUANTUM

Specified or specifiable minimum unit (eg, of time).

QUERY

(1) A statement generated by a user (generally interactively) for the purpose of eliciting highly specific information from a system. (See also Interactive.)
(2) A statement generated by a system (generally interactively) intended to elicit highly specific information from a user for the purpose of controlling some process. (See also Batch Query, Prompting Query, and Skeletal Query.)

QUEUE	A list of entries which identify things waiting for service or attention. A waiting list. In time-sharing, the monitor maintains a queue of user programs waiting for processing time.
QUEUED ACCESS	An access method in which records are read prior to being requested, and queued in main storage, thus eliminating a wait for transmission from an I/O device when a record is requested.
QUEUE CONTROL	The system functions required to add elements to, remove elements from, and update elements within system queues.
RADIX	The base of a number system, the number of digit symbols required by a number system. (See Binary and Octal.)
RANDOM ACCESS	A method of accessing data records without regard to the sequence in which they are recorded. Pertaining to a storage device in which the accessibility of data is effectively independent of the location of the data (synonymous with Direct Access).
RANDOM-ACCESS DEVICE	A device oriented to random access.
READ	The process of transferring information from an input device into the computer. Also the process of taking information out of the computer's memory. (See Memory Cycle.)
READ ONLY	An attribute of programs or files or storage areas whereby an accessing process may read but not modify or execute their contents.
READY STATE	The condition of a task which is in contention with other tasks for use of the central processing unit and is awaiting assignment of the CPU. All other resource requirements for its activation have been satisfied.
REAL ADDRESS	A storage address which refers to an actual location (contrasted with Virtual Address).
REAL TIME	The time elapsed between events occurring externally to the computer. A computer which accepts and processes information from one such event and is ready for new information before the next event occurs is said to operate in a Real-Time environment.

	(1) Pertaining to the actual time during which a physical process transpires. (2) Pertaining to the performance of a computation during the actual time which the related physical process transpires in order that results of computation can be used in guiding the physical process.
REAL-TIME CLOCK	A program-accessible clock which indicates the passage of actual time. The clock may be updated by hardware or software. (See also Interval Timer.)
RECORD	A collection of related items of data, treated as a unit (eg, fixed-length, logical, physical, undefined, variable-length records).
RECURSIVE	Refers to a procedure which calls itself or initiates a sequence of calls which eventually results in a call to itself prior to completion of its original action.
RECURSIVE SUBROUTINE	A subroutine capable of calling itself and returning at some later point to the program which initially called it.
RECOVERY PROCESSING	Action performed by a user or system program in response to the occurrence of an error. (See also Restart.)
REDUNDANT DATA CONTROL	Maintaining multiple circuits which are utilized for the same data transmission. If the transmitted value from one circuit disagrees with that from other circuits, it is discarded.
REENTERABLE	Variation of Reentrant.
REENTRANT	The attribute of a program which allows the same copy of its load module to be used concurrently by two or more tasks. The attribute is attained by programming it so that it does not modify itself, and accesses the data within each task space independently. (See also Reusable.)
REENTRANT CODE	A program segment (eg, subroutine) which can be executed (ie, reentered) by more than one other program simultaneously. This mode of operation requires a separate storage area for storing information that varies for each instance of execution.

REGISTER	An array of hardware binary circuits (flip-flops, switches, etc) for temporary storage of information. Unlike mass storage devices such as memory cores, registers can be wired to permit flexible control of the contained information for arithmetic operations, shifts, transfers, etc.
RELATIVE ADDRESS	The number that specifies the difference between the actual address and a base address.
RELOCATABLE	Pertaining to programs whose instructions can be loaded into any stated area of memory.
RELOCATABLE MODULE	An object or load module which can be relocated in core (contrasted with Absolute Module).
RELOCATING LOADER	A computer program capable of loading and combining relocatable programs (ie, programs having symbolic rather than absolute addresses).
RELOCATION	(1) Loading a program into main storage at an address other than that specified at assembly or compilation time. (2) Moving a program module from one area of main storage to another. (3) The modification of a program module required to effect relocation as defined above.
REMOTE BATCH PROCESSING	The submission of jobs for batch processing from a remote terminal. (See also Batch Processing.)
REMOTE TERMINAL/CONSOLE	An interface or communication device between a user and a computer, generally located away from the computer installation. (See also console.)
REQUEST STACKING	Placing a request for processing (system service, I/O, etc) in a queue which will be serviced at some later point in time.
RESET	A signal condition representing a binary 0.
RESIDENT SUPERVISOR	That portion of the supervisor which remains in main storage at all times.
RESOURCE	Any facility of the computing system or operating system required by a process. This includes main storage, input/output devices, the central processing unit, files, and control and processing programs.

RESOURCE ALLOCATION	Assigning a system resource for the use of a process.
RESOURCE DEALLOCATION	Removing a system resource from use by a process.
RESOURCE STATUS MODIFICATION	Altering the availability or definition of system resources. Typically, I/O devices may be added to or deleted from the operating environment, main memory partition size modified, etc.
RESPONSE TIME	The time between initiating some operation from a terminal and obtaining results. Includes transmission time to the computer, processing time, access time to file records needed, and transmission time back to the terminal.
RESTART	To measure the execution of a program. To reestablish the status of a process at some previous point (usually performed as a part of Recovery Processing). (See also Automatic Restart, Checkpoint, and Deferred Restart.)
RETRIEVAL (DATA)	The act of locating and selecting specific information in a file.
RETRIEVAL (FILE)	The act of locating and selecting a specific file.
RETURN CODE	A code which is established by a program or subroutine to notify the system or calling program of its terminal status.
REUSABLE	The attribute of a routine that permits the same copy of the routine to be used by two or more tasks. (See Reentrant and Serially Reusable.)
RING FILE	A circular list file in which the last data element points back to the first. (See List File.)
ROLL OUT/ROLL IN	A method of increasing available main storage by temporarily storing an active program on secondary storage, using the area occupied by the program, and then returning the program from secondary to main storage and restoring its status.
ROOT SEGMENT	That segment of an overlay program which remains in main storage at all times during execution of the overlay program.

ROTATE

A positional shift of all bits in an accumulator (and possibly an extend bit as well) with those bits lost off one end of the accumulator "rotated" around to enter vacated positions at the other end.

ROUND-ROBIN SCHEDULING

A technique for allocating CPU time to a number of contending programs (a type of time slicing). The technique involves establishing a circular list of users and allocating a fixed amount of time to each user in turn without regard to priority.

ROUTINE

A program or program segment designed to accomplish a single function. A set of instructions arranged in proper sequence to cause the computer to perform a desired task; usually part of, or executed as part of, a program (eg, a subroutine).

RUN TIME

The time in which a program is executed.

SCHEDULER

A system component whose function is to allocate all resources for a process and to perform all initialization operations necessary prior to dispatching.

SCHEDULING

That system function which prepares a process for execution.

SCHEDULING ALGORITHM

The rules and decisions by which a process is scheduled.

SCHEDULING QUEUE

A queue of processes that are ready for scheduling.

SECONDARY STORAGE

The storage facilities not an integral part of the computer but directly connected to and controlled by the computer (eg, magnetic drum, magnetic disc, magnetic tapes (contrasted with Main Storage)).

SECURITY

The use of bits, passwords, or some other similar test to verify a user's right to a particular file.

SEGMENT

(1) (n) That part of a long program which may be resident in core at any one time.
(2) (n) The smallest functional unit of an overlay program which can be loaded as one physical entity.
(3) (n) As applied to telecommunications, a portion of a message which can be contained in a buffer of a specified size.

(v) To divide a program as in (1), or into two or more segments, or to store part of a program or

routine on an external storage device to be brought into core as needed.

SELECTIVE TRACE

A tracing routine wherein only conditions satisfying certain specified criteria are subject to tracing. Typical criteria are: instruction type, instruction location, and data location. For instruction tape, wherein tracing is performed on transfer or branch instructions, the term "logical trace" is sometimes used.

SEQUENTIAL ACCESS

A method of accessing data such that consecutive records are processed sequentially. (See also Access Control.)

SEQUENTIAL ACCESS DEVICE

An I/O device oriented toward sequential access (eg, tape drive, card reader).

SEQUENTIAL FILE

A file whose elements are stored serially.

SERIAL ACCESS

Pertaining to the sequential or consecutive transmission of data to or from core (eg, paper tape). (Contrast with Random Access.)

SERIAL PROCESSING

Processing which occurs on a sequential basis; ie, execution of a task or program only upon completion of the preceding task or program.

SERIALLY REUSABLE

The attribute of a routine such that, when in main storage, the same copy of the routine can be used by another task after the current use has been concluded. (See Reusable.)

SERVICE PROGRAM

Any of the class of standard routines or programs which assist in the use of a computing system and in the successful execution of problem programs, without contributing directly to control of the system or production of results, and including utilities, simulators, and test and debugging routines.

SERVICE ROUTINE

A sequence of instructions designed to accomplish the transfer of information between a particular device and the computer.

SESSION

The period of time between sign-on and sign off during which the user engages in a dialog with a time-sharing system.

SET	A signal condition representing a binary 1.
SHARED DEVICE	A device which may be concurrently used by two or more users.
SHARED FILE	A file which may be accessed by two or more users.
SHARED ROUTINE	A routine which can be concurrently executed by several users.
SHIFT	Restrictive (arithmetic shift): to multiply or divide the magnitude portion of a word by a power of two, using a positional shift of these bits. General: any positional shift of bits.
SIGN	The algebraic plus or minus indicator for a mathematical quantity. Also, the binary digit or electrical polarity representing such an indicator.
SIGN OFF	A statement generated by a user at the end of a session with a time-sharing system which is used to signal the end of the session to the system.
SIGN ON	A statement generated by a user at the beginning of a session with a time-sharing system which alerts the system to the presence of the user.
SIGNIFICANT DIGIT	A digit so positioned in a numeral as to contribute a definable degree of precision to the numeral. In conventional written form, the most-significant digit in a numeral is the leftmost digit and the least-significant digit is the rightmost digit.
SIMULATE	To represent the functioning of a device, system, or computer program with another system or program.
SIMULATION	(1) Use of a computer system to represent or model some other system (eg, another computer system, a traffic situation). (2) I/O: a supervisory function which handles a problem program's I/O exclusively for testing/debugging. (3) System: routines which will simulate various operating system conditions or functions. These routines may be used to test and validate the operating system or application programs running under operating system control.

SIMULTANEOUS	Existing or occurring at the same instant of time. (See also Concurrent.)
SKELETAL QUERY	A prestored query which is written in outline or skeletal form. The user may define the specific operators, operands, etc, at execution time. (See also Query.)
SKIP	An instruction which causes the computer to omit the instruction in the immediately following location. A skip is usually arranged to occur only if certain specified conditions are sensed and found to be true, thus allowing various decisions to be made.
SLAVE	An element of a computing system that is under the functional control of a similar element.
SLAVE COMPUTER	A computer that is under the functional control of another computer.
SLAVED TERMINAL	A terminal that functions as an I/O device for another terminal rather than as an independent terminal.
SNAPSHOT (DUMP)	A memory dump performed during execution of a program; generally used as a debugging aid. A dynamic printout during execution, at breakpoints and checkpoints, of selected areas in storage.
SOFTWARE	Computer programs. Also, the tapes or cards on which the programs are recorded. The collection of programs and routines associated with the computer (eg, application or system software contrasted with hardware).
SOFTWARE CONTROLLED	An environment in which all transactions are initiated by software and the hardware response is dictated by software. (See Hardware Controlled.)
SOFTWARE PACKAGE	A complete collection of related programs, not necessarily combined as a single entity.
SORT MODULE	The programming module that actually performs a sorting or merging function.
SORTING AND MERGING	Those routines that sequence one or more sets of data items.
SORTING TECHNIQUE	A scheme by which a set of data items is rearranged into a new sequence.

SOURCE MODULE	A series of statements in the symbolic language of a language processor which constitutes the entire input to a single execution of the processor. (See also Load Module, Module, and Object Module.)
SOURCE PROGRAM	A program (or its recorded form) written in some programming language other than machine language and thus requiring translation. The translated form is the object program. (See Object Programming.)
STACKED JOB PROCESSING	A technique of automatic job-to-job transition with little or no operator intervention. (See also Batch Processing.)
STAND-ALONE UTILITIES	System routines which are not under operating system control during execution.
STANDARD OPTION	A system option for which a default was established during system generation. (See also Default Option.)
STARTING ADDRESS	The address of a memory location in which is stored the first instruction of a given program.
STATEMENT	An instruction in any computer-related language other than machine language.
STATUS DISPLAY	The visible presentation of the current state of the system or of some component of the system.
STORAGE ALLOCATION	The assignment of blocks of data and instructions to specified blocks of storage.
STORAGE CAPACITY	The volume of data that can be entered, retained, and retrieved.
STORAGE COMPACTING	A procedure for maximizing available main storage area by relocating active programs from fragmented to contiguous areas.
STORAGE DEVICE	A device into which data can be entered, in which they can be held, and from which they can be retrieved.
STORAGE DUMP	To transfer the contents of all or part of storage (generally main storage) to a peripheral device.
STORAGE PROTECTION	Protection of an area of storage against unauthorized access (eg, read, write, execute).

STORE	To put information into a memory location, register, or device capable of retaining the information for later access.
STRING	A connected sequence of entities, such as characters in a command string. A connected sequence of elements (eg, a bit string or a character string).
SUBROUTINE	A routine which is called by another routine to perform a specific function. A sequence of instructions designed to perform a single task, with provisions included to allow some other program to cause execution of the task sequence as if it were part of its own program.
SUBSCRIPT	A value used to specify a particular item in an array.
SUBTASK	A task which is initiated by and is subordinate to another task.
SUPERVISOR	The programs which schedule, allocate, and control system resources and status rather than process data.
SUPERVISOR CALL (MONITOR CALL, MASTER MODE ENTRY, SVC)	A request by a programmer task for a service to be performed by the supervisor.
SUPERVISOR MODE	A hardware- or software-supported mode of operation in which all operations may be performed (contrasted with Problem Mode).
SUPPORT SOFTWARE	A collection of service programs.
SUSPENDED	The state of a task or program whose execution has been halted prior to completion. (See also Pended.)
SUSPENDING, SUSPENSION	Temporarily interrupting and halting the advancement of a process (eg, a job or task) while continuing to keep it under system control. A suspended process does not appear on a ready queue but is not treated as terminated.
SWAPPING	A method of sharing main storage between several programs by maintaining each program and its status on secondary storage and loading each one into main storage for a limited time interval. In a time sharing environment, the action of either temporarily bringing a user program into core or storing it on disk or other system device.

SWITCH	A device or programming technique for making selections.
SYMBIONT	A data transfer routine or program which executes concurrently with user and system programs.
SYMBOL TABLE	A table in which symbols and their corresponding values are recorded.
SYMBOLIC ADDRESS	A label assigned in place of absolute numeric addresses, usually for purposes of relocation. (See also Relocatable.)
SYMBOLIC CODING	Broadly, any coding or programming system in which symbols other than actual machine operations and addresses are used.
SYMBOLIC I/O	Reference to an I/O device by a symbolic name.
SYMBOLIC INSTRUCTION	An instruction which is the basic component of an assembly language (input to assembler) and is directly translatable into machine language.
SYNCHRONOUS	Said of two or more events or time sines (eg, advancing processes) which bear a necessarily fixed time relation to one another. For example, two or more processes are said to be synchronous if strong dependency or interdependency exists among them; eg, if one process is controlled by another or if two or more processes exhibit mutual control over each other's advancement. (Opposite of Asynchronous.)
SYNTAX	(1) The structure of expressions in a programming language. (2) The rules governing the structure of a programming language.
SYSTEM	An assembly of software and/or hardware integrated to form an organized whole with meaningful relationships among the parts.
SYSTEM COMMUNICATION	Information exchange between the user or operator and the operating system.
SYSTEM DEFINITION	Creation of control structures, definition of parameters, etc, which determine the way in which a general-purpose system is tailored to function in an actual implementation; may be part of System Generation.

SYSTEM DEGRADATION	System reconfiguration (normally due to a malfunctioning unit) which results in poorer system performance.
SYSTEM GENERATION	A process which creates a particular and uniquely specified operating system. System generation combines user-specified options and parameters with manufacturer-supplied general-purpose or nonspecialized program subsections to produce an operating system (or other complex software) of the desired form and capacity.
SYSTEM INITIALIZATION	The process of loading the operating system into the computer and defining the processing environment.
SYSTEM INPUT DEVICE	An I/O unit specified as a source of an input job stream.
SYSTEM INTERROGATION	(1) Operator-initiated communication requesting system status. (2) Problem program-initiated interrogation of the supervisor requesting system status.
SYSTEM LIBRARY	A library of system programs available to all or most of a system.
SYSTEM MAINTENANCE	The process of updating the operating system in response to changes in the operating environment or changes and modifications to programs within the operating system itself. (See Dynamic System Maintenance.)
SYSTEM MANAGEMENT FUNCTIONS	The non-real-time components of the operating system which support and maintain both system and application programs.
SYSTEM PERFORMANCE MONITOR	The operating system functions performed to enable the system manager to obtain various statistics about the operational use of the system. The system manager may use these statistics to better define the operating configuration for the actual processing environment. (See also System Definition.)
SYSTEM OUTPUT DEVICE	An I/O unit to which system output is directed.
SYSTEM RECONFIGURATION	Modification of an operating system to recognize a change in system resources.

SYSTEM RESIDENCE DEVICE	The external storage device allocated for storing the initial copy of the current operating system.
SYSTEM RESTART	Synonymous with Restart.
SYSTEM SERVICE REQUEST	A request by an executing task for the operating system to perform a service function. Typical service functions are providing I/O services, timer services, scheduling services, and storage dumps.
SYSTEM SOFTWARE	Software developed as a general-purpose tool to supplement the computer hardware. Systems software normally includes operating systems, compilers, and assemblers, but does not include application- or problem-oriented programs. (Also referred to as basic software.)
SYSTEM START-UP	The process of loading and initializing an operating system. (See also Initial Program Load (IPL)).
SYSTEM STATUS	The status of an operating system at a given point in time (eg, number of current jobs, status of system resources).
SYSTEM STATUS MONITOR	The operating system functions performed to maintain updated tables of the current state of the system. These tables may represent static conditions, such as the parameters specified at system generation; or dynamic conditions, such as the number of current system users.
SYSTEM SUPPORT SOFTWARE	Software developed as a general-purpose tool to support program development. All of that software which is never involved in the running of programs in production mode. Includes such things as assemblers, compilers, and test and debug software.
SYSTEM TEST MODE	A distinct operating environment in which the executing program is being tested. Systems having this feature provide special debugging facilities which are not available to programs executing in production mode.
SYSTEM UTILITIES	A collection of system routines and programs not part of the executive or supervisor, and only poorly integrated with the rest of the operating system, which provide basic, highly specific services for a user, generally as the result of a direct call.

SYSTEM UTILITY PROGRAM LINKAGES (COMPILER)	Linkage generation capabilities provided by some compilers to users of the language so that they can reference various system utility programs.
TABLE	A collection of data stored for ease of reference, generally an array.
TASK	(1) The realization of some portion or all of a process as a sequence of virtual machine states. (2) A program subdivision which is treated as the basic unit of schedulable work by the operating system. (See also Subtask.)
TASK MANAGEMENT	The scheduling and monitoring of all tasks within the operating system and the allocation of required system resources to these tasks.
TASK SWITCHING	The interrupt-prompted change of control from one task to another.
TELEPROCESSING	A general term expressing data transmission between a computing system and remotely located devices via a unit which performs the necessary format conversion and controls the rate of transmission. (See also Polling.)
TEMPORARY STORAGE	Storage locations reserved for immediate results.
TERMINAL	A peripheral device in a system through which data can either enter or leave the computer.
TEST AND DEBUG	Synonymous with Debug.
TEST AND DEBUG SOFTWARE	Refers to the collection of software which is used to support the system test mode environment.
TEST MODE	Refers to the running of a program, a collection of programs, or a system for the purpose of verifying their operation and/or performance characteristics. (Contrasted with Production Mode; see also System Test Mode.)
THIRD GENERATION	A term used to characterize the general-purpose digital computers introduced in the late 1960s. The term is generally applied to three separate computer characteristics: electronic hardware components, logical organization, and software or programming techniques.

THIRD-GENERATION HARDWARE	Hardware constructed from integrated circuits.
THIRD-GENERATION LOGICAL ORGANIZATION	Special features that provide the ability to handle many programs at the same time. Such features include memory protection circuits, hardware address modification, modular components (CPUs, memory, data channels), and telecommunication capabilities.
THIRD-GENERATION SOFTWARE	Software supporting an operating system that is indispensable to the normal functioning of a third-generation computer. Software utilizing techniques developed over the last decade or so.
THREAD	One sequence of a series of interleaved sequences.
THREAD OF OPERATIONS	A sequence of operations (ie, an algorithm) which retains its individual identity even though its execution is actually interleaved with other sequences of operation.
TIME LIMIT (JOB CONTROL)	A limit which can be imposed by a system or programmer on the length of time a job will be allowed to execute (can be total execution time or CPU time).
TIME SHARING	A method of allocating central processor time and other computer services to multiple users so that the computer, in effect, processes a number of programs simultaneously. (1) The simultaneous utilization of a computer system from multiple terminals. (2) Performing several independent processes concurrently by interleaving the operations of the processes on a single processor.
TIME SLICING	The allocation of limited intervals of time (quantums) to programs in contention for use of the CPU (eg, round-robin scheduling). A method of job scheduling in a multiprogrammed system. This refers to the allocation of fixed amounts of computing time among users on a round-robin basis. Interrupts are generated by a fixed-interval timer, causing control to pass to the next waiting service request.

TIMING SERVICE

Service functions provided by the operating system to an executing program that utilize one of the system timers. Typical functions include providing the real clock time, providing notification of an elapsed interval time, and suspending the executing program for a specified interval.

TOGGLE

Adjective: using switches to enter data into the computer memory.

TRACE

A diagnostic technique which provides a record of the path taken by an executing task.

TRACK REPLACEMENT

The substitution of an alternate track for a track determined to be defective during surface analysis. (See Surface Analysis.)

TRAILER LABEL

A record placed at the end of a file or volume which contains control information about the file or volume. (See also Header Label.)

TRANSIENT AREA

A main storage area usually, but not necessarily, within the supervisor area used for executing transient routines.

TRANSIENT ROUTINES

Routines permanently stored on the system resident device and loaded into a transient area when needed for execution. Generally, they accomplish selected supervisory functions but are not executed often enough to merit inclusion in the resident supervisor.

TRANSFER VECTOR

A table, usually at a fixed location in memory, containing jump instructions and/or indirect addresses for jump instructions. A jump to a particular routine or the address of the routine is placed in a particular place in the table. Other routines can call this routine without necessarily knowing the actual location of this routine in memory. This technique is used frequently when a relocatable assembler is not available for a particular machine.

TRUNCATION

The reduction of precision by dropping one or more of the least-significant digits; eg, 3.141592 truncated to 4 decimal digits is 3.141.

TRUTH TABLE

A table listing of all possible configurations and resultant values for any given Boolean algebra function.

TURNAROUND TIME	The elapsed time between submission of a job to a computing center and the return of results.
TWO'S COMPLEMENT	A number so modified that the addition of the modified number and its original value will equal an even power of two. Also, a kind of arithmetic which represents negative numbers in two's complement form so that all addition can be accomplished in only one direction (positive incrementation). A two's complement number is obtained mathematically by subtracting the original value from an appropriate power of the base two, and electronically by inverting the states of all bits in the number and adding one (complement and increment).
UNBLOCK	Synonymous with Deblock.
UNDEFINED RECORD	A record having a length unspecified or unknown to the system.
UNDERFLOW	A condition that occurs when a floating-point operation yields a result whose magnitude is smaller than the program is capable of handling.
UNIPROCESSING	A type of computer system which makes use of only a single processor, executing a single task of a single job at a time.
UNMASK (INTERRUPT)	To allow recognition of an interrupt (opposite of mask). (See Interrupt.)
UPDATED PROGRAM	A program to which additions, deletions, or corrections have been made.
USER	The person or persons who program and operate a particular computer. Anyone who or anything that requires the services of a computing system. Frequently used as an abbreviation for user program or problem program.
USER ACCOUNTS	An account maintained within the system for each system user. This account typically contains user identification information as well as accumulated charges and statistics of computer system utilization.
USER PROGRAM	A program written by a user to solve a specific problem; ie, not an operating system or control program (similar to Problem Program).

UTILITY	A standard set of routines which may be used by the operating system and/or user programs.
UTILITY ROUTINE	A standard routine to assist in the operation of the computer (eg, device drivers, sorting routines) as opposed to mathematical (Library) routines.
VARIABLE	A symbol whose value changes during the execution of a program.
VARIABLE-LENGTH RECORD	A record having a length independent of the length of other records in the same file (contrasted with Fixed-Length Record).
VIRTUAL ADDRESS	An instruction address which refers to a relative or imaginary location in main storage and which must be algorithmically converted or mapped to a physical address before the instruction is executed (contrasted with Real Address).
VIRTUAL MACHINE	(1) A machine which is a compound of software and hardware characteristics. (2) A machine which displays capabilities and deals with constructs which are logical abstractions of actual computer hardware capabilities and structures. These abstractions are invariably supported by software (generally operating system software) and specially designated classes of input. A virtual machine in this sense may be said to describe the domain or environment within which a task is a path (or ordered n-tuple) of operations. The transition from one such virtual machine state to the next defines an elemental operation for that virtual machine. (3) A simulated computer or computer system. (See also Simulation.)
VIRTUAL STORAGE	A conceptual extension of main storage achieved via a software or hardware technique which permits storage address references beyond the physical limitations of main storage. Virtual addresses are mapped to physical addresses during actual program execution.
VOLUME	All that portion of a single unit of storage media which is accessible to a single read-write mechanism, (eg, a reel of tape, removable disk pack).

VOLUME MAINTENANCE

Those functions which provide diagnostic information for, correct error conditions on, and remove unwanted elements from any volume in the system.

VOLUME PREPARATION

The functions invoked when a new volume is to be added as a system component. These functions include the writing of standard volume labels, formatting records and/or tracks, and creating volume directory entries.

VOLUME PROTECTION

Protection of a volume against unauthorized access (read, write, or both).

WAITING LOOP

A sequence of instructions (frequently only two) which are repeated indefinitely until a desired external event occurs, such as the receipt of a flag signal.

WAITING STATE

The state of a program or task which is idle (ie, not executing but still active) pending the occurrence of some event (eg, completion of an I/O operations, availability of a resource).

WORD

A set of binary digits handled by the computer. Its length is determined by hardware design (eg, the number of cores per location, and number of flip-flops per register). A generic term used to indicate a measurable portion of consecutive binary digits; usually the equivalent of two or more characters or bytes.

WORD LENGTH

The number of bits in a word.

WORKING REGISTER

A register whose contents can be modified under control of a program. Thus, a register consisting of manually operated switches is not considered a working register.

WRITE

The process of transferring information from the computer to an output device. Also, the process of storing (or restoring) information into the computer's memory. (See Memory Cycle.)

III. MICROPROCESSOR TERMS

III. MICROPROCESSOR TERMS

BIPOLAR	The conventional transistor form: a semiconductor device in which both majority and minority carriers contribute to current flow. The most popular fundamental kind of IC, formed from layers of silicon with different electrical characteristics.
CHIP	A small piece of silicon impregnated with impurities in a pattern to form transistors, diodes, and resistors. Electrical paths are formed on it by depositing thin layers of aluminum or gold.
CMOS	Complementary MOS refers to a combination of P-channel and N-channel transistors which results in a device as fast as NMOS devices but consuming less power.
DIP	Chips are enclosed in dual in-line packages which take their name from the double parallel rows of leads which connect them to the circuit board. DIPs are sometimes also called "bugs."
DRAIN	The terminal of a FET at which the majority carriers are collected.
DYNAMIC CIRCUITRY	Dynamic circuits utilize charge storage during operation. Memories using this technique must be constantly refreshed to avoid loss of data.
FET	Field effect transistors are three-terminal active semiconductor devices. Charge carriers flowing through the semiconductor (channel) between two of the terminals (ie, source and drain) can be modulated by applying a voltage to a conducting strip (gate) above the flow.
GATE	The terminal of a FET which controls the flow of majority carriers between Source and Drain.
HYBRIDS	Circuits fabricated by interconnecting smaller circuits of different technologies mounted on a single substrate.
IC	Integrated Circuit, a complex electronic circuit fabricated on a single piece of material, usually a silicon chip.

LSI	Large-scale integration refers to a component density of more than 100 per chip.
MASK	A mask is a single pattern of transparency and opaqueness which is used photochemically to define the boundaries of one discrete process during IC fabrication.
MOS	Metal oxide semiconductor, a term referring to the layers of material, and indirectly to a fundamental process for fabricating ICs. MOS circuits achieve the highest component densities. Metal oxide silicon (or semiconductor) refers to a type of semiconductor device which uses an oxide as an insulator. The insulator is a component part of the structure. FETs can be formed easily in MOS.
MSI	Medium-scale integration is a measure of the number of circuit components, such as transistors, formed on a single chip. Presently, chips with 50-100 components are considered to be MSI.
NMOS/N-CHANNEL	NMOS uses currents made up of negative charges and produces devices at least twice as fast as PMOS. FET devices which have the conducting channel dominated by negative charge carriers.
PLA	A programmable logic array is an alternative to ROM which uses a standard logic network programmed to perform a specific function. PLAs are implemented in either MOS or bipolar circuits.
PMOS/P-CHANNEL	P-channel MOS refers to the oldest type of MOS circuit, in which the electrical current is a flow of positive charges. FET devices which have the conducting channel dominated by positive charge carriers.
PROM	Programmable read-only memory is any type which is not recorded during its fabrication but which requires a physical operation to program it. Some PROMs can be erased and reprogrammed through special physical processes.
RAM	Random-access memory is any type with both read and write capability.

ROM	Read-only memory is any type which cannot be rewritten; ROM requires a masking operation during production to permanently record program or data patterns in it.
SILICON GATE	A type of FET gate which is formed from poly-crystalline silicon. The manufacturing method used is referred to as self-aligning and gives rise to smaller and more accurate FETs.
SOS	Silicon on sapphire refers to the layers of material, and indirectly to the process of fabrication of devices which achieve bipolar speeds through MOS technology by insulating the circuit components from each other.
SOURCE	The terminal of a FET at which the majority carriers originate.
TTL or T^2L	Transistor-transistor logic, a kind of bipolar circuit logic which takes its name from the way the basic transistor components are interconnected.

IV. ACRONYMS AND ABBREVIATIONS

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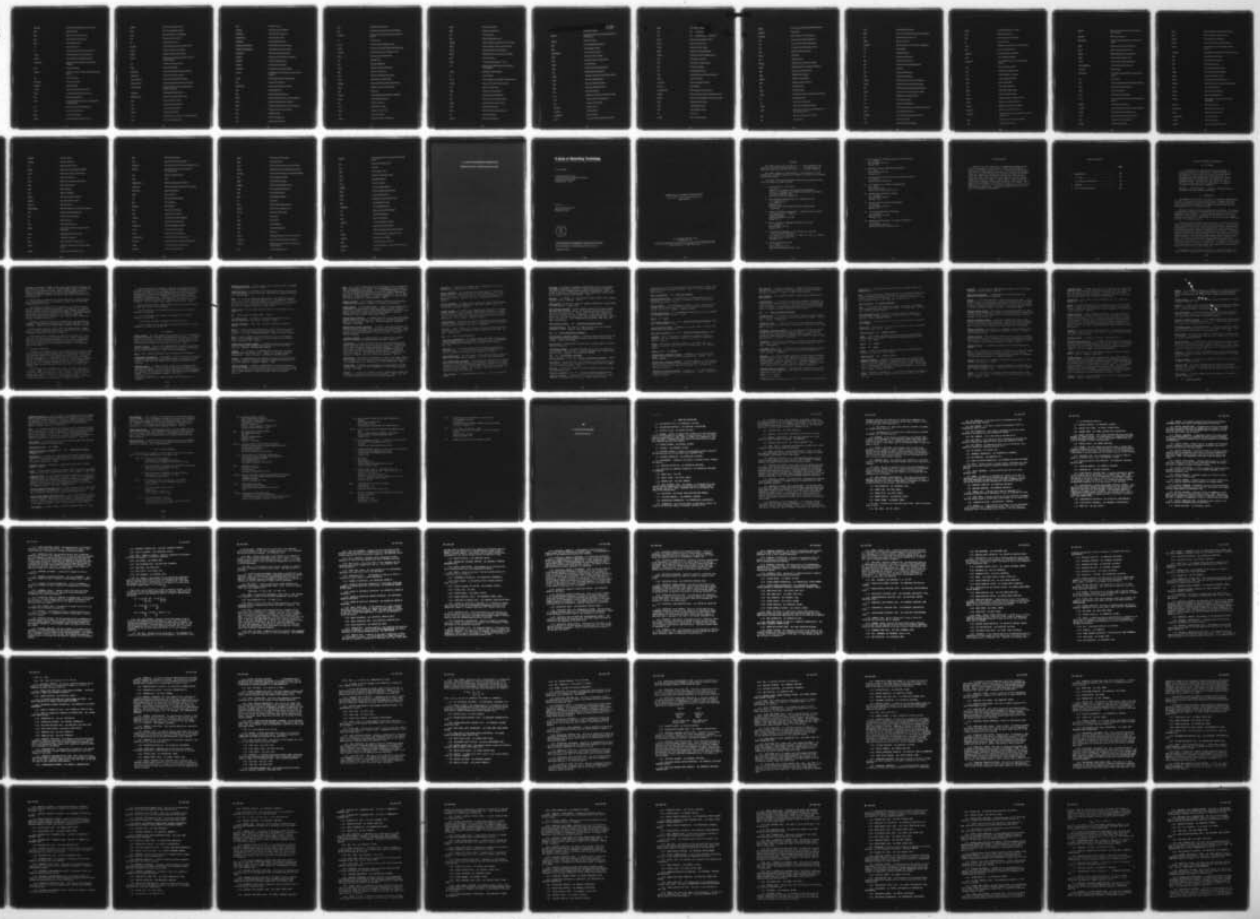
AABNCP	Advanced Airborne Command Post
AACA	Airborne ASW Coordination Aircraft
AADC	All Applications Digital Computer
AATC	Airborne ASW Tactical Coordinator
AAW	Antiair Warfare
ABCP	Airborne Command Post
ABNCP	Airborne Naval Command Post
ABR	Airborne Relay
A/C	Aircraft
ACCS	Automated Communication Control Subsystem
ACP	Airborne Command Post
ADA	Airborne Data Automation
ADC	Air Defense Command
ADP	Automatic Data Processing
ADPE	Automatic Data Processing Equipment
AEW	Airborne Early Warning
AFC	Automatic Frequency Control
AFCS	Automatic Facilities Control Subsystem
AFSATCOM	Air Force Satellite Communications
AFWL	Air Force Weapons Laboratory
AGIPA	Adaptive Ground-Implemented Phase Array
AIG	Address Indicator Group
AIL	Airborne Instruments Laboratory
AJ	Antijam

AKD	Automatic Key Distribution
AKDC	Automatic Key Distribution Center
AKM	Apogee Kick Motor
ANZUS	Australian, New Zealand, United States (Alliance)
AOA	Amphibious Objective Area
AOE	Fast Combat Support Ship
APA	Adaptive Phased Array
APC	Adaptive Predictive Coding
ARA	Asynchronous Ripple Adder
ASC	AUTODIN Switching Center
ASCM	*Anti-Ship* Cruise Missile
ASIS	Amphibious Support Information System
ASRAPS	Acoustic Sensor Range Prediction (for Aircraft)
ASW	Antisubmarine Warfare
ASWCCS	Antisubmarine Warfare Command Control System
ATAC	Air Transportable Acoustic Communications
ATDS	Airborne Tactical Data System
ATEC	Automatic Technical Control
ATF	Amphibious Task Force
AUTODIN	Automated Digital Network
AUTOSEVOCOM	Automatic Secure Voice Communications System
AWACS	Airborne Warning and Control System
BER	Bit Error Rate
BLOS	Beyond-Line-of-Sight (Over 600 mi)

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BORAM	Block-Organized Random-Access Memory
BPF	Band Pass Filter
BSTJ	Bell System Technical Journal
BTL	Bell Telephone Laboratories
BTR	Bit Timing Recovery
C^2	Command Control
C^3	Command Control and Communications
CALS	Communications Area Local Station
CAMS	Communications Area Master Station
CANUKUS	Canadian, United Kingdom, United States (Alliance)
CAP	Combat Air Patrol
CARTS	Common Antenna for Receiving & Transmitting System
CAS	Close Air Support
CASCOR	Casualty Correction
CASREP	Casualty Report
CATCC	Carrier Air Traffic Control Center
CATF	Commander Amphibious Task Force
CCD	Charge Coupled Device
CCITT	Comité Consultatif International Télégraphique et Téléphonique
CCS	Communication Control Subsystem
CCTV	Closed Circuit Television
C&D	Cover and Deception
CDAA	Circularly Disposed Antenna Array

CDMA	Code Division Multiple Access
CER	Cost Estimating Relationship
CE+S	Channel Evaluation and Signaling
CES	Channel Evaluation System
CG	Guided Missile Cruiser
CGFMF	Commanding General Fleet Marine Force
CHEC	Channel Evaluation and Calling
CHOP	Change In Operational (Control)
CIACT	CNO Industry Advisory Committee for Telecommunications
CIC	Combat Information Center
CINC	Commander-In-Chief
CINCEUR	Commander-In-Chief, US Forces Europe
CINCLANT	Commander-In-Chief Atlantic
CINCLANTFLT	Commander-In-Chief Atlantic Fleet
CINCNAVEUR	Commander-In-Chief Naval Forces Europe
CINCNORAD	Commander-In-Chief North American Air Defense Command
CINCPAC	Commander-In-Chief Pacific
CINCPACFLT	Commander-In-Chief Pacific Fleet
CLA	Carry Look-ahead Adder
CLF	Commander Landing Force
CML	Current Switching Logic
CMOS	Complementary MOS
CNI	Communications, Navigation, and Identification
CNO	Chief of Naval Operations

COA	Course of Action
COMINT	Communications Intelligence
COMMOP	Communications Operator
COMMPLAN	Communications Plan
COMMSTA	Communications Station
COMNAVFORJAPAN	Commander Naval Forces Japan
COMNAVFORKOREA	Commander Naval Forces Korea
COMPREP	Composite Reporting (System)
COMSAT	Communications Satellite Corporation
COMSEC	Communications Security
CONUS	Continental United States
COS/MOS	Complementary Symmetry MOS
COTCO	Consolidation of Telecommunications Centers on Oahu
CPAM	CNO Program Analysis Memorandum
CPU	Central Processing Unit
CRITICOM	Critical Communications System
CRT	Cathode-Ray Tube
CSC	Common Signaling Channel
CSCE	Communications System Control Equipment
CSCS	Common Signaling Channel System
CSCT	Communications Security Control Terminal
CSS	Communications Security System
CSS	COMSEC System
CSU	Circuit Switching Unit
CTF	Commander Task Force

CTG	Commander Task Group
CTP	Consolidated Telecommunications Program
CUDIXS	Common User Digital Information Exchange System
CV	Aircraft Carrier
CV-IC	Aircraft Carrier-Intelligence Center
CVSD	Continuously Variable Slope Delta Modulation
CV-TSC	Aircraft Carrier-Tactical Support Center
CWO	Communication Watch Officer
CY	Calendar Year
DA	Demand Assignment
DAS	Demand Assignment Signaling
dBI	Decibel over Isotropic
DCA	Defense Communications Agency
DCP	Development Concept Paper
DCPSK	Differential Coherent Phase Shift Keying
DCS	Defense Communications System
DD	Destroyer
DDAS	Dedicated Demand Assignment Signaling
DDG	Guided Missile Destroyer
DF	Direction Finding
DIP	Dual In-line Package
DoD	Department of Defense
DP	Development Plan
DPSK	Differential Phase Shift Keying

DRO	Destructive Readout
DRT	Diagnostic Rhyme Test
DS	Direct Sequence
DSA	Dedicated Signaling Access
DSARC	Defense Systems Acquisition Review Council
DSCS	Defense Satellite Communications System
DSVT	Digital Subscriber Voice Terminal
DTFO	Distributed Time and Frequency Oscillator
DTG	Date-Time-Group
DTPL	"Domain-Tip Propagation" Logic
E-2	Airborne Early Warning Aircraft (Hawkeye-Carrier Based)
EAM	Emergency Action Message
EC	Earth Coverage
ECAC	Electromagnetic Compatibility Analysis Center
ECCM	Electronic Counter-Counter measure
ECL	Emitter Coupled Logic
ECM	Electronic Countermeasure
ECS	Executive Control Subsystem
ECS	Exterior Communications System
EDAC	Error Detection and Correction
EHF	Extra High Frequency
EIRP	Effective Isotropic radiated power
EL	Electroluminescent
ELINT	Electronic Intelligence

[redacted]	mi using hf her capable transmission media)
EMATS	Emergency Military Alerting Telecommunications System
EMCON	Emission Control
EMI	Electromagnetic Interference
EMP	Electromagnetic pulse
EMPSKEDS	Employment Schedules
EOB	Electronic Order of Battle
EOD	Explosive Ordnance Disposal Unit
EOM	End-of-Message
EOS	Executive and Operating System
EPL	Electro-Physics Laboratory
ERCS	Emergency Rocket Communication System
ERP	Effective Radiated Power
ESM	Electronic Support Measures
ESS	Electronic Switching System
EW	Electronic Warfare
F-14	Fighter Aircraft (Tomcat-Carrier Aircraft)
FAA	Federal Aviation Administration
FAC	Forward Air Controller
FACCON	Facility Control
FACMAT	Facilities Matrix
FAIRWING	Fleet Air Wing
FATC	Fleet Area Telecommunications Center

FBM	Fleet Ballistic Missile
FCC	Fleet Command Center
FCC	Federal Communications Commission
FCSC	Fleet Command Support Center
FCTF	Fast Carrier Task Force
FCTG	Fast Carrier Task Group
FDM	Frequency Division Multiplex
FDMA	Frequency Division Multiple Access
FET	Field Effect Transistor
FFT	Fast Fourier Transformation
FH	Frequency Hopping
FIC	Fault Isolation Control
FICS	Fault Isolation and Control Subsystem
FIFO	First In, First Out
FLTCINC	Fleet Commanders In-Chief
FLTSAT	Fleet Satellite
FLTSATCOM	Fleet Satellite Communications
FOSIC	Fleet Ocean Surveillance Information Center
FOSIF	Fleet Ocean Surveillance Information Facility
FSK	Frequency Shift Keying
FWC	Fleet Weather Center
FWF	Fleet Weather Facility
FY	Fiscal Year
FYDP	Five Year Defense Plan

GAMO	Ground and Amphibious Military Operations
GAPSAT	Gap Satellite
GENSER	General Service Communications
GFE	Government Furnished Equipment
GFI	Government Furnished Information
G/T	Antenna Gain-to-Temperature Ratio
HDC	Helicopter Direction Center
HELO	Helicopter
HF	High Frequency
HF/DF	High-Frequency/Direction Finding
HFXS	High-Frequency Transmission Subsystem
H&I	Harassment and Interdiction
HOL	Higher-Order Language
HPBW	Half-Power Beam Width
HPF	Highest Possible Frequency
HS	ASW Helicopter
HUD	Head-Up Display
IACS	Integrated Acoustic Communications System
IC	Integrated Circuit
IC	Interior Communications
ICBM	Intercontinental Ballistic Missile
ICNI	Integrated Communications, Navigation, and Identification System
ICS	Interior Communications System
ID	Identification

IDN	Integrated Data Network
IEEE	Institute of Electrical and Electronic Engineers
IFF	Identification Friend or Foe
IMPS	Interface Processors
INCHOP	Ship Reporting to a Command for Assignment
I/O	Input/Output
I.P.	Isolated Platform
IP	Information Processing
IPS	Instructions Per Second
IPS	Information Processing Subsystem
IR	Infrared
IR^2	Integrated Radio Room
ISB	Independent Sideband
ITACS	Integrated Tactical Air Control System
ITNS	Integrated Tactical Navigation System
ITS	Institute of Telecommunication Sciences
IVCS	Interior Voice Communications Switch
IXS	Information Exchange System
JCS	Joint Chiefs of Staff
J/S	Jammer-to-Signal Ratio
JTIDS	Joint Tactical Information Distribution System
KDC	Key Distribution Center
LAMPS	Light Airborne Multipurpose System
LCC	Life-Cycle Costing
LCC	Amphibious Command Ship

LDMX	Local Digital Message Exchange
LED	Light Emitting Diode
LES	Lincoln Experimental Satellite
LF	Low Frequency
LHA	Amphibious Assault Ship (General Purpose)
LOC	Lines of Communication
LORAN	Long-Range Aid to Navigation
LOS	Line of Sight (0-30 miles)
LOSTFCS	Line-of-Sight Task Force Communications System
LPC	Linear Predictive Coding
LPD	Amphibious Transport Dock
LPI	Low Probability of Intercept
LRU	Lowest Replacement Unit
LSD	Dock Landing Ship
LSI	Large-Scale Integration
LSSC	Light SEAL Support Ship
LUF	Lowest Usable Frequency
MAAG	Military Assistance Advisory Group
MAD	Magnetic Anomaly Detection
MADA	Multiple Access Discrete Address
MAGTF	Marine Air Ground Task Force
MAPMIS	Manpower and Personnel Management Information System
MEC	Multiple Access Demand Assignment
MEC	Main Evaluation Center

MEECN	Minimum Essential Emergency Communications Network
MILSPEC	Military Specification
MILSTRIP	Military Standard Requisition and Issue Procedures
MIPS	*Millions of Instructions Per Second*
MLSF	Mobile Logistics Support Force
MMPS	MEECN Message Processing System
MSSC	Medium SEAL Support Craft
NATO	North Atlantic Treaty Organization
NAVCOMMSTA	Naval Communications Station
NAVFAC	Naval Facility
NAVMACS	Naval Modular Automated Communications System
NC	Net Control
NC^3	Navy Command Control and Communications
NCA	National Command Authority
NCS	Net Control Station
NCS	Naval Control of Shipping
NC^3S	Navy Command Control and Communications System
NDRO	Nondestructive Readout
NEACP	National Emergency Airborne Command Post
NEDS	Naval Environmental Data System
NELC	Naval Electronics Laboratory Center
NFC	Numbered Fleet Commanders
NGFS	Naval Gunfire Support

NICS	Nato Integrated Communications System
NISC	Naval Intelligence Support Center
NMGR	Navy Modular Growth Radio
NMOS	N-Channel Metal Oxide Semiconductor
NOAA	National Oceanic and Atmospheric Administration
NORATS	Naval Operational Radio and Telephone System
NRL	Naval Research Laboratory
NSA	National Security Agency
NSG	Naval Security Group
NSO	Normal Sustained Operations
NSSM	*Navy Spread Spectrum Modem*
NTDS	Naval Tactical Data System
NUSC	Naval Underwater System Center
NWCCS	Naval Worldwide Command Control System
NWS	Naval Weather Service
OCRS	Optical Character Reader
O&M	Operation & Maintenance
OMTN	Other Military Teletype Networks (than AUTODIN)
OPCON	Operational Control
OPCONCEN	Operational Control Center
OPN	Other Procurement Navy
Op ORDERS	Operational Orders
OPREP	Operational Report
OPREP 1	Operation(s) Planning Report

OPREP 2	Operation(s) Start Report
OPREP 3	Event/Incident Report
OPREP 4	Operation(s) Stop Report
OPREP 5	Operation(s) Summary Report
OPS	Operations
OPSIT	Operational Situation
OPSTAT	Operational Status
OPSUM	Operational Summary
OR	Operational Requirement
O/S	Ocean Surveillance
OTC	Officer in Tactical Command
OTH	Over-The-Horizon
OTSR	Optimum Track Ship Routing
P-3C	ASW Patrol Aircraft (Orion-Land Based)
PCS	Primary Control Ship
PIM	Path of Intended Movement
PIRAZ	Positive Identification Radar Advisory Zone
PLIR	Partition Law of Information Rates
PRC	Peoples Republic of China
prf	Pulse Repetition Frequency
REC	Regional Evaluation Center
RECCE	Reconnaissance (Aircraft)
rf	Radio Frequency
ROE	Rules of Engagement
S-3A	ASW Patrol Aircraft (Viking-Carrier Based)

SACC	Supporting Arms Coordination Center
SAM	Surface-To-Air Missile
SAOCS	Submarine-to-Air Optical Communications System
SAR	Search and Rescue
SAS	Ship Announcing Service
SATCOM	Satellite Communications
SAU	Surface Attack Unit
SCPC	Single-Channel-Per-Carrier
SDAS	Shared Demand Assignment Signaling
SEAL	Sea–Air and Land Naval Team
SECAS	*Ship Equipment Configuration* Accounting System
SES	Surface Effect Ship
S/F	*Store* & Forward
SGEMP	System Generated Electromagnetic Pulse
SH–2	ASW Helicopter (Sea Sprite-Carrier Based)
SH–3	ASW Helicopter (Sea King-Carrier Based)
SHARPS	Ship/Helicopter Acoustic Range Prediction
SHF	Super High Frequency
SI	Special Intelligence
SIF	Selective Intelligence Feature
SIMOP	Simultaneous Operation
SIOP	Single Integrated Operations Plan
SIR	Signal-to-Interference Ratio
SIRT	Signaling Information Receiver/Transmitter

SITREP	Situation Report
SITSUM	Situation Summary
S/J	Signal-to-Jammer Ratio
SLBM	Submarine Launched Ballistic Missile
SLCM	Submarine Launched Cruise Missile
S/N	Signal-to-Noise Ratio
SNIP	Single Net Information and Position
SNR	Signal-to-Noise Ratio
SOM	Start-of-Message
SOS	Silicon on Sapphire
SOSUS	Sound Surveillance Under Sea
SOSUS	Sound Surveillance System
SPECAT	Special Category
SPINTCOMM	Special Intelligence Communications System
SPS	Support Processing Subsystem
SPT	Sound-Powered Telephone
SS	Spread Spectrum
SSA	Shared Signaling Access
SSBN	Fleet Ballistic Missile Submarine (Nuclear Propulsion)
SSES	Ship Signals Exploitation Space
SSI	Small-Scale Integrated
SSIC	Standard Subject Indication Code
SSIXS	Submarine Satellite Information Exchange System
SSMA	Spread Spectrum Multiple Access

SSN	Station Serial Number
SSN	Submarine (Nuclear Propulsion)
SS/TDMA	Spread Spectrum/Time Division Multiple Access
SSTIXS	Small Ship Teletypewriter Information Exchange System
STC	System Technical Control
STR	Strike
SUBOPAUTH	Submarine Operational Authority
SURVSAT	Survivable Satellite Communications System
SUS-DUPE	Suspected Duplicate
SUW	Surface Warfare
S/V	*Survivability/Vulnerability*
SVC	Service Message
SW MAT	Switch Matrix
TAC	Tactical Air Command
TAC	Tactical Air Coordinator
TACAN	Tactical Control and Navigation
TACC	Tactical Air Control Center
TACINTEL	Tactical Intelligence Channel
TACP	Tactical Air Control Party
TACS	Tactical Air Control System
TACSATCOM	Tactical Satellite Communications
TADIXS	Tactical Data Information Exchange System
TADS	Tactical Automated Data System
TARCAP	Target Combat Air Patrol

TASS	Towed Array Sonar System
TBD	To Be Determined
TCCF	Tactical Communications Control Facility
TCMS	Technical Control and Management System
T-CPAM	Tentative CNO Program Analysis Memorandum
TDF	Tactical Digital Facsimile
TDM	Time Division Multiplex
TDMA	Time Division Multiplex Access
TDR	Time Domain Reflectometer
TDS	Tactical Data System
TEM	Test Equipment Matrix
TF	Task Force
TFCC	Tactical Flag Command Center
TFCN	Task Force Coordination Net
TF/TG	Task Force/Task Group
TG	Task Group
TOF	Time-of-File
TOR	Time-of-Receipt
TOT	Time-of-Transmission
T/R	Transceiver
TREE	Transient Radiation Effects on Electronics
TRI-TAC	Joint Tactical Communications Office
TSAPG	Telecommunications System Architecture Planning Group
TSC	Tactical Support Center

TSCIXS	Tactical Support Center Information Exchange System
TTL	Transistor-Transistor Logic
TTY	Teletype
TWT	Traveling Wave Tube
UDT	Underwater Demolition Team
UHF	Ultrahigh Frequency
ULS	Unit Level Switch
UNREP	Underway Replenishment
URG	Underway Replenishment Group
USAF	United States Air Force
UTE	Unimpaired Tactical Effectiveness
VDT	Visual Display Terminal
VERTREP	Vertical Replenishment
VF	Fighter Aircraft (Carrier Based)
VHF	Very High Frequency
VLF	Very Low Frequency
VLFSTA	Very-Low-Frequency Station
VP	Patrol Aircraft (Land Based)
VS	ASW Fixed Wing Aircraft (Carrier Based)
WARC	World Administrative Radio Conference
WB-LOS	Wideband Line-of-Sight
WBS	Work Breakdown Structure
WWMCCS	Worldwide Military Command Control System
XMIT	Transmit

V. A GUIDE TO NETWORKING TERMINOLOGY

(Reproduced directly from NBS Technical Note 803.)

A Guide to Networking Terminology

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FOREWORD

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1. *Primary Issues in User Needs*
   D. W. Fife
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2. *Some Technical Considerations for Improved Service to Computer Users*
   T. N. Pyke, Jr.
   COMPCON, 1973
   Seventh Annual IEEE Computer Society International Conference

3. *Computer Networking Technology - A State-of-the-Art Review*
   R. P. Blanc and T. N. Pyke, Jr.
   COMPUTER Magazine
   Computer Society of the IEEE
   August 1973

4. *Review of Network Management Problems and Issues*
   A. J. Neumann
   NBS Technical Note 795
   October 1973

5. *Annotated Bibliography of the Literature on Resource Sharing Computer Networks*
   R. P. Blanc, I. W. Cotton, T. N. Pyke, Jr., and S. W. Watkins
   NBS Special Publication 384
   September 1973

6. *Network Management Survey*
   I. W. Cotton
   NBS Technical Note 805
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7. *User Procedures Standardization for Network Access*
A. J. Neumann
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8. *Review of Computer Networking Technology*
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I. W. Cotton
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10. *Cost Analyses for Computer Communications*
R. P. Blanc
NBS Technical Note
Expected Publication Spring 1974

11. *Network User Information Support*
A. J. Neumann
NBS Technical Note 802
December 1973

12. *Quality Service Assurance Experiments*
R. Stillman
NBS Technical Note 800
January 1974

13. *A Guide to Networking Terminology*
A. J. Neumann
NBS Technical Note 803
February 1974

14. *Research Considerations in Computer Networking*
D. W. Fife
NBS Technical Note 801
Expected Publication Spring 1974

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The basis for this report was a "Preparatory Glossary of Networking Terminology for the National Science Computer Network," which was originally prepared by R. N. Freemire of NBS during the fall of 1972. Subsequently, the scope of the content was broadened, format and reference structure were changed, new terms and definitions were added, some definitions were deleted, and some were rewritten. This effort was materially aided by an ad hoc working group consisting of R. Blanc, G. Clark, and B. Lucas, all of the Institute for Computer Sciences and Technology, who reviewed several drafts and collaborated in selection of terms to be defined. In addition, I. W. Cotton, D. W. Fife and P. Meissner, all of the ICST, made valuable suggestions. The many contributions of all of the above are gratefully acknowledged.

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A GUIDE TO NETWORKING TERMINOLOGY

A. J. Neumann

A selected set of terms and definitions relating to computer networking is presented in a coherent manner. An introduction gives the rationale for the glossary, defines the scope by a brief tutorial overview, and states the glossary format and conventions. The glossary is arranged alphabetically and contains about 140 definitions and associated terms. The sources of many terms are cited and modifiers indicate the status of definitions. A complete listing of source material is appended.

Key Words: Computer networks; glossary; telecommunications; teleprocessing; terminology; vocabulary.

1. INTRODUCTION

The purpose of this guide is to assist in technical communications. This task is becoming increasingly difficult as computer networking efforts are expanding from pure research within a closely knit community towards both development of commercial networks and diversity of applications at user and server nodes.

Technical language serves as a communications medium. It is based on technological concepts and documented terms and on definitions which communicate these concepts. In the computer networking field, the problems of terminology are compounded by the merger of two distinct technological communities, namely that of data processing and computers, and that of telecommunications.

While the digital computer field now covers a time span of about 25 years, telecommunications is at least three times older. The two fields have existed side by side for some time, and terminology has developed independently in both fields, often dealing with similar concepts. Now, with emerging computer networks, communications technology is becoming part of teleprocessing, and the telecommunications industry is embracing computers and data processing methods. As a result, the two fields are merging rapidly. With technology progressing, many old concepts remain, though often with new names, while new concepts arise, assuming old names. In due course, problems of language and terminology arise. It therefore seems desirable, if not imperative, to develop a common terminology that covers all facets of networking. The objective of this guide is to bridge both the time gap between the communications and computer disciplines and the inter-disciplinary gap.

This paper may conceivably be of use to a variety of users. The casual technical reader may find explanations for terms with which he

has not been familiar in the past. The more sophisticated reader may come upon multiple definitions and may be guided toward a sharper formulation of concepts in developing or writing out his thoughts. Those concerned with the creation of new concepts may find existing terms which could subsume their ideas. Finally, the creators of new terms coming across related terms or concepts may decide against a new term, since present terminology appears to be adequate.

With networking developments being in a state of flux, the creation of a new term might lead to confusion and impede communications in cases where adequate old terms exist. Here, the consolidation of common concepts and simplification of the technical language would be a more useful endeavor.

Readers of this guide are encouraged to communicate with the author and point out inconsistencies, errors, or omissions. Some of the material in this report may be introduced into proposed draft standards or other technical documentation, if it is not already contained in official sources. Reader feedback on both errors of omission and errors of commission would, therefore, be highly appreciated.

This guide consists of three parts: the Introduction develops the rationale for this report. It also indicates the scope of the glossary by listing some of the terms, and explains the layout, conventions, and references of the appended glossary. Section 2 is a networking glossary which has been kept small on purpose. Even so, it does contain a selected representative sample of networking terms and definitions, in addition to references to other terms or concepts in the glossary and to the source material. Section 3 is a selected list of source material and general references. It is comprised of glossaries, vocabularies, standards documents, literature references, and sources of commercial documentation.

1.1 Scope

The scope of the glossary focuses on general concepts such as topology, nodes and links, hardware, software, operations and processes, messages and message structures as well as measures of network properties.

Source references lead to more detailed definitions and to additional related concepts. The brief survey also illustrates the difficulties facing glossary developers and users. Among them are synonymy, homonomy, change of meaning in different context and over time, and differences in generality.

COMPUTER NETWORKS[1] consist of LINKS and NODES. The concepts of general NETWORKS, and computer networks overlap, e.g., a science

[1] CAPITALIZED terms are listed in the glossary, Section 2, of this report

information network consisting of manual information center nodes that are linked by the mails, the public telephone network, and direct human conversation may be transformed into a science COMPUTER NETWORK. By so doing, the nodes become DATA TERMINAL INSTALLATIONS involving computers, TERMINALS, and DISPLAYS. The links may become automated DATA LINKS that permit automatic communication between data SOURCES and data SINKS. NODES contain HARDWARE, SOFTWARE, and people. Network operations are made possible by human procedures and inter-computer PROTOCOLS.

The NETWORK TOPOLOGY is related to network design, operations, reliability, and operating cost. A FULLY CONNECTED DISTRIBUTED NETWORK has more links for the same number of nodes than either a PARTIALLY CONNECTED NETWORK or a simple STAR NETWORK. Differing forms of network control are reflected in CENTRALIZED or DECENTRALIZED NETWORKS, in HIERARCHICAL NETWORKS, as well as in MULTIPOINT or POINT-TO-POINT connections of TERMINALS.

The term network NODE may have a variety of connotations. In the most abstract sense, a network mathematician may be concerned with pure network topology. For this reason, he may want to minimize the number of NODES (1)[2], LINKS (1) or he may optimize a network configuration. The hardware engineer, on the other hand, is concerned with NODES (2) in terms of equipment configurations, specifications for DATA TERMINAL EQUIPMENT, DATA COMMUNICATION EQUIPMENT and TERMINAL INSTALLATIONS. Others, such as network users, are concerned with SERVICE NODES or HOST COMPUTER NODES. A variety of HARDWARE and SOFTWARE may be installed at network nodes depending on their major function. Programmable digital computers, in this context may act in a variety of ways: as SWITCHING COMPUTERS, FRONT END COMPUTERS, or CONCENTRATORS.

LINK is a general term, and its specific meaning is either determined by the context in which it will be used or it must be explicitly stated. A librarian's service function acts as a LINK (1) in a generalized network model of human NODES (1) and document repository NODES (1). Since a variety of electronic communications LINKS (2) are utilized in computer networks, the impact of TELECOMMUNICATIONS terminology must be taken into account. Terms from many sources such as telegraphy, telephone, radio, and satellite communications are commonly used. Distinctions of meaning exist between the terms LINE, CHANNEL, CIRCUIT, and VIRTUAL CIRCUIT. Sometimes they may be used synonymously, in other cases, more detailed concepts require more specific terms. There are INTERFACES (1) between hardware components, equipments providing INTERFACES (2), and software INTERFACES (3).

While a computer network might be viewed as a static assembly of TERMINAL INSTALLATIONS, DATA COMMUNICATION EQUIPMENT and CIRCUITS, it becomes operational through running programs and dynamic interaction of

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[2] *Numbers in parentheses refer to the definition numbers listed under the preceding CAPITALIZED term in the glossary.*

HARDWARE and SOFTWARE. LOGON, LOGOFF, and ACCESS CONTROL procedures are part of the user access PROTOCOL. CONVERSATIONAL operation or BATCH PROCESSING are used depending on user needs. MODEM-to-modem protocols, POLLING and SELECTING protocols for MULTIPOINT CONNECTIONS as well as computer-to-computer protocols provide the DATA LINKS necessary for network operations.

Messages may be transmitted by CIRCUIT SWITCHING or MESSAGE SWITCHING. PACKET SWITCHING may be considered a special form of STORE AND FORWARD message switching.

Well thought-out definitions are required to delineate the legal and jurisdictional boundaries of networks. In addition, the interface between customer-owned and COMMUNICATIONS COMMON CARRIER equipment is a crucial part of operations and network maintenance. REGULATORY AGENCIES become involved in setting TARIFFS to be charged by COMMON and SPECIALIZED COMMUNICATIONS CARRIERS. These charges affect system cost and user operating costs alike.

Messages, entered or received by a network user, are processed by TERMINALS, DATA COMMUNICATIONS EQUIPMENT, SWITCHING COMPUTERS, or HOST COMPUTERS. Formats involve FRAMES, BLOCKS, PACKETS, HEADERS, and TEXT.

Certain system measures, such as BAUD, BIT TRANSFER RATE, CONNECT TIME, CPU TIME, and RESPONSE TIME, provide capabilities for accounting, performance measurement, and quality control.

This brief overview indicates the scope of the glossary and illustrates the variability of terms depending on the context within which they are used, other multiple meanings in usage, and the fundamental difficulty of naming and defining general and specific concepts. The following section outlines the conventions observed in the glossary part of this report.

1.2 Glossary Conventions

The terms in this glossary are listed alphabetically. Multiple terms are listed in their spoken, natural order. Multiple definitions of the same term are identified by serial numbers in parentheses. This occurs for two major reasons: in cases where there are distinct, different meanings (homonomy), e.g., DATA SET (1), (2) or in cases where different sources are identified with slightly different, but well established definitions, e.g., TERMINAL INSTALLATION (1) and (2). Parentheses in compound terms indicate words which are often omitted if the context permits it.

*The following cross-references are used: synonymy is indicated by the symbol "**Syn:**", e.g. MODEM ... Syn: DATA SET. The definition is listed only under one term, and the "see" reference refers to that particular term. Related concepts are indicated by "see also:," e.g., NETWORK REDUNDANCY . . . see also: LINK REDUNDANCY LEVEL. Opposite or contrasting concepts are indicated by a "Compare" reference.*

Source codes are used liberally. They may be appended either to the term being defined or to its definition(s). The source code refers generally to a family of source documents, listed in Section 3, which may range from first drafts, through documents officially proposed at standardization meetings, to nationally or internationally accepted standards or recommendations. Citing the exact first sources would require much historical research and, therefore, be prohibitively time consuming. For this reason, only a general source code is listed.

Source code qualifiers indicate modifications of definitions made to adapt definitions to this glossary.

Literal quotations are indicated by the source code only and no qualifier is attached.

+/- Plus or minus signs, added to the source code, indicate additions or deletions.

** An asterisk indicates a rewording of the definition.*

D Draft status, such as national or international drafts or draft proposals, is shown by a capital "D."

2. GLOSSARY

ACCESS CONTROL. The tasks imposed on a network or any of its components, performed by hardware, software, and administrative controls, to control usage of the system. Included are monitoring of system operation, insuring of data integrity, user identification, recording system access and changes, and methods for granting users access. [DMC][3]

ACOUSTIC COUPLER. A type of DATA COMMUNICATION EQUIPMENT that permits use of a telephone handset as a connection to the public telephone network for data transmission, by means of sound transducers.

ASCII. Abbr: American Standard Code for Information Interchange.

ASYNCHRONOUS TRANSMISSION. Transmission in which time intervals between transmitted characters may be of unequal length. Transmission is controlled by START and STOP ELEMENTS at the beginning and end of each character.

BACKWARD CHANNEL. A channel used for transmission of supervisory or error-control signals. The direction of flow of these signals is in the direction opposite to that in which information is being transferred. The bandwidth of this channel is usually less than that of the FORWARD CHANNEL, i.e., the information channel. [ITU 53.17]*

[3] *Alphabetic source codes in square brackets refer to the list in Section 3.*

BACKWARD SUPERVISION. *The use of SUPERVISORY SEQUENCES from a SECONDARY to a PRIMARY station or node. [ISO*]*

BATCH PROCESSING. *A technique of data processing in which jobs are collected and grouped before processing. Data thus are normally processed in a deferred mode.*

BAUD. *(1) A unit of signalling speed equal to the number of discrete conditions or signal events per second. (2) In asynchronous transmission, the unit of signalling speed corresponding to one unit interval per second, i.e., if the duration of the unit interval is 20 milliseconds, the signalling speed is 50 baud. [ANSI]*

BINARY DIGIT. *In the binary notation either of the characters 0 or 1. [ANSI]*

BIT. *Abbreviation for BINARY DIGIT. [ANSI]*

BIT TRANSFER RATE. *The number of BITS transferred per unit time, usually expressed in Bits per Second (BPS). [ANSI]*

BOTH WAY OPERATION. *[DIN] Syn: TWO WAY SIMULTANEOUS OPERATION. [ANSI]*

BLOCK. *A group of digits transmitted as a unit, over which a coding procedure is usually applied for synchronization or error control purposes. Syn: FRAME, TRANSMISSION BLOCK. [ANSI] See also: PACKET.*

BYTE. *A binary element string operated upon as a unit and usually shorter than a computer word, e.g., six bit, eight bit, or nine bit bytes. See also: BIT. [ANSI]*

CENTRALIZED (COMPUTER) NETWORK. *A computer network configuration in which a central node provides computing power, control, or other services. Compare: DECENTRALIZED NETWORK.*

CHANNEL. *(1) That part of a communications system that connects a message source to a message sink. [ANSI] (2) A means of one way transmission. [ANSI] See also: INFORMATION TRANSFER CHANNEL.*

CIRCUIT. *In communications the complete electrical path providing one or two way communication between two points comprising associated go and return channels. Compare: CHANNEL. [ANSI]*

CIRCUIT SWITCHING. *A method of communications, where an electrical connection between calling and called stations is established on demand for exclusive use of the CIRCUIT until the connection is released. See also: PACKET SWITCHING, STORE AND FORWARD, MESSAGE SWITCHING. [ITU-e D]*

CODE. *(1) A set of unambiguous rules specifying the way in which data may be represented, e.g., the set of correspondences in the Standard Code for Information Interchange. (2) In TELECOMMUNICATIONS, a system of rules and conventions according to which the signals representing data can be formed, transmitted, received and processed. (3) In data processing, to represent data or a computer program in a symbolic form that can be accepted by a data processor. [ANSI]*

COMMAND LANGUAGE. *A user language consisting primarily of procedural operators, each capable of invoking a function to be executed.*

COMMON CARRIER. *In telecommunication , a public utility company that is recognized by an appropriate regulatory agency as having a vested interest and responsibility in furnishing communication services to the general public, e.g., Western Union, The Bell System. See also: SPECIALIZED COMMON CARRIER, VALUE ADDED SERVICE.*

COMMUNICATIONS COMPUTER. *A computer that acts as the interface between another computer or terminal and a network, or a computer controlling data flow in a network. See also: FRONT END COMPUTER, SWITCHING COMPUTER, CONCENTRATOR.*

COMMUNICATION CONTROL CHARACTER. *In ASCII a functional character intended to control or facilitate transmission over data networks. There are ten CONTROL CHARACTERS specified in ASCII which form the basis for character oriented communications CONTROL PROCEDURES. See also: CONTROL CHARACTER.*

(COMPUTER) NETWORK. *An interconnection of assemblies of computer systems, terminals and communications facilities. [TNP *]*

CONCENTRATOR. *A communications device that provides communications capability between many low speed, usually asynchronous CHANNELS and one or more high speed, usually synchronous channels. Usually different speeds, CODES and PROTOCOLS can be accommodated on the low speed side. The low speed channels usually operate in CONTENTION requiring buffering. The concentrator may have the capability to be POLLED by a computer, and may in turn poll terminals. [DCP *]*

CONDITIONING. *The addition of equipment to leased voice grade LINES to provide specified minimum values of line characteristics required for DATA TRANSMISSION, e.g., equalization and echo suppression. [MAR +]*

CONNECT TIME. *A measure of system usage by a user, usually the time interval during which the user TERMINAL was ON LINE during a session. See also: CPU TIME.*

CONSOLE. *(1) A part of a computer used for communication between the operator or maintenance engineer and the computer. [ANSI -] (2) Part of a TERMINAL providing user input and output capability.*

CONTENTION. *A condition on a communications CHANNEL when two or more stations try to transmit at the same time.*

CONTROL CHARACTER. *(1) A character whose occurrence in a particular context initiates, modifies, or stops a control function. (2) In the ASCII code, any of the 32 characters in the first two columns of the Standard Code table. [ANSI +] See also: COMMUNICATIONS CONTROL CHARACTER.*

CONTROL PROCEDURE. *The means used to control the orderly communication of information between STATIONS on a DATA LINK. [ANSI] Syn: LINE DISCIPLINE. See also: PROTOCOL.*

CONTROL STATION. *The STATION on a NETWORK which supervises the network CONTROL PROCEDURES such as POLLING, SELECTING and recovery. It is also responsible for establishing order on the line in the event of CONTENTION, or any other abnormal situation, arising between any stations on the network. [ISO] Compare: TRIBUTARY STATION.*

CONVERSATIONAL. *Pertaining to a mode of processing that involves step-by-step interaction between the user at a terminal by means of keyboard and display and a computer. See also: INTERACTIVE.*

CPU TIME. *Central Processing Unit Time, a measure of system usage by a user, based on the total amount of computer processing time used. See also: CONNECT TIME.*

DAA. *See: DATA ACCESS ARRANGEMENT*

DATA ACCESS ARRANGEMENT. *DATA COMMUNICATIONS EQUIPMENT furnished by a COMMON CARRIER, permitting attachment of privately owned DATA TERMINAL and DATA COMMUNICATION EQUIPMENT to the common carrier network. Abbr: DAA.*

DATA BASE. *(1) The entire collection of information available to a computer system. (2) A structured collection of information as an entity or collection of related files treated as an entity.*

DATA COMMUNICATION. *The interchange of data messages from one point to another over communications channels. See also: DATA TRANSMISSION.*

DATA COMMUNICATION EQUIPMENT. *The equipment that provides the functions required to establish, maintain, and terminate a connection, the signal conversion, and coding required for communication between DATA TERMINAL EQUIPMENT and data CIRCUIT. The DCE may or may not be an integral part of the DTE or of a computer, e.g., a MODEM. Abbr: DCE. See also: TERMINAL INSTALLATION, DATA LINK.*

DATA INTEGRITY. *A performance measure based on the rate of undetected errors.*

DATA LINK. An assembly of TERMINAL INSTALLATIONS and the interconnecting CIRCUITS operating according to a particular method that permits information to be exchanged between terminal installations. NOTE: The method of operation is defined by particular transmission CODES, transmission modes, direction, and control. [ISO +]

*DATA SET. (1) A MODEM. (2) A collection of data records, with a logical relation of one to another. [ICS *]*

DATA SHARING. The ability of users or computer PROCESSES at several nodes to access data at a single node.

DATA TERMINAL EQUIPMENT. (1) The equipment comprising the data SOURCE, the data SINK, or both. [ANSI] (2) Equipment usually comprising the following functional units: control logic, buffer store, and one or more input or output devices or computers. It may also contain error control, synchronization, and station identification capability. [ISO D] Abbr: DTE. See also: DATA COMMUNICATIONS EQUIPMENT, DATA LINK, TERMINAL INSTALLATION.

DATA TRANSFER CHANNEL. See: INFORMATION TRANSFER CHANNEL.

DATA TRANSMISSION. The sending of DATA from one place for reception elsewhere. [ANSI] Compare: DATA COMMUNICATION.

DCE. See: DATA COMMUNICATION EQUIPMENT.

DECENTRALIZED (COMPUTER) NETWORK. A computer network, where some of the network control functions are distributed over several network nodes. Compare: CENTRALIZED NETWORK.

DIAL UP LINE. A communications CIRCUIT that is established by a circuit switched connection.

DISTRIBUTED NETWORK. A network configuration in which all node pairs are connected either directly, or through redundant paths through intermediate nodes. Compare: FULLY CONNECTED NETWORK.

DTE. See: DATA TERMINAL EQUIPMENT

DUPLEX OPERATION. [ITU] See: TWO WAY SIMULTANEOUS OPERATION. [ANSI]

ECHO CHECK. A method of checking the accuracy of transmission of data in which the received data are returned to the sending end for comparison with the original data. [ANSI]

ECHOPLEX. An ECHO CHECK applied to NETWORK TERMINALS operating in TWO WAY SIMULTANEOUS mode.

EITHER WAY OPERATION [DIN] See: TWO WAY ALTERNATE OPERATION [ANSI]

FRONT END COMPUTER. A COMMUNICATIONS COMPUTER associated with a HOST COMPUTER. It may perform line control, message handling, code

conversion, error control and applications functions such as control and operation of special purpose terminals. [DCP *] See also: COMMUNICATIONS COMPUTER.

FRONT END PROCESSOR. See: FRONT END COMPUTER.

FOREIGN EXCHANGE LINE. A line offered by a COMMON CARRIER in which a termination in one central office is assigned a number belonging to a remote central office. [ICS *]

FORWARD CHANNEL. A DATA TRANSMISSION CHANNEL in which the direction of transmission coincides with that in which information is being transferred. [ITU 53.16] Compare: BACKWARD CHANNEL.

FORWARD SUPERVISION. Use of SUPERVISORY SEQUENCES sent from the PRIMARY to a SECONDARY STATION or NODE. [ISO]

FRAME. See: BLOCK.

FULL DUPLEX OPERATION [US]. See: TWO WAY SIMULTANEOUS OPERATION [ANSI], Syn: DUPLEX OPERATION [ITU].

FULLY CONNECTED NETWORK. A NETWORK in which each NODE is directly connected with every other node.

HALF DUPLEX OPERATION [US]. See: TWO WAY ALTERNATE OPERATION [ANSI].

HARDWARE. Physical equipment, as opposed to a computer program or method of use, e.g., mechanical, magnetic, electrical or electronic devices. [ISO D]

HEADER. The control information prefixed in a message text, e.g., source or destination code, priority, or message type. Syn: HEADING, LEADER.

HEADING [ANSI]. See HEADER.

HETEROGENEOUS (COMPUTER) NETWORK. A NETWORK of dissimilar HOST COMPUTERS, such as those of different manufacturers. Compare: HOMOGENEOUS NETWORK.

HIERARCHICAL (COMPUTER) NETWORK. A computer NETWORK, in which processing and control functions are performed at several levels by computers specially suited for the functions performed, e.g., in factory or laboratory automation.

HOMOGENEOUS (COMPUTER) NETWORK. A NETWORK of similar HOST COMPUTERS such as those of one model of one manufacturer. Compare: HETEROGENEOUS (COMPUTER) NETWORK.

HOST COMPUTER. *A computer attached to a NETWORK providing primarily services such as computation, data base access or special programs or programming languages. Compare: COMMUNICATIONS COMPUTER.*

HOST INTERFACE. *The INTERFACE between a communications NETWORK and a HOST COMPUTER.*

IDENTIFICATION. *(1) The process of providing personal, equipment, or organizational characteristics or codes to gain access to computer programs, processes, files, or data. (2) The process of determining personal, equipment, or organizational characteristics or codes to permit access to computer programs, processes, files or data.*

IMP. *See: INTERFACE MESSAGE PROCESSOR.*

INFORMATION BIT. *A bit which is generated by the data source and which is not used for error control by the data transmission system. [ANSI +, MIL]. Compare: OVERHEAD BIT.*

INFORMATION PATH. *The functional route by which information is transferred in a one-way direction from a single data SOURCE to a single data SINK. [RTM *].*

INFORMATION (TRANSFER) CHANNEL. *(1) The functional connection between the SOURCE and the SINK data terminal equipments. It includes the circuit and the associated data communications equipments. (2) The assembly of DATA COMMUNICATION EQUIPMENT and CIRCUITS including a BACKWARD CHANNEL if it exists. [ITU 53.15 -]*

INTERACTIVE. *Pertaining to exchange of information and control between a user and a computer PROCESS, or between computer processes. See also: CONVERSATIONAL.*

INTERCHANGE POINT [DIN]. *A location where interface signals are transmitted between equipments by means of electrical interconnections. [DIN] See also: INTERFACE.*

INTERFACE. *(1) A shared boundary defined by common physical interconnection characteristics, signal characteristics, and meanings of interchanged signals. [ISO D] (2) A device or equipment making possible interoperation between two systems, e.g., a hardware component or a common storage register. [ANSI, ISO D +] See also: INTERCHANGE POINT. (3) A shared logical boundary between two software components.*

INTERFACE MESSAGE PROCESSOR. *In the ARPANET[4], a communication processor that provides PACKET SWITCHING, LINE DISCIPLINE, and HOST interfacing capability. Abbr: IMP.*

LEADER. *See: HEADER.*

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[4] *Advanced Research Projects Agency Net, A US Government Sponsored Network.*

LEASED LINE. *A non switched CIRCUIT leased from a COMMON CARRIER for exclusive use.*

LINE. *(1) The portion of a CIRCUIT external to the apparatus consisting of the conductors connecting a telegraph or telephone set to the exchange or connecting two exchanges. (2) The group of conductors on the same overhead route or in the same cable. [ITU 02.09].*

LINE DISCIPLINE: *See CONTROL PROCEDURE.*

LINK. *(1) Any specified relationship between two NODES in a NETWORK. (2) A communications path between two nodes. (3) A DATA LINK. See also: LINE, CIRCUIT, VIRTUAL CIRCUIT.*

LINK REDUNDANCY LEVEL. *The ratio of actual number of LINKS to the minimum number of LINKS required to connect all NODES of a NETWORK. See also: FULLY CONNECTED NETWORK.*

LOAD SHARING. *The distribution of a given load among several computers on a NETWORK.*

LOCAL LINE. *The portion of a circuit that connects a user's end instrument and a central office. [MIL -].*

LOGICAL CIRCUIT. *See: VIRTUAL CIRCUIT.*

LOGIN. *A user access procedure to a system involving IDENTIFICATION, ACCESS CONTROL and exchange of NETWORK information between user and system. Syn: LOGON.*

LOGOFF. *See: LOGOUT.*

LOGON. *See: LOGIN.*

LOGOUT. *A user exit procedure from a system often providing usage statistics to the user. Syn: LOGOFF.*

MASTER STATION. *Syn: PRIMARY STATION.*

MESSAGE SWITCHING. *A method of handling messages over communications NETWORKS. The entire message is transmitted to an intermediate point (i.e., a switching computer), stored for a period of time, perhaps very short, and then transmitted again towards its destination. The destination of each message is indicated by an address integral to the message. [ITU] Compare: CIRCUIT SWITCHING.*

MODEM. *Modulator - Demodulator. A device that modulates and demodulates signals transmitted over communications circuits. [ANSI] Syn: DATA SET (1).*

MULTIPLEX. *To interleave or simultaneously transmit two or more data streams on a single channel. [ANSI *].*

MULTI-POINT CONNECTION. *A configuration in which more than two TERMINAL INSTALLATIONS are connected.*

NETWORK. *(1) An interconnected or interrelated group of NODES. (2) In connection with a disciplinary or problem oriented qualifier, the combination of material, documentation, and human resources that are united by design to achieve certain objectives, e.g., a social science network, a science information network. See also: (COMPUTER) NETWORK.*

NETWORK CONTROL PROGRAM. *That module of an operating system in a HOST COMPUTER, which establishes and breaks logical connections, communicating with the network on one side, and with user processes within the host computer, on the other side.*

NETWORK OPERATIONS CENTER. *A specialized NETWORK installation that assists in reliable network operations. Typical activities are monitoring of network status, supervision and coordination of network maintenance, accumulation of accounting and usage data, and user support.*

NETWORK REDUNDANCY. *The property of a NETWORK to have additional links beyond the minimum number necessary to connect all nodes. See also: LINK REDUNDANCY LEVEL.*

NETWORK SECURITY. *The totality of measures taken to protect a network from unauthorized access, accidental or willful interference with normal operations, or destruction. This includes protection of physical facilities, software, and personnel security. See also: PRIVACY.*

NETWORK TOPOLOGY. *The geometric arrangement of LINKS and NODES of a NETWORK.*

NODE. *(1) An end point of any branch of a network, or a junction common to two or more branches of a network. [MIL-a]. (2) Any STATION, TERMINAL, TERMINAL INSTALLATION, COMMUNICATIONS COMPUTER, or communications computer installation in a COMPUTER NETWORK.*

OFFLINE. *Pertaining to equipment or devices not under control of the central processing unit. [ANSI]*

ONE-WAY ONLY OPERATION [ANSI]. *A mode of operation of a DATA LINK in which DATA are transmitted in a preassigned direction over one CHANNEL. Syn: SIMPLEX OPERATION. [US]*

ONLINE. *(1) Pertaining to equipment or devices under control of the central processing unit. (2) Pertaining to a user's ability to interact with a computer. [ANSI]*

OPERATING SYSTEM. *SOFTWARE that controls the execution of computer programs and that may provide scheduling, debugging, input and output control, accounting, storage assignment, data management, and related services. Sometimes called Supervisor, Executive, Monitor, Master Control Program depending on the computer manufacturer.*

OVERHEAD BIT. *A bit other than an INFORMATION BIT, e.g., check bit, framing bit. [MIL +]*

PACKET. *A group of BINARY DIGITS including data and control elements which is switched and transmitted as a composite whole. The data and control elements and possibly error control information are arranged in a specified format. [ITU-e *]*

PACKET SWITCHING. *A DATA TRANSMISSION process, utilizing addressed PACKETS, whereby a CHANNEL is occupied only for the duration of transmission of the packet. NOTE: In certain data communication networks the data may be formatted into a PACKET or divided and then formatted into a number of packets (either by the data terminal equipment or by equipment within the network) for transmission and multiplexing purposes. [ITU-e] See also: CIRCUIT SWITCHING, MESSAGE SWITCHING, STORE AND FORWARD.*

PASSWORD. *A word or string of characters that is recognizable by automatic means and that permits a user access to protected storage, files, or input or output devices.*

PHYSICAL CIRCUIT. *A CIRCUIT. See also: VIRTUAL CIRCUIT.*

POINT-TO-POINT CONNECTION. *(1) A NETWORK configuration in which a connection is established between two, and only two, TERMINAL INSTALLATIONS. The connection may include switching facilities. [DIN] (2) A circuit connecting two points without the use of any intermediate terminal or computer. [ISO D] Compare: MULTI-POINT CONNECTION.*

POLLING. *The process of inviting another STATION or NODE to transmit DATA. [ISO D *] Compare: SELECTING.*

PRIMARY STATION. *(1) The station which at any given instant has the right to select and to transmit information to a SECONDARY STATION, and the responsibility to insure information transfer. There should be only one primary station on a DATA LINK at one time. [ISO *] (2) A STATION which has control of a DATA LINK at a given instant. The assignment of primary status to a given station is temporary and is governed by standardized CONTROL PROCEDURES. Primary status is normally conferred upon a station so that it may transmit a message, but a station need not have a message to be nominated primary station. [ANSI]*

PRIVACY. *The right of an individual to the control of information about himself. Compare: NETWORK SECURITY.*

PROCESS. (1) A systematic sequence of operations to produce a specified result. [ANSI] (2) A set of related procedures and data undergoing execution and manipulation by one or more computer processing units. [EIO]

PROGRAM SHARING. The ability for several users or computers to utilize a program at another node.

PROTOCOL. A formal set of conventions governing the format and relative timing of message exchange between two communicating PROCESSES. See also: CONTROL PROCEDURE, LINE DISCIPLINE.

REAL TIME SYSTEM. A system performing computation during the actual time the related physical process transpires, so that the results of the computation can be used in guiding the process.

REGIONAL (COMPUTER) NETWORK. (1) A COMPUTER NETWORK whose nodes provide access to a defined geographical area. (2) A network whose nodes provide access to a specified class of users.

REGULATORY AGENCY. In TELECOMMUNICATION , an agency controlling COMMON and SPECIALIZED CARRIER TARIFFS, e.g., the Federal Communications Commission and the State Public Utility Commissions.

REMOTE BATCH. Pertaining to a process in which jobs are entered into the system in a CONVERSATIONAL mode, and are processed at a later time in the BATCH PROCESSING mode.

REMOTE JOB ENTRY. (1) Submission of jobs through an input device that has access to a computer through a communications link. [ANSI] (2) The mode of operation that allows input of a batch job by a card reader at a remote site and receipt of the output via a line printer or card punch at a remote site. Abbr: RJE.

RESOURCE. Any means available to NETWORK users, such as computational power, brain power, programs, data files, storage capacity, or a combination of these.

RESOURCE SHARING. The joint use of resources available on a network by a number of dispersed users.

RESPONSE TIME. The elapsed time between the generation of the last character of a message at a TERMINAL and the receipt of the first character of the reply. It includes terminal delay, network delay, and service node delay.

RING NETWORK. A COMPUTER NETWORK where each computer is connected to adjacent computers.

RJE See: REMOTE JOB ENTRY.

SECONDARY STATION. *A STATION that has been selected to receive a transmission from the PRIMARY STATION. The assignment of secondary status is temporary, under control of the primary station, and continues for the duration of a transmission. [ANSI *] Compare: PRIMARY STATION.*

SELECTING. *A process of inviting another STATION or NODE to receive DATA. [ITU-e *] Compare: POLLING.*

SERVICE COMPUTER. *See: HOST COMPUTER.*

SERVICE DELAY. *Delay associated with the SERVICE COMPUTER.*

SIGNAL ELEMENT. *Each of the parts of a digital signal, distinguished from others by its duration, position and sense, or by some of these features only. In START-STOP OPERATION a signal element has as a minimum a duration of one UNIT INTERVAL. If several unit intervals of the same sense run together, a signal element of duration of more than one unit element may be formed. Signal elements may be start elements, information elements or stop elements. [EIA *]*

SIMPLEX OPERATION [ITU]. *See: TWO WAY ALTERNATE OPERATION [ANSI].*

SIMPLEX OPERATION [US] See: ONE WAY ONLY OPERATION. [ANSI].

SINK. *(1) The point of usage of data in a NETWORK. (2) A data TERMINAL INSTALLATION that receives and processes data from a connected CHANNEL.*

SOFTWARE. *A set of computer programs, procedures, rules and associated documentation concerned with the operation of NETWORK COMPUTERS, e.g., compilers, monitors, editors, utility programs. Compare: HARDWARE.*

SOURCE. *(1) The point of entry of data in a NETWORK. (2) A data TERMINAL INSTALLATION, that enters DATA into a connected CHANNEL. Data entry may be under operator or machine control as effected by a "message repeat" control signal.*

SPECIALIZED COMMON CARRIER. *A company that provides private line communications services, e.g., voice, teleprinter, data, facsimile transmission. See also: COMMON CARRIER, VALUE ADDED SERVICE.*

STAR NETWORK. *A computer network with peripheral NODES all connected to one or more computers at a centrally located facility. See also: CENTRALIZED NETWORK.*

START ELEMENT. *In START-STOP TRANSMISSION, the first element in each character, which serves to prepare the receiving equipment for the reception and registration of the character. [EIA]*

START-STOP TRANSMISSION. *Asynchronous transmission in which a group of code elements corresponding to a character signal is preceded by a START ELEMENT and is followed by a STOP ELEMENT. [ISO -]*

STATION. That independently-controllable configuration of DATA TERMINAL EQUIPMENT from or to which messages are transmitted on a DATA LINK. It includes those elements which serve as SOURCES or SINKS for the messages, as well as those elements which control the message flow on the link, by means of data communication CONTROL PROCEDURES. [ANSI *] See also: TERMINAL INSTALLATION.

STOP ELEMENT. In START-STOP TRANSMISSION, the last element in each character, to which is assigned a minimum duration, during which the receiving equipment is returned to its rest condition in preparation for the reception of the next character. [EIA]

STORE AND FORWARD. Pertaining to communications where a message is received, stored, and then transmitted.

SUPERVISORY PROGRAMS. Computer programs that have the primary function of scheduling, allocating, and controlling system resources rather than processing data to produce results.

SUPERVISORY SEQUENCE. In data communication, a sequence of COMMUNICATION CONTROL CHARACTERS, and possibly other characters, that perform a defined control function.

SWITCHED CIRCUIT. A circuit that may be temporarily established at the request of one or more of the stations involved.

SYNCHRONOUS TRANSMISSION. A transmission process such that between any two significant instants there is always an integral number of UNIT INTERVALS. [ISO]

TARIFF. (1) A published rate for services provided by a common or specialized carrier. (2) The means by which regulatory agencies approve such services. The tariff is a part of a contract between customer and carrier. [MAR *]

TELECOMMUNICATION. Any transmission and reception of intelligence of any nature by electromagnetic systems. [ITU 01.01 - *]

TELECONFERENCING. Simultaneous processing of data messages of several participants communicating ONLINE on a NETWORK.

TELEPROCESSING. Automated data processing which makes direct use of DATA TRANSMISSION via switched or long distance non-switched TELECOMMUNICATION facilities. [FIPS PUB 23]

TERMINAL. (1) A point in a communications NETWORK at which data can either enter or leave. [ANSI] (2) A device that permits data entry into or data exit from a computer system or COMPUTER NETWORK, e.g., a data capture device, a teletypewriter, a remote job entry device, or a computer. Terminals may accommodate data in human or machine readable form.

TERMINAL INSTALLATION. (1) The totality of equipment at a user's installation including DATA TERMINAL EQUIPMENT, DATA COMMUNICATION EQUIPMENT, and necessary support facilities. See also: TERMINAL, STATION. (2) A set composed of a data terminal, a signal converter, and possibly intermediate equipment; this set may be connected to a data processing machine or may be part of it. [ITU 53.05]

TEXT. (1) A sequence of characters forming part of a transmission which is sent from the data SOURCE to the data SINK, and contains the information to be conveyed. It may be preceded by a HEADER and followed by an "end of text" signal. [ISO D -] (2) In ASCII and communications, a sequence of characters, treated as an entity if preceded by a "start of text" and followed by an "end of text" control character. [ASCII *]

TIME SHARING. The operation of a facility such that many users may use the facility apparently simultaneously.

TRANSMISSION BLOCK. See: *BLOCK.*

TRANSMISSION CONTROL CHARACTER [ISO]. See: *COMMUNICATION CONTROL CHARACTER [ANSI].*

TRANSPARENCY. A property of a communications medium to pass within specified limits a range of signals having one or more defined properties, e.g., a CHANNEL may be CODE transparent, or an equipment may be bit pattern transparent. [ANSI]

TRIBUTARY STATION. A STATION on a DATA LINK that is not a CONTROL STATION. [ANSI *]

TRUNK. A single CIRCUIT between two points, both of which are switching centers or individual distribution points. [MIL] Compare: LOCAL LINE.

TURNAROUND TIME. (1) The elapsed time between submission of a job to a computing center and the return of results. [ANSI] (2) In communications the actual time required to reverse the direction of transmission from send to receive or vice versa when using a TWO WAY ALTERNATE CIRCUIT. Time is required by line propagation effects, modem timing and computer reaction. See also: NETWORK DELAY.

TWO WAY ALTERNATE OPERATION [ANSI]. A mode of operation of a DATA LINK in which DATA may be transmitted in both directions, one way at a time. Syn: EITHER WAY OPERATION [DIN], HALF-DUPLEX OPERATION [US].

TWO WAY SIMULTANEOUS OPERATION [ANSI]. A mode of operation of a DATA LINK in which DATA may be transmitted simultaneously in both directions over two CHANNELS. NOTE: One of the channels is equipped for transmission in one direction while the other is equipped for transmission in the opposite direction. Syn: FULL DUPLEX [US], DUPLEX [ITU].

UNIT ELEMENT. A signal element of one unit element duration. [EIA]

UNIT INTERVAL. *A unit interval is the duration of the shortest nominal SIGNAL ELEMENT. It is the longest interval of time such that the nominal durations of the signal elements in a synchronous system or the START and INFORMATION ELEMENTS in a start-stop system are whole multiples of this interval. The duration of the unit interval (in seconds) is the reciprocal of the telegraph speed expressed in BAUD. [EIA *]*

VALUE ADDED SERVICE. *A communications service utilizing communications COMMON CARRIER NETWORKS for TRANSMISSION and providing added data services with separate additional equipment. Such added service features may be store and forward message switching, terminal interfacing, and host interfacing.*

VIRTUAL CIRCUIT. *A connection between a SOURCE and a SINK in a NETWORK that may be realized by different circuit configurations during transmission of a message. Syn: LOGICAL CIRCUIT.*

3. LIST OF SOURCE MATERIAL

The following list shows the source material used in this glossary. This list is arranged alphabetically, by source code.

ANSI (a) *American National Standard*
Vocabulary for Information Processing
American National Standards Institute X3.12-1970

(b) *American National Dictionary for Information Processing*
American National Standards Institute
Draft version, August 1973

(c) *American National Standards Institute Committee*
Publication X3.3/19 February 10, 1965
(not generally available)

ASCII *USA Standard Code for Information Interchange*
United States of America Standards Institute
USAS X3.4-1967

DCP *The Data Communications Planner*
August 1973
Communications Trends, Inc.
Valley Stream, New York 11581

DIN (a) *Datenuebertragung, Begriffe*
(Data Transmission Concepts)
DIN 44302, October 1968 (German National Standard)
Deutsche Normen Ausschuss (DNA)

(b) *Datenuebertragung, Begriffe*
(Data Transmission Concepts)
Digital Data Transmission; Vocabulary
(supplement to DIN 44302)
Blatt 11 (Sheet 11)
Entwurf (Draft Proposal), February 1972
Deutsche Normen Ausschuss (DNA)

DMC *Data Management Systems Catalog*
The MITRE Corporation
MTP-139
Bedford, Massachusetts
January 1973
Section 6, Glossary

EIA (a) *Interface Between Data Terminal Equipment and Data Communication Equipment Employing Serial Binary Data Interchange*
EIA Standard RS-232-C
Electronic Industries Association

(b) *Signal Quality at Interface Between Data Processing Terminal Equipment and Synchronous Data Communication Equipment*
EIA Standard RS-334
Electronic Industries Association

EIO *Organick, Elliot I.*
The Multics System
The MIT Press
Cambridge, Massachusetts, 1972

FIPS 23 *Federal Information Processing Standards Publication*
Objectives of the Federal Information Processing Standards Program
FIPS 23, February 15, 1973

ICS *IEEE Computer Society*
Operating Systems Glossary
First Draft (not available at this time)
1973

ISO (a) *Vocabulary of Data Processing,*
International Standards Organization,
(draft sections are in various stages of development and are not generally available at this time)

(b) *Basic Control Procedures for Data Communication Systems*
1st Edition, January 1971
ISO/R 1745-1971 (E)
International Organization for Standardization

ITU (a) *List of Definitions of Essential Telecommunications Terms*
Part 1, General Terms, Telephone, Telegraphy
International Telecommunications Union
Geneva, 1961

(b) *First Supplement to Part 1 of the List of Definitions of Essential Telecommunications Terms*
No date
International Telecommunications Union

(c) *Second Supplement to Part 1 of the List of Definitions of Essential Telecommunications Terms*
International Telecommunications Union
Geneva, 1964

(d) *Blue Book*
Volume VIII
Data Transmission
International Telecommunications Union
Geneva, November 1964

(e) *Special Study Group A - Contribution No. 203*
Joint Working Party on NRD - Contribution No. 82
COM Sp. A - No. 203-E
Vocabulary for Data Transmission
Report on Meeting at Geneva, November 25-26, 1971
(also ISO Document ISO/TC 97/SC 1
(CCITT-2 282 E)

MAR *Telecommunications and the Computer*
James Martin
Prentice Hall, Inc.
Englewood Cliffs, New Jersey 1969

MIL *Military Standard, Military Communications System Technical Standards*
MIL-STD-188C
November 24, 1969
Department of Defense
Washington, D.C. 20301

RTM *Determination of Performance of Digital Data Communications Systems*
R. T. Moore
Proceedings International Communications Conference
Montreal, Canada, 1971

TNP *T. N. Pyke, Jr. and R. P. Blanc*
Computer Networking Technology - A State-of-the-Art Review
IEEE Computer Society
Computer, August 1973

US *Common usage in the US as reported by MAR*

VI. MIL-STD-188C EXCERPT

(Reproduced directly)

2. TERMS AND DEFINITIONS

2.1 144-LINE WEIGHTING. See WEIGHTING, 144-LINE.

2.2 144-RECEIVER WEIGHTING. See WEIGHTING, 144-RECEIVER.

2.3 ACTIVITY FACTOR, See FACTOR, ACTIVITY.

2.4 ADDRESS. Address in communication usage is the coded representation of the destination of a message. In data processing it is an identification, represented by a name, label or number, for a register or location in storage. Addresses are also a part of an instruction word along with commands, tags and other symbols.

2.5 ADDRESS PATTERN. See PATTERN, ADDRESS.

2.6 ALPHABET. See ALPHABET, DIGITAL.

2.7 ALPHABET, DIGITAL. A table of correspondence between characters and functions and the bit structures which represent them.

2.8 ALPHABET TRANSLATION. See TRANSLATION, ALPHABET.

2.9 ALPHANUMERIC. Alphabetic and numeric, including letters, numbers, and symbols.

2.10 AMPLITUDE MODULATION. See MODULATION, AMPLITUDE.

2.11 AMPLITUDE VS. FREQUENCY DISTORTION. See DISTORTION, AMPLITUDE VS FREQUENCY.

2.12 ANALOG DATA. See DATA.

2.13 ANALOG SIGNAL. See SIGNAL, ANALOG.

2.14 ANTENNA GAIN. See GAIN, ANTENNA.

2.15 AREA, ELEMENTAL (FAX). Any segment of a scanning line of the subject copy the dimension of which along the line is exactly equal to the nominal line width. NOTE: Elemental area is not necessarily the same as the scanning spot.

2.16 ARQ SYSTEM. See SYSTEM, ERROR DETECTING AND FEEDBACK.

2.17 ASSIGNED FREQUENCY. See FREQUENCY, ASSIGNED.

2.18 ASYNCHRONOUS TRANSMISSION. See TRANSMISSION, ASYNCHRONOUS.

2.19 ATTENUATION. The action by which, or the result in which, the power of an electrical signal is decreased; expressed in dB.

2.20 ATTENUATION, ECHO. In a four-wire (or two-wire) circuit in which the two directions of transmission can be separated from each other, the attenuation, R_e, of the echo currents (which return to the input of the circuit under consideration) is determined by the ratio of the transmitted power P_1, to the echo power received, P_2; expressed in dB.

2.21 AVAILABLE LINE. See LINE, AVAILABLE.

2.22 BALANCED. Electrically symmetrical with respect to ground.

2.23 BALANCE, LONGITUDINAL. The electrical symmetry of the two wires of a pair with respect to ground. See BALANCED.

2.24 BALANCED WIRE CIRCUIT. See CIRCUIT, BALANCED WIRE.

2.25 BAND, GUARD. A frequency band between two channels which gives a margin of safety against mutual interference.

2.26 BAND, TIME GUARD. A time interval before or after (or both) the detection/integration interval which may be used to reduce the effects of intersymbol interference in the time domain.

2.27 BANDWIDTH, FACSIMILE. In a given facsimile system, the difference in Hertz between the highest and the lowest frequency components required for adequate transmission of the facsimile signals.

2.28 BANDWIDTH, NECESSARY. For a given class of emission, the minimum value of the occupied bandwidth sufficient to insure the transmission of information at the rate and with the quality required for the system employed, under specified conditions. Emissions useful for the good functioning of the receiving equipment as, for example, the emission corresponding to the carrier of reduced carrier systems, shall be included in the necessary bandwidth. (This is used for frequency assignment purposes.)

2.29 BANDWIDTH, NOMINAL. The maximum band of frequencies, inclusive of guard bands, assigned to a channel (not to be confused with the term radio frequency emission).

2.30 BANDWIDTH, OCCUPIED (FOR A TRANSMITTER). The frequency bandwidth such that, below its lower and above its upper frequency limits, the mean powers radiated are each equal to 0.5 percent of the total mean power radiated by a given emission. In some cases, for example, multichannel frequency division systems, the percentage of 0.5 percent may lead to certain difficulties in the practical application of the definition of occupied and necessary bandwidth; in such cases a different percentage may prove useful.

2.31 BANDWIDTH, RF (FOR A TRANSMITTER). The difference between the highest and the lowest emission frequencies, in the region of the carrier or principle carrier frequency. NOTE: In practice the region of the carrier or principle carrier frequency beyond which the amplitude of any

frequency resulting from modulation by signal and/or subcarrier frequencies and their distortion products is less than 5 percent (-26 dB) of the rated peak output amplitude of:

a. The carrier or a single-tone sideband, whichever is greater, for single-channel emission; or

b. Any subcarrier or a single-tone sideband thereof, whichever is greater, for multiplex emission.

2.32 BASEBAND. In the process of modulation, the frequency band occupied by the aggregate of the transmitted signals when first used to modulate a carrier. The term is commonly applied to cases where the ratio of the upper to the lower limit of the frequency band is large compared to unity.

2.33 BASEBAND, MULTIPLEX. The frequency band occupied by the aggregate of the transmitted signals applied to the facility interconnecting the multiplexing and radio or line equipments. The multiplex baseband is also defined as the frequency band occupied by the aggregate of the received signals obtained from the facility interconnecting the radio or line and multiplexing equipment.

2.34 BASEBAND, RADIO. The frequency band available for the transmission of all the combined telephone channels and/or other communication channels.

2.35 BAUD. The unit of modulation rate. One baud corresponds to a rate of one unit interval per second. The modulation rate is expressed as the reciprocal of the duration in seconds of the unit interval. Example: If the duration of the unit interval is 20 milliseconds, the modulation rate is 50 bauds.

2.36 BIAS, INTERNAL (TELETYPEWRITER). That bias, either marking or spacing, that may occur within a start-stop teletypewriter receiving mechanism and which will have the same effect on the margin of operation as bias external to the receiver. See DISTORTION, BIAS.

2.37 BIAS DISTORTION. See DISTORTION, BIAS.

2.38 BINARY CODE. See CODE, BINARY.

2.39 BINARY DIGIT. See DIGIT, BINARY.

2.40 BINARY NOTATION. See NOTATION, BINARY.

2.41 BINARY NUMBER. See NUMBER, BINARY.

2.42 BIT. A contraction of the term binary digit. There are several types of bits.

2.43 BIT, CHECK. See BIT, PARITY.

2.44 BIT, ERRONEOUS. A bit which is not in accordance with that which should have been received.

2.45 BIT, FRAMING. A bit used to denote the beginning or end of a predetermined group of bits.

2.46 BIT, INFORMATION. A bit which is generated by the data source and which is not used by the data transmission system.

2.47 BIT, OVERHEAD. A bit other than an information bit.

2.48 BIT, PARITY. A bit associated with a character,or block,for the purpose of checking the absence of error within the character,or block.

2.49 BIT, SERVICE. An overhead bit which is not a parity bit (i.e., request for repetition, numbering sequence, etc.).

2.50 BIT PAIRING. See PAIRING, BIT.

2.51 BITERNARY TRANSMISSION. See TRANSMISSION, BITERNARY.

2.52 BIT INVERSION. See INVERSION, BIT.

2.53 BLACK FACSIMILE TRANSMISSION. See TRANSMISSION, BLACK FACSIMILE.

2.54 BLOCK. A group of bits, or binary digits, transmitted as a unit over which an encoding procedure is generally applied for error-control purposes.

2.55 BLOCK, ERRONEOUS. A block in which there are one or more erroneous bits.

2.56 BREAK. To break, in a communication circuit, is for the receiving user to interrupt the sending user and take control of the circuit; used especially in connection with half-duplex telegraph circuits and two-way telephone circuits equipped with voice-operated devices.

2.57 BROADCAST OPERATION. See OPERATION, BROADCAST.

2.58 BROADCAST REPEATER. See REPEATER, BROADCAST.

2.59 BUFFER, DATA. A storage device used to compensate for a difference in rate of flow of information or time of occurrence of events.

2.60 BURST, ERROR. A group of bits in which two successive erroneous bits are always separated by less than a given number (X) of correct bits.

2.61 C-MESSAGE WEIGHTING. See WEIGHTING, C-MESSAGE.

2.62 CARRIER. a. A wave suitable for modulation by the intelligence to be transmitted over a communication system. The carrier can be a sinusoidal wave or a recurring series of pulses. See also SUBCARRIER.

b. An unmodulated emission.

2.63 CARRIER FREQUENCY. See FREQUENCY, CARRIER.

2.64 CARRIER NOISE LEVEL. See LEVEL, CARRIER NOISE.

2.65 CARRIER POWER. See POWER, CARRIER (RADIO TRANSMITTER).

2.66 CENTER, SWITCHING. (Also called Switching Facility, Switching Exchange, or Central Office.) An installation in a communication system in which switching equipment is used to interconnect communication circuits on a message or circuit switching basis.

2.67 CENTRAL OFFICE. See CENTER, SWITCHING.

2.68 CHANNEL. The term channel may signify either a one-way path providing transmission in one direction only, or a two-way path providing transmission in two directions. The word "path" is to be interpreted in a broad sense to include separation by frequency division or time division.

2.69 CHARACTER, CODE. The representation of a discrete value or symbol in accordance with a code. See ALPHABET, DIGITAL.

2.70 CHARACTER AND BIT COUNT INTEGRITY. See INTEGRITY, CHARACTER AND BIT COUNT.

2.71 CHARACTER INTERVAL. See INTERVAL, CHARACTER.

2.72 CHARACTER SET. See SET, CHARACTER.

2.73 CHARACTERISTIC, HALFTONE (FAX). A relation between the density of the recorded copy and the density of the subject copy. NOTE: The term may also be used to relate the amplitude of the facsimile signal to the density of the subject copy or the record copy when only a portion of the system is under consideration. In a frequency-modulation system an appropriate parameter is to be used instead of the amplitude.

2.74 CHARACTERISTIC, LOADING (MULTICHANNEL TELEPHONY SYSTEMS). Loading for multi-channel telephony systems indicates for the busy hour the equivalent mean power and the peak power of multi-channel systems as a function of the number of voice channels. The equivalent power of a complex multi-channel signal, referred to zero relative level (0 dBr) is a function of the number of channels and has for its basis a specified mean voice channel power.

2.75 CHARACTERISTIC DISTORTION. See DISTORTION, CHARACTERISTIC.

2.76 CHARACTERISTIC FREQUENCY. See FREQUENCY, CHARACTERISTIC.

2.77 CHECK BIT. See BIT, PARITY.

2.78 CIRCUIT. The complete electrical path between end-terminal instruments over which two-way telecommunications are provided.

2.79 CIRCUIT, BALANCED WIRE. A balanced wire circuit is one whose two sides are electrically alike and symmetrical with respect to ground and other conductors. The term is commonly used to indicate a circuit whose two sides differ only by chance.

2.80 CIRCUIT, COMPOSITED. A composited circuit is a circuit which can be used simultaneously for telephony and direct-current telegraphy, or signaling, separation between the two being accomplished by frequency discrimination.

2.81 CIRCUIT, DUPLEX. A duplex circuit, or system, is a telegraph circuit or system which affords simultaneous independent operation in opposite directions over the same channel.

2.82 CIRCUIT, FOUR-WIRE. A four-wire circuit is a two-way circuit using two paths so arranged that the electric waves are transmitted in one direction only by one path and in the other direction only by the other path. NOTE: The transmission paths may or may not employ four wires.

2.83 CIRCUIT, GROUND-RETURN. A ground return circuit is a circuit which has a conductor (or two or more in parallel) between two points and which is completed through the ground or earth.

2.84 CIRCUIT, HALF-DUPLEX. A circuit designed for duplex operation, but which on account of the nature of the terminal equipment, can be operated alternately only.

2.85 CIRCUIT, METALLIC. A metallic circuit is a circuit of which the ground or earth forms no part.

2.86 CIRCUIT, SIMPLEX. A simplex circuit is a circuit derived from a pair of wires by using the wires in parallel with ground return.

2.87 CIRCUIT, SIMPLEXED. A simplexed circuit is a two-wire metallic circuit from which a simplex circuit is derived, the metallic and simplex circuits being capable of simultaneous use.

2.88 CIRCUIT, TWO-WIRE. A two-wire circuit is a metallic circuit formed by two conductors insulated from each other. NOTE: The term is also used in contrast with four-wire circuit to indicate a circuit using one line or channel for transmission of electric waves in both directions.

2.89 CIRCUIT, UNBALANCED WIRE. An unbalanced wire circuit is one whose two sides are inherently electrically unlike.

2.90 CIRCUIT SWITCHING. See SWITCHING, CIRCUIT.

2.91 CIRCUIT WORKING, CLOSED. A method of single-current operation in which a current flows in the circuit while the transmitting device is at rest.

2.92 CIRCUIT WORKING, OPEN. A method of single current operation in which no current flows in the circuit while the transmitting device is at rest.

2.93 CLOCK. A reference source of timing information for a machine or system.

2.94 CLOSED-CIRCUIT WORKING. See CIRCUIT WORKING, CLOSED.

2.95 CODE. (Telegraph or Data) A system of rules and conventions according to which the telegraph signals forming a message or the data signal forming a block should be formed, transmitted, received and processed.

2.96 CODE, BINARY. A code composed of a combination of entities, each of which can assume one of two possible states.

2.97 CODE, ERROR-CORRECTING. A code in which each telegraph or data signal conforms to specific rules of construction so that departures from this construction in the received signals can be automatically detected, and permits the automatic correction, at the receiving terminal, of some or all of the errors. Such codes require more signal elements than are necessary to convey the basic information.

2.98 CODE, ERROR-DETECTING. A code in which each telegraph or data signal conforms to specific rules of construction, so that departures from this construction in the received signals can be automatically detected. Such codes require more signal elements than are necessary to convey the fundamental information.

2.99 CODE, REDUNDANT. A code using more signal elements than necessary to represent the intrinsic information. For example:

a. A 5-unit code using all the characters of International Telegraph Alphabet No. 2 is not redundant. (See APPENDIX C).

b. A 5-unit code using the digits only in International Telegraph Alphabet No. 2 is redundant.

c. A 7-unit code using only signals made of 4 space and 3 mark digits is redundant.

d. An 8-unit code using one of the bits for parity is redundant.

2.100 CODE CHARACTER. See CHARACTER, CODE.

2.101 CODE CONVERSION. See CONVERSION, CODE.

2.102 CODE ELEMENT. See ELEMENT, CODE.

2.103 CODE SET OR DIGITAL ALPHABET. See ALPHABET, DIGITAL.

2.104 COEFFICIENT, REFLECTION. a. The reflection coefficient at the junction of a uniform transmission line and a mismatched terminating impedance is the vector ratio of the electric field associated with the reflected wave to that associated with the incident wave.

b. At any specified plane in a uniform transmission line between a source of power and an absorber of power, the reflection coefficient is the vector ratio of the electric field associated with the reflected wave to that associated with the incident wave. It is given by the formula

$$(Z_2 - Z_1) / (Z_2 + Z_1) \text{ or } (SWR - 1) / (SWR + 1)$$

where Z_1 is the impedance of the source and Z_2 is the impedance of the load.

2.105 COMMON BATTERY SIGNALING. See SIGNALING, COMMON BATTERY.

2.106 COMMUNICATIONS SINK. See SINK, COMMUNICATIONS.

2.107 COMMUNICATIONS SOURCE. See SOURCE, COMMUNICATIONS.

2.108 COMPANDER. A contraction of the terms compressor and expandor. The compressor is used to compress the dynamic range of an analog signal which is to be processed or transmitted. The expandor inverts the compressor function to restore the original dynamic range of the processed or transmitted analog signal. The compandor may act on the instantaneous amplitude values of the analog signal or on a time average of past amplitudes. Depending on the reaction time, compandors are often referred to as slow acting, syllabic, fast acting or instantaneous.

2.109 COMPATIBLE SIDEBAND TRANSMISSION. See TRANSMISSION, SIDEBAND, COMPATIBLE.

2.110 COMPOSITED CIRCUIT. See CIRCUIT, COMPOSITED.

2.111 COMPUTER WORD. See WORD, COMPUTER.

2.112 CONFERENCE OPERATION. See OPERATION, CONFERENCE.

2.113 CONFERENCE REPEATER. See REPEATER, CONFERENCE.

2.114 CONGRUENCY (FAX). The ability of a facsimile transmitter or receiver to perform in an identical manner as an equipment of another facsimile system.

2.115 CONTRAST, SIGNAL (FAX). The ratio expressed in decibels between white signal and black signal.

2.116 CONTROL EQUIPMENT, REMOTE. The apparatus used for performing monitoring, controlling, supervising, or a combination of these, a prescribed function or functions at a distance by electrical means.

2.117 CONVERSION, CODE. The process by which a code of some predetermined bit structure (for example, 5, 7, 14 bits per character interval val) is converted to a second code with more or less bits per character interval. No alphabetical significance is assumed in this process. In certain cases, such as the conversion from start/stop telegraph equipment to synchronous equipment, a code conversion process may only consist of discarding the stop and start element and adding a sixth element to indicate the stop and start condition. In other cases, it may consist of addition or deletion of control and/or parity bits.

2.118 CONVERTER, FACSIMILE. A device which changes the type of modulation.

2.119 CONVERTER, FACSIMILE RECEIVING. (FS TO AM CONVERTER.) A device which changes the type of modulation from frequency shift to amplitude.

2.120 CONVERTER, FACSIMILE TRANSMITTING. (AM TO FS CONVERTER.) A device which changes the type of modulation from amplitude to frequency shift.

2.121 CONVERTER, SIGNAL. A device in which the input and output signals are formed according to the same code, but not according to the same type of electrical modulation.

2.122 COOPERATION, INDEX OF, DIAMETRAL OR INTERNATIONAL (IN FACSIMILE). The product of the drum diameter and the line advance in scanning lines per unit length. The unit length must be the same as that used for expressing the drum diameter.

2.123 COPY, SUBJECT (FAX). The material in graphic form which is to be transmitted for facsimile reproduction.

2.124 CROSSTALK. The phenomenon in which a signal transmitted on one circuit or channel of a transmission system is detectable in another circuit or channel.

2.125 CROSSTALK, FAR-END. Far end crosstalk which is propagated in a disturbed communication channel in the same direction as the propagation in the disturbing channel. The terminals of the disturbed channel and the energized terminal of the disturbing channel are usually remote from each other.

2.126 CROSSTALK, NEAR-END. Near end crosstalk is crosstalk which is propagated in a disturbed channel in the direction opposite to the direction of propagation of the current in the disturbing channel. The terminal of the disturbed channel at which the near end crosstalk is present is ordinarily near or coincides with the energized terminal of the disturbing channel.

2.127 CROSSTALK COUPLING LOSS. See LOSS, CROSSTALK COUPLING.

2.128 CYCLIC DISTORTION. See DISTORTION, CYCLIC.

2.129 DATA. (ANALOG OR DIGITAL.) Material transmitted or processed to provide information, or to control a process.

2.130 DATA BUFFER. See BUFFER, DATA.

2.131 DATA SIGNALING RATE. See RATE, DATA SIGNALING.

2.132 DATA SINK. See SINK, DATA.

2.133 DATA SOURCE. See SOURCE, DATA.

2.134 DATA TERMINAL. See TERMINAL, DATA.

2.135 DB. Decibel. The standard unit for expressing transmission gain or loss and relative power ratios. The decibel is one-tenth the size of a Bel which is too large a unit for convenient use. Both units are expressed in terms of the logarithm to the base 10 of a power ratio, the decibel formula being: $dB = 10 \log_{10} \frac{P_1}{P_2}$

Power ratios may be expressed in terms of voltage or current. If the resistances for both the power measurements are the same, they cancel out in the power ratio so the formulas in terms of voltage or current become as follows:

$$dB = 10 \log \frac{E_1^2}{R_1} \Big/ \frac{E_2^2}{R_2} = 10 \log \frac{I_1^2 \ R_1}{I_2^2 \ R_2}$$

$$dB = 10 \log \frac{E_1^2}{E_2^2} = 10 \log \frac{I_1^2}{I_2^2}$$

$$dB = 20 \log \frac{E_1}{E_2} = 20 \log \frac{I_1}{I_2} \quad \text{where } R_1 = R_2$$

2.136 DBa, dBrn ADJUSTED. Weighted circuit noise power, in dB referred to 3.16 picowatts (-85 dbm), which is 0 dba. Use of F1A-line or HA1-receiver weighting shall be indicated in parentheses as required. See WEIGHTING, NOISE. NOTE: A one milliwatt, 1000 cps tone will read +85 dBa, but the same power as white noise, randomly distributed over a 3 kc band (nominally 300 to 3300 cps), will read +82 dBa, due to the frequency weighting.

2.137 DBa (F1A). Weighted circuit noise power in dBa, measured on a line by a noise measuring set with F1A-line weighting. See WEIGHTING, NOISE.

2.138 DBa (HA1). Weighted circuit noise power in dBa, measured across the receiver of a 302 type or similar subset, by a noise measuring set with HA1-receiver weighting. See WEIGHTING, NOISE.

2.139 DBaO. Circuit noise power in dBa referred to or measured at a point of zero relative transmission level (0 dBr). NOTE: It is preferred to convert circuit noise readings from dBa to dBaO, as this makes it unnecessary to know or state the relative transmission level at point of actual measurement.

2.140 DBm. a. DB referred to one milliwatt; employed in communication work as a measure of absolute power values. Zero dBm equals one milliwatt.

b. In noise power measurement, noise power in dB referred to one milliwatt. NOTE: In American practice unweighted measurement is normally understood, applicable to a certain bandwidth which must be stated or implied. In European practice, psophometric weighting may be implied, as indicated by context; equivalent to dBmOp, which is preferred.

2.141 DBm (Psoph). A unit of noise power in dBm, measured with psophometric weighting. See WEIGHTING, NOISE. NOTE: Conversion regulations with other weighted units:

$$dBm(psoph) = 10 \log_{10} pWp - 90 = dBa - 84$$

2.142 DBmO. In noise power measurement, noise power in dBm, referred to or measured at a point of zero relative transmission level (0 dBr).

2.143 DBm CONVERSION TO VU. -3.9 dBm = 0 vu.

2.144 DBmOp. Circuit noise power in dBmO, measured on a line by a Psophometer or noise measuring set having psophometric weighting. See WEIGHTING, NOISE.

2.145 DBrn. (Decibels Above Reference Noise.) Weighted circuit noise power, in dB referred to 1.0 picowatt (-90 dBm), which is 0 dBrn. Use of 144-line, 144-receiver or C-message weighting, or flat weighting, shall be indicated in parentheses as required. See WEIGHTING, NOISE. NOTE: (1) With C-message weighting, a one milliwatt, 1000 Hertz tone will read +90 dBrn, but the same power as white noise, randomly distributed over a 3 kHz band (nominally 300 to 3300 Hz) will read approximately +88.5 dBrn, (rounded off to +88 dBrn), due to the frequency weighting. (2) With 144 weightings, a one milliwatt, 1000 Hz tone will also read +90 dBrn, but the same 3kHz white noise power will read only +82 dBrn, due to the different frequency weighting.

2.146 DBrn (144 LINE). Weighted circuit noise power in dBrn, measured on a line by a noise measuring set with 144-line weighting. See WEIGHTING, NOISE.

2.147 DBrn (144-RECEIVER). Weighted circuit noise power in dBrn, measured across the receiver of a subset with a No. 144-receiver, by a noise measuring set with 144-receiver weighting. See WEIGHTING, NOISE.

2.148 DBrn (C-MESSAGE). Weighted circuit noise power in dBrn, measured on a line by a noise measuring set with C-message weighting.

2.149 DBrn (F1-F2). Flat noise power in dBrn, measured over the frequency band between frequencies f_1 and f_2. See WEIGHTING, NOISE (FLAT WEIGHTING).

2.150 DECAY TIME, PULSE. The time required for the instantaneous amplitude to go from 90% to 10% of the peak value.

2.151 DEFINITION (FAX). Distinctness or clarity of detail or outline in a record sheet, or other reproduction.

2.152 DEGREE OF DISTORTION. See DISTORTION, DEGREE OF.

2.153 DEGREE OF INDIVIDUAL DISTORTION OF A PARTICULAR SIGNIFICANT INSTANT (OF A MODULATION OR OF A RESTITUTION). See DISTORTION, DEGREE OF INDIVIDUAL.

2.154 DEGREE OF ISOCHRONOUS DISTORTION. See DISTORTION, DEGREE OF ISOCHRONOUS.

2.155 DEGREE OF SIGNIFICANT INSTANT DISTORTION. See DISTORTION, DEGREE OF INDIVIDUAL.

2.156 DEGREE OF START-STOP DISTORTION. See DISTORTION, DEGREE OF START-STOP.

2.157 DELAY, PHASE (FAX). In the transfer of a single frequency wave from one point to another in a system, the time delay of a part of the wave identifying its phase. NOTE: The phase delay is measured by the ratio of the total phase shift in cycles to the frequency in cycles per second.

2.158 DELAY DISTORTION. See DISTORTION, ENVELOPE DELAY.

2.159 DELAY DISTORTION (FAX). See DISTORTION, ENVELOPE DELAY.

2.160 DELTA MODULATION. See MODULATION, DELTA.

2.161 DEMODULATION. A process wherein a wave resulting from previous modulation is employed to derive a wave having substantially the characteristics of the original modulating wave. See RESTITUTION.

2.162 DENSITY (FAX). A measure of the light-transmitting or reflection properties of an area. It is expressed by the common logarithm of the ratio of incident to transmitted or reflected light flux. NOTE: There

are many types of density which will usually have different numerical values for a given material; e.g. Diffuse Density, Double Diffuse Density; Specular Density. The relevant type of density depends upon the geometry of the optical system in which the material is used.

2.163 DESIGN OBJECTIVE. See OBJECTIVE, DESIGN.

2.164 DESIGNATION, FREQUENCY SPECTRUM. See FREQUENCY, SPECTRUM DESIGNATION OF.

2.165 DEVICE, INPUT-OUTPUT. Any equipment which introduces data into or extracts data from a data communication system.

2.166 DIBIT. A group of two bits. The four possible states for a dibit are 00, 01, 10 and 11.

2.167 DIFFERENTIAL MODULATION. See MODULATION, DIFFERENTIAL.

2.168 DIGIT, BINARY. An information state in binary notation (e.g., 0 or 1).

2.169 DIGITAL ALPHABET OR CODE SET. See ALPHABET, DIGITAL.

2.170 DIGITAL DATA. See DATA.

2.171 DIGITAL SIGNAL. See SIGNAL, DIGITAL.

2.172 DIRECT RECORDING (FAX). See RECORDING, DIRECT. (FAX).

2.173 DIRECTION OF SCANNING (FAX). See SCANNING, DIRECTION OF (FAX).

2.174 DISTORTION, AMPLITUDE VS FREQUENCY (of a transmission system). That distortion caused by the nonuniform attenuation, or gain, of the system with respect to frequency under specified terminal conditions.

2.175 DISTORTION, BIAS. Distortion affecting a two-condition (or binary) modulation in which all the significant intervals corresponding to one of the two significant conditions have uniformly longer or shorter duration than the corresponding theoretical durations.

2.176 DISTORTION, CHARACTERISTIC. Distortion caused by transients which, as a result of modulation, are present in the transmission channel and depend on its transmission qualities.

2.177 DISTORTION, CYCLIC. (Of telegraph signals.) Distortion which is neither characteristic, bias, nor fortuitous and which, in general, has a periodic character. Its causes are, for example, irregularities in the duration of contact time of the brushes of a transmitter distributor or interference by disturbing alternating currents, etc.

2.178 DISTORTION, DEGREE OF. A measurement of the deviation of a digital signal from the theoretically perfect signal. It is expressed as a percent of the theoretically perfect unit interval.

2.179 DISTORTION, DEGREE OF INDIVIDUAL, OF A PARTICULAR SIGNIFICANT INSTANT (OF A MODULATION OR OF A RESTITUTION). Ratio to the unit interval of the displacement, expressed algebraically, of this significant instant from an ideal instant. This displacement is considered positive when a significant instant occurs after the ideal instant. The degree of individual distortion is usually expressed as a percentage.

2.180 DISTORTION, DEGREE OF ISOCHRONOUS. Ratio to the unit interval of the maximum measured difference, irrespective of sign, between the actual and the theoretical intervals separating any two significant instants of modulation (or restitution), these instants being not necessarily consecutive. The degree of distortion (of an isochronous modulation or restitution) is usually expressed as a percentage. NOTE: The result of the measurement should be completed by an indication of the period, usually limited, of the observation. For a prolonged modulation (or restitution) it will be appropriate to consider the probability that an assigned value of the degree of distortion will be exceeded.

2.181 DISTORTION, DEGREE OF SIGNIFICANT INSTANT. See DISTORTION, DEGREE OF INDIVIDUAL.

2.182 DISTORTION, DEGREE OF START-STOP. Ratio to the unit interval of the maximum measured difference, irrespective of sign, between the actual and theoretical intervals separating any significant instant of modulation (or of restitution) from the significant instant of the start element immediately preceding it. The degree of distortion of a start-stop modulation (or restitution) is usually expressed as a percentage.

2.183 DISTORTION, DELAY. See DISTORTION, ENVELOPE DELAY.

2.184 DISTORTION, DELAY (OF A TRANSMISSION SYSTEM). The distortion of a complex waveform, made up of two or more different frequencies, caused by the difference in arrival time of each frequency at the output.

2.185 DISTORTION, END (OF START-STOP TELETYPEWRITER SIGNALS). The shifting of the end of all marking pulses from their proper positions in relation to the beginning of the start pulse.

2.186 DISTORTION, ENVELOPE DELAY. Envelope delay distortion is the maximum difference of the envelope delay characteristic in a band between any two specified frequencies. Refer to Delay Distortion in Appendix B for detailed explanation.

2.187 DISTORTION, FORTUITOUS (OF TELEGRAPH SIGNALS). Distortion resulting from causes generally subject to random laws, for example, accidental irregularities in the operating of the apparatus and moving parts, disturbances affecting the transmission channel, etc.

2.188 DISTORTION, INTERMODULATION. Nonlinear distortion characterized by the appearance of frequencies in the output, equal to the sums and differences of integral multiples of the component frequencies present in the input. NOTE: Harmonic components also present in the output are usually not included as part of the intermodulation distortion. When harmonics are included, a statement to that effect should be made.

2.189 DISTORTION, NONLINEAR. Distortion caused by a deviation from a linear relationship between the input and output of a system or component.

2.190 DISTORTION, PHASE. See DISTORTION, ENVELOPE DELAY.

2.191 DISTORTION, SINGLE-HARMONIC. The ratio of the power at the fundamental frequency, measured at the output of the transmission system considered, to the power of any single harmonic observed at the output of the system because of its nonlinearity, when a single frequency signal of specified power is applied to the input of the system; expressed in dB.

2.192 DISTORTION, START-STOP TTY. The shifting of the transition of the signal pulses from their proper positions relative to the beginning of the start pulse. The magnitude of the distortion is expressed in percent of a perfect unit pulse length.

2.193 DISTORTION, TELETYPEWRITER SIGNAL. See DISTORTION, START-STOP TTY.

2.194 DISTORTION, TOTAL HARMONIC. The ratio of the power at the fundamental frequency, measured at the output of the transmission system considered, to the power of all harmonics observed at the output of the system because of its nonlinearity, when a single frequency signal of specified power is applied to the input of the system; expressed in dB.

2.195 DIVERSITY. That method of transmission and/or reception, whereby, in order to reduce the effects of fading, a single received information signal is derived from a combination of, or selection from, a plurality of signals containing the same information. Improvement gained shall be expressed in dB.

2.196 DIVERSITY, DUAL. The term applied to the simultaneous combining of, or selection from, two signals and their detection through the use of space, frequency, angle, or polarization characteristics.

2.197 DIVERSITY, FREQUENCY. Any method of transmission and reception wherein the same information signal is transmitted and received simultaneously on two or more distinct frequencies.

2.198 DIVERSITY, POLARIZATION. A method of transmission and/or reception of information accomplished by the use of separate vertically and horizontally polarized antennas.

2.199 DIVERSITY, QUADRUPLE. The term applied to the simultaneous combining of, or selection from, four signals and their detection through the use of space, frequency, angle, or polarization characteristics or combinations thereof.

2.200 DIVERSITY, SPACE. Any method of transmission and/or reception which employs antennas having spatial separation.

2.201 DOPPLER EFFECT, See EFFECT, DOPPLER.

2.202 DOUBLE-CURRENT TRANSMISSION. See TRANSMISSION, DOUBLE-CURRENT.

2.203 DOUBLE SIDEBAND TRANSMISSION. See TRANSMISSION, SIDEBAND, DOUBLE, REDUCED OR SUPPRESSED CARRIER and TRANSMISSION, SIDEBAND, DOUBLE.

2.204 DRUM FACTOR (FAX). See FACTOR, DRUM (FAX).

2.205 DRUM SPEED (FAX). See SPEED, DRUM (FAX).

2.206 DUAL DIVERSITY. See DIVERSITY, DUAL.

2.207 DUPLEX CIRCUIT. See CIRCUIT, DUPLEX.

2.208 DUPLEX OPERATION. See OPERATION, DUPLEX.

2.209 DUPLEX SYSTEM OR CIRCUIT. See CIRCUIT, DUPLEX.

2.210 ECHO. The effect of a wave which, having been derived (for example by reflection) from a primary wave, arrives at either end of the same circuit with sufficient magnitude and delay to be distinctly recognized.

2.211 ECHO ATTENUATION. See ATTENUATION, ECHO.

2.212 EFFICIENCY FACTOR, IN TIME (OF A TELEGRAPH COMMUNICATION). See EFFICIENCY, TELEGRAPH COMMUNICATIONS.

2.213 EFFECTIVE RADIATED POWER. See POWER, EFFECTIVE RADIATED.

2.214 EFFECT, DOPPLER. The phenomenon evidenced by the change in the observed frequency of a wave in a transmission system caused by a time rate of change in the effective length of the path of travel between the source and the point of observation.

2.215 EFFECT, KENDALL (FAX). A spurious pattern or other distortion in a facsimile record caused by unwanted modulation products arising from the transmission of a carrier signal and appearing in the form of a rectified baseband that interferes with the lower sideband of the carrier. NOTE: This occurs principally when the single sideband width is greater than half the facsimile carrier frequency.

2.216 EFFICIENCY, TELEGRAPH COMMUNICATION. The efficiency factor of a communication is the ratio of the time to transmit a text automatically and at a specified modulation rate, to the time actually taken to receive the same text with a specified error rate. NOTE: (a) The whole of the apparatus comprising the communication is assumed to be in the normal condition of adjustment and operation. (b) A telegraph communication may have a different efficiency factor in time for the two directions of transmission. (c) The practical conditions of measurement should be specified; in particular, the duration.

2.217 EHF. EXTREMELY HIGH FREQUENCY, 30 to 300 GHZ.

2.218 ELECTRICALLY-POWERED TELEPHONE. See TELEPHONE, ELECTRICALLY-POWERED.

2.219 ELECTROCHEMICAL RECORDING (FAX). See RECORDING, ELECTROCHEMICAL (FAX).

2.220 ELECTROLYTIC RECORDING (FAX). See RECORDING, ELECTROLYTIC (FAX).

2.221 ELECTROMECHANICAL RECORDING (FAX). See RECORDING, ELECTRO-MECHANICAL (FAX).

2.222 ELECTRONIC LINE SCANNING (FAX). See SCANNING, ELECTRONIC LINE (FAX).

2.223 ELECTROSTATIC RECORDING (FAX). See RECORDING, ELECTROSTATIC (FAX).

2.224 ELECTROTHERMAL RECORDING (FAX). See RECORDING, ELECTROTHERMAL (FAX).

2.225 ELEMENT, CODE. One of a finite set of parts of which the characters in a given code may be composed.

2.226 ELEMENT, SIGNAL. Each of the parts constituting a telegraph or data signal and distinguished from the others by its nature, magnitude, duration, and relative position (or by one or some of these features only).

2.227 ELEMENTAL AREA (FAX). See AREA, ELEMENTAL (FAX).

2.228 ELF. EXTREMELY LOW FREQUENCY, below 300 Hz.

2.229 END DISTORTION. See DISTORTION, END.

2.230 END INSTRUMENT. See INSTRUMENT, END.

2.231 ENVELOPE DELAY DISTORTION. See DISTORTION, ENVELOPE DELAY.

2.232 EQUALIZATION. The process of reducing frequency and/or phase distortion of a circuit by the introduction of networks to compensate for the difference in attenuation and/or time delay at the various frequencies in the transmission band.

2.233 EQUIPMENT, REMOTE CONTROL. See CONTROL EQUIPMENT, REMOTE.

2.234 ERRONEOUS BIT. See BIT, ERRONEOUS.

2.235 ERRONEOUS BLOCK. See BLOCK, ERRONEOUS.

2.236 ERROR. See ERROR; SINGLE, DOUBLE, TRIPLE, ETC.

2.237 ERROR-CORRECTING CODE. See CODE, ERROR-CORRECTING.

2.238 ERROR-CORRECTING SYSTEM. See SYSTEM, ERROR CORRECTING.

2.239 ERROR-DETECTING AND FEEDBACK SYSTEM. See SYSTEM, ERROR-DETECTING AND FEEDBACK.

2.240 ERROR-DETECTING CODE. See CODE, ERROR-DETECTING.

2.241 ERROR-DETECTING SYSTEM. See SYSTEM, ERROR DETECTING.

2.242 ERROR-RATE RESIDUAL. (Undetected error-rate.) The ratio of the number of bits, elements, characters, blocks incorrectly received but undetected or uncorrected by the error-control equipment, to the total number of bits, unit elements, characters, blocks sent.

2.243 ERROR BURST. See BURST, ERROR.

2.244 ERROR RATE. See RATE, ERROR.

2.245 ERROR: SINGLE, DOUBLE, TRIPLE, ETC. A group of 1, 2, 3, etc., consecutive erroneous bits, characters, words, blocks or elements preceded and followed immediately by at least one correct bit, character, word, block or element.

2.246 EXALTED CARRIER RECEPTION. See RECEPTION, EXALTED CARRIER.

2.247 FLA-LINE WEIGHTING. See WEIGHTING, FLA-LINE.

2.248 FACSIMILE-SIGNAL LEVEL. See SIGNAL LEVEL, FACSIMILE.

2.249 FACSIMILE. A line scanning system of telecommunication for the transmission of fixed images, with or without half-tones, with a view to their reproduction in a permanent form. (Wirephoto and telephoto are

facsimile through wire circuits; radiophoto is facsimile via radio). See GRAPHICS.

2.250 FACSIMILE BANDWIDTH. See BANDWIDTH, FACSIMILE.

2.251 FACSIMILE CONVERTER. See CONVERTER, FACSIMILE.

2.252 FACSIMILE RECEIVER. See RECEIVER, FACSIMILE.

2.253 FACSIMILE RECORDER. See RECORDER, FACSIMILE.

2.254 FACSIMILE SIGNAL. See SIGNAL, FACSIMILE.

2.255 FACSIMILE TRANSMITTER. See TRANSMITTER, FACSIMILE.

2.256 FACTOR, ACTIVITY. Activity factor, for a voice communication channel, is the percentage of the time during the busiest traffic hour when a signal is present in the channel in one direction.

2.257 FACTOR, DRUM (FAX). The drum factor is the ratio of drum length used to drum diameter. Where drums are not used it is the ratio of the equivalent dimensions.

2.258 FADING. The fluctuation in intensity and/or relative phase of any or all frequency components of the received radio signal due to changes in the characteristics of the propagation path.

2.259 FADING, FLAT. That type of fading in which all frequency components of the received radio signal fluctuate in the same proportion simultaneously.

2.260 FADING, SELECTIVE. That type of fading in which the various frequency components of the received radio signal fluctuate independently.

2.261 FALL TIME. See DECAY TIME, PULSE.

2.262 FAR-END CROSSTALK. See CROSSTALK, FAR-END.

2.263 FAULT. A malfunction that is reproducible, as contrasted to an error, which is defined as a malfunction which is not reproducible. A malfunction is considered reproducible if it occurs consistently under the same circumstances.

2.264 FAX. A shorthand reference to facsimile.

2.265 FIDELITY. See LINEARITY.

2.266 FIXED REFERENCE MODULATION. See MODULATION, FIXED REFERENCE.

2.267 FLAT FADING. See FADING, FLAT.

2.268 FLAT WEIGHTING. See WEIGHTING, FLAT.

2.269 FORMAT. Arrangement of bits or characters within a group, such as a word, message, or language; shape, size and general makeup of a document.

2.270 FORTUITOUS DISTORTION. See DISTORTION, FORTUITOUS.

2.271 FOUR-WIRE CIRCUIT. See CIRCUIT, FOUR-WIRE.

2.272 FRAME (FAX). A rectangular area, the width of which is the available line and the length of which is determined by the service requirements.

2.273 FRAMING (FAX). The adjustment of the picture to a desired position in the direction of line progression.

2.274 FRAMING BIT. See BIT, FRAMING.

2.275 FREQUENCIES, PICTURE (FAX). The frequencies which result solely from scanning subject copy. NOTE: This does not include frequencies which are part of a modulated carrier signal.

2.276 FREQUENCY-CHANGE SIGNALING. See SIGNALING, FREQUENCY CHANGE.

2.277 FREQUENCY-EXCHANGE SIGNALING, TWO-SOURCE FREQUENCY. See SIGNALING, FREQUENCY EXCHANGE.

2.278 FREQUENCY. The number of complete cycles per unit of time. When the unit of time is one second, the measurement unit is Hertz (cycles per second).

2.279 FREQUENCY, ASSIGNED. The frequency of the center of the radiated bandwidth shall be designated the assigned frequency. (The frequency of the RF carrier, whether suppressed or radiated, shall be referred to in parentheses following the assigned frequency and shall be the frequency appearing in the dial settings of RF equipment intended for a single sideband or independent sideband.) NOTE: The frequency of the RF carrier is usually referred to in this standard as f_o and the assigned frequency as f_c, i.e., in Figures 15 and 16.

2.280 FREQUENCY, CARRIER. The frequency of the unmodulated carrier.

2.281 FREQUENCY, CHARACTERISTIC. A frequency which can be easily identified and measured in a given emission.

2.282 FREQUENCY, MAXIMUM KEYING (FAX). The frequency in cycles per second numerically equal to the spot speed divided by twice the "scanning spot X dimension."

2.283 FREQUENCY, MAXIMUM MODULATING (FAX). The highest picture frequency required for the facsimile transmission system. NOTE: The maximum modulating frequency and the maximum keying frequency are not necessarily equal.

2.284 FREQUENCY, REFERENCE. A frequency having a fixed and specified position with respect to the assigned frequency. The displacement of this frequency with respect to the assigned frequency has the same absolute value and sign that the displacement of the characteristic frequency has with respect to the center of the frequency band occupied by the emission.

2.285 FREQUENCY, SAMPLING. The rate at which signals in an individual channel are sampled for subsequent modulation, quantization, and/or coding.

2.286 FREQUENCY, SCANNING LINE (FAX). See SPEED, STROKE (FAX).

2.287 FREQUENCY, SPECTRUM DESIGNATION OF. A method of referring to a range or band of communication frequencies. In American practice the designator is a two or three letter abbreviation of the name. In ITU practice the designator is a numeric. These ranges, or bands are:

American Band	Frequency	ITU Band
ELF	Below 300 Hz	
ILF	300 - 3000 Hz	
VLF	3 - 30 kHz	4
LF	30 - 300 kHz	5
MF	300 - 3000 kHz	6
HF	3 - 30 MHz	7
VHF	30 - 300 MHz	8
UHF	300 - 3000 MHz	9
SHF	3 - 30 GHz	10
EHF	30 - 300 GHz	11

2.288 FREQUENCY DIVERSITY. See DIVERSITY, FREQUENCY.

2.289 FREQUENCY DIVISION MULTIPLEX (FDM). See MULTIPLEX, FREQUENCY DIVISION (FDM).

2.290 FREQUENCY MODULATION. See MODULATION, FREQUENCY.

2.291 FREQUENCY SHIFT, SIGNAL (FAX). In a frequency shift facsimile system, the numerical difference between the frequencies corresponding to white signal and black signal at any point in the system.

2.292 FREQUENCY SHIFT KEYING. See KEYING, FREQUENCY SHIFT.

2.293 FREQUENCY SHIFT SIGNALING. See KEYING, FREQUENCY SHIFT.

2.294 FREQUENCY SPECTRUM DESIGNATION. See FREQUENCY, SPECTRUM DESIGNATION OF.

2.295 FREQUENCY TOLERANCE. The maximum permissible departure of the center frequency of the frequency band occupied by an emission from the assigned frequency or of the characteristic frequency of an emission from the referency frequency. The frequency tolerance is expressed in parts in 10^n, in Hertz, or in percentages.

2.296 FULL DUPLEX OPERATION. See OPERATION, DUPLEX.

2.297 GAIN. The action by which, or the result in which, the power of an electrical signal is increased; expressed in dB.

2.298 GAIN, ANTENNA. Antenna gain is commonly defined as the ratio of the maximum radiation intensity in a given direction to the maximum radiation intensity produced in the same direction from a reference antenna with the same power input.

2.299 GAIN, INSERTION. The insertion gain of a transmission system (or component thereof) inserted between two impedances Z_e (transmitter) and Z_r (receiver) is the ratio of the power measured at the receiver Z_r, after insertion of the transmission system considered, to the power measured before insertion; expressed in dB. If the resulting number in dB thus obtained is negative, an insertion loss is indicated.

2.300 GAIN, NET. See LOSS, NET.

2.301 GHZ. GIGAHERTZ. 10 TO POWER OF 9, HERTZ.

2.302 GRAPHICS. The art or science of conveying intelligence through the use of graphs, letters, lines, drawings, pictures, etc. (Facsimile is a technology for electrically transporting intelligence in graphic form from one point to another.)

2.303 GROUND-RETURN CIRCUIT. See CIRCUIT, GROUND-RETURN.

2.304 GROUP, TRUNK. Two or more trunks between the same two points.

2.305 GROUPING (FAX). Periodic error in the spacing of recorded lines.

2.306 GUARD BAND. See BAND, GUARD.

2.307 GUARD BAND, TIME. See BAND, TIME GUARD.

2.308 HAl-RECEIVER WEIGHTING. See WEIGHTING, HAl-RECEIVER.

2.309 HALF-DUPLEX CIRCUIT. See CIRCUIT, HALF-DUPLEX.

2.310 HALF-DUPLEX OPERATION. See OPERATION, HALF-DUPLEX.

2.311 HALFTONE CHARACTERISTIC (FAX). See CHARACTERISTIC, HALFTONE (FAX).

2.312 HERTZ. A unit of frequency - one cycle per second, 1 Hz.

2.313 HF. High frequency, 3 to 30 MHz.

2.314 HIGH PERFORMANCE EQUIPMENTS. See PERFORMANCE, EQUIPMENTS, HIGH.

2.315 Hz. Hertz.

2.316 ILF. Infra low frequency, 300 to 3000 Hz.

2.317 IMPEDANCE, TERMINAL. The complex impedance as seen at the unloaded output terminals of a transmission equipment or line which is otherwise in normal operating condition.

2.318 INBAND NOISE POWER RATIO (MULTICHANNEL EQUIPMENT). See NOISE POWER RATIO, INBAND (MULTICHANNEL EQUIPMENT).

2.319 INBAND SIGNALING. See SIGNALING, INBAND.

2.320 IN CHANNEL NOISE POWER RATIO (MULTICHANNEL EQUIPMENT). See NOISE POWER RATIO, IN CHANNEL (MULTICHANNEL EQUIPMENT.

2.321 INDEPENDENT SIDEBAND TRANSMISSION. See TRANSMISSION, SIDEBAND, INDEPENDENT.

2.322 INDEX OF COOPERATION (FAX). See COOPERATION, INDEX OF (FAX).

2.323 INDEX OF COOPERATION, DIAMETRAL OR INTERNATIONAL. See COOPERATION, INDEX OF (FAX).

2.324 INFORMATION BIT. See BIT, INFORMATION.

2.325 INFORMATION TRANSFER. See TRANSFER, INFORMATION.

2.326 INK VAPOR RECORDING (FAX). See RECORDING, INK VAPOR (FAX).

2.327 INPUT-OUTPUT DEVICE. See DEVICE, INPUT-OUTPUT.

2.328 INSERTION GAIN. See GAIN, INSERTION.

2.329 INSERTION LOSS. See LOSS, INSERTION.

2.330 INSTANTS, SIGNIFICANT. The instants at which the successive significant conditions recognized by the appropriate device of the modulation or restitution begin. Each of these instants is determined as soon as the appropriate device takes up the significant condition usable for a recording or a processing.

2.331 INSTRUMENT, END. A device which is connected to the terminal of a circuit and used to convert usable intelligence into electrical signals or vice-versa.

2.332 INTEGRITY, CHARACTER AND BIT COUNT. That condition in which the precise number of characters,or bits,that are originated in a message text (in the case of message communication) or per unit time (in the case of a user to user connection) are preserved.

2.333 INTERCHARACTER INTERVAL. See INTERVAL, INTERCHARACTER.

2.334 INTERFACE. A concept involving the specification of the interconnection between two equipments or systems. The specification includes the type, quantity and function of the interconnection circuits and the type and form of signals to be interchanged via those circuits.

2.335 INTERMODULATION DISTORTION. See DISTORTION, INTERMODULATION.

2.336 INTERMODULATION NOISE. See NOISE, INTERMODULATION.

2.337 INTERNAL BIAS. See BIAS, INTERNAL.

2.338 INTERVAL, CHARACTER. The total number of unit intervals (including synchronizing, intelligence, error checking, or control bits) required to transmit any given character in any given communication system. Extra signals which are not associated with individual characters are not included. For example, additional time added between the end of the customary stop element and the beginning of the next start element as a result of a speed change, buffering, etc., is defined as the intercharacter interval. The intercharacter interval may be of any length and is of the same sense on the stop element, i.e., "1" (marking). See INTERCHARACTER INTERVAL.

2.339 INTERVAL, INTERCHARACTER. The intercharacter interval is that time period between the end of the stop element of one character and the beginning of the following character. The signal sense of the intercharacter interval is always the same as the sense of the stop element, i.e., "1" or marking. See INTERVAL, CHARACTER.

2.340 INTERVAL, SIGNIFICANT. Time interval between two consecutive significant instants.

2.341 INTERVAL, UNIT. In a system using an equal-length code or in a system during isochronous modulation (or demodulation), it is the interval of time such that the theoretical durations of the significant intervals of a telegraph modulation are all whole multiples of this interval.

2.342 INVERSION, BIT. The deliberate or fortuituous changing of the state of a bit to the opposite state.

2.343 ISOCHRONOUS MODULATION. See MODULATION, ISOCHRONOUS.

2.344 JITTER (FAX). Raggedness in the received copy caused by erroneous displacement of recorded spots in the direction of scanning.

2.345 JITTER, PHASE. See PERTUBATION, PHASE.

2.346 KENDALL EFFECT (FAX). See EFFECT, KENDALL (FAX).

2.347 KEYING, FREQUENCY SHIFT, FREQUENCY SHIFT SIGNALING (FSK). A frequency-change signaling method in which the frequency or frequencies are varied in accordance with the signals to be transmitted and characterized by continuity of phase during the transition from one signaling condition to another.

2.348 KEYING, TWO-TONE, TELEGRAPH. A system employing a transmission path comprising two channels in the same direction, one for transmission of the spacing elements of binary modulation, the other for transmitting the marking elements of the same modulation.

2.349 KHZ. KiloHertz. 10 to power of 3, Hertz.

2.350 LENGTH, SCANNING LINE (FAX). The total length of scanning line is equal to the spot speed divided by the scanning line frequency. NOTE: This is generally greater than the length of the available line.

2.351 LEVEL, CARRIER NOISE. The noise level produced by undesired variations of a carrier in the absence of any intended modulation.

2.352 LEVEL, RELATIVE TRANSMISSION. The ratio of the signal power in a transmission system to the signal power at some point chosen as reference. The ratio is usually determined by applying a standard test tone (See TONE, STANDARD TEST) at zero transmission level reference point (or adjusted test tone power at any other reference point) and measuring the gain or loss to the location of interest. Note should be made as to the distinction between the standard test tone power and the expected median power of the actual signal required as the basis for the design of transmission systems.

2.353 LEVEL, SINGLE SIDEBAND EQUIPMENT, REFERENCE. (Voice Frequency Input Power to a Transmitter, One Sideband Only.) The power of one of two equal tones which together cause the transmitter to develop its full rated peak power output.

2.354 LF. Low frequency 30 to 300 kHz.

2.355 LIMITER. A device which reduces the power of an electrical signal when it exceeds a specified value. The amount of reduction or compression increases with increase of the input power.

2.356 LINE, AVAILABLE (FAX). The portion of the scanning line which can be used specifically for picture signals.

2.357 LINE, LOCAL. See LOOP, LINE.

2.358 LINE, USEFUL (FAX). See LINE, AVAILABLE.

2.359 LINE, USER'S. See LOOP, LINE.

2.360 LINEARITY. A constant relationship between signal processing devices' input and output characteristics such as frequency, amplitude, phase and time, over a designated range. See DISTORTION, NONLINEAR.

2.361 LINE LOOP. See LOOP, LINE.

2.362 LINE SIDE. See SIDE, LINE.

2.363 LINE WIDTH, NOMINAL (FAX). The average separation between centers of adjacent scanning or recording lines.

2.364 LINK. a. A portion of a communication circuit.

b. A channel or circuit designed to be connected in tandem with other channels or circuits.

c. A radio path between two points, called a radio link; the resultant circuit may be unidirectional, half-duplex, or duplex. NOTE: The term "link" should be defined or qualified when used. It is generally accepted that the signals at each end of a link are in the same form.

2.365 LISTENERS GRADE OF SERVICE. Listeners grade of service ratings for telephone communications rate the received volume and or other transmission variables by evaluating the circuit performance by listeners judgment into three major categories of "Good," "Fair," and "Poor or worse."

2.366 LOADING CHARACTERISTIC (MULTICHANNEL TELEPHONY SYSTEMS). See CHARACTERISTIC, LOADING.

2.367 LOCAL LINE. See LOOP, LINE.

2.368 LOCAL SIDE. See SIDE, LOCAL.

2.369 LONGITUDINAL BALANCE. See BALANCE, LONGITUDINAL.

2.370 LOOP. A loop is a single message circuit from a switching center and/or individual message distribution point to the terminals of an end instrument.

2.371 LOOP, LINE. The portion of a radio or wire circuit that connects a user's end instrument and a central office. (Synonymous terms are "local line" and "users line.")

2.372 LOSS, CROSSTALK COUPLING. (Between a Disturbing and a Disturbed Circuit.) The ratio of the power in the disturbing circuit to the induced power in the disturbed circuit observed at definite points of the circuits under specified terminal conditions; expressed in dB.

2.373 LOSS, INSERTION. The insertion loss of a transmission system (or component thereof) inserted between two impedances Z_e (transmitter) and Z_r (receiver) is the ratio of the power measured at the receiver Z_r before insertion of the transmission system considered, to the power measured after insertion; expressed in dB. If the resulting number in dB thus obtained is negative, an insertion gain is indicated.

2.374 LOSS, NET (GAIN). Net loss or gain is the loss or gain overall of a transmission circuit. It is measured by applying a test signal of some convenient power at the beginning of the circuit and measuring the power delivered at the other end. The ratio of these powers expressed in dB is the net gain or loss of the circuit under observation.

2.375 LOSS, RETURN. The return loss at the junction of a transmission line and a terminating impedance is the ratio, expressed in dB, of the reflected wave to the incident wave. More broadly, the return loss is a measure of the dissimilarity between two impedances, being equal to the number of decibels which corresponds to the scalar value of the reciprocal of the reflection coefficient, and hence being expressed by the formula:

$$20 \log_{10} \left| \frac{Z_2 + Z_1}{Z_2 - Z_1} \right| \text{ dB}$$

where Z_1 and Z_2 are the two impedances. See Figure 10, Appendix B.

2.376 LOW PERFORMANCE EQUIPMENTS. See PERFORMANCE, EQUIPMENTS, LOW.

2.377 MARGIN, SINGING. The singing margin of a transmission circuit is defined as the maximum amount by which the net loss of each of the two directions of transmission in a two-wire circuit that has a four-wire portion may be reduced simultaneously before singing occurs.

2.378 MARKING PULSE. See PULSE, MARKING.

2.379 MAXIMUM KEYING FREQUENCY (FAX). See FREQUENCY, MAXIMUM KEYING (FAX).

2.380 MAXIMUM MODULATING FREQUENCY (FAX). See FREQUENCY, MAXIMUM MODULATING (FAX).

2.381 MEAN POWER (RADIO TRANSMITTER). See POWER, MEAN (RADIO TRANSMITTER).

2.382 MEAN POWER OF THE TALKER VOLUME DISTRIBUTION. See TALKER VOLUME DISTRIBUTION, MEAN POWER OF THE.

2.383 MEAN VOLUME TALKER. See TALKER, MEAN VOLUME.

2.384 MEASUREMENT UNITS OF NOISE. See NOISE, MEASUREMENT UNITS.

2.385 MEDIUM, RECORD (FAX). The physical medium on which the facsimile recorder forms an image of the subject copy.

2.386 MEDIUM POWER TALKER. See TALKER, MEDIUM POWER.

2.387 MESSAGE. A communication from a source to one or more destinations in a suitable language.

2.388 MESSAGE SWITCHING. See SWITCHING, MESSAGE.

2.389 METALLIC CIRCUIT. See CIRCUIT, METALLIC.

2.390 MF. Medium frequency, 300 to 3000 kHz.

2.391 MHZ. MegaHertz. 10 to power of 6, Hertz.

2.392 MODEM. Acronym for modulator-demodulator.

2.393 MODULATION. The process of varying some characteristics of the carrier wave in accordance with the instantaneous value of samples of the intelligence to be transmitted. See CARRIER.

2.394 MODULATION, AMPLITUDE (AM). The form of modulation in which the amplitude of the carrier is varied in accordance with the instantaneous value of the modulating signal.

2.395 MODULATION, DELTA. A technique for converting an analog signal to a digital signal. The technique approximates the analog signal with a series of segments. The approximated signal is compared to the original analog wave to determine an increase or decrease in relative amplitude. The decision process for establishing the state of successive binary digits is determined by this comparison. There are several variations to the simple delta modulation system.

2.396 MODULATION, DIFFERENTIAL. A type of modulation in which the choice of the significant condition for any signal element is dependent on the choice for the previous signal element. Delta modulation is an example.

2.397 MODULATION, FIXED REFERENCE. A type of modulation in which the choice of the significant condition for any signal element is based on a fixed reference.

2.398 MODULATION, FREQUENCY (FM). The form of modulation in which the instantaneous frequency of a sine wave carrier is caused to depart from the carrier frequency by an amount proportional to the instantaneous value of the modulating signal.

2.399 MODULATION, ISOCHRONOUS. Modulation (or demodulation) in which the time interval separating any two significant instants is theoretically equal to the unit interval or to a multiple of this.

2.400 MODULATION, PHASE (PM). The form of modulation in which the angle relative to the unmodulated carrier angle is varied in accordance with the instantaneous value of the amplitude of the modulating signal.

2.401 MODULATION, PULSE AMPLITUDE (PAM). The form of modulation in which the amplitude of the pulse carrier is varied in accordance with successive samples of the modulating signal.

2.402 MODULATION, PULSE CODE (PCM). The form of modulation in which the modulating signal is sampled, and the sample quantized and coded so that each element of information consists of different kinds and/or numbers of pulses and spaces.

2.403 MODULATION, PULSE FREQUENCY (PFM). The form of modulation in which the pulse repetition frequency of the carrier is varied in accordance with successive samples of the modulating signal.

2.404 MODULATION, PULSE TIME (PTM). The form of modulation in which the time of occurrence of some characteristics of the pulse carrier is varied in accordance with successive samples of the modulating signal. (This includes pulse position and pulse duration or pulse width modulation.

2.405 MODULATION, SIGNIFICANT CONDITION OF. A condition assumed by the appropriate device corresponding to the quantized value (or values) of the characteristic (or characteristics) chosen to form the modulation. The following equivalent designations are used to identify the significant conditions for binary modula ion:

Passive	Active
0	1
Current Off	Current On
Tone Off	Tone On
Space	Mark
-	+
No hole (paper tape)	Hole (paper tape)
Frequency High	Frequency Low

2.406 MODULATION RATE. See RATE, MODULATION.

2.407 MULTIPLE SPOT SCANNING (FAX). See SCANNING, MULTIPLE SPOT.

2.408 MULTIPLEX, FREQUENCY DIVISION (FDM). Frequency division multiplexing is a method of deriving two or more simultaneous, continuous channels from a medium connecting two points by assigning separate portions of the available frequency spectrum to the several channels.

2.409 MULTIPLEX, TIME DIVISION (TDM). Time Division Multiplexing is a method of deriving several channels from a given frequency spectrum, by assigning discrete time intervals in sequence to the different channels. During a given time interval the entire available frequency spectrum can be used by the channel to which it is assigned. In general, time division multiplex systems use pulse transmission. The multiplex pulse train may be considered to be the interleaved pulse trains of the individual channels. The individual channel pulses may be modulated either in an analog or a digital manner.

2.410 MULTIPLEX BASEBAND. See BASEBAND, MULTIPLEX.

2.411 MULTIPLEX BASEBAND RECEIVE TERMINALS. See TERMINALS, MULTIPLEX BASEBAND RECEIVE.

2.412 MULTIPLEX BASEBAND SEND TERMINALS. See TERMINALS, MULTIPLEX BASEBAND SEND.

2.413 MUX. A shorthand reference to multiplex.

2.414 NEAR-END CROSSTALK. See CROSSTALK, NEAR-END.

2.415 NECESSARY BANDWIDTH. See BANDWIDTH, NECESSARY.

2.416 NET OPERATION. See OPERATION, NET.

2.417 NEUTRAL DIRECT-CURRENT TELEGRAPH SYSTEM. See SYSTEM, NEUTRAL DIRECT-CURRENT TELEGRAPH.

2.418 NODE. (Also called Junction Point, Branch Point, or Vertex.) A terminal of any branch of a network or a terminal common to two or more branches of a network.

2.419 NOISE, INTERMODULATION. In a transmission path or device, that noise which is contingent upon modulation and results from any non-linear characteristic in the path or device.

2.420 NOISE, MEASUREMENT UNITS. Noise is usually measured in terms of power, either relative or absolute. The decibel is the base unit for these measurements. A suffix is usually added to denote a particular reference base or specific qualities of the measurement. (See WEIGHTING, NOISE.) Noise measurement units defined in this standard are dBa, dBa(F1A), dBa(HA1), dBaO, dBm, dBmO, dBm,Psoph., dBmOp, dBrn, dBrn(144-line), dBrn (144-receiver), dBrn(C-message), dBrn(f_1 - f_2), pW and pWp.

2.421 NOISE, QUANTIZING. In a modulation system that employs a quantizing process, quantizing noise is that noise that is caused by the error of approximation. It is an undesirable random distortion signal which is solely dependent on the particular quantization process used and the statistical characteristics of the quantized signal.

2.422 NOISE POWER OF A RADIO TRANSMITTER (PN). See POWER, NOISE, OF A RADIO TRANSMITTER (PN).

2.423 NOISE POWER RATIO, INBAND (NPR) (MULTICHANNEL EQUIPMENT). The noise power ratio, for multichannel equipment, is the ratio of the mean noise power measured in any channel, with all channels loaded with white noise, to the mean noise power measured in the same channel, with all channels but the measured channel loaded with noise.

2.424 NOISE POWER RATIO, IN CHANNEL (NPR) (MULTICHANNEL EQUIPMENT). The noise power ratio, for multichannel equipment, is the ratio of the mean noise power measured in any channel, with no input loading on the channels, to the mean noise power measured in the same channel, with only the measured channel loaded with white noise.

2.425 NOISE POWER RATIO, SINGLE SIDEBAND (NPR) (SSB). NPR (SSB) is the ratio of the mean noise powers measured in the notch filter bandwidth for the notch in and the notch out conditions with total system mean noise power output equal for both conditions. (See Section 9, Methods of Measurement.)

2.426 NOISE RATIO, SIGNAL-PLUS-NOISE TO. The signal plus noise to noise is a ratio of the signal plus noise arriving at a location in a transmission path to the noise normally present when the signal is removed at the sending end and replaced by a termination.

2.427 NOISE WEIGHTING. See WEIGHTING, NOISE.

2.428 NOMINAL BANDWIDTH. See BANDWIDTH, NOMINAL.

2.429 NOMINAL LINE WIDTH (FAX). See LINE WIDTH, NOMINAL (FAX).

2.430 NONLINEAR DISTORTION. See DISTORTION, NONLINEAR.

2.431 NOTATION, BINARY. A scheme for representing numbers characterized by the arrangements of digits in sequence with the understanding that successive digits are interpreted as coefficients of successive powers of the base two.

2.432 NPR. Noise Power Ratio.

2.433 NUMBER, BINARY. A number expressed in binary notation.

2.434 OBJECTIVE, DESIGN. An electrical (or mechanical) performance characteristic for communication circuits and equipments which is based on engineering judgment of performance desired but which for a number of reasons it is not considered feasible to establish as a STANDARD at the time this standard is written. Examples of reasons for designating a performance characteristic as a (DO) rather than as an (S) are: It may be bordering on an advancement in state-of-the-art; the requirement may not have been fully confirmed by measurement or experience with operating circuits; it may not have been demonstrated that it can be met considering other constraints such as cost and size, etc. A (DO) shall be considered as guidance for Department of Defense Agencies in preparation of specifications for development or procurement of new equipment or systems which shall be used if technically and economically practicable at the time such specifications are written. See also STANDARDS, SYSTEM.

2.435 OCCUPIED BANDWIDTH. See BANDWIDTH, OCCUPIED.

2.436 OFFICE, CENTRAL. See CENTER, SWITCHING.

2.437 ONE-WAY REVERSIBLE OPERATION. See OPERATION, ONE-WAY REVERSIBLE.

2.438 OPEN-CIRCUIT WORKING. See CIRCUIT WORKING, OPEN-.

2.439 OPERATION, BROADCAST. That type of operation in which a transmitting point emits information which may be received by one or more stations.

2.440 OPERATION, CONFERENCE. a. In a telephone system, that type of operation in which more than two stations can carry on a conversation.

b. In telegraph or data transmission, that form of simplex or half-duplex operation in which more than two stations may simultaneously exchange information, carry on conversations or pass messages among one another. NOTE: In radio systems, the stations receive simultaneously, but must transmit one at a time. The common modes are "push-to-talk" (telephone) and "push-to-type" (telegraph, data transmission).

2.441 OPERATION, DUPLEX. A type of operation in which simultaneous two-way conversations, messages or information may be passed between any two given points.

2.442 OPERATION, FULL DUPLEX. See OPERATION, DUPLEX.

2.443 OPERATION, HALF-DUPLEX. That type of simplex operation which uses a half-duplex circuit.

2.444 OPERATION, NET. Nets (netted operations) are ordered conferences whose participants have common information in needs or like functions to perform. Nets are characterized by adherence to standard formats. They are responsive to a common supervisor entitled the Net Controller (Net Control Stations) whose functions include permitting access to the Net and maintaining circuit discipline.

2.445 OPERATION, ONE-WAY REVERSIBLE. Similar to half-duplex operation.

2.446 OPERATION, PUSH-TO-TALK. (Press-to-talk) In telephone systems, that method of communication over a speech circuit in which transmission occurs from only one station at a time, the talker being required to keep a switch operated while he is talking.

2.447 OPERATION, PUSH-TO-TYPE. (Press-to-type) In telegraph or data transmission systems, that method of communication, in which the operator must keep a switch operated in order to send from his station. It is generally used in radio systems where the same frequency is employed for transmission and reception. NOTE: This is a derivative form of transmission, and may be used in simplex, half-duplex or duplex operation.

2.448 OPERATION, SIMPLEX. That type of operation which permits the transmission of signals in either direction alternately. NOTE: In radio telegraph or data transmission systems, it may be either (a) the use of a single frequency, time slot or code address for transmission, and another frequency, time slot or code address for reception, or (b) the use of the same frequency, time slot or code address for both transmission and reception. In wire telegraph systems, simplex operation may be employed over either a half-duplex circuit, or over a neutral direct current circuit.

2.449 OPERATION, SPEECH-PLUS-DUPLEX. That method of operation in which speech and telegraphy (duplex or simplex) are transmitted simultaneously over the same circuit, being kept from mutual interference by use of filters.

2.450 OPERATION, UNDIRECTIONAL (SEND ONLY, RECEIVE ONLY). A method of operation between terminals, one of which is a transmitter and the other a receiver.

2.451 ORDER WIRE. See WIRE, ORDER.

2.452 OUT-OF-BAND SIGNALING. See SIGNALING, OUT-OF-BAND.

2.453 OUTPUT RATING. See POWER.

2.454 OVERHEAD BIT. See BIT, OVERHEAD.

2.455 PAIRING, BIT. The practice of establishing, within a code set, a number of subsets of two characters each that have an identical bit representation except for the state of a specified bit. For example: In the ITA Number 5 and the Military Standard Code for Information Interchange, the upper case letters are related to their respective lower case letters by the state of bit six.

2.456 PARALLEL TRANSMISSION. See TRANSMISSION, PARALLEL.

2.457 PARITY BIT. See BIT, PARITY.

2.458 PATTERN, ADDRESS. In a digital system a prescribed recurring pattern of bits transmitted over a digital transmission system to enable the receiver to achieve frame synchronization.

2.459 PEAK ENVELOPE POWER (*RADIO TRANSMITTER*). *See* POWER, PEAK ENVELOPE (RADIO TRANSMITTER).

2.460 PERFORMANCE, EQUIPMENTS, HIGH. Those equipments having sufficiently exacting characteristics to permit their use in trunk or link circuits. Those equipments designed primarily for use in global and tactical service which are required to operate where the maximum performance, *minimum electromagnetic interference* and capabilities are required for operation in a variety of nets or for fixed point-to-point circuits. NOTE: Requirements for global and tactical high performance equipments may differ.

2.461 PERFORMANCE, EQUIPMENTS, LOW. Those equipments having insufficiently exacting characteristics to permit their use in trunk or link circuits. Such equipments may be employed in loop circuits whenever they meet loop circuit requirements. Those tactical ground and airborne equipments whose size, weight, complexity must be kept to a minimum and where the primary requirement is to operate in nets with similar minimum performance standards.

2.462 PERTUBATION, PHASE (PHASE JITTER). The existence of this phenomenon has long been recognized by telephone transmission engineers, however due to the relative insensitivity of the human ear to this form of channel disturbance, relatively little attention has been paid to it.

Attention is called to this phenomenon because of the serious detrimental impact it can have on data transmission, particularly that type of modulation which is dependent on the signal phase more than the amplitude or frequency. It is not precisely defined since so little, widely understood or agreed technical data exists. For purposes of a working definition, therefore, Phase Pertubation or Phase Jitter is defined as that phenomena from causes known or unknown which results in a relative shifting (often quite rapid) in the phase of the signal.

The shifting in phase may appear to be random, cyclic or both. It is noted that a similar phenomenon related to amplitude pertubation exists which is also not sufficiently understood to be acceptably defined at this time.

The amount of phase pertubation may be expressed in degrees with any cyclic component expressed in Hertz. The instantaneous relative phase may or may not be significant, however, for the sake of clarity it should be assumed a phase pertubation of 36° would be taken to mean ± 18° relative to a single sine wave signal or + 36° would assume leading shifting in phase of 36°.

2.463 PHASE DELAY (FAX). See DELAY, PHASE (FAX).

2.464 PHASE DISTORTION. See DISTORTION, DELAY.

2.465 PHASE MODULATION. See MODULATION, PHASE.

2.466 PHASE PERTUBATION (PHASE JITTER). See PERTUBATION, PHASE.

2.467 PHASING (FAX). The adjustment of picture position along the scanning line.

2.468 PHOTOSENSITIVE RECORDING (FAX). See RECORDING, PHOTOSENSITIVE (FAX).

2.469 PICTURE FREQUENCIES (FAX). See FREQUENCIES, PICTURE (FAX).

2.470 PILOT. (In a transmission system.) A signal wave, usually a single frequency, transmitted over the system and used for either level control, synchronization, or both.

2.471 PILOT. A signal wave, usually a single frequency transmitted over the system for supervisory, control, synchronization or reference purposes. Sometimes it is necessary to employ several independent pilot frequencies. Most radio relay systems use radio or continuity pilots of their own but transmit also the pilot frequencies belonging to the carrier frequency multiplex system.

2.472 POINT, ZERO TRANSMISSION LEVEL REFERENCE. A point in a circuit to which all relative transmission levels are referred. See also LEVEL, RELATIVE TRANSMISSION. NOTE: The zero point may not be conveniently available in some systems.

2.473 POLAR DIRECT CURRENT TELEGRAPH SYSTEM. See SYSTEM, POLAR DIRECT-CURRENT TELEGRAPH.

2.474 POLARIZATION DIVERSITY. See DIVERSITY, POLARIZATION.

2.475 POWER, CARRIER (PC) (RADIO TRANSMITTER). The average power supplied to the antenna transmission line by a transmitter during one radio frequency cycle under conditions of no modulation. This definition does not apply to pulse modulated emissions or FSK.

2.476 POWER, EFFECTIVE RADIATED (ERP). The power supplied to the antenna multiplied by the relative gain of the antenna in a given direction.

2.477 POWER, MEAN (PM) (RADIO TRANSMITTER). The power supplied to the antenna transmission line by a transmitter during normal operation, averaged over a time sufficiently long compared with the period of the lowest frequency encountered in the modulation. A time of 1/10 second during which the mean power is greatest will be selected normally.

2.478 POWER, NOISE (PN) (RADIO TRANSMITTER). The mean power supplied to the antenna transmission line by a transmitter when loaded with white noise having a Gaussian amplitude distribution.

2.479 POWER, PEAK ENVELOPE (PEP) (RADIO TRANSMITTER). The power supplied to the antenna transmission line by a transmitter during one radio frequency cycle at the highest crest of the modulation envelope, taken under conditions of normal operation.

2.480 POWER RATIO, NOISE, SINGLE SIDEBAND, NPR (SSB). See NOISE POWER RATIO, SINGLE SIDEBAND, NPR (SSB).

2.481 PSOPHOMETRICALLY WEIGHTED DBM. See DBm (Psoph) and DBmOp.

2.482 PSOPHOMETRIC VOLTAGE. See VOLTAGE, PSOPHOMETRIC.

2.483 PSOPHOMETRIC WEIGHTING. See WEIGHTING, PSOPHOMETRIC.

2.484 PULSE. A signal characterized by the rise and decay in time of a quantity whose value is normally constant.

2.485 PULSE, MARKING (TTY). That significant condition of a modulation which results in an active selecting operation in receiving apparatus. See MODULATION, SIGNIFICANT CONDITION OF A.

2.486 PULSE, SPACING (TTY). That significant condition of a modulation which results in a passive selecting operation in a receiving apparatus. See MODULATION, SIGNIFICANT CONDITION OF A.

2.487 PULSE AMPLITUDE MODULATION. See MODULATION, PULSE AMPLITUDE.

2.488 PULSE CODE MODULATION. See MODULATION, PULSE CODE.

2.489 PULSE DECAY TIME. See DECAY TIME, PULSE.

2.490 PULSE FREQUENCY MODULATION. See MODULATION, PULSE FREQUENCY.

2.491 PULSE RISE TIME. See RISE TIME, PULSE.

2.492 PULSE TIME MODULATION. See MODULATION, PULSE TIME.

2.493 PUSH-TO-TALK OPERATION. See OPERATION, PUSH-TO-TALK.

2.494 PUSH-TO-TYPE OPERATION. See OPERATION, PUSH-TO-TYPE.

2.495 PW. (Picowatt. Equal to 10^{-12} Watt, or = - 90 dBm.) A unit of absolute power commonly used for both weighted and unweighted noise. Context must be observed.

2.496 PWp (PW, PSOPHOMETRICALLY WEIGHTED). See PW and WEIGHTING, NOISE.

2.497 QUADRUPLE DIVERSITY. See DIVERSITY, QUADRUPLE.

2.498 QUANTIZATION. The process of converting the exact sample values of a signal wave to their nearest equivalent in a finite set of discrete values to permit digital encoding.

2.499 QUANTIZING NOISE. See NOISE, QUANTIZING.

2.500 QUASI-ANALOG SIGNAL. See SIGNAL, QUASI-ANALOG.

2.501 RADIO BASEBAND RECEIVE TERMINALS. See TERMINALS, RADIO BASEBAND RECEIVE.

2.502 RADIO BASEBAND SEND TERMINALS. See TERMINALS, RADIO BASEBAND SEND.

2.503 RADIO BASEBAND. See BASEBAND, RADIO.

2.504 RANDOM BINARY BIT STREAM SIGNALING. See SIGNALING, RANDOM BINARY BIT STREAM.

2.505 RATE, DATA SIGNALING. Refer to Appendix B, Reference Chart for modulation rates for explanation of Data Signaling Rates.

2.506 RATE, ERROR (BIT, BLOCK, CHARACTER, ELEMENT). The ratio of the number of bits, elements, characters, or blocks incorrectly received to the total number of bits, elements, characters, or blocks sent.

2.507 RATE, MODULATION. Reciprocal of the unit interval measured in seconds. (This rate is expressed in baud.)

2.508 RATING, OUTPUT. See POWER.

2.509 RECEIVER, FACSIMILE. The apparatus employed to translate the signal from the communications channel into a facsimile record of the subject copy.

2.510 RECEIVING CONVERTER, FACSIMILE. See CONVERTER, FACSIMILE RECEIVING.

2.511 RECEPTION, EXALTED CARRIER. A method of receiving either amplitude or phase modulated signals in which the carrier is separated from the sidebands, filtered and amplified, and then combined with the sidebands again at a higher level prior to demodulation.

2.512 RECORD MEDIUM (FAX). See MEDIUM, RECORD (FAX).

2.513 RECORD SHEET (FAX). See SHEET, RECORD (FAX).

2.514 RECORDED SPOT X DIMENSION (FAX). See SPOT, X DIMENSION OF RECORDED (FAX).

2.515 RECORDED SPOT Y DIMENSION (FAX). See SPOT, Y DIMENSION OF RECORDED (FAX).

2.516 RECORDED SPOT (FAX). See SPOT, RECORDED (FAX).

2.517 RECORDER, FACSIMILE. That part of the facsimile receiver which performs the final conversion of electrical picture signal to an image of the subject copy in the record medium.

2.518 RECORDING SPOT (FAX). See SPOT, RECORDING (FAX).

2.519 RECORDING (FAX). The process of converting the electrical signal to an image on the record medium.

2.520 RECORDING, DIRECT (FAX). That type of recording in which a visible record is produced, without subsequent processing, in response to the received signals.

2.521 RECORDING, ELECTROMECHANICAL (FAX). Recording by means of a signal-actuated mechanical device.

2.522 RECORDING, ELECTROCHEMICAL (FAX). Recording by means of a chemical reaction brought about by the passage of signal-controlled current through the sensitized portion of the record sheet.

2.523 RECORDING, ELECTROLYTIC (FAX). That type of electrochemical recording in which the chemical change is made possible by the presence of an electrolyte.

2.524 RECORDING, ELECTROSTATIC (FAX). Recording by means of a signal-controlled electrostatic field.

2.525 RECORDING, ELECTROTHERMAL (FAX). That type of recording which is produced principally by signal-controlled thermal action.

2.526 RECORDING, INK VAPOR (FAX). That type of recording in which vaporized ink particles are directly deposited upon the record sheet.

2.527 RECORDING, PHOTOSENSITIVE (FAX). Recording by the exposure of a photosensitive surface to a signal-controlled light beam or spot.

2.528 REDUCED OR SUPPRESSED CARRIER DOUBLE SIDEBAND TRANSMISSION. See TRANSMISSION, SIDEBAND, DOUBLE, REDUCED OR SUPPRESSED CARRIER.

2.529 REDUNDANT CODE. See CODE, REDUNDANT.

2.530 REFERENCE FREQUENCY. See FREQUENCY, REFERENCE.

2.531 REFERENCE POINT, ZERO TRANSMISSION LEVEL. See POINT, ZERO TRANSMISSION LEVEL REFERENCE.

2.532 REFLECTION COEFFICIENT. See COEFFICIENT, REFLECTION.

2.533 REGENERATIVE REPEATER. See REPEATER, REGENERATIVE.

2.534 RELATIVE TRANSMISSION LEVEL. See LEVEL, RELATIVE TRANSMISSION.

2.535 REMOTE CONTROL EQUIPMENT. See CONTROL EQUIPMENT, REMOTE.

2.536 REPEATER. A device which amplifies or reshapes and/or retimes an input signal for further retransmission.

2.537 REPEATER, BROADCAST. A repeater connecting several channels, one incoming and the others outgoing.

2.538 REPEATER, CONFERENCE. A repeater connecting several circuits, which receives telegraph signals from any one of the circuits and automatically retransmits them over all the others.

2.539 REPEATER, REGENERATIVE. A repeater in which the signals retransmitted are reshaped and retimed.

2.540 REPRODUCTION SPEED (FAX). See SPEED, REPRODUCTION (FAX).

2.541 RESIDUAL ERROR-RATE. See ERROR-RATE, RESIDUAL.

2.542 RESTITUTION (DEMODULATION). Series of significant conditions determined by the decisions taken according to the products of the demodulation process. See also DEMODULATION.

2.543 RETURN LOSS. See LOSS, RETURN.

2.544 RF BANDWIDTH. See BANDWIDTH, RF.

2.545 RINGDOWN SIGNALING. See SIGNALING, RINGDOWN.

2.546 RISE TIME, PULSE. The time required for the instantaneous amplitude to go from 10% to 90% of the peak value.

2.547 RITTY. A shorthand reference to radio-teletypewriter.

2.548 SAMPLING FREQUENCY. See FREQUENCY, SAMPLING.

2.549 SCANNER (FAX). That part of the facsimile transmitter which systematically translates the densities of the subject copy into signal-wave form.

2.550 SCANNING (FAX). The process of analyzing successively the densities of the subject copy according to the elements of a predetermined pattern. NOTE: The normal scanning is from left to right and top to bottom of the subject copy as when reading a page of print. Reverse direction is from right to left and top to bottom of the subject copy. The IEEE, ASA, and WMO Standards consider the normal scanning direction to be from left to right.

2.551 SCANNING, DIRECTION OF (FAX). At the transmitting apparatus the plane (developed in the case of a drum transmitter) of the message surface is scanned along lines running from right to left commencing at the top so that scanning commences at the top right-hand corner of the surface and finishes at the bottom left-hand corner; this is equivalent to scanning over a right-hand helix on a drum. The orientation of the message on the scanning plane will depend upon its dimensions and is of no consequence.

At the receiving apparatus scanning takes place from right to left and top to bottom (in the above sense) for "positive" reception and from left to right and top to bottom (in the above sense) for "negative" reception. NOTE: This is the CCITT Standard for Phototelegraphic apparatus. (See SCANNING (FAX))

2.552 SCANNING, ELECTRONIC LINE (FAX). That method of scanning which provides motion of the scanning spot along the scanning line by electronic means.

2.553 SCANNING, MULTIPLE SPOT (FAX). The method in which scanning is carried on simultaneously by two or more scanning spots, each one analyzing its fraction of thetotal scanned area of the subject copy.

2.554 SCANNING, SIMPLE (FAX). Scanning of only one scanning spot at a time during the scanning process.

2.555 SCANNING LINE FREQUENCY (FAX). See SPEED, STROKE (FAX).

2.556 SCANNING LINE LENGTH (FAX). See LENGTH, SCANNING LINE (FAX).

2.557 SCANNING SPOT X DIMENSION (FAX). See SPOT, X DIMENSION OF SCANNING (FAX).

2.558 SCANNING SPOT Y DIMENSION (FAX). See SPOT, Y DIMENSION OF SCANNING (FAX).

2.559 SCANNING SPOT (FAX). See SPOT, SCANNING (FAX).

2.560 SELECTIVE FADING. See FADING, SELECTIVE.

2.561 SERIAL TRANSMISSION. See TRANSMISSION, SERIAL.

2.562 SERVICE BIT. See BIT, SERVICE.

2.563 SET, CHARACTER. A "character set" as used herein is a basic group of defined numeric, alphabetic, punctuation and special symbol characters of one style. The term is most meaningful when accompanied by a qualifying descriptor. For example: The graphic character set of USASCII.

2.564 SET, CODE. See ALPHABET, DIGITAL.

2.565 SHEET, RECORD (FAX). The medium which is used to produce a visible image of the subject copy in record form. The record medium and the record sheet may be identical.

2.566 SHF. Super high frequency, 3 to 30 GHz.

2.567 SIDE, LINE. That portion of a device which looks toward the transmission path (line circuit, loop, trunk).

2.568 SIDE, LOCAL. That portion of a device which looks toward the internal station facilities.

2.569 SIDEBANDS. The spectral energy distributed above and below a carrier resulting from a modulation process.

2.570 SIDEBAND TRANSMISSION. See TRANSMISSION, SIDEBAND.

2.571 SIDETONE, TELEPHONE. Telephone sidetone is the transmission and reproduction of sounds through a local path from transmitting transducer to the receiving transducer of the same telephone set in order that the talker may hear his voice in the receiver.

2.572 SIGNAL, ANALOG. A nominally continuous electrical signal that varies in some direct correlation to a signal impressed on a transducer. The electrical signal may vary its frequency or amplitude, for instance, in response to change in phenomena or characteristics such as sound, light, heat, position, or pressure.

2.573 SIGNAL, DIGITAL. A nominally discontinuous electrical signal that changes from one state to another in discrete steps. The electrical

signal could change its amplitude or polarity, for instance, in response to outputs from computers, teletypewriters, etc. Analog signals may be converted to a digital form by quantizing.

2.574 SIGNAL, FACSIMILE (PICTURE SIGNAL). A signal resulting from the scanning process.

2.575 SIGNAL, QUASI-ANALOG. A quasi-analog signal is a digital signal, after conversion to a form suitable for transmission over a specified analog channel. The specification of an analog channel would include frequency range, frequency bandwidth, S/N ratio, and envelope dalay distortion. When this form of signaling is used to convey message traffic over dialed-up telephone systems it is often referred to as voice-data.

2.576 SIGNAL, START (FAX). A signal which initiates the transfer of a facsimile equipment condition from standby to active.

2.577 SIGNAL, START RECORD (FAX). A signal used for starting the process of converting the electrical signal to an image on the record sheet.

2.578 SIGNAL, STOP (FAX). A signal which initiates the transfer of a facsimile equipment condition from active to standby.

2.579 SIGNAL, STOP RECORD (FAX). A signal used for stopping the process of converting the electrical signal to an image on the record sheet.

2.580 SIGNAL, SYNCHRONIZING (FAX). Maintenance of predetermined speed relations between the scanning spot and recording spot within each scanning line.

2.581 SIGNAL, VOICE-DATA. See SIGNAL, QUASI-ANALOG.

2.582 SIGNAL CONTRAST (FAX). See CONTRAST, SIGNAL (FAX).

2.583 SIGNAL CONVERTER. See CONVERTER, SIGNAL.

2.584 SIGNAL ELEMENT. See ELEMENT, SIGNAL.

2.585 SIGNAL FREQUENCY SHIFT (FAX). See FREQUENCY SHIFT, SIGNAL (FAX).

2.586 SIGNAL LEVEL, FACSIMILE. The maximum facsimile signal power or voltage (rms or dc) measured at any point in a facsimile system. NOTE: It may be expressed in decibels with respect to some standard value such as 1 milliwatt.

2.587 SIGNAL-PLUS-NOISE TO NOISE RATIO. See NOISE RATIO, SIGNAL-PLUS-NOISE TO.

2.588 SIGNAL TRANSITION. See TRANSITION, SIGNAL.

2.589 SIGNALING, COMMON BATTERY. A method of actuating a line or supervisory signal at the distant end of a telephone line by the closure of a dc circuit.

2.590 SIGNALING, INBAND. Signaling which utilizes frequencies within the voice or intelligence band of a channel.

2.591 SIGNALING, OUT-OF-BAND. Signaling which utilizes frequencies within the guard band between channels or bits other than information bits in a digital system. This term is also used to indicate the use of a portion of the channel bandwidth provided by the medium such as the carrier channel, but denied to the speech or intelligence path by filters. It results in a reduction of the effective available bandwidth.

2.592 SIGNALING, RANDOM BINARY BIT STREAM (INTERMITTENT TIMING). The method of communication that employs bit intermittent transmission of signals on a unit interval basis without regard to the presence or absence of code or alphabet.

2.593 SIGNALING, RINGDOWN. The application of signal to the line for the purpose of bringing in a line signal or supervisory signal at a switchboard or ringing a user's instrument. (Historically, this was a low frequency signal of about 20 Hz from the user on the line for calling the operator or for disconnect.)

2.594 SIGNALING, FREQUENCY CHANGE. A signaling method in which one or more particular frequencies correspond to each desired signaling condition of a code. The transition from one set of frequencies to the other may be either a continuous or a discontinuous change in frequency or in phase.

2.595 SIGNALING, FREQUENCY EXCHANGE (TWO-SOURCE FREQUENCY KEYING). A frequency change signaling method in which the change from one signaling condition to another is accompanied by decay in amplitude of one or more frequencies and by buildup in amplitude of one or more other frequencies.

2.596 SIGNALING, FREQUENCY SHIFT. See KEYING, FREQUENCY SHIFT.

2.597 SIGNIFICANT CONDITION OF A MODULATION. See MODULATION, SIGNIFICANT CONDITION OF.

2.598 SIGNIFICANT INSTANTS. See INSTANTS, SIGNIFICANT.

2.599 SIGNIFICANT INTERVAL. See INTERVAL, SIGNIFICANT.

2.600 SIMPLE SCANNING (FAX). See SCANNING, SIMPLE (FAX).

2.601 SIMPLEX CIRCUIT. See CIRCUIT, SIMPLEX.

2.602 SIMPLEX OPERATION. See OPERATION, SIMPLEX.

2.603 SIMPLEXED CIRCUIT. See CIRCUIT, SIMPLEXED.

2.604 SINGING MARGIN. See MARGIN, SINGING.

2.605 SINGLE CURRENT TRANSMISSION. See TRANSMISSION, SINGLE-CURRENT.

2.606 SINGLE SIDEBAND EQUIPMENT REFERENCE LEVEL. See LEVEL, SINGLE SIDEBAND EQUIPMENT REFERENCE.

2.607 SINGLE SIDEBAND TRANSMISSION. See TRANSMISSION, SIDEBAND, SINGLE.

2.608 SINGLE-HARMONIC DISTORTION. See DISTORTION, SINGLE-HARMONIC.

2.609 SINK, COMMUNICATIONS. A device which receives information, control or other signals from communications source(s).

2.610 SINK, DATA. The equipment which accepts data signals after transmission.

2.611 SKEW (FAX). The deviation of the received frame from rectangularity due to asynchronism between scanner and recorder. Skew is expressed numerically as the tangent of the angle of this deviation.

2.612 SOUND-POWERED TELEPHONE. See TELEPHONE, SOUND-POWERED.

2.613 SOURCE, COMMUNICATIONS. A device which generates information, control, or other signals destined for communications sink(s).

2.614 SOURCE, DATA. The equipment which supplies data signals to be transmitted.

2.615 SPACE DIVERSITY. See DIVERSITY, SPACE.

2.616 SPACING PULSE. See PULSE, SPACING (TTY).

2.617 SPECTRUM DESIGNATION OF FREQUENCY. See FREQUENCY, SPECTRUM DESIGNATION OF.

2.618 SPEECH-PLUS-DUPLEX OPERATION. See OPERATION, SPEECH-PLUS-DUPLEX.

2.619 SPEED, DRUM (FAX). The angular speed of the transmitter or recorder drum. NOTE: This speed is measured in revolutions per minute.

2.620 SPEED, REPRODUCTION (FAX). The area of copy recorded per unit time.

2.621 SPEED, SPOT (FAX). The speed of the scanning or recording spot within the available line. NOTE: This is generally measured on the subject copy or on the record sheet.

2.622 SPEED, STROKE (FAX). (SCANNING OR RECORDING LINE FREQUENCY.) The number of times per minute, unless otherwise stated, that a fixed line perpendicular to the direction of scanning is crossed in one direction by a scanning or recording spot. NOTE: In most conventional mechanical systems this is equivalent to drum speed. In systems in which the picture signal is used while scanning in both directions, the stroke speed is twice the above figure.

2.623 SPOT, RECORDED (FAX). The image of the recording spot on the record sheet.

2.624 SPOT, RECORDING (FAX). The image area formed at the record medium by the facsimile recorder.

2.625 SPOT, SCANNING (FAX) The area on the subject copy viewed instantaneously by the pickup system of the scanner.

2.626 SPOT, X DIMENSION OF SCANNING (FAX). The effective scanning spot dimension measured in the direction of the scanning line on the subject copy. NOTE: The numerical value of this will depend upon the type of system used.

2.627 SPOT, X DIMENSION OF RECORDED (FAX). The effective recorded spot dimension measured in the direction of the recorded line. NOTE 1: By effective dimension is meant the largest center-to-center spacing between recorded spots which gives minimum peak-to-peak variation of density of the recorded line. NOTE 2: This term applies to that type of equipment which responds to a constant density in the subject copy by a succession of discrete recorded spots.

2.628 SPOT, Y DIMENSION OF SCANNING (FAX). The effective scanning spot dimension measured perpendicularly to the scanning line on the subject copy. NOTE: The numerical value of this will depend upon the type of system used.

2.629 SPOT, Y DIMENSION OF, RECORDED (FAX). The effective recorded spot dimension measured perpendicularly to the recorded line. NOTE: By effective dimension is meant the largest center-to-center distance between recorded lines which gives minimum peak-to-peak variation of density across the recorded lines.

2.630 SPOT SPEED (FAX). See SPEED, SPOT (FAX).

2.631 STAGGER (FAX). Periodic error in the position of the recorded spot along the recorded line.

2.632 STANDARDS. See STANDARDS, SYSTEM.

2.633 STANDARDS, SYSTEM. a. The minimum required electrical performance characteristics of communication circuits which are based on measured performance of developed circuits under the various operating conditions for which the circuits were designed.

b. The specified characteristics not dictated by electrical performance requirements but necessary in order to permit interoperation. (For example, the values for center frequencies for telegraph channels, test tone, etc.) See also OBJECTIVE, DESIGN.

2.634 STANDARD TEST TONE. See TONE, STANDARD TEST.

2.635 START-STOP TTY DISTORTION. See DISTORTION, START-STOP TTY.

2.636 START RECORD SIGNAL (FAX). See SIGNAL, START RECORD (FAX).

2.637 START SIGNAL (FAX). See SIGNAL, START (FAX).

2.638 STOP RECORD SIGNAL (FAX). See SIGNAL, STOP RECORD (FAX).

2.639 STOP SIGNAL (FAX). See SIGNAL, STOP (FAX).

2.640 STORE-AND-FORWARD. See SWITCHING, MESSAGE.

2.641 STROKE SPEED (FAX). See SPEED, STROKE (FAX).

2.642 SUBCARRIER. A carrier which is applied as modulation on another carrier, or on an intermediate subcarrier. See also CARRIER.

2.643 SUBJECT COPY (FAX). See COPY, SUBJECT (FAX).

2.644 SWITCHING, CIRCUIT. The term applied to the method of handling traffic through a switching center, either from local users, or from other switching centers, whereby a distant electrical connection is established between the calling and called stations.

2.645 SWITCHING, MESSAGE. The term applied to any indirect or store-and-forward (S/F) traffic through a switching center, either from local users or from other switching centers. Message switching, or store-and-forward, is the technique whereby messages are transmitted link by link through the communication network of switching centers.

2.646 SWITCHING CENTER. See CENTER, SWITCHING.

2.647 SYNCHRONIZING (FAX). The maintenance of predetermined speed relations between the scanning spot and the recording spot within each scanning line.

2.648 SYNCHRONIZING SIGNAL (FAX). See SIGNAL, SYNCHRONIZING (FAX).

2.649 SYNCHRONOUS. See SYSTEM, SYNCHRONOUS and TRANSMISSION, SYNCHRONOUS.

2.650 SYNCHRONOUS SYSTEM. See SYSTEM, SYNCHRONOUS.

2.651 SYNCHRONOUS TRANSMISSION. See TRANSMISSION, SYNCHRONOUS.

2.652 SYSTEM, ARQ. See SYSTEM, ERROR-DETECTING AND FEEDBACK.

2.653 SYSTEM, DUPLEX. See CIRCUIT, DUPLEX.

2.654 SYSTEM, ERROR DETECTING. A system employing an error-detecting code and so arranged that any signal detected as being in error is -

a. Either deleted from the data delivered to the data sink, in some cases with an indication that such deletion has taken place;

b. Or delivered to the data sink together with an indication that it has been detected as being in error.

2.655 SYSTEM, ERROR-CORRECTING. A system employing an error-correcting code and so arranged that some or all signals detected as being in error are automatically corrected at the receiving terminal before delivery to the data sink or to the telegraph receiver.

2.656 SYSTEM, ERROR-DETECTING AND FEEDBACK (DECISION FEEDBACK SYSTEM, REQUEST REPEAT SYSTEM, ARQ SYSTEM). A system employing an error-detecting code and so arranged that a signal detected as being in error automatically initiates a request for retransmission of the signal detected as being in error.

2.657 SYSTEM, NEUTRAL DIRECT-CURRENT TELEGRAPH (SINGLE-CURRENT SYSTEM, SINGLE MORSE SYSTEM). A neutral direct-current telegraph system is a telegraph system employing current during marking intervals and zero current during spacing intervals for transmission of signals over the line.

2.658 SYSTEM, POLAR DIRECT-CURRENT TELEGRAPH. A polar direct-current telegraph system is one which employs positive and negative currents for transmission of signals over the line.

2.659 SYSTEM, SYNCHRONOUS. A system in which the sending and receiving instruments are operating continuously at substantially the same frequency and are maintained, by means of correction if necessary, in a desired phase relationship.

2.660 SYSTEM STANDARDS. See STANDARDS, SYSTEM.

2.661 TAILING (HANGOVER) (FAX). The excessive prolongation of the decay of the signal.

2.662 TALKER, MEAN VOLUME. The mean-volume-talker is one represented by the mean volume of a group of talkers measured at a given location. It is the value in an ordered set of values below and above which there are an equal number of values.

2.663 TALKER, MEDIUM POWER. The medium-power-talker of a log normal distribution is that value of talker volumes which lies at the medium power of all talkers determining the volume distribution at the point of

interest. When the distribution follows a log-normal curve (values expressed in dB) the mean and standard deviation can be used to compute the medium-power-talker. The talker volume distribution follows a log normal curve and the medium-power-talker is uniquely determined by the average talker volume and the standard deviation as given in the following equation:

$$\bar{V}_{avpw} = \bar{V}_o + 0.115\sigma^2 \text{ vu}$$

Where $\bar{V}_o$ is the average of the talker volume distribution, $\bar{V}_{avpw}$ is the volume corresponding to the average-power-talker expressed in vu and σ is the standard deviation of the distribution.

2.664 TALKER VOLUME DISTRIBUTION, MEAN POWER OF THE. The mean power of the talker volume distribution is the mean-power-talker volume less a conversion factor to convert from vu to dBm. NOTE: The factor is taken as 3.9 dB by some authorities and 1.4 dB by others. This standard uses 2.9 dB as the conversion factor.

2.665 TELECOMMUNICATIONS. Any transmission, emission, or reception of signs, signals, writings, images and sounds or information of any nature by wire, radio, visual, or other electromagnetic means.

2.666 TELEGRAPH, TWO-TONE. See KEYING, TWO-TONE.

2.667 TELEGRAPH COMMUNICATION EFFICIENCY. See EFFICIENCY, TELEGRAPH COMMUNICATION.

2.668 TELEPHONE, ELECTRICALLY-POWERED. A telephone in which the operating power is obtained either from batteries located at the telephone (local battery) or from a telephone central office (common battery).

2.669 TELEPHONE, SOUND-POWERED. A telephone in which the operating power is derived from the speech input only.

2.670 TELEPHONE SIDETONE. See SIDETONE, TELEPHONE.

2.671 TELETYPEWRITER SIGNAL DISTORTION. See DISTORTION, START-STOP TTY.

2.672 TERMINAL, DATA. Equipment employed at the end of a transmission circuit for the transmission and reception of data. It may include end instruments or signal converters or both.

2.673 TERMINALS, MULTIPLEX BASEBAND RECEIVE. The point in the baseband circuit nearest the multiplex equipment from which connection is normally made to the radio baseband receive terminals or intermediate facility.

2.674 TERMINALS, MULTIPLEX BASEBAND SEND. The point in the baseband circuit nearest the multiplex equipment from which connection is normally made to the radio baseband send terminals or intermediate facility.

2.675 TERMINALS, RADIO BASEBAND RECEIVE. The point in the baseband circuit nearest the radio receiver from which connection is normally made to the multiplex baseband receive terminals or intermediate facility.

2.676 TERMINALS, RADIO BASEBAND SEND. The point in the baseband circuit nearest the radio transmitter from which connection is normally made to the multiplex baseband send terminal or intermediate facility.

2.677 TERMINAL IMPEDANCE. See IMPEDANCE, TERMINAL.

2.678 THZ. THz. TeraHertz. 10 to power of 12, Hertz.

2.679 TIME, FALL. See DECAY TIME, PULSE.

2.680 TIME DIVISION MULTIPLEX (TDM). See MULTIPLEX, TIME DIVISION (TDM).

2.681 TIME GUARD BAND. See BAND, TIME GUARD.

2.682 TONE, STANDARD TEST. For use at the 600 Ohms audio portions of a circuit; shall be one mW (0 dBm) with a frequency of 1000 Hz and shall be applied at a zero transmission level reference point. NOTE: The Standard Test Tone in CCITT recommendations is 800 Hz.

2.683 TOTAL HARMONIC DISTORTION. See DISTORTION, TOTAL HARMONIC.

2.684 TRANSFER, INFORMATION. (USER) The final result of a data transmission from a data source to a data sink. The information transfer rate may or may not be equal to the transmission modulation rate.

2.685 TRANSITION, SIGNAL. The change from one signaling condition to another; for example, the change from mark to space or from space to mark. See also PULSE, MARKING, TELETYPEWRITER.

2.686 TRANSLATION, ALPHABET. That process whereby the meaning in a particular bit structure in a particular code is conveyed to one or more different alphabets in the same or different code.

2.687 TRANSMISSION, ASYNCHRONOUS. A transmission process such that between any two significant instants in the same group,* there is always an integral number of unit intervals. Between two significant instants located in different groups, there is not always an integral number of unit intervals. *In data transmission this group is a block or a character. In telegraphy this group is a character.

2.688 TRANSMISSION, BITERNARY. A method of digital transmission in which two binary pulse trains are combined for transmission over a system in which the available bandwidth is only sufficient for transmission of one of the two pulse trains when in binary form. The biternary signal is generated from two synchronous binary signals, operating at the same bit

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rate. The two binary signals are adjusted in time to have a relative time difference of one-half the binary interval and are combined by linear addition to form the biternary signal. Each biternary signal element can assume any one of three possible states, i.e., +1, 0, or -1. Each biternary signaling element contains information on the state of the two binary signaling elements as defined in the following truth table:

B1	B2	Biternary
0	0	-1
0	1	0
1	0	0
1	1	+1

The method of addition of B1 and B2 as described above does not permit the biternary signal to change from -1 to +1 or +1 to -1 without an intermediate biternary signal of 0. Since there is half a unit interval time difference between the binary signals B1 and B2 only one of them can change its state during the biternary unit interval. This makes it possible in the decoding process to ascertain the state of the binary signal that has not changed its state and thus avoid ambiguity in decoding a biternary signal of 0.

2.689 TRANSMISSION, BLACK FACSIMILE. In an amplitude-modulation system, that form of transmission in which the maximum transmitted power corresponds to the maximum density of the subject copy. In a frequency-modulation system, that form of transmission in which the lowest transmitted frequency corresponds to the maximum density of the subject copy.

2.690 TRANSMISSION, DOUBLE-CURRENT (POLAR DIRECT-CURRENT SYSTEM). A form of binary telegraph transmission in which positive and negative direct currents denote the significant conditions.

2.691 TRANSMISSION, PARALLEL. The simultaneous transmission of a certain number of signal elements.

Example A: Use of a code according to which each signal element is characterized by a combination of 3 out of 12 frequencies simultaneously transmitted over the channel.

Example B: Use of a separate wire or circuit for each signal element of a character, or word, so that the signal elements of a character, or word, are simultaneously transmitted.

2.692 TRANSMISSION, SERIAL (SEQUENTIAL TRANSMISSION). Transmission at successive intervals of signal elements constituting a data or telegraph signal. NOTE: The sequential elements may be transmitted with or without interruption, provided that they are not transmitted simultaneously.

2.693 TRANSMISSION, SIDEBAND. When a carrier frequency is modulated by a modulating signal, the band of frequencies produced on either side of the carrier frequency include components whose frequencies are,

respectively the sum or difference of the carrier and the modulating frequencies. The sum frequencies form the "upper sideband," and the difference frequencies form the "lower sideband." Several forms of sideband transmission are also defined.

2.694 TRANSMISSION, SIDEBAND, COMPATIBLE. That method of transmission in which the carrier is deliberately reinserted at a lower level after its normal suppression to permit reception by conventional amplitude modulation receivers. This method of transmission is often referred to as Compatible SSB or Amplitude Modulation Equivalent (AME). The normal method of transmitting compatible SSB or AME is the carrier plus upper-sideband.

2.695 TRANSMISSION, SIDEBAND, DOUBLE. In double sideband transmission both the upper and lower sidebands and the carrier are transmitted without reduction or suppression.

2.696 TRANSMISSION, SIDEBAND, DOUBLE, REDUCED OR SUPPRESSED CARRIER. That method of double sideband transmission in which the carrier may be reduced or suppressed.

2.697 TRANSMISSION, SIDEBAND, INDEPENDENT. In independent sideband transmission the modulation products in the upper and lower sidebands are not related to each other, but represent two or more separate sets of modulating signals. The carrier frequency may be either transmitted fully, reduced or suppressed.

2.698 TRANSMISSION, SIDEBAND, SINGLE. In single sideband transmission only one of the sidebands are transmitted. The other sideband is suppressed to the maximum extent possible. The carrier may be transmitted fully, reduced or suppressed.

2.699 TRANSMISSION, SIDEBAND, VESTIGIAL. In vestigial sideband transmission, partial transmission of one sideband (the "vestigial sideband") in the neighborhood of the carrier is exactly compensated by partial suppression of the corresponding part of the other sideband (the "transmitted sideband"). The carrier may be transmitted fully or reduced, or it may be suppressed.

2.700 TRANSMISSION, SINGLE-CURRENT (NEUTRAL DIRECT-CURRENT SYSTEM). A form of telegraph transmission effected by means of undirectional currents.

2.701 TRANSMISSION, SYNCHRONOUS. A transmission process such that between any two significant instants in the overall stream, there is always an integral number of unit intervals.

2.702 TRANSMISSION, WHITE (FAX). In an amplitude-modulation system, that form of transmission in which the maximum transmitted power corresponds to the minimum density of the subject copy. In a frequency-modulation system, that form of transmission in which the lowest transmitted frequency corresponds to the minimum density of the subject copy.

2.703 TRANSMITTER, FACSIMILE. Tha apparatus employed to translate the subject copy into signals suitable for delivery to the communication system.

2.704 TRANSMITTING CONVERTER, FACSIMILE. See CONVERTER, TRANSMITTING, FACSIMILE.

2.705 TRANSPOSITION (DATA OR TELEGRAPH TRANSMISSION). A transmission defect in which, during one character period, one or more signal elements are changed from one significant condition to the other, and an equal number of elements are changed in the opposite sense.

2.706 TRUNK. A single circuit between two points, both of which are switching centers and/or individual distribution points.

2.707 TRUNK GROUP. See GROUP, TRUNK.

2.708 TTY. A shorthand reference to teletypewriter.

2.709 TWO-TONE KEYING. See KEYING, TWO-TONE.

2.710 TWO-TONE TELEGRAPH. See KEYING, TWO-TONE.

2.711 TWO-WIRE CIRCUIT. See CIRCUIT, TWO-WIRE.

2.712 UHF. Ultra high frequency, 300 to 3000 MHz.

2.713 UNBALANCED WIRE CIRCUIT. See CIRCUIT, UNBALANCED WIRE.

2.714 UNIDIRECTIONAL OPERATION. See OPERATION, UNIDIRECTIONAL.

2.715 UNIT INTERVAL. See INTERVAL, UNIT.

2.716 USEFUL LINE (FAX). See LINE, AVAILABLE (FAX).

2.717 USER'S LINE. See LOOP, LINE.

2.718 VESTIGIAL SIDEBAND TRANSMISSION. See TRANSMISSION, SIDEBAND, VESTIGIAL.

2.719 VHF. Very high frequency, 30 to 300 MHz.

2.720 VLF. Very low frequency, 3 to 30 kHz.

2.721 VOICE-DATA SIGNAL, See SIGNAL, QUASI-ANALOG.

2.722 VOLTAGE, PSOPHOMETRIC (PSOPHOMETRIC P.D.). Circuit noise voltage measured in a line with Psophometer which includes a CCIF-1951 weighting network. See NOISE WEIGHTING. NOTE: 1. Do not confuse with psophometric emf, conceived of as the emf in a generator (or line) with 600 ohms internal resistance, and hence, for practical purposes, numerically

double the corresponding psophometric voltage. 2. Psophometric voltage readings are commonly converted to dBm (psoph) by the relation:

dBm (psoph) $+20 \log_{10} V - 57.78$ (V in psophometric millivolts).

2.723 VU. VOLUME UNIT. The unit of measurement for electrical speech power in communication work as measured by a vu meter in the prescribed manner. The vu meter is a volume indicator in accordance with American Standards Association c 16.5-1942. It has a dB scale and specified dynamic and other characteristics in order to obtain correlated readings of speech power necessitated by the rapid fluctuation in level of voice currents. Zero vu equals zero dBm in measurement of sine wave test tone power.

2.724 VU CONVERSION FACTOR FROM VOLUME UNITS TO POWER IN dBm. To convert the volume of analog signal from volume units (vu) to dBm, 3.9 dB must be subtracted from the volume reading to obtain dBm, i.e., Ovu = -3.9 dBm.

2.725 WEIGHTING, 144-LINE. A noise weighting used in a noise measuring set to measure noise on a line that would be terminated by an instrument with No. 144-receiver, or a similar instrument. The meter scale readings are in dBrn (144-line).

2.726 WEIGHTING, 144-RECEIVER. A noise weighting used in a noise measuring set to measure noise across the receiver of an instrument equipped with No. 144 receiver. The meter scale readings are in dBrn (144-receiver). NOTE: This type of subset, deskstand with hand receiver, is obsolete.

2.727 WEIGHTING, C-MESSAGE. A noise weighting used in a noise measuring set to measure noise on a line that would be terminated by a 500 type or similar instrument. The meter scale readings are in dBrn (C-message).

2.728 WEIGHTING, F1A-LINE. A noise weighting used in a noise measuring set to measure noise on a line that would be terminated by a 302 type or similar instrument. The meter scale readings are in dBa (F1A).

2.729 WEIGHTING, FLAT. A noise measuring set amplitude-frequency characteristic which is flat over a specified frequency range, which must be stated. Flat noise power may be expressed in dBrn (f_1—f_2), or in dBm (f_1—f_2). The terms 3 kc flat weighting and 15 kc flat weighting are also used for characteristics flat from 30 Hz to the upper frequency indicated.

2.730 WEIGHTING, HA1-RECEIVER. A noise weighting used in a noise measuring set to measure noise across the HA1-receiver of a 302 type or similar instrument. The meter scale readings in dBa (HA1).

2.731 WEIGHTING, NOISE. In a measuring set designed to measure circuit noise a specific amplitude-frequency characteristic or noise weighting

characteristic is included to respond to amplitude and frequency of an interference voltage and permit the measuring set to give numerical readings which approximate the interfering effects to an average listener using a particular class of telephone instrument and receiver. Noise weighting measurements are made on lines terminated either by the measuring set or the class of instrument. NOTE: The noise weightings generally used were established by agencies concerned with public telephone service, and are based on characteristics of specific commercial telephone instruments, representing successive stages of technological development. The coding of commercial apparatus appears in the nomenclature of certain weightings. The same weighting nomenclature and units are used in military versions of commercial noise measuring sets. For weighting curves see APPENDIX B.

2.732 WEIGHTING, PSOPHOMETRIC. A noise weighting established by the International Consultative Committee for Telephony (CCIF, now CCITT), designated as CCIF-1951 weighting, for use in a noise measuring set or Psophometer. The shape of this characteristic is virtually identical to that of F1A weighting. The psophometer is, however, calibrated with a tone of 800 Hz, 0 dBm, so that the corresponding voltage across 600 ohms produces a reading called 0.775 volt. This introduces a 1 dB adjustment in the formulas for conversion with dBa. See DBM, PSOPHOMETRICALLY WEIGHTED.

2.733 WHITE TRANSMISSION (FAX). See TRANSMISSION, WHITE (FAX).

2.734 WIRE, ORDER. (Also called Service Wire, Engineering Circuit, or Speaker Circuit.) A circuit for use by maintenance personnel for communication incident to lineup and maintenance of communication facilities.

2.735 WORD (TELEGRAPH). By definition a telegraph word shall consist of six character intervals when computing traffic capacity in words per minute.

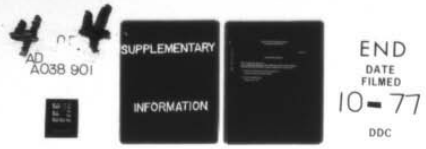
$$\text{wpm} = \frac{\text{Mod rate X 10}}{\text{Units per character interval}}$$

2.736 WORD, COMPUTER. In computing, a sequence of bits or characters which occupies one storage location and are treated by the computer circuits as a unit and transferred as such.

2.737 ZERO TRANSMISSION LEVEL REFERENCE POINT. See POINT, ZERO TRANSMISSION LEVEL REFERENCE.

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LITERATURE CHANGE

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