GLOSSARY OF COMMUNICATIONS-ELECTRONICS TERMS

ACP 167(H)

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CHAPTER 1

GENERAL

101. PURPOSE

a. The purpose of this publication is to list and define terms essential to:

(1) Effective communication between Allied operational/staff personnel.

(2) Enhance the interoperability of Allied military communications and electronic warfare systems.

(3) Provide a generally acceptable definition of common day-to-day terms used by communications electronic warfare operational staffs in their requirements for Allied networks.

(4) Provide the primary source reference for communication-electronic and electronic warfare terminology common within Allied communication Publications (ACPs) and supplements thereto.

b. When terms are employed in ACPs and supplements which are not defined in this publication, they must be defined in the beginning of that publication.

102. SCOPE

a. The terms listed in this publication are in no way exhaustive. Use may frequently have to be made of terms not defined herein. For example, Federal Standard 1037, Glossary of Telecommunication Terms, used by the United States and Allies.

b. When use is made, during the preparation of orders, letters, messages, of communications-electronics or electronic warfare terms not defined in this publication, care must be taken to ensure that their exact meaning will be clearly understood by all recipients.

103. PRESENTATION

a. All terms are listed in alphabetical order (based on the primary word in the term) irrespective of subject to facilitate easy reference. Additional information regarding the application or restricted use of term is only provided where ambiguity might otherwise occur.

b. Spaces have been left between each term to facilitate pen and ink insertion of additional terms and definitions when authorized by an appropriate change.

104. ABBREVIATIONS AND SYMBOLS

The following abbreviations and symbols appear in the terms and definitions contained in chapter 2:

A

ACP	Allied Communications Publication
ACS	Advanced Communications Service.
ACU	Audio Coding Unit.
ADCCP	Advanced Data Communications Control Procedures.
ADP	See Data Processing, Automatic
ADPE	See Data Processing Equipment, Automatic
ADPS	See Data Processing System, Automatic
ADV	Air Defence Variant/Air Defence Vehicle.
AEW	Airborne Early Warning; see Airborne Early Warning Set
AFC	See Automatic Frequency Control
AGC	See Automatic Gain Control
AIG	See Address Indicating Group
AJ	See Anti-Jamming
ALP	Arithmetic and Logic Processor.
ANSI	See ANSI -American National Standards Institute.
AOR/AOI	Area of Responsibility/Area of Interest.
AOTN	Automatic Operational Telephone Network.
AP	See Anomalous Propagation.
ARM	Anti-Radiation Missile.
ARPA	See ARPA - Advanced Research Projects Agency.
ARQ	See Automatic request for transmission.
ASCII	American Standard Code for Information Interchange
ASK	Amplitude Shift Keying
ASR	See Automatic send/receive teleprinter, or Air Staff Requirement.
ASVR	See Aircraft to Surface Vessel Radar
ATDM	See ATDM - asynchronous time-division multiplexor
ATW	See ATW - Advanced Tactical Workstation.
AVC	See Automatic Volume Control
AX	See Station, Aeronautical, Fixed

B

BABS	See Beam Approach Beacon System
BC	See Station, Broadcasting.
BCA	See Broadcast Control Authority
BCC	See block check character
BCD	See binary-coded decimal.

104. (CONTINUED)

BCI	See Station, International Broadcasting
BCS	See Broadcast Control Station
BIT	See BIT - Binary Digit
BITE	Built-in test equipment.
BNC	See BNC - bayonet-locking connector.
BPSK	Bi-phase Shift Keying
BRS	See Broadcast Radiating Station
BSC	See BSC - Binary Synchronous Communications
BTAM	See Basic Telecommunications Access Method.

C

CTAV	See CATV - community antenna television.
CB	See Exchange, Central Battery
CBA	Control Block Address
CBS	See Exchange, Central Battery Signalling
CBT	Computer Based Training aid.
CCIR	Comité Consultatif International des Radiocommunications
CCITT	Consultative Committee International Telegraph and Telephone; see CCITT
CCTV	See CCTV - Closed-circuit television.
CCU	See CCU - communications control unit.
CD	See CD - Carrier Detect.
CEMCON	Centralized EMCON.
CODEC	See CODEC - Coding and Decoding Equipment.
CDMA	Code Division Multiple Access
CDRU	Clock Distribution Receiver Unit.
CDTU	Clock Distribution Transmitter Unit.
CEN	See CEN/CENELEC.
CEPT	See CEPT.
CID	Channel Identifier
CIM	Console interface Module.
CIS	Communication and Information Systems
COMMCEN	Communications Centre
COMFEP	Communications Front End Processor
COMINT	See Communications Intelligence
COMJAM	See Communications Jamming
COMSEC	See Communications Security
CPI	See CPI - Computer-PABX Interface.
CPU	See CPU - Central processing unit.
CR	See CR - Carriage Return; also see Function Key
CRC	See CRC - cyclic redundancy check, also Control and Reporting Office.
CRP	Control and Reporting Post.

104. (CONTINUED)

CRT	See CRT - cathode-ray tube.
CSMA	See CSMA - carrier sense multiple access.
CSMA/CA	See CSMA/CA - CSMA with collision detection.
CSN	Channel Sequence Number
CSS	See CSS - Command Support System.
CSU	See CSU - channel service unit.
CTS	See CTS - clear to send.
CT2	See CT2.
CUG	See CUG - closed user group.
CW	See Continuous Wave

D

DAA	See DAA - Data Access Arrangement
DASS	See DASS - Digital access signaling system.
DCD	Data Carrier Detect.
DCE	See DCE - data communications equipment.
D&CP	Deflection and Colour Processor.
DCS	Data Communications Sub-system.
DDCMP	See DDCMP - Digital Data Communications Message Protocol.
DDD	See DDD - direct distance dialing.
DDN	Digital Data Network/Node.
DDS	See DDS - Dataphone Digital Service.
DDP	Digital Data Path.
DEC	See DEC - Digital Equipment Corporation.
DECX	DEC Exerciser
DEW	Direct Energy Weapon (Laser).
DF	See Radio Direction Finding
DFSK	See Double Frequency Shift Keying
DHS	Data Handling Sub-System
DIP	See DIP - dual in-line pins.
DL	Digital Data Link.
DLC	See DLC - data link control
DMA	Directory Memory Access
DME	See Distance Measuring Equipment
DMI	See DMI - Digital Multiplexed Interface
DNIC	See DNIC - Data Network Identification Code.
DPNSS	See DNPSS - Digital Private Network Signaling System.
DPS	Dual Port Service.
DPSK	See DPSK - differential phase shift keying.
DRDF	See DRDF - Digital Resolution Direction Finding.
DSR	See DSR - Data Set Ready.

104. (CONTINUED)

DSU	See DSU - data service unit.
DTE	See DTE - data terminal equipment
DTG	See Date-Time Group
DTMF	See DTMF - dual-tone multiple-frequency
DTR	See DTR - Data Terminal Ready.
DVCS	Display and Voice Communications Sub-System.

E

EA	External Agency.
EBCDIC	See EBCDIC - Extended Binary Coded Decimal Interchange Code.
ECC	Error Correcting Code.
ECCMO	Electronic Counter Counter Measures Officer.
ECM	Electronic Counter Measures
EDC	See Automatic Error Detection and Correction System
EDD	Electronic Data Display.
EEPROM	See EEPROM - electrically erasable programmable read-only memory.
EHF	Extremely High Frequency; see Frequency, Radio
ELINT	See Electronic Intelligence
ELSEC	Electronics Security
EMC	See Electromagnetic Compatibility
EMCON	Electromagnetic control; see Electromagnetic Emission Control
EME	Electromagnetic Environment - was EW Environment.
ENQ	See ENQ - Enquiry.
EPM	See EPM - Electronic Protective Measure.
EPROM	See EPROM - erasable programmable read-only memory.
EOCM	Electro-Optic Countermeasures.
EOM	See Indicator, End Of Message (EOM) NNNN
EOT	See End Of Transmission
EOW	Engineering Order Wire
EPM	See Electronic Protection Measure (was called ECCM).
ERCS	ECM Resistant Communications.
ERP	See Power, Effective Radiated
ESM	Electronic support Measures; see Electronic Warfare Support Measures
ETF	Engineering Training Facility.
ETSI	See ETSI - European Telecommunications Standards Institute.
ETX	See ETX - End of text.
EW	See Electronic Warfare
EWCP	See EWCP - EW Control Panel.
EWRRF	EW Rapid Reaction Facility.
EX	See Station, Experimental.

104. (CONTINUED)

F

FA	See Station, Aeronautical
FAB	See Station, Aeronautical Broadcast
FAC	See Station, Airdrome Control
FAT	See Station, Flight Test
FAX	See Facsimile
FB	See Station, Base
FC	See Station, Coast
FCB	See Station, Marine Broadcast
FCS	See FCS - frame check sequence.
FDDI	See FDDI.
FDM	See FDM - frequency division multiplexing/multiplexor.
FDMA	Frequency Division Multiple Access
FEC	See Forward Error Correction
FEK	See Frequency Exchange Keying
FEP	Front end processor - see communications control unit.
FF	See FF - form feed.
FH	See Frequency Hopping
FIGS	See FIGS - figures shift; also see Function Key.
FL	See Station, Land
FLE	See Station, Telemetering Land
FLH	See Station, Hydrological and Meteorological Land
FM	See FM - Frequency Modulation; also see Modulation
FOSP	See FOSP - Fleet Ocean Surveillance Product.
FOT	See Frequency, Optimum Traffic
FPA	Floating Point Accelerator.
FPIS	Forward Propagation Ionospheric Scatter; see Scattering, Forward and Scatter, Ionospheric. Synonymous with TFS.
FPTS	Forward Propagation Tropospheric Scatter; see Scattering, Forward and Scatter, Ionospheric. Synonymous with TFS.
FSK	See FSK - Frequency shift keying.
FVA	Final Video Amplifier.
FX	See Station, Fixed
FXE	See Station, Telemetering Fixed
FXH	See Station, Hydrological and Meteorological Fixed

G

GCA	See Ground Controlled Approach (GCS) System
GCI	See Ground Controlled Interception
GD	Graphics Display.

104. (CONTINUED)

GFI	See GFI - Group Format Identifier.
gHz	gigaHertz (10^9 Hz)
GIM	Graphics Interface Module.
GMT	See Time, Greenwich Mean
GP	General Purpose.
GPTN	General Purpose Telephone Network.
GSM	See GSM - Groupe Special Mobile.
GSTN	See GSTN - General switched telephone network.

H

HCI	Human Computer Interface.
HDL	High Speed Data Link.
HDLC	See HDLC - high-level data link control.
HDX	See HDX - half-duplex transmission.
HF	High Frequency; see Frequency, Radio
HIT	See HIT - HF High Interest Track Broadcast.
HOJ	See Home-On-Jam
HPO	See HPO - High-performance option.
Hz	See Hz - Hertz

I

IBM	See IBM - International Business Machines Corporation.
ICAO	See International Civil Aviation Organisation
ICM	Inter Console Marker.
ICW	Interrupted Continuous Wave
IFF	Identification, Friend or Foe; see Radar Recognition and Identification (IFF - Identification, Friend or Foe)
IFF-PI	See Identification, Friend or Foe - Personal Identifier
IFS	Ionospheric Forward Scatter; see Scattering, Forward and Scatter, Ionospheric. Synonymous with FPIS.
ILS	See Instrument Landing System
ISDN	See ISDN - Integrated Services Digital Network.

104. (CONTINUED)

ISO	See ISO - International Standards Organisation.
ISU	See ISU - Integrated Service Unit.
IT	See IT - Information Technology
ITA	International Telegraphic Alphabet; see Mark (Marking Signal)

104. (CONTINUED)

ITD	Interactive Tabular Display.
ITI	See ITI - Interactive Terminal Interface.
ITU	See International Telecommunication Union
IU	Interface Unit

J

J/S	See Jamming-to-Signal
JOC	See Joint Operations Centre
JOTS	See JOTS - Joint Operational Tactical System.
JFT	See Julian Filing Time (JFT).
JITDS	See JTIDS - Joint Tactical Information Distribution System.

K

kHz	kiloHertz (10^3 Hz)
KSR	See KSR - Keyboard send/receive.

L

LAD	See LAD - Local Area Data (Channel).
LAN	See LAN - Local Area Network.
LAP	See LAP - Line Access Procedure.
LAPB	See LAPB - Line Access Procedure, Balanced.
LATA	See LATA - Local Access and Transport Area.
LDET	Local Data Entry Terminal.
LED	See LED - Light-Emitting Diode.
LF	(1) Low Frequency; see Frequency, Radio (2) Line Feed; see Function Key and LF.
LIU	Line Interface Unit.
LMF	Language Media Format
LOS	See Line-Of-Sight
LP	Line Processor.
LPE	See Limited Probability of Exploitation
LPI	See Limited Probability of Intercept
LRC	See LRC - Longitudinal Redundancy Check.
LRI	See Limited Range of Intercept
LRU	Line Replacement Unit or Lowest Repairable Unit.
LSD	Large Screen Display.
LSDD	Large Screen Display Driver.
LSI	See LSI - Large-Scale Integration.
LSU	Line Switch.
LTRS	See LTRS - Letters shift.

104. (CONTINUED)

M

MA	See Station, Aircraft
MAN	See MAN - Metropolitan Area Network.
MAP	See MAP - Manufacturing Automation Protocol.
MAS	Main Access Switch.
MDI	MIPROC DEC Interface.
MDS	See Minimum Discernible signal
MF	Medium Frequency; see Frequency, Radio
MF	See Multiple Frequency Signaling.
MFM	Modified Frequency Modulation.
MHS	See MHS - Message Handling Service.
mHz	megaHertz (10^6 Hz)
MIDS	See MIDS - Multifunctional Information Distribution System.
MIPS	See MIPS - Millions of instructions per second.
ML	See Station, Land Mobile
MM	Management Monitor.
MMI	Man Machine Interface.
MO	See Station, Mobile
MOE	See Station, Telemetering Mobile
MOH	See Station, Hydrological and Meteorological Mobile.
MOS	Metal Oxide Semi-conductor.
MPJ	See Multi-purpose Jammer
MPL	See MPL - Multi-schedule Private Line.
MS	See Station, Ship
MSF	Master Synchronising Frequency.
MSI	See MSI - Medium Scale Integration.
MSK	Minimum Shift Keying
MTA	See MTA - Message Transfer Agent.
MTBF	See MTBF - Mean-Time Between Failures.
MTI	See Moving Target Indicator
MTTR	See MTTR - Mean Time To Repair.
MUF	See Frequency, Maximum Usable
MUX	See MUX and multiplexor

N

NAK	See NAK - Negative Acknowledgment.
NILE	NATO Approved Link 11.
NOT	Node Organisation Table.
NOTAM	See NOTAM - Notice to Airmen.
NRZI	See NRZI - Non Return to Zero Inverted.

104. (CONTINUED)

NTN	See NTN - Network Terminal Number.
NUI	See NUI - Network User Identification.

O

O	Immediate; see Precedence Designations
OCP	Operational Computer Program.
OSI	See OSI model - Open Systems Interconnection Model.

P

P	Priority; see Precedence Designations
PABX	See PABX - Private Automatic Branch Exchange.
PAD	See PAD - Packet Assembler/Disassembler.
PAX	Physical Address Extension.
PBX	See PBX and Exchange, Private Branch.
PCB	Printed Circuit Board.
PCL	Parallel Communications Link.
PCM	See PCM - Pulse Code Modulation; Also see Telegraphy.
PCM	See PCM - Plug Compatible Machine
PDL	Position Description Language.
PDN	See PDN - Packet Data Network.
PDN	See PDN - Public Data Network.
PDP	Programmable Data Processor.
PEP	See Power, Peak Envelope
PL	See Station, Radio Positioning Land
PLA	See Signal Message Address
PM	See Station, Radio Positioning Mobile.
POTS	See POTS - Plain Old Telephone Service.
PPI	Plan Position Indicator; see Display Scope/Display
PRF	See Pulse Repetition Frequency/Rate
PROM	See PROM - Programmable Read Only Memory.
PRR	See Pulse Repetition Frequency/Rate.
PSC	Peripheral Switch Card.
PSK	See PSK - Phase Shift Keying.
PSTN	See PSTN - Public Switched Telephone Network.
PSU	Power Supply Unit.
PTO	See PTO - Public Telecommunications Operator.
PTT	See PTT - Post Telephones and Telegraphy Authority.
PVC	See PVC - Permanent Virtual Circuit.

104. (CONTINUED)

Q

QAM	See QAM - Quadrature Amplitude Modulation.
QPSK	See Quadrature Phased Shift Keying

R

R	Routine; see Precedence Designations
RADAR	See Radar
RAM	See Radar Absorbent Material.
RAM	See RAM - Random Access Memory.
RASP	Recognized Air and Surface Picture.
RATT	See RATT - Radio Teletypewriter.
RCRU	Radio Clock Receiver Unit.
RD	See RD - Received Data.
RDC	Resource Data Catalogue.
RDET	Remote Data Entry Terminal.
RF	See Frequency, Radio.
RFI	Radio Frequency Interference.
RG	See Station, Radio Direction-Finding
RHI	Range Height Indicator; see Display Scope/Display
RI	See Indicator, Routing.
RI	See RI - Ring Indicator.
RJE	See RJE - Remote Job Entry.
RL	See Station, Radionavigation Land
RLA	See Station, Aeronautical Marker Beacon
RLB	See Station, Aeronautical Radio Beacon
RLG	See Station, Glide Path/Slope
RLL	See Station, Localizer
RLM	See Station, Marine Radio Beacon
RLO	See Station, Omnidirectional Range
RLR	See Station, Radio Range
RLS	See Station, Surveillance Radar.
RLSD	See RLSD - Received Line Signal Detector.
RO	See RO - Read Only.
RO	See Station, Radionavigation Mobile
ROA	See Station, Altimeter.
ROM	See ROM - Read Only Memory.
RTT	See RATT.
RP	Reporting Post.
RSX	Real-time System Executive.
RTS	See RTS - Request To Send.
RW	See RW - Telegraphic code signal.

104. (CONTINUED)

S

SADOC	Standby Air Defence Operations Centre.
SAGOP	See SAGOP.
SAM	Surface to Air Missile.
SBI	Synchronous Backplane Interconnect.
SC	System Control (Module).
SDC	System Development Centre.
SDLC	See SDLC - Synchronous Data Link Control.
SDP	Small Devices Processor.
SHF	Super High Frequency; see Frequency, Radio.
SHORAN	See SHORAN - Short Range Navigation System.
SID	Sudden Ionospheric Disturbance.
SIF	See - Selective Identification Feature
SIGINT	See Signal Intelligence
SIGSEC	See Signal Security
SM	Stores Management (Module).
SMA	See Signal Message Address and SMA.
SNA/SDLC	See SDLC.
SNAPS	Ships Navigation Processing System.
SNIPL	Secondary Node Inter Processor Link.
SOH	See SOH - Start Of Header.
SOM	See Indicator, Start Of Message (SOM) ZCZC
SS	See Station, Standard Frequency
SSB	See Single Sideband (SSB) Transmission.
SSI	See SSI - Small Scale Integration.
STANAG	Standard NATO Agreement.
STX	See STX - Start of Text.
SVC	See Prefix - Service Message.
SVC	See SVC - Switched Virtual Circuit.
SYN	See SYN - Synchronous Idle.

T

TACAN	See TACAN - Tactical Air Navigation System.
TCAM	See TCAM - Telecommunications Access Method.
TCP/IP	See TCP/IP - Transmission Control Protocol/Internet Protocol.
TCU	See TCU - Transmission Control Unit.
TD	See TD - Transmitted Data.
TDTG	See True Date-Time Group.
TDM	See TDM - Time Division Multiplexor
TDMA	See TDMA - Time Division Multiple Access.

104. (CONTINUED)

TELEX	See Teleprinter Exchange Service.
TFS	Tropospheric Forward Scatter; see Scattering, Forward and Scatter, Tropospheric. Synonymous with FPTS
tHz	teraHertz (10^{12} Hz)
TI	See Transmission Identification.
TNC	See TNC - Threaded-Neill-Concelman (Coax Connector).
TOD	Time Of Day.
TOM	See Teleprinter-on-Multiplex
TPR	See Teleprinter-on-Radio
TRANSEC	See Transmission Security (TRANSEC).
TRAP	See TRAP - Tactical Related Applications.
TRE	See TRE - Tactical Receive Equipment.
TREE	Transient Radiation Effect on Electronics.
TRF	Test Rig Facilities.
TRN	Test Rig Node.
TTD	Tote Tabular Display.
TTL	Transistor Transistor Logic.
TTY	See Teletypewriter Communications.
TVP	Television Processor (Module).
TWX	See TWX - Also see Teleprinter Exchange Service

U

UA	See UA - User Agent.
UBA	Unibus Adaptor.
UC	Universal Console.
UHF	Ultra High Frequency; See Frequency, Radio
ULSI	See ULSI - Ultra Large Scale Integration.
USASCII	See ASCII.

V

VAN	See VAN - Value Added Network.
VAX	Virtual Address Extension.
VCC	Voice Communications Controller (Module).
VDT	See VDT - Video Display Terminal.
VDU	See VDU - Video display Unit.
VFTG	Voice Frequency Telegraphy; see Telegraphy, Voice Frequency
VHF	See Frequency, Radio - Very High Frequency.
VHF	See VHF Omni Range - Aviation applications.
VLF	See Frequency, Radio - Very Low Frequency.
VLSI	See VLSI - Very Large Scale Integration.

104. (CONTINUED)

VOCODER	See VOCODER - Telecommunications device.
VOGAD	See Voice Operated Gain Adjusting Device
VOR	See VHF Omni Range
VTAM	See VTAM - Virtual Telecommunications Access Method.

W

WAN	See WAN - Wide Area Network.
WXD	See Station, Meteorological Radar
WXR	See Station, Radiosonde

X

XNS/ITP	See XNS/ITP - Xerox Network Systems' Internet Transport Protocol.
XTAL	See Crystal.

Z

Z	Flash; see Precedence Designations

CHAPTER 2

GLOSSARY

A

Abbreviated addressing. (In packet-switched networks) Addressing in which a simple mnemonic code is used in lieu of the complete addressing information; the cross reference to the complete address is stored in the PAD.

Abbreviated dialing. See speed dialing.

ABR, autobaud, automatic baud rate detection. A process by which a receiving device determines the speed, code level, and stop bits of incoming data by examining the first character - usually a preselected sign-on character. ABR allows the receiving device to accept data from a variety of transmitting devices operating at different data rates without needing to configure the receiver for each specific data rate in advance.

Accepted Interference. Interference at a higher level than that defined as permissible interference and which has been agreed upon between two or more administrations without prejudice to other administrations.

Access group (In LAN technology) All stations which have identical rights to make use of computer, network, or data PABX resources.

Access method 1. (In IBM environments) A host program managing the movement of data between the main storage and an input/output device of a computer system; STAM, TCAM, VTAM are common data communications access methods. **2.** (In LAN technology) A means to allow stations to gain access to - to make use of - the network's transmission medium; classified as shared access (which is further divided into explicit access or contended access) or discrete access method.

Accounting Symbol. A combination of letters used in the message heading to identify the agency, service or activity which is financially accountable for the message.

ACK, acknowledgment. A control character used (with NAK) in BSC communications protocol to indicate that the previous transmission block was correctly received and that the receiver is ready to accept the next block. Also used as a ready reply in other communications protocols, such as Hewlett-Packard's ENQ/ACK protocol and the ETX/ACK method of flow control.

Acknowledgement. A message from the addressee informing the originator that his communication has been received and is understood.

Acoustic coupler, acoustical coupler. A device that converts electrical signals into audio signals, enabling data to be transmitted over the public telephone network via a conventional telephone handset; it also converts the audio signals back into electrical signals at the receiving end. A kind of modem.

ACP, Allied Communications Publication. ACPs contain communications instructions and are issued for the guidance and use of Allied Forces.

ACS, Advanced Communications Service. AT&T's proposed packet-switched network.

ACU, Audio Coding Unit.

Adaptive equalizer. An equalizer that adjusts to meet varying line conditions; most operate automatically.

Adaptor, Homing. A device which, when used with an aircraft radio receiver, produced aural and/or visual signals which indicate the direction of a transmitting radio station with respect to the heading of the aircraft.

Adaptor, Panoramic. An attachment designed to operate with a search receiver to provide a visual presentation on an oscilloscope screen of a band of frequencies extending above and below the centre frequency to which the search receiver is tuned.

ADCCP, Advanced Data Communications Control Procedures. The USA Federal Standard communications protocol.

Additional facilities. (In packet-switched networks). Standard network facilities which are selected for a given network but which may or may not be selected for other networks. Contrast with essential facilities.

Address. 1. (Noun) A unique designation for the location of data or the identity of an intelligent device. Multiple devices on a single communications line must have unique addresses to allow each to respond to its own messages (see polling). **2.** (Verb) To add or include the coded representation of the desired receiving device (as in to address a message). **3.** A character or sequence of characters designating the terminal equipment which is the origin or destination of data being transmitted

Address Designator. A plain language name (full or abbreviated), routing indicator, call sign or address group of a unit, activity or other authority used to indicate the originator and/or addressee(s).

Address Group. A group of four letters assigned to represent command(s), authority(ies), activity(ies), unit(s) or geographic location(s); used primarily for the addressing of communications.

Address Group, Collective. An address group which represents two or more commands, authorities, activities, units or any combination thereof and includes the commander of the organisation or group and all subordinate commanders therein.

Address Indicating Group (AIG). An address group which represents a specific set of action and/or information addressees. The identity of the originator may also be included.

Address, Multiple. See Message, Multiple Address.

Address, Single. See Message, Single Address.

Addressee. The activity or individual to whom a message is directed by the originator. Addressees are indicated as either ACTION, INFORMATION or EXEMPT.

Addressee, Action. The activity or individual to whom a message is directed by the originator for action.

Addressee, Exempted. An addressee included in the collective address designation of a message but for which the message is not intended for action or information.

Addressee, Information. The activity or individual to whom a message is directed by the originator for information.

ADNC, Air Defence Notification Cell.

ADOC, Air Defence Operations Centre.

ADV, Air Defence Variant/Air Defence Vehicle

Aeronautical Mobile-Satellite Service. An aeronautical mobile-satellite service reserved for communications relating to safety and regularity of flight, primarily along national or international civil air routes.

AEW, Airborne Early Warning.

AF OPS, Air Force Operations Centre.

Aggregate input rate. The sum of all data rates of the terminals or computer ports connected to a multiplexor or concentrator; burst aggregate input rate refers to the instantaneous maximum.

Aided Tracking. A system of tracking a target in azimuth, elevation or range, or all three variables together, in which a constant rate of motion of the tracking mechanism is maintained.

Air Surveillance. The systematic observation of air space by electronic, visual or other means, primarily for the purpose of identifying and determining the movements of all aircraft and large missiles, friendly or enemy, in the air space under observation.

Airborne Early Warning (AEW). Airborne radar equipment providing long range detection and identification and relaying of the radar signals to ground or shipborne stations.

Aircraft Control and Warning System. A system established to control and report the movement of aircraft. It consists of observation facilities (radar, passive electronic, visual or other means), control centres and necessary communications.

Aircraft to Surface Vessel. Radar to detect surface targets from aircraft.

Alarm Indication Signal (AIS). A signal that is used to replace the normal traffic signal when a maintenance alarm indication has been activated. Generally all binary '1's.

Allocated. In reference to a circuit or channel, indicates the exclusive use by one or more specified authorities.

Allocation (of a frequency band). Entry in the Table of Frequency Allocations of a given frequency band for the purpose of its use by one or more terrestrial or space radiocommunications services or the radio astronomy service under specified conditions. This term shall also be applied to the frequency band concerned.

Allotment (of a radio frequency or radio frequency channel). Entry of a designated frequency channel in an agreed plan, adopted by a competent conference, for use by one or more administrations for a terrestrial or space telecommunication service in one or more identified countries or geographical areas and under specified conditions.

ALP, Arithmetic and Logic Processor.

Alphabet. A table of correspondence between a set of characters and the signals which represent them. As in International Alphabet Number 5.

Alphanumeric. Describing a character set that contains letters, numerals (digits), and other characters such as punctuation marks.

Alternate Mark Inversion (AMI). A pseudo-ternary signal, conveying binary digits, in which successive 'marks' are normally of alternating positive and negative polarity but equal in amplitude and in which 'space' is of zero amplitude.

Alternate Routing. 1. A method for varying the route of the traffic in a network in the event of circuit failure or to optimise loading and use of channels. **2.** (In PABX technology) A method of completing calls that uses another path when the primary circuit is unavailable, out of service or busy.

Alternative Routing. See Routing Alternative.

AM, Amplitude Modulation. One of three basic ways (see also FM and phase modulation) to add information to a sine wave signal: The magnitude of the sine wave, or carrier, is modified in accordance with the information to be transmitted. See Modulation.

Amplifier. Electronic component use to boost (amplify) signals. Performance (called gain) measured in deciBels.

Amplitude distortion. An unwanted change in signal amplitude, usually caused by non-linear elements in the communications path.

Amplitude Shift Keying. Modulation in which each significant condition in a modulating discrete signal is represented by a specified value of the amplitude of a carrier oscillation.

Analogue. Continuously variable as opposed to discretely variable. Physical quantities such as temperatures are continuously variable and so are described as analogue; analogue signals vary in accordance with the physical quantities they represent. The public telephone network was designed to transmit voice in analogue form. Contrast with digital.

Analogue loopback. A diagnostic test that forms the loop at the modem's telephone line interface; (refer to loopback).

Analogue Signal. A signal that represents information by varying a quantity, such as amplitude or frequency, continuously between upper and lower limits.

Analysis. In Electronic Warfare, a step in the intelligence cycle in which information is subjected to review in order to identify significant facts. The examination of the product of intercept and DF to obtain ELINT and SIGINT and Target Intelligence. See Signal Analysis.

Anisochronous Data Channel. A communications channel capable of transmitting data but not timing information. Sometimes called an "asynchronous" data channel.

Anomalous Propagation (AP). The transmission of electromagnetic radiation along other than the normal expected path, usually tending to follow the earth’s curvatures, because of refractive effects such as ducting, unusual reflections or unusual scattering of energy from discontinuities in the path.

ANSI. The American National Standards Institute (a voluntary organisation) is the national clearing house and coordinating organisation for voluntary standards in the USA and represents the USA in the ISO; defined USASCII (now ASCII). ANSI does not directly develop standards but accredits other groups to do so. Membership includes manufacturers, common carriers, and other standards organisations such as the IEEE. ANSI also produces Federal Information Processing Standards (FIPS) for the DoD.

Answer. The transmission made by the station called in response to the call received.

Answerback. The method used in telex to ensure that the calling telex is connected to the correct destination telex. All telex terminals are equipped with an answerback code. When a connection is made, the calling terminal sends a "who are you" code and the destination replies with its answerback. The answerback is usually requested at the beginning and end of the message and printed on the hardcopy.

Answering tone. A signal sent by the called modem (the "answer" modem) to the calling modem (the "originate" modem) on public telephone networks, that indicate the called modem's readiness to accept data.

Answering. The process of responding to a calling station to complete the establishment of a connection between stations.

Antenna Array. Antenna elements assembled in such a manner that the resulting radiation is concentrated in one or more directions.

Antenna Multicoupler. Permits the use of several equipments (receivers) simultaneously on one antenna.

Antenna/Aerial. A device used to radiate or collect radio waves.

Antenna, Active. Receive aerial with an integrated wideband amplifier. Thus a very weak signal is amplified immediately as it is received at the antenna before it ever reaches the receiver.

Antenna, Dipole Array. A number of parallel dipoles producing a pattern with a main beam and many sidelobes and nulls.

Antenna, Gain. The ratio, usually expressed in decibels, of the power required at the input of a loss-free reference antenna to the power supplied to the input of the given antenna to produce, in a given direction, the same field strength or the same power flux-density at the same distance. When not specified otherwise, the gain refers to the direction of maximum radiation. The gain may be considered for a specified polarization. Depending on the choice of the reference antenna a distinction is made between: (1) Absolute or isotropic gain (Gi),

when the reference antenna is an isotropic antenna isolated in space. (2) Gain relative to a half-wave dipole (Gd), when the reference antenna is a half-wave dipole isolated in space whose equatorial plane contains the given direction. (3) Gain relative to a short vertical antenna (Gv), when the reference antenna is a linear conductor, much shorter than one quarter of the wavelength, normal to the surface of a perfectly conducting plane which contains the given direction.

Antenna, Log Periodic Array. An array of driven dipoles parallel to each other and is directional like a YAGI array (but these dipoles are of different lengths and so this array is broadband).

Antenna, Rhombic. A non-resonant broadband antenna with a rhombic shape which produces an interface pattern with a main beam axis in line with the diagonal joining the feed point to the terminal point.

Antenna, YAGI Array. A dipole and a number of parasites in one place; used as a directional antenna with considerable gain.

Anti-Jamming (AJ). Measures to minimize the effects of jamming.

AOR/AOI, Area of Intelligence Responsibility/Area of Intelligence Interest.

AOTN, Automatic Operational Telephone Network.

Application layer. Highest (seventh) layer in OSI model, containing all user or application programs.

Application program. 1. (In general) A program that is designed to perform a specific user function. **2.** (In data communications) A program (that frequently resides in data communications equipment) used to connect the communicate with terminals that performs a set of specified activities for terminal users.

Architecture. The manner in which as system (such as a network or a computer) or program is structured. See also closed architecture, distributed architecture, and open architecture.

ARM, Anti-Radiation Missile.

Area Radar Prediction Analysis. Radar target intelligence study designed to provide radar significant data for use in the preparation of radar target predictions.

ARPA, Advanced Research Projects Agency. Agency that developed the first major packet-switched network, ARPANET.

ARQ, automatic request for transmission. An error control method in which the receiving device informs the transmitting device which transmission blocks were received successfully; the transmitting device retransmits any blocks not successfully received.

ASCII terminal. A terminal that uses ASCII; usually synonymous with asynchronous terminal and with dumb terminal.

ASCII, American Standard Code for Information Interchange. A 7-bit-plus-parity character set or code established by ANSI to achieve compatibility between data services; sometimes called USASCII, the USA standard Code for Information Interchange; normally used for asynchronous transmission. Equivalent to the ISO 7-bit code.

ASR, automatic send/receive teleprinter. Teleprinter equipped with paper tape, magnetic tape, or a solid state buffer that allows it to transmit and receive data unattended. Compare with KSR and RO.

Assignment (of a radio frequency or a radio frequency channel). Authorization given by an administration for a radio station to use a radio frequency channel under specified conditions.

Async. Short for asynchronous or for asynchronous transmission

Asynchronous character. A binary character used in asynchronous transmission which contains equal-length bits, including a start bit and one or more stop bits which define the beginning and end of the character.

Asynchronous modem. A modem that uses asynchronous transmission and, therefore, does not require timing synchronization with its attached DTE or the remote modem; also used to describe a modem which converts asynchronous inputs from the DTE to synchronous signals for modem-to-modem transmission.

Asynchronous terminal. A terminal that uses asynchronous transmission; usually synonymous with ASCII terminal and dumb terminal.

Asynchronous transmission. Method of sending data in which the interval between characters may be of unequal length; since asynchronous characters are used, no additional synchronizing or timing information need be sent. Also called start-stop transmission. Contrast with synchronous transmission.

Asynchronous. A communications channel capable of transmitting data but not timing is called "asynchronous". Strictly speaking, the correct terminology is "anisochronous".

ATDM, asynchronous time-division multiplexor. A TDM that multiplexes asynchronous signals by Oversampling; also, infrequently used to mean concentrator.

Attenuation. Deterioration of signals as they pass through a transmission medium; generally, attenuation increases (signal level decreases) with both frequency and cable length. Measured in terms of levels or deciBels. Contrast with gain.

ATW, Advanced Tactical Workstation. The name of the PC workstation and software which displays near real-time ELINT information from US Satellite systems (the broadcast is called TRAP)

Audio Frequency. A frequency which can be detected as a sound by the human ear. The range of audio frequencies extends from approximately 20 to 20,000 Hertz.

Audio Visual. A generic term pertaining to application and utilization technology of electro, chemical, mechanical and optical media to record and/or reproduce audible signals or visual images or combinations thereof, and the materials that permit their use.

Authenticate. A verb commanding or requesting validation of a communication by use of an appropriate authenticator. See Authenticator.

Authentication. 1. Evidence of proper signature or seal that a document is genuine and official. **2.** A security measure designed to protect a communication system against fraudulent transmissions.

Authentication System. A system designed for the purposes of authentication, i.e. to serve as a secure means of establishing the authenticity of a transmission or message or of challenging the identity of a station.

Authentication Test Element. An element employed in an authentication system for deriving an authenticator.

Authentication, Message. A security measure designed to establish the authenticity of a message by means of an authenticator within the transmission derived from certain pre-determined elements of the message itself.

Authentication, Net. An authentication procedure by which a net control station authenticates itself, and all other stations in the net systematically establishing their authenticity.

Authentication, Station. A security measure designed to establish the authenticity of a transmitting or receiving station, either by the challenge and reply or transmission authentication method.

Authentication, Transmission. A collective term which includes self authentication, station authentication, and sometimes message authentication. By this procedure, a station may establish the authenticity of its own transmission.

Authenticator. A letter, numeral or group of letters or numerals (or both), attesting to the authenticity of a message or transmission.

Auto-answer. A type of modem used on the public telephone network that automatically sends an answering tone in response to an incoming call.

Auto-dial. A type of modem used on the public telephone network that automatically originates calls (dials the desired number).

Automatic Data Processing Network. See Data Processing Network.

Automatic Error Detection and Correction System (EDC). A system employing an error-detecting code and so conceived that any false signal initiates a repetition if the transmission of the character is incorrectly received.

Automatic Error Detection. A method of transmission in which the aim is to detect and automatically indicate a mutilation of the sent signal.

Automatic Frequency Control (AFC). A circuit or device which maintains a receiver or transmitter on a desired frequency.

Automatic Gain Control (AGC). A circuit or device which regulates the gain of a receiver or amplifier so that the output tends to remain constant though the incoming signal may vary in strength.

Automatic Landing Systems. Systems in which the automatic devices land aircraft without pilot assistance.

Automatic Message Switch. See Switching, Communications system and Switching, Automatic.

Automatic Number Equipment. A type of equipment which automatically transmits a transmission identification.

Automatic RQ. An automatic error detection-correction technique employed in telegraph systems whereby the return channel is used to obtain repetition of corrupted received signals until they are received uncorrupted.

Automatic Search Jammer (Search Lock Jammer). A system comprising a search receiver and a jamming transmitter which first searches for signals having specific characteristics and then automatically jams them.

Automatic Tracking. Tracking in which the servo mechanism follows a signal or target automatically.

Automatic Volume Control (AVC). See Automatic Gain Control (AGC).

Availability. A measure of equipment, system, or network performance - usually expressed in percent; the ratio of operating time to the sum of operating time plus down time. Based on MTBF and MTTR.

Axis of Signal Communications. The line or route on which lies the starting position and probable future location of the command post of a unit during a troop movement. The main route along which messages are relayed or sent to and from combat units in the field.

Azimuth. 1. A direction expressed as a horizontal angle usually in degrees or mils and measured clockwise from north. Thus, azimuth will be true azimuth, grid azimuth, or magnetic azimuth depending on which north is used. **2.** The angle at the zenith between the observer's celestial meridian and the vertical circle through a heavenly body.

B

Back-up Facility. A resource which provides alternate means of maintaining communications should the on-line resource fail.

Backbone. (In packet -switched networks) The major transmission path for a PDN.

Bagpipes. In Electronic Warfare. A type of electronic jamming signal consisting of a series of tones repeated continuously.

Balloon Reflector. In Electronic Warfare. A balloon-supported confusion reflector to produce fraudulent echoes.

Band splitter. A Multiplexor (commonly an FDM or TDM) designed to divide the composite bandwidth into several independent, narrower bandwidth channels, each suitable for data transmission at a fraction of the total composite data rate.

Bandwidth. The range of frequencies available for signaling; a measure of information-carrying capacity; the difference, expressed in Hz, between the highest and lowest frequencies in the range. Utilised subject to specific conditions of signal loss or distortion; commonly defined at the points where the response is 3db less than the reference value.

Bandwidth, Necessary. For a given class of emission, the width of the frequency band which is just sufficient to ensure the transmission of the information at the rate and with the quality required under specific conditions.

Bandwidth, Occupied. The width of a frequency band such that, below the lower and above the upper frequency limits; the mean powers emitted are each equal to a specified percentage B/2 of the total mean power of a given emission. Unless otherwise specified for the appropriate class of emission, the value of B/2 should be taken as 0.5 percent.

Barrage Jamming. Simultaneous electronic jamming over a broad band of frequencies.

Baseband modem. Line driver or local dataset.

Baseband, baseband transmission. Direct transmission method used for short distances (less than 10 miles); uses a bandwidth whose lowest frequency is zero (dc level) - that is, transmission of raw (carrier-less) binary data. The transmission medium carries only one signal at a time.

Batch processing. A data processing technique in which input data is accumulated and prepared off-line and processed in batches.

Battery. An apparatus which may comprise a group of two or more cells used for the conversion of chemical energy into electrical energy.

Baud. 1. Unit of signaling speed. The speed in baud's is the number of discrete conditions or signal events per second. If each signal event represents only one bit, the baud rate is the same as bps; if each signal even represents more than one bit (such as in a bidit), the baud rate is smaller than bps. **2.** The unit of modulation rate or the unit of transfer rate of signal elements of constant duration in a discretely-timed or digital signal; the number of baud's is equal to the reciprocal of the duration in seconds of the shortest signal element or of the unit interval in such signal.

Baudot Code. A code (named after Emile Baudot, a pioneer in printing telegraphy) for asynchronous transmission of data in which 5 bits represent a single character. Use of Letters shift and Figures Shift enables 64 alphanumeric characters to be represented. Used mainly in teleprinter systems which add one start bit and 1.5 stop bits. Contrast with ASCII and EBCDIC.

BCC, block check character. A character added to the end of a transmission block for the purpose of error detection - such as a CRC or LRC.

BCD, binary-coded decimal. A digital system that uses binary codes to represent decimal digits.

Beacon. A light or electronic source which emits a distinctive or characteristic signal used for the determination of bearings, courses or location.

Beacon, Fan Marker. A type of radio beacon the emissions of which radiate in a vertical fan shaped pattern. The signal can be keyed for identification purposes.

Beacon, Homing. See Beacon, Radio.

Beacon, Radar. A radio navigation transponder which transmits in response to a specific received signal a, pulsed radio signal with specific characteristics whereby the bearing and/or range of the transponder from the interrogator may be determined, and which in some cases also be used to identify the transponder.

Beacon, Radio Range. See Station, Radio Range (RLR).

Beacon, Radio-Marker. See Station, Aeronautical Marker Beacon (RLA).

Beacon, Radio. A radio transmitter which emits a distinctive or characteristic signal used for the determination of bearings, courses or location.

Beam (Radio). A radio transmission concentrated into a sector narrow in either azimuth or elevation, or in both.

Beam Approach Beacon System (BABS). A secondary radar system of radio navigation which provides to an aircraft, during its approach, lateral guidance and distance from the optimum point of landing.

Beam Lobe Switching. A method of determining the direction of a target by successive comparison of the signals corresponding to two or more beam directions differing slightly from the direction of the target. The motion of the beam may be either: a. Continuous and periodic or b. Discontinuous.

Beam Rider. A missile guided by a radar or radio beam.

Beam Width. The angle between the directions, on either side of the axis, at which the intensity of the radio frequency field drops to one half the value it has on the axis.

Bearing Class 'A'. A bearing which a direction finding operator may reasonably consider to be accurate to within plus or minus two degrees.

Bearing Class 'B'. A bearing which a direction finding operator may reasonably consider to be accurate to within plus or minus five degrees.

Bearing Class 'C'. A bearing which a direction finding operator may reasonably consider to be accurate to within plus or minus ten degrees.

Bel. Equal to 10 deciBels.

Bell 103. An AT&T, 0-300 bps modem providing asynchronous transmission with originate or answer capability; also often used to describe any Bell 103-compatible modem.

Bell 113. An AT&T, 0-300 bps modem providing asynchronous transmission with originate or answer capability (but not both); also often used to describe any Bell 113- compatible modem.

Bell 201. An AT&T, 2400 bps modem providing synchronous transmission; Bell 201 B was designed for leased line applications (the original Bell 201 B was designed for public telephone network applications); Bell 201 C was designed for public telephone network applications; also often used to describe any Bell 201-compatible modem.

Bell 202. An AT&T, 1800 bps modem providing asynchronous transmission that required 4-wire circuit for full-duplex operation; also an AT&T 1200 bps modem providing asynchronous transmission over 2-wire, full duplex, leased line or public telephone network applications; often used to describe any Bell 202-compatible modem.

Bell 208. An AT&T, 4800 bps modem providing synchronous transmission; Bell 208 A was designed for leased line applications; Bell 208 B was designed for public telephone network applications; also often used to describe any Bell 208-compatible modem.

Bell 209. An AT&T, 9600 bps modem providing synchronous transmission over 4-wire leased lines: Also often used to describe any Bell 209-compatible modem.

Bell 212, Bell 212A. An AT&T, 1200 bps full-duplex modem providing asynchronous transmission or asynchronous transmission for use on the public telephone network; also often used to describe any Bell 212-compatible modem.

Bell 43401. Bell Publication which defines requirements for transmission over telco-supplied circuits that have DC continuity (that are metallic). See also local dataset.

Bi-phase Shift Keying (BPSK). This is widely used for data transmission and for digitized speech using PCM. A constant period and constant amplitude has its phase shifted by 180 degrees to represent one binary state or not shifted at all to represent the other binary state. See FSK.

Binary Digit. See Bit.

Binary. Digital system with 2 states, 1 and 0; contrast with octal, decimal and hexadecimal.

Bipolar transmission. Method of sending binary data in which negative and positive states alternate; used in digital transmission facilities such as DDS and T1. Sometimes known as polar transmission.

Birdnesting. In Electronic Warfare, a clustering of window strips causing them not to separate and disperse after being dispensed.

Bit. Contraction of binary digit; smallest unit of information and basic unit in digital data communications. A bit can have a zero or a one value (a mark or space in data communications terminology).

BITE, Build in Test equipment.

Bit stuffing. See zero insertion.

Bit-oriented. Used to describe communications protocols (such as SDLC) in which control information may be coded in fields as small as a single bit in length. Contrast with character-oriented.

BITE, Built-in test equipment.

Black Box, Black Box Corporation. The leading data communications and computer device mail-order company; publishes and distributes the **BLACK BOX Catalogue**.

Blip. The display of a received pulse on a cathode ray tube. See Radar Echo.

Blip/Scan Ratio. The ratio of the number of observed echo pulses from a target to the number of radar sweeps during the period in which the target is in the antenna beam.

Block. Same as transmission block.

Blocking. 1. The process of grouping data into transmission blocks. **2.** (In LAN technology). The inability of a PABX to service connection requests, usually because its switching matrix can only handle a limited number of connections simultaneously. Blocking occurs if a call request from a user cannot be handled due to an insufficient number of paths through the switching matrix; blocking thus prevents free stations from communication.

Block-multiplexor channel. (In IBM systems) A multiplexor channel that interleaves with bytes of data; also called byte-interleaved channel. Contrast with selector channel.

Blooming. (In Electronic Warfare) **1.** The dispersal of Chaff after launching or **2.** The expansion of the echo on a radar display due to the dispersal of Chaff after launching

BNC. A bayonet-locking connector for miniature coax; BNC is said to be short for bayonet-Neil-Concelman (see N connector and C connector). Contrast with TNC.

Boehme Equipment. 1. Transmitting. Used for sending International Morse Code characters by passing Wheatstone tape through a keying head. **2.** Receiving. Used for recording International Morse Code characters by ink siphon equipment on a moving paper tape.

bps, bits per second. A measure of speed or data rate. Often combined with metric prefixes as in Kbps for thousands of bits per seconds (k for kilo-) and in Mbps for millions of bits per second (M for mega-).

BREAK. A space (or spacing) condition that exists longer than one character time (typical length is 110 milliseconds). Often used by a receiving terminal to interrupt (break) the sending device's transmission, to request disconnection, or to terminate computer output.

BPSK, Bi-Phase Shift Keying

Breakout box. A device that provides access for testing of circuits in a cable or connector.

Bridge. The interconnection between 2 networks using the same communications method, the same kind of transmission medium, and the same addressing structure; also the equipment used in such an interconnection. Bridges function at the data link layer of the OSI model. Contrast with gateway.

Broadband. 1. (In general) Communications channel having a bandwidth greater than a voice-grade channel and potentially capable of much higher transmission rates; also called wideband. **2.** (In LAN technology) A system in which multiple channels access a medium (usually coaxial cable) that has a large bandwidth (50 Mbps is typical) using radio-frequency modems.

Broadcast. 1. Transmission of a message intended for general reception rather than for a specific station. **2.** (In LAN technology) A transmission method used in bus topology networks that sends all messages to all stations even though the messages are addressed to specific stations. **3.** A method of transmitting messages on predetermined schedules, when, normally, no acknowledgement for the message is required.

Broadcast Control Authority. The authority under whose control a specific broadcast is operated. The BCA directs the implementation of an approved broadcast and provides direction and guidance concerning its employment, configuration and content. The BCA may control the broadcast completely or assign certain responsibilities for operation to a subordinate command.

Broadcast Control Station (BCS). The station that technically controls the broadcast to ensure that all associated circuits are properly aligned in accordance with previously agreed upon configurations or as directed by the BCA or other competent authority.

Broadcast Radiating Station (BRS). The station responsible for radiating a broadcast signal supplied by the BCS.

BSC, Bisync, Binary Synchronous Communications. A byte or character-oriented IBM communications protocol which has become an industry standard. It uses a defined set of control characters and sequences for synchronized transmission of binary-coded data between stations in a data communications system.

BTAM, Basic Telecommunications Access Method. An IBM software routine; the basic access method for 3270 data communications control.

Buffer. A temporary storage device used to compensate for a difference in either the rate of data flow or the time of occurrence of events in transmissions from one device to another.

Bull Horn/Loudhailer. High power directional loudspeaker.

Burn-through Range. That range at which a radar target, until then masked by jamming, becomes detectable to the radar.

Bus, buss. 1. (In general) A data path shared by many devices such as the input/output bus in a computer. **2.** (In LAN technology) A linear network topology; contrast with ring star.

Byte. A collection of bits operated upon as a unit; most are 8 bits long; and most character sets use one byte per character. The capacity of storage devices is frequently given in bytes or in K bytes (K meaning 1024 bytes). See also nibble.

C

Cabinet. A physical enclosure for rack-mount equipment; standard cabinets have 1¾" vertical spacing between mounting holes and 19" - wide horizontal spacing between mounting rails.

Cable-based LAN. A shared-medium LAN that uses a cable for its transmission medium.

Cable system, cabling system. (In LAN technology) The medium used to interconnect stations: Often called the premises network.

Call. 1. A transmission made for the purpose of identifying the transmitting station and the station for which the transmission is intended. **2.** A request for connection or the connection resulting from such a request. See also mini-call and virtual call.

Call accounting, call accounting record. (In packet-switched networks) The process of accumulating data on individual calls or of reporting such data; usually includes start and end times, NTN or NUI, and number of data segments and packets transmitted for each individual call.

Called, calling, or called/calling channel. (In LAN technology and packet-switched networks) A called channel is a channel that can receive but not originate calls; a calling channel can originate but not receive calls; and finally, a called/calling channel can both originate and receive calls.

Call request packet. (In packet-switched networks) The packet sent by the originating DTE showing requested NTN or NUI, network facilities, and call user data.

Call Sign. Any combination of characters or pronounceable word(s) which identifies a communication facility(ies), command(s), authority(ies), activity(ies) or unit(s); used primarily for establishing and maintaining communications.

Call Sign, Basic Group. A call sign assigned to a merchant ship specifically to form the basis for obtaining an encrypted callsign.

Call Sign, Collective. Any call sign which represents two or more facilities, commands, authorities or units. The collective call sign for any of these includes the commander thereof and all subordinate commanders therein.

Call Sign, Encrypted. A call sign which has been encrypted by means of an appropriate encryption system.

Call Sign, International. A call sign assigned in accordance with the provisions of the International Telecommunication Union to identify a radio station. The nationality of the radio station is identified by the first or the first two characters. When used in visual signalling, International Call Signs are referred to as Signal Letters.

Call Sign, Military. A call sign assigned to a military ship specifically to form the basis for obtaining an encrypted call sign.

Call Sign, Net. A call sign which represents all stations within a net.

Call Sign, Tactical. A call sign which identifies a tactical command(s) or tactical communication facility(ies).

Call Sign, Visual. A call sign provided primarily for visual signalling,

Call Sign, Voice. A call sign provided primarily for voice communications.

Called Station. The station to which a message is routed (in Message Relay) or a transmission is directed.

Calling Station. **1.** General term. The station initiating a transmission. **2.** In Message Relay. The station preparing the message for transmission.

Call user data. (In packet-switched networks) User information transmitted in a call request packet to the destination DTE.

Cambridge ring. (In LAN technology) An empty slot ring LAN. It has not yet achieved a great deal of popularity outside its country of origin, England - where several near-Cambridge Ring systems are being marketed.

Camp-on, camp-on-busy. (In LAN technology) A PABX or cable-based LAN facility that allows users to wait on line (in queue) if the requested resource is busy and that connects the users in queue - on a first-come, first-served basis - when the requested resource becomes available.

Card module. A printed-circuit board that plugs into an equipment chassis.

Carrier. **1.** A continuous signal which is modulated with a second, information-carrying signal. **2.** An oscillator or wave, usually periodic, some of the characteristics of which are intended to be constrained by modulation to follow the variations of a signal or of other oscillation.

Carrier, Full. Carrier wave emitted at a power level between 8db and 6db below the peak envelope power.

Carrier, Reduced. Carrier wave emitted at a power level between 6db and 32db (preferably between 16db and 26db) below the peak envelope power.

Carrier, Suppressed. Carrier restricted to a power level more than 32db (preferably more than 40db) below the peak envelope power.

CATV, community antenna television. (In LAN technology) One of the most common facilities found on broadband networks; standards exist for allocating channels on a CATV system.

CBA, Control Block Address

CBT, Computer Based Training aid.

CCIR, Comité Consultatif International des Radiocommunications. An international consultative committee that sets international radiocommunications recommendations. Membership includes PTTs, scientific and trade associations, and private companies. CCIR is part of the International Telecommunication Union (a United Nations treaty organization in Geneva). (Note. This organization has now been incorporated into the ITU Telecommunications Standardization Sector (ITU-T)).

CCITT, Comité Consultatif Internationale de Télégraphique et Téléphonique. An international consultative committee that sets international communications recommendations, which are frequently adopted as standards, develops interface, modem and data network recommendations (see following table and selected entries - such as V.22, V.27 and X.25). Membership includes PTTs, scientific and trade associations, and private companies. CCITT is part of the International Telecommunication Union (a United Nations treaty organization in Geneva). (Note: This organization has now been incorporated into the ITU Telecommunications Standardization Sector (ITU-T)).

SUMMARY OF CCITT RECOMMENDATIONS

V	Series recommendations, covering data transmission over telephone circuits.
V1	Equivalence between binary notation symbols and the significant conditions of a 2 condition code.
V2	Power levels for data transmission over telephone lines.
V3	International Alphabet No 5.
V4	General structure of signals of International Alphabet No 5 code for data transmission over public telephone networks.
V5	Standardisation of modulation rates and data signaling rates for synchronous data transmission in general switched networks.
V6	Ditto, on leased telephone-type circuits.
V7	Definition of terms concerning data communication over the telephone network.

V10	Electrical characteristics for unbalanced double-current interchange circuits for general use with integrated circuit equipment in the field of data communications.
V11	Ditto, but for balanced double-current interchange circuits.
V13	Answerback unit simulator.
V15	Use of acoustic coupling for data transmission.
V16	Recommendation for modems for transmission of medical analogue data.
V19	Modems for parallel data transmission using telephone signaling frequencies.
V20	Parallel data transmission modems standardised for universal use in the general switched network.
V21	300 baud modem standardised for use in the switched telephone network.
V22	1200 bps full-duplex 2-wire modem standardised for use in the general switched telephone network.
V22bis	2400 bps full-duplex 2-wire modem standardised for use in the general switched telephone network.
V23	600/1200 bps modem standardised for use in the general switched telephone network.
V24	List of definitions for interchange circuits between data terminal equipment and data circuit-terminating equipment (i.e. Modem).
V25	Automatic calling and/or answering equipment on the general switched telephone network.
V25bis	Automatic calling and/or answering equipment on the general switched telephone network using the 100 series interchange circuits.
V26	2400 bps modem for use on 4-wire point-to-point circuits.
V26bis	2400/1200 modems standardised for use in the general switched telephone network.
V26ter	2400 bps duplex modem using the echo cancellation technique standardised for use on the general switched telephone network and on point-to-point 2-wire leased telephone type circuits.
V27ter	4800/2400 bps modem standardised for use in the general switched telephone network.
V28	Electrical characteristics for unbalanced double-current interchange circuits.
V29	9600 bps modem for use of leased circuits.
V31	Electrical characteristics for unbalanced double-current interchange circuits.
V32	A family of 2-wire duplex modems operating at data signaling rates up to 9600 bps for use on the general switched telephone network and on 2-wire leased telephone type circuits.
V35	Data transmission at 48 kilobits per second using 60 KHz - 108 KHz group band circuits.

V36	Modems for synchronous data transmission using 60 KHz - 108 KHz group band circuits.
V37	Synchronous data transmission at a data signaling rate higher than 72 kilobits per second using 60 KHz - 108 KHz group band circuits.
V40	Error indication with electromagnetic equipment.
V41	Code-independent error control system.
V50	Standard limits for transmission quality of data transmission.
V51	Organisation of the maintenance of international telephone-type circuits used for data transmission.
V52	Characteristics of distortion and error rate measuring apparatus for data transmission.
V53	Limits for the maintenance of telephone-type circuits used for data transmission.
V54	Loop test devices for modems.
V55	Specification for an impulsive noise measuring instrument for telephone-type circuits.
V56	Comparative tests for modems for use over telephone-type circuits.
V57	Comprehensive data test set for high data signaling rates.
X	Series recommendations covering data networks.
X1	International user classes of service in public data networks.
X2	International user facilities in public data networks.
X3	Packet assembly/disassembly facility (PAD) in a public data network.
X4	General structure of signals of International Alphabet No 5 code for data transmission over public data networks.
X15	Definitions of terms concerning public data networks.
X20	Interface between data terminal equipment and data circuit-terminating equipment for start/stop transmission services on public data networks.
X20bis	V21 compatible interface between data terminal equipment and data circuit-terminating equipment for start/stop transmission services on public data networks.
X21	General purpose interface between data terminal equipment and data circuit-terminating equipment for synchronous operation on public data networks.
X21bis	Use on public data networks of data terminal equipment which is designed for interfacing to synchronous V-series modems.
X22	Multiplex DTE/DCE interface for user classes 3-6.
X24	List of definitions of interchange circuits between data terminal equipment and data circuit-terminating equipment on public data networks.
X25	Interface between data terminal equipment and data circuit-terminating equipment for terminals operating in the packet mode on public data networks.

X26	Electrical characteristics for unbalanced double-current interchange circuits for general use with integrated circuit equipment in the field of data communications (identical to V10).
X27	Electrical characteristics for balanced double-current interchange circuits for general use with integrated circuit equipment in the field of data communications (identical to V11).
X28	DTE/DCE interface for a start/stop mode data terminal equipment accessing the packet assembly/disassembly facility (PAD) on a public data network situated in the same country.
X29	Procedures for exchange of control information and user data between a packet mode DTE and a packet assembly/disassembly (PAD) facility.
X30	Support of X21 and X21bis based DTEs by an ISDN.
X31	Support of Packet Mode Terminal Equipment by an ISDN.
X32	Interface between data terminal equipment and data circuit terminating equipment for terminals operating in the packet mode and accessing a packet switched public data network through a public switched network.
X50	Fundamental parameters of a multiplexing scheme for the international interface between synchronous data networks.
X50bis	Fundamental parameters of a 48Kbps user data signaling rate transmission scheme for the international interface between synchronous data networks.
X51	Fundamental parameters of a multiplexing scheme for the international interface between synchronous data networks using 10-bit envelope structure.
X60	Common channel signaling for circuit switched data applications.
X61	Signaling System no 7 - Data user part.
X70	Terminal and transit control signaling for start/stop services on international circuits between synchronous data networks.
X71	Decentralised terminal and transit control signaling system on international circuits between synchronous data networks.
X75	Terminal and transit call control procedures and data transfer system on international circuits between packet switched data networks.
X80	Interworking of inter-exchange signaling systems for circuit switched data services.
X87	Principles and procedures for realisation of international user facilities and network utilities in public data networks.
X92	Hypothetical reference connections for public synchronous data networks.
X95	Network parameters in public data networks.
X96	Call progress signals in public data networks.
X110	Routing principles for international public data services through switched public data networks of the same type.

X121	International numbering plan for public data networks.
X130	Provisional objectives for call set-up and clear-down times in public synchronous data networks (circuit switching).
X132	Provisional objectives for grade of service in international data communications over circuit switched public data networks.
X150	DTE and DCE test loops for public data networks.
X180	Administrative arrangements for international closed user groups(CUGs).
X244	Procedure for the exchange of protocol identification during virtual call establishment on packet switched public data networks.

I series recommendations for ISDN

I110	General structure of the I-Series Recommendations.
I111	Relationship with other recommendations relevant to ISDNs.
I112	Vocabulary of terms of ISDNs.
I120	ISDN concept.
I210	Principles of telecommunication services supported by an ISDN.
I211	Bearer services supported by an ISDN.
I212	Tele-services supported by an ISDN.
I300	ISDN functional principles.
I310	Network functional principles.
I320	ISDN protocol reference model.
I32X	ISDN functional architectural model.
I325	ISDN connection types
I330	ISDN numbering and addressing principles.
I340	ISDN connection types.
I410	General aspects and principles relating to recommendations on ISDN user-network interfaces.
I411	ISDN user-network interfaces - reference configurations.
I412	ISDN user-network interfaces - interface structures and access capabilities.
I420	Basic user-network interface.
I421	Primary rate user-network interface.
I440	Specification of the ISDN user-network interface data link layer protocol.
I450	General aspects of the ISDN user-network interface layer 3 functions and protocols.
I451	Specification of the ISDN user-network interface layer 3 protocol.
I461	Support of X21 and X21bis based DTEs by an ISDN (X30).
I462	Support of packet mode terminal equipments by an ISDN (X31).
I463	Support of DTEs with V-series type interfaces by an ISDN.
I46X	Support of 56Kbps information streams on an ISDN.
I472	Interworking services and protocols.

G700 series recommendations.

G701	Framework of the series G700,G800 and G900 recommendations.
G702	Vocabulary of pulse code modulation (PCM) and digital transmission terms.
G703	General aspects of interfaces.
G704	Maintenance of digital networks.
G705	Integrated services digital network (ISDN).
G711	Pulse code modulation (PCM) of voice frequencies.
G712	Performance characteristics of PCM channels at audio frequencies.
G721	Hypothetical reference digital paths.
G722	Interconnection of digital paths using different techniques.
G731	Primary PCM multiplex equipment for voice frequencies.
G732	Characteristics of primary PCM multiplex equipment operating at 2048Kbps.
G733	Characteristics of primary PCM multiplex equipment operating at 1544Kbps.
G734	Characteristics of 2048Kbps frame structure for use with digital exchanges.
G735	Characteristics required to terminate 1544Kbps digital paths on a digital exchange.
G736	Characteristics of synchronous digital multiplex equipment operating at 1544Kbps.
G737	Characteristics of primary PCM multiplex equipment operating at 2048Kbps and offering synchronous 64Kbps digital access options.
G738	Characteristics of a synchronous digital multiplex equipment operating at 2048Kbps.
G739	Characteristics of an external access equipment operating at 2048Kbps and offering synchronous digital access at 64Kbps.
G741	General considerations of second order multiplex equipments.
G742	Second order digital multiplex equipment operating at 8448Kbps and using positive justification.
G743	Second order digital multiplex equipment operating at 6312Kbps and using positive justification.
G744	Second order PCM multiplex equipment operating at 8448Kbps.
G745	Second order digital multiplex equipment operating at 8448Kbps and using positive/zero/negative justification.
G746	Characteristics of 8448Kbps frame structure for use with digital equipment.
G751	Digital multiplex equipments operating at the third order bit rate of 34,368Kbps and the fourth order bit rate of 139,264Kbps and using positive justification.
G752	Characteristics of digital multiplex equipments based on a second order bit rate of 6312Kbps and using positive justification.
G753	Third order digital multiplex equipment operating at 34,368Kbps and using positive/zero/negative justification.

G754	Fourth order digital multiplex equipment operating at 139,264Kbps and using positive/zero/negative justification.
G791	General considerations on transmultiplexing equipments.
G792	Characteristics common to all transmultiplexing equipment.
G793	Characteristics of 60-channel transmultiplexing equipments.

C connector. A bayonet-locking connector for coax; C is named after Carl Concelman. See also BNC and TNC.

CCTV, closed-circuit television. (In LAN technology) One of the many services often found on broadband networks.

CCU, communications control unit. (In IBM 3270 systems) A communications computer, often a minicomputer associated with a host mainframe computer. It may perform communications protocol control, message handling, code conversion, error control, and application functions.

CD, Carrier Detect. An RS-232 control signal (on pin 8) which indicates that the local modem is receiving a signal from the remote modem. Also called Received Line Signal Detector (RLSD) and Data Carrier Detect (DCD).

CDRU, Clock Distribution Receiver Unit.

CDTU, Clock Distribution Transmitter Unit.

Cellular. A technique used in mobile radio telephony to use the same radio spectrum many times in one network. Low power radio transmitters are used to cover a limited area or “cell” such that the frequencies in use can be re-used in other parts of the network.

CEMCON, Centralized Emcon.

CEN/CENELEC. CEN(Comité Europeene de Normalisation Electrotechnique) are two official European standards organisations responsible for standardisation in the field of information technology. CEN and CENELEC are effectively the European subsets of the members of ISO and the International Electrotechnical Commission (IEC) respectively.

Central office. The building where common carriers terminate customer circuits and where the switching equipment that interconnects those circuits is located. Sometimes also known as the central exchange - or just simply as exchange.

Centronics. Printer manufacturer that set the defacto interconnection standards for parallel printers, using a 36-pin, byte-wide connector.

CEPT. Conférence Europeenne des Adminstrations des Postes et des Télécommunications (CEPT). The European Conference of Posts and Telecommunication Administrations. CEPT is an association of European PTT's (Postal Telephone and Telegraph Administrations) and network operators from 43 countries.

Certification. The formal technical evaluation of security features and other safeguards of an Automated Information System (AIS). Certification supports the accreditation process and establishes the extent to which a particular AIS design and implementation meet a set of specified security requirements.

Chaff. Strips of frequency-cut metal foil, wire or metallised glass fibre used to reflect electromagnetic energy, usually dispensed by shells or rockets as a radar countermeasure.

Challenge. Any process carried out by one unit or person with the objective of ascertaining the friendly or enemy character or the identity of another. The answer to a challenge is a Reply.

Challenge and Reply. 1. In authentication, a procedure by means of a prearranged system whereby one transmitter requests authentication of another transmitter (the Challenge) and the latter by a proper reply establishes its authentication (the Reply). **2.** In establishing identity, the challenge and the reply is a prearranged method whereby one station identifies itself and requests the identity of another (the Challenge) and the latter identifies itself (the Reply).

Channel. 1. (CCITT standard) A means of 1-way transmission. Compare with circuit. **2.** (Tariff and common usage) As used in tariffs, a path for electrical transmission between 2 or more points without common carrier-provided terminal equipment such as a local connection to DTE. Also called circuit, line, data link path, or facility. **3.** (in all IBM host systems) A high-speed data link connecting the CPU and its peripheral devices. See also block-multiplexor channel, multiplexor channel, and selector channel.

Channel (Frequency). Part of the frequency spectrum intended to be used for the transmission of signals and which may be defined by two specified limits, or by its centre frequency and the associated bandwidth, or by an equivalent indication. **Note 1.** A frequency channel may be time-shared in order to allow communication in both directions by simplex operation. **Note 2.** The use of the term channel to mean circuit is depreciated.

Channel (Transmission). A transmission path suitable for a specific mode.
Note 1. Several channels may share a common path; for example, each channel is allocated a particular frequency band or a particular time slot. **Note 2**. In some countries the term 'communications channel' or its abbreviation 'channel' is also used to mean 'telecommunications circuit' i.e., to encompass the two directions of transmission. This usage is depreciated. **Note 3.** A transmission channel may be qualified by the nature of the transmitted signal, or by its bandwidth, or by its rare bit rate. **Examples:** Telephone channel, data channel, 10 MHz channel, 34Mbit/s channel

Channel Designation (Message Relay). One or more letters used to identify a station in conjunction with a channel number.

Channel Identifier (CID). Three letters which identify a specific channel between two stations

Channel interface. See channel and interface.

Channel Letter (Message Relay). A letter assigned to identify a channel when two or more channels are maintained between two stations.

Channel loopback. A diagnostic test that forms the loop at the multiplexors channel interface (refer to loopback).

Channel Number. 1. Engineering term. A number allotted to identify a particular channel of a circuit or system. **2.** Message Relay. A combination of letters and figures identifying a station, a channel and a transmission.

Channel Restoration. The repair or re-connection of an existing channel.

Channel Sequence Number (CSN). Three numerical characters which serve to sequentially number each transmission over a particular channel and which starts at 001 daily and is not to exceed 999.

Character. Letter, number, punctuation, or other symbol contained in a message. See also control character.

Character-oriented. Used to describe communications protocols (such as BSC) in which control information is coded in character-length fields. Contrast with bit-oriented.

Character set. A collection of characters, such as ASCII or EBCDIC used to represent data in a system. Usually includes special symbols and control functions. Often synonymous with code.

Characteristics, Military. Those characteristics of equipment upon which its ability to perform desired military functions depend. Military characteristics include physical and operational characteristics but not technical details.

Cifax. 1. The cryptography of facsimile signals or **2.** Encrypted facsimile signals.

CIM, Console interface Module.

Cipher Device. See Cipher Equipment.

Cipher Equipment. Equipment which converts plain text to cipher and vice versa; generally, the term cipher device is used to describe manually-operated equipment and the term "cipher machine" is used to describe equipment requiring an external source of power.

Cipher Machine. See Cipher Equipment.

Cipher System. Any cryptosystem which, by means of a key, converts , unit by unit, plain or encoded text or signals into unintelligible form and vice versa.

Cipher, Combat. See Code, Combat.

Cipher, Off-Line. See Off-Line Cipher.

Cipher, On-Line. The use of crypto equipment that is directly connected to a signal line, making encryption and transmission (or reception and decryption, or both together) a single continuous process.

Ciphony. 1. The cryptography of telephone communications or **2.** Enciphered speech signals.

Circuit. 1. (In data communications) A means of 2-way communications between 2 points, consisting of transmit and receive channels. **2.** (In electronic design) One or more components that act together to perform one or more functions. **3.** Communications term. An electronic path between two or more points capable of providing a number of channels. **4.** Engineering term. A number of conductors connected together for the purpose of carrying an electrical current.

Circuit, Approved. A circuit which has been authorized by a responsible authority for the transmission in plain language of information of a specific security classification.

Circuit, Commander's Vital. A circuit required in order to maintain the absolute minimum of communication for a Commander in order that he can carry out his operational mission under all circumstances. Such a circuit must be as secure as possible and with an alternative routing capable of immediate activation without further orders in the event of a breakdown likely to exceed four hours.

Circuit, Conference. A circuit permitting simultaneous communications between two or more stations for conference purposes. All stations can originate and receive messages.

Circuit Discipline. The component of transmission security which includes the proper use of communications equipment, the adherence to the prescribed frequencies and operating procedure, remedial action, net control, monitoring and training.

Circuit, Permanent. A circuit which is permanently provided and used in peacetime and which normally continues to be used in wartime.

Circuit Restoration. The process by which a communications circuit supplier provides a circuit path between two user stations after disruption or loss of the existing circuit path, in accordance with pre-planned procedures and priorities.

Circuit-switching. A technique in which physical circuits (as opposed to virtual circuits) are transferred (switched) to complete connections. Contrast with packet-switched networks.

Circuit, Temporary. A circuit which is required for a limited period to meet a special requirement.

Circuit (Telecommunication). A telecommunication facility to transmit signals between message source and message link by electric, electromagnetic, acoustic or visual means.

Circuit, Dedicated. A circuit provided for the sole use of certain specified users to serve a pre-assigned purpose.

Circuit, Engineering. An auxiliary circuit or channel (radio or wire) for use by operating and/or maintenance personnel for communications incident to the establishment, operation, maintenance and control of communication facilities. (An Engineering/Maintenance circuit includes the functions of an "Order Wire").

Circuit, Internal. A circuit the whole length of which lies within the boundaries of one nation.

Circuit, International. A circuit the routing or terminals of which lie within more than one nation.

Circuit, Safety. A circuit which for operational reasons has been guarded against failure by the provision of an immediate restoration capability.

Circuit, Trunk. A circuit directly connecting two distant exchanges.

CIRVIS. Communications Instructions for Reporting Vital Intelligence Sightings.

Clear Text. See Plain Language (Plain Text).

Clock. 1. The timing signal used in synchronous transmission. **2.** The source of such timing signals.

Closed architecture. An architecture that is compatible only with hardware and software from a single vendor. Contrast with open architecture.

Close-Up (Flag Signalling). A flag hoist is said to be "close-up" when its top is touching the block at the top of the hoist.

Cluster. A collection of terminals or other devices in a single location.

Cluster control unit. (In IBM 3270 systems) A device that controls the input/output operations of a group (cluster) of display stations. Also called terminal control unit.

Clutter. Collective term for unwanted echoes on a radar display.

Coax, coaxial cable. A transmission medium noted for its wide bandwidth and for its low susceptibility to interference; signals are transmitted inside a fully enclosed environment - an outer conductor; the conductors are commonly separated by a solid insulating material.

Coaxial converter. (In IBM 3270 systems) A protocol converter designed to be used between 3270 control units and attached asynchronous devices; uses coaxial cable to connect to the control unit.

Coaxial Line. A transmission line consisting of two coaxial cylindrical conductors.

Code. 1. A set of unambiguous rules specifying the manner in which data may be represented in a discrete form, such as ASCII or EBCDIC. **2.** In telecommunications, a set of rules and conventions according to which the signals representing data can be formed, transmitted, received and processed. **3.** A set of items, such as abbreviations, representing the members of another set. **4.** A system of unambiguous rules defining how information can be represented by characters, symbols or signal elements.

Code Book. A book (or publication) used as a code, arranged in systematic form, containing a vocabulary made up of arbitrary meanings (letters, syllables, words, phrases or sentences), each accompanied by one or more groups of symbols as equivalents for the plain text of messages.

Code Division Multiple Access. A method using both frequency division and time division multiple access by making the whole bandwidth available to each user all of the time. Each access uses direct sequence spread spectrum modulation and a different pseudo-random spreading and de-spreading sequence or code. Used with digital signalling only. See Satellite Communications Glossary of Terms at Annex A.

Codec, coding and decoding equipment. (In LAN technology) PABX equipment or circuits that digitally code and decode voice signals.

Code Group. A group of letters or numbers, or a combination of both, assigned (in a code system) to represent a plain text element.

Code level. The number of bits used to represent character.

Code Word. 1. A word which has been assigned a classification and a classified meaning to safeguard intentions and information regarding a classified plan or operation. **2.** A cryptonym used to identify sensitive intelligence data.

Code, Brevity. A code which provides no security but which has as its sole purpose the shortening of messages rather than the concealment of their content.

Code, Combat. A code or cipher, the purposes of which are simplicity and speed in addition to as much security as is possible without prejudicing unduly such simplicity and speed.

Code, International Morse. A code in which letters and numbers are represented by specific groupings of dots and/or dashes. The International Morse Code is used especially in radio telegraph and visual communication.

Code, International Signal. A code adopted by many nations for international communication. The code uses combinations of letters to stand for words, phrases and sentences. The letters are transmitted by the hoisting of international alphabetic flags or International Morse Code.

Code, Panel or Surface. A prearranged code designed for visual communications between ground units and friendly aircraft.

Code, Prearranged Message. A code adapted for the use of organisations which require special or technical vocabulary and composed almost exclusively of groups representing complete or nearly complete messages.

Code, Privacy. A code employed to protect the contents of a message from casual reading by unauthorized individuals (e.g. the press or communications staff) but which does not afford (and is not intended to afford) any security against organised cryptanalysis.

Code, Pyrotechnics. A prearranged code in which meanings are assigned to the various colours and arrangements of pyrotechnics.

Codress Message. A type of message in which the entire address is contained only in the encrypted text.

Codress Procedure. A procedure in which the entire address (including the true date-time group, if required, the originator and action addressee and information addressee(s) if any) is contained only in the encrypted text.

Collision. 1. (In LAN technology) The result of 2 stations attempting to use a shared transmission medium simultaneously. **2.** (In a half-duplex system) The result of both ends trying to transmit at the same time.

COMFEP, Communications Front End Processor.

Command, Control, Communication and Information Systems. A self-explanatory term used to define a wider scope of responsibilities than communications or signals which embraces the flow of information in support of command and control.

Command Port. The console used to control and monitor a network or system; also, the interface to which the console is connected .

Common carrier. A private date communications utility company or a government organisation that furnishes communications services to the general public and that is usually regulated by local, state or federal agencies. Often, PTTs provide these services outside the USA; telcos inside.

Common Use(r). In reference to a circuit or channel, indicates service for any number of users.

Commonality. A quality which applies to materiel or systems possessing like and interchangeable characteristics enabling each to be utilised or operated and maintained by personnel trained on the others without additional specialised training and/or having interchangeable repair parts and/or components; and applying to items interchangeably equivalent without adjustment.

Communication. The transfer of intelligence or knowledge according to agreed conventions.

Communication and Information Systems (CIS). Assembly of equipment, methods and procedures (and if necessary personnel), organised so as to accomplish specific information conveyance and processing functions.

Communication Guard, Radio. A communication system designated to listen for and record transmission and to handle traffic on a designated frequency for a certain unit or units.

Communications protocol. The means used to control the orderly exchange of information between stations on a data link or on a data communications network or system. Also called line discipline - or protocol, for short.

Communication Security (COMSEC). The protection resulting from all measures designed to deny to unauthorized persons information of value which might be derived from the possession and study of telecommunications, or to mislead unauthorized persons in their interpretation of the results of such a study. Communications Security includes:
1. Transmission Security. **2.** Crypto Security. **3.** Physical Security of Communications and Security Materials and information

Communication, Interior/Internal. Rapid communication facilities, electrical, acoustical or mechanical, interconnecting the various operational spaces of a naval vessel, aircraft or other activity.

Communication, Joint. Common use of communication facilities by two or more services of the same nation.

Communication, Line/Wire. The use for communication purposes of a physical path, such as wire or waveguide, between terminals,

Communication, Radio. The use of radio for communication purposes. It is technically described as telecommunication using radio waves not guided between the sender and receiver by physical paths such as wire or waveguides.

Communication, Sound. See Sound Signalling.

Communication, Visual. The use for communications purposes of optical signs such as flags, lights etc.

Communications, Agency of. A facility which embraces personnel and equipment necessary to provide communications by any means or combination thereof.

Communications, Air-Ground. A method or means of conveying information between aircraft in flight and ground stations.

Communications Countermeasures. All electronic countermeasures taken against communications.

Communications Deception. The deliberate introduction of deceptive emissions into friendly or enemy radio communications channels with the intention of misleading the enemy.

Communications Electronics (C-E). The specialised field concerned with the use of electronic devices and systems for the acquisition or acceptance, processing, storage, display, analysis, protection and transfer of information. **Note:** It applies to and includes the wide range of responsibilities and actions relating to the electronic devices and systems that are used in the transfer of ideas and perceptions, to those electronic sensors and sensory systems that are used in the acquisition of information devoid of semantic influences, and to those electronic devices and systems that are intended to allow friendly forces to operate in a hostile environment and to deny to hostile forces the effective use of electromagnetic resources.

Communications Intelligence (COMINT). Technical material and intelligence information derived from electromagnetic communications and communications systems (e.g. morse, voice, teleprinter, facsimile) by other than the intended recipients.

Communications Jamming (COMJAM). That portion of electronic jamming directed against communications circuits,

Communications Network. An organisation, geographically disseminated, of communications stations interconnected to communicate information, and comprising of the stations communication equipment and the physical means that link them up.

Communications Security (COMSEC) Monitoring. The protection resulting from the application of crypto security, transmission security and emission security measures to telecommunications and from the application of physical security measures to COMSEC information. These measures are taken to deny unauthorised persons information of value which might be derived from the possession and study of such telecommunications, or to ensure the authenticity of such telecommunications.

Communications, Signal. The means of conveying information of any kind from one person or place to another except by direct unassisted conversation or correspondence.

Communications/Signal Centre (COMMCEN). An agency charged with the responsibility for receipt, transmission and delivery of messages. It normally includes a message centre, transmitting and receiving facilities (Transmitting, Receiving and Relay Stations are not necessarily located in the Communications Centre but facilities for the remote control thereof must terminate therein).

Communications, Teletypewriter. The use of teletypewriter for communications purposes. RATT designates teletypewriter communications over a radio link (see RATT). TTY designates teletypewriter communications over other than a radio link.

Compaction. See compression.

Compandor. A single device that combines the functions of a compressor and expandor.

Compatibility. Capability of two or more items or components of equipment or material to exist or function in the same system or environment without mutual interference. See also Interchangeability.

Component. A software process or a combination of software process and its hardware platform which performs a service in the preparation, transmission, or translation of messages.

Composite. The line side signal of a concentrator or multiplexor that includes all the multiplexed data.

Composite loopback. A diagnostic test that forms the loop at the line side (output) or a multiplexor; (refer to loopback).

Compression. Two types are available: Data compression, which reduces the number of bits required to represent data (accomplished in many ways, including using special coding to represent strings of repeated characters or using fewer bits to represent the more frequently used characters); and analogue compression, which reduces the bandwidth needed to transmit an analogue signal. Also called compaction.

Compressor. A device that performs analogue compression. See also Compandor.

Compromise, Cryptographic. Recovery of cryptographic information or plain text of messages by unauthorised persons through cryptanalytic methods.

Compromise equalizer. An equalizer set for best overall operation for a given range of line conditions; often fixed, but may be manually adjustable.

Compromise, Physical. The availability of material or the disclosure of information to unauthorised persons through loss, theft, capture, recovery by salvage, defection of individuals, unauthorised viewing, photography, or by any other physical means.

Concentration. Collection of data at an intermediate point from several low and medium speed lines for transmission across one high speed line.

Concentrator. A device used to divide a data channel into two or more channels of average lower speed, dynamically allocating space according to the demand in order to maximize data throughput at all times. Also called an intelligent TDM, ATDM, or statistical multiplexor.

Conditioning. The "tuning" or addition of equipment to improve the transmission characteristics or quality of a leased voice-grade line so that it meets specifications for data transmission.

Cone of Silence. An inverted cone-shaped space directly over the aerial towers of some forms of radio beacons in which signals are unheard or greatly reduced in volume. See also "Beacon Z Marker".

Confusion Reflector. A reflector of electromagnetic radiation’s used to create echoes for confusion purposes. Radar confusion reflectors include such devices as Chaff, Rope and Corner Reflectors.

Connection. 1. An established data communications path. **2.** The process of establishing that path. **3.** A point of attachment for that path.

Connector. An electrical device for making one or more connections.

Connect time. 1. A measure of system usage: The interval during which the user was on-line for a session. **2.** The interval during which a request for a connection is being completed.

Connectionless service. In a connectionless service, no circuit is set up between sender and recipient. Every unit of data that is exchanged is totally self contained and contains within it all of the necessary control information (e.g. addresses of destination and sender) to ensure correct delivery.

Connection-oriented service. In a connection-oriented service, a dedicated circuit (real or virtual) is set up between two points and maintained for as long as the connection is required. A connection-oriented service has three phases; establishment, data transfer, release.

Console. 1. A long-range radio aid to navigation, the emissions of which, by means of their audio frequency modulation characteristics, enable bearings to be determined. **2.** The device used by the operator, system manager, or maintenance technician to monitor or control computer, system, or network performance.

Contact Point. In air operations, the position at which a flight leader makes radio contact with an air control agency.

Contact Report. A report of visual, radio, sonar or radio contact with the enemy. The first report, giving the information immediately available when the contact is first made, is known as the Initial Contact Report. Subsequent reports containing additional information are referred to as Amplifying Reports.

Contended access. (In LAN technology) A shared access method that allows stations to use the medium on a first-come, first-served basis. Contrast with explicit access.

Contention. The facility provided by the dial network or a data PABX which allows multiple terminals to compete on a first-come, first served basis for a smaller number of computer ports.

Continuous Carrier. A signal wherein transmission of the carrier is continuous, not pulsed on and off. A continuous carrier signal may be amplitude, phase or frequency modulated.

Continuously variable. Capable of having one of an infinite number of values, differing from each other by an arbitrary small amount; usually used to describe analogue signals or analogue transmission.

Continuous Wave (CW). A continuous signal, not pulsed on and off. A CW signal may be amplitude, phase or frequency modulated.

Control character. A non-printing character used to start, stop, or modify a function; CR is an example to a control character.

Control signal. A modem interface signal used to announce, start, stop, or modify a function; for example, CD is an RS-232 control signal that announces the presence of a carrier.

Control Tower. A facility provided for the control of aircraft and vehicles, operating on and around a landing area.

Control unit. In an IBM host system, equipment coordinating the operation of an input/output device and the CPU. See cluster control unit, CCU and TCU.

Coordination Area. The area associated with an earth station outside of which a terrestrial station sharing the same frequency band neither causes nor is subject to interfering emissions greater than a permissible level.

Coordination Contour. The line enclosing the coordination area.

Coordination distance. Distance on a given azimuth from an earth station beyond which a terrestrial station sharing the same frequency band neither causes nor is subject to interfering emissions greater than a permissible level.

Copy (Radio Communication). To maintain a continuous receiver watch keeping a complete log. See Cover (Radio Communication) and Guard (Radio Communication).

Corner Reflector. A device, normally consisting of two metallic surfaces or screen perpendicular to one another, designed to act as a radar target or marker.

Correlate. 1. To associate radar data with target position in active or passive tracking. **2.** To coherently compare jamming signals from two receivers to obtain a time delay and thus a line of target position.

Correlation Techniques. In Electronic Warfare. The comparison of two or more signals emanating from a single source (but separated by transmission path or time) for the purpose of differentiating between real targets and clutter or jamming.

Counterpoise. A conductor or group of conductors placed above the earth, used in association with an aerial system, insulated from the earth and replacing an earth system.

Couriergram. A message which would normally be sent by electrical means (but which cannot be so sent because circuits are not available) and which will be carried over all or part of its route by an authorised conveying agency which need not be part of the communications system.

Cover (Radio Communication). The act of maintaining a continuous receiver watch with transmitter calibrated and available, but not necessarily available for immediate use. See Copy (Radio Communication) and Guard (Radio Communication).

Coverage Diagram. A diagram showing the areas in the horizontal or vertical plane within which a radio transmitting installation is effective to a given standard.

CPI, Computer-PABX Interface. (In LAN technology) A voice/data PABX standard (supported by DEC) for using T1 transmission that involves 56 Kbps channels, representing a move toward an open architecture. Compare with DMI.

CPU, central processing unit. Actually the heart of a computer, but often used as a synonym for computer.

CR, carriage return. An ASCII or EBCDIC control character used to position the print mechanism at the left margin on a printer - or the cursor at the left margin on a display terminal.

CRC, cyclic redundancy check. An error detection scheme in which the block check character is the remainder after dividing all the serialized bits in a transmission block by a predetermined binary number - or polynomial based on the transmitted data.

CRC, Control and Reporting Centre.

Cross-bar switch. (In PABX technology) In older PABXs, a switch having multiple vertical paths, multiple horizontal paths, and electromagnetically operated mechanical means for connecting any vertical path with any horizontal path. Modern PABXs often use an electronic version of the cross-bar switch.

Cross Modulation. The modulation of the carrier of the desired signal by an undesired signal.

Crosstalk. The unwanted transfer of a signal from one circuit, called the disturbing circuit, to another, called the disturbed circuit.

Crossover Range (Point). See Burn-through Range.

CRP, Control and Reporting Post.

CRT, cathode-ray tube. A television-like picture tube used in terminals; CRT is commonly used as a synonym for CRT terminal.

Cryptocentre. An establishment maintained for the encryption and decryption of messages.

Cryptogram. An encrypted communication in visible writing.

Cryptographic System, High Grade. A system designed to provide lasting security, i.e. inherently resisting solution for a comparatively long period (or indefinitely).

Cryptographic System. Low Grade. A system designed to provide temporary security.

Cryptography. The art or science which treats the various means and methods for rendering plain text unintelligible and reconverting cipher text into intelligible form or the application thereof by means other than cryptanalysis.

Cryptonet. An organisation of stations capable of direct communications on a common cryptochannel.

Crypto Operating Instructions. Instructions prescribing the methods to be employed in the operation of a cryptosystem. This includes a description of the cryptosystem, as well as the method of application of specific keys.

Cryptosecurity. That component of communication security which results from the provision of technically sound cryptosystems and their proper use.

Cryptosystem. The associated term of cryptomaterial which are used as a unit and which provide a single means of encryption and decryption.

Crystal (XTAL). 1. A slice of mineral (such as quartz or tourmaline) which exhibits piezo-electric characteristics. It has the property of responding markedly to a given frequency when cut to a given thickness. **2.** A detector using the asymmetrical conducting properties of certain crystal-crystal or crystal-metal contacts.

Crystal Control. Control of the frequency or an oscillator by means of a piezo-electric crystal.

CSMA, carrier sense multiple access. (In LAN technology) A contended access method in which stations listen before transmission, send a packet, and then free the line for other stations. With CSMA, although stations do not transmit until the medium is clear, collisions still occur; two alternative versions (CSMA/CA and CSMA/CD) attempt to reduce both the number of collisions and the severity of their impact.

CSMA/CA, CSMA with collision detection. (In LAN technology) CSMA that also listens while transmitting to detect collisions. See also Ethernet and IEEE 802.3.

CSS, Command Support System. Replacement for PFSS.

CSU, channel service unit. A digital DCE unit for DDS lines; interfaces with DSU on customer's premises.

CTS, Clear-To-Send. An RS-232 modem interface control signal (sent from the modem to the DTE on pin 5) which indicates that the attached DTE may begin transmitting; issued in response to the DTEs RTS. Called Ready-For-Sending in CCITT V24.

CT2. The new digital standard for cordless telephones being deployed in the UK. CT2 is being offered as a public service as well as for use in the home.

CUG, closed user group. (In public data networks) A selected collection of terminal users that do not accept calls from sources not in their group; also, often restricted from sending messages outside the group.

Current loop. 1. (Single-current signaling, used in USA) Method of interconnecting Teletype terminals and transmitting signals that represent a mark by current on the line and a space by the absence of current. **2.** (Double-current signaling, used everywhere else) A mark is represented by current in on direction and a space by current in the other direction.

Cursor. 1. A movable underline, rectangular-shaped block of light, or an alternating block of reversed video on the screen of a display device, usually indicating where the next character will be entered. **2.** Part of an indicating instrument or display that may be moved to establish a reference line. Most common use is on RHI displays for height-finding purposes.

Cycle. One complete positive and once complete negative alternation of a current or high voltage.

D

D bit, delivery confirmation bit (In an X25 packet-switched network) Used to request end-to-end acknowledgment.

D&CP, Deflection and Colour Processor.

DAA, Data Access Arrangement. DCE furnished or approved by a common carrier that permits privately-owned DCE or DTE to be attached to the common carriers network; all modems now built for the public telephone network have integral DAAs.

DASS. Digital Access Signaling System (DASS) is a signaling standard designed for use between PABXs and public exchanges in the UK.

Data base. A large, ordered collection of information.

Data collection. Procedure in which data from various sources is accumulated at one location (in a file or queue) before being processed.

Data communications. The processes, equipment, and/or facilities used to transport signals from one data processing device at one location to another data processing device at another location.

Data integrity. 1. A measure of data communications performance, indicating a sparsity (or, ideally, the absence) of undetected errors. **2.** Protection against the unauthorized modification of data, whether by change, deletion or insertion.

Data link layer. Second layer in OSI model; takes data from the network layer and passes it on to the physical layer; responsible for transmission and reception of packets, datagram service, local addressing, and error detection (but not error correction).

Data Link. 1. The means of connecting one location to another for the purpose of transmitting and receiving data. **2.** The assembly of parts of two data terminal equipments that are controlled by a link protocol, and the interconnecting data circuit. **3.** Telecommunication facility joining two data stations.

Data Network. An arrangement of data circuits and switching facilities for establishing connections between data terminal equipments. Synonymous with data transmission network.

Data PABX, data-only PABX. A PABX used solely for data; a device whose main purpose is to furnish connectivity - to set up and break connections on demand - between computers, terminals, and peripherals.

Data Processing Equipment, Automatic (ADPE). Data processors, associated input-output devices, and auxiliary equipment using electronic circuitry to perform arithmetical and logical operations automatically by means of internally-stored programme instructions.

Data Processing Network. An organisation, geographically disseminated, of data processing systems interconnected to exchange data, and comprising the components of the interconnected data systems and their interface with the supporting data or communication network. **Note:** A data processing network can use the services of one or several communication networks; several data processing networks can use the services of one common communication network. A data processing network is called 'local' if it links several computers together in the same site. Synonymous with computer network, automatic data processing network. Contrast with data (transmission) network.

Data Processing System. Functional unit for data processing and storage. **Note:** Data processing comprises the execution of mathematical, converting, transferring and storing operations.

Data Processing, Automatic (ADP). 1. Strictly speaking, the handling of data by means of the information technique. **2.** Generally speaking (besides the definition above), all operations concerning collection/input, storage and output of data. **Note:** Handling comprises merging, sorting, computing assembling and compiling of data.

Data rate, data signaling rate. A measure of how quickly data is transmitted, expressed in bps. Also commonly, but often incorrectly expressed in baud. Synonymous with speed.

Data set. A synonym for modem (coined by AT&T).

Data Signalling Rate. In data communication, the data transmission capacity of a single channel or of a set of parallel channels. The data signalling rate is expressed in bits per second.

Data stream. The collection of characters and data bits transmitted through a channel.

Data Transmission Network. See Data Network.

Data Transmission. The movement of data in real time by electronic means without human intervention.

Data-over-voice. An FDM technique which combines data and voice on the same line by assigning a portion of the unused bandwidth to the data; usually implemented on the twisted pair cables used for in-house telephone system wiring.

Datagram. (In packet-switched networks) An abbreviated, connectionless, single-packet message from one station to another; rarely, if ever, implemented on current PDNs; see minicall.

Dataset. See local dataset.

Date-time Group (DTG). A group of six digits with a zone time suffix and the standardised abbreviation for the month. The first pair of digits represent the day, the second pair the hour and the third pair the minutes. The last two digits of the year may be added after the month. Example: 121845Z AUG 97.

dB, deciBel. Comparative (logarithmic) measure of signal power (strength or level): +10dB (or +1 Bel) represents a gain of 10:1; -3dB represents a 50% loss of power. Contrast with dBm.

dBm. Absolute measure of signal power where 0dBm is equal to one milliwatt. Contrast with dB.

DCD, Data Carrier Detect. See CD.

DCE, data communications equipment, or data circuit-terminating equipment. In common usage, synonymous with modem; the equipment that provides the functions required to establish, maintain, and terminate a connection as well as the signal conversion required for communications between the DTE and the telephone line or date circuit.

DCN, Defence Communications Network. UK Military (Tri Service) strategic communications organization covering all areas of Defence interest.

DCS, Data Communications Sub-System.

DDCMP, Digital Data Communications Message Protocol. A communications protocol used in DEC computer-to-computer communications.

DDD, direct distance dialing. A telephone service in North America which enables users to call their subscribers outside their local area without operator assistance. In the United Kingdom and some other countries, this service is known as STD, (Subscriber Trunk Dialing).

DDN, Digital Data Network/Node.

DDP, Digital Data Path.

DDS, Dataphone Digital Service. A communications service offered in the form of leased lines by AT&T that transmits data in digital rather than analogue form, eliminating the need for modems.

Dead Space. The area or zone which is within the range of a radio transmitter, but in which a signal is not received.

DEC, Digital Equipment Corporation. A leading manufacturer of minicomputers and related hardware and software.

Deception Jammer. A specialised type of jammer used to induce false indications in the system or systems being jammed.

Deception Repeater. A device that receives a signal, amplifies, delays or otherwise manipulates and retransmits the signal for the purpose of deception.

Deception, Meaconing. See Meaconing.

Decimal. A digital system that has 10 states, 0 through 9.

DECnet. Trademark for DEC's communications network architecture that permits interconnection of DEC computers using DDCMP.

Decode. 1. To convert an encoded message into its equivalent plain language text (this does not include solution by cryptoanalysis). **2.** That section of a code book in which the code groups are in alphabetical, numerical or other systematic order.

Decoy. In Electronic Warfare, a device used to simulate a genuine target.

Decrypt. To convert cipher text into plain text by reversal of the encryption process (this does not include solution by cryptoanalysis). The term "decrypt" covers the meaning of "decipher" and "decode".

DECX, DEC Exerciser.

Dedicated Circuit. See Circuit, Dedicated.

Dedicated line. Same as leased line.

Demodulation. The process of retrieving data from a carrier; the reverse of modulation.

Demultiplexing. The process of breaking a composite signal into its component channels; the reverse of multiplexing.

Destination group. Same as rotary.

Deviation Ratio. In a frequency modulation system, the ratio of the maximum frequency deviation to the maximum modulating frequency of the system under specified conditions.

DEW, Direct Energy Weapon (Laser).

DHS, Data Handling Sub-System.

Diagnostics. Programs or procedures used to test a piece of equipment, a communications link or network, or any similar system.

Dial network. Synonymous with public telephone network.

Dial-up line, dial-in line, dial line. A circuit or connection on the public telephone network.

Dibit. A group of 2 bits. In 4-phase phase modulation such as DPSK, each possible value of a dibit is encoded as a unique carrier phase shift; the 4 possible values of a dibit are 00, 01, 10 and 11.

Differential modulation. A type of modulation in which the absolute state of the carrier for the current signal element is dependent on the state after the previous signal element. See DPSK.

Digital loopback. A diagnostic test that forms the loop at the modem's DTE interface; (see loopback.)

Digital Signal. A signal that represents information by varying a quantity, such as amplitude or frequency, in two or more discrete steps. In the case of two discrete steps, the digital signal is called a binary signal.

Digital Signature. A non-forgeable transformation of data that allows proof of source, non-repudiation, and verification of data integrity.

Digital. Discretely variable as opposed to continuously variable. Data characters are coded in discrete, separate pulses or signal levels. Contrast with analogue.

DINA Jammer. A type of barrage jammer using the principle of DIrect Noise Amplification. See also Noise Jamming.

DIP, dual in-line pins. Term used to describe the pin arrangement on an integrated circuit (IC) or a multiple (electric) switch.

Dip, At The (Flag Signalling). A flag hoist is said to be "at the dip" (dipped) when hoisted two-thirds of the way up to the block at the top of the hoist.

Dipole. An antenna consisting of two elements, each approximately one quarter-wavelength in length and fed with radio frequency energy of opposing polarity at adjacent ends of the elements.

Direct Mode. The operation of the several transmitters of a navigation system as a system without consideration to the value of individual transmitters as beacons. See Indirect Mode.

Direct Wave. A wave that travels directly between the transmitter and receiver antenna without reflections from any object.

Direction Finding (DF). The process of determining the bearing of an electromagnetic emission.

Disc. See disk.

Discrete access. (In LAN technology) An access method used in start LANs: Each station has a separate (discrete) connection through which it makes use of the LAN's switching capability. Contrast with shared access.

Discretely variable. Capable of one of a limited number of values; usually to describe digital signals or digital data transmission. Contrast with continuously variable.

disk. An electromagnetic storage medium for digital data.

Display converter. (In IBM 3270 systems) A coaxial converter that allows asynchronous display terminals to emulate IBM 3278 Display Stations.

Display Scope/Display. A cathode-ray tube used to display a variety of information or data as follows:

A-Scope/Display	Horizontal or vertical sweep depicting range only.
B-Scope/Display	Horizontal sweep depicting azimuth, vertical sweep depicting range.
C-Scope/Display	Horizontal sweep depicting azimuth, vertical sweep depicting elevation.
D-Scope/Display	Basic C-Scope/Display, but broken into horizontal strips in which trace (or pip) position roughly depicts range.
E-Scope/Display	Horizontal sweep depicting range, vertical sweep depicting elevation.

EO-PPI-Scope/Display	A double gun cathode-ray tube that presents a normal PPI display from which a circular centre section has been blanked out. In the centre section, a dot moving in azimuth with the rotating sweep line indicates present elevation by its distance from the scope/display centre.
F-Scope/Display	Horizontal displacement of spot (fated signal) depicting azimuth error angle or relative bearing, vertical sweep depicting elevation.
G-Scope/Display	Basic C-Scope/Display, with wings on the target trace which grow as range decreases.
H-Scope/Display	Horizontal sweep depicting azimuth, vertical sweep depicting range, and signal trace is bright line whose slope is proportional to line of elevation angle.
I-Scope/Display	Radial sweep synchronized with antenna conical scan. Trace appears as variable diameter circle whose radius indicates range and whose circumference brightens most at axial angle or maximum response. When ‘on target’, entire circumference is brightened.
J-Scope/Display	Circular sweep depicting range only with radial deflection of video signal. Basic A-Scope/Display.
K-Scope/Display	Double target trace representing lobe signal strengths and hence error by relative amplitudes of trace. Basic A-Scope/Display with horizontal displacement of alternate scans for lobe switching.
L-Scope/Display	Same as K-Scope/Display with video response on alternate sweeps placed back-to-back, forming an envelope.
M-Scope/Display	Vertical deflection of horizontal range sweep. Basic A-Scope/display with moveable range ‘step’ or ‘notch’ for rematching an accurate range reading.
N-Scope/Display	Combination of K- and M-Scope/Displays.
PPI-Scope/Display (Plan Position Indicator)	Revolving radial sweep depicting azimuth and range.
R-Scope/Display	Expansion of small portion of range sweep of A-Scope/Display.
RHI-Scope/Display - (Range Height Indicator)	Expansion of one dimension of polar display with horizontal sweep depicting range and expanded vertical sweep depicting height.

Display station, display terminal. A device consisting of a keyboard and video or CRT display. (In the IBM 3270 Information Display System, a 3278 is an example of a display station; an ASCII CRT terminal is an example of a display terminal).

Display. A visual presentation of data

Distance Measuring Equipment (DME). A radionavigation aid in the aeronautical radionavigation service that determines the distance of radiated electromagnetic energy caused by abnormal change of the refractive index with altitude. See Anomalous Propagation (AP).

Distortion. 1. The unwanted changes in signal or signal shape that occurs during transmission between 2 points. **2.** The amount by which the output wave form differs from the input wave form. **Note:** Distortion may exist in amplitude, frequency or phase modulation.

Distributed architecture. (In LAN technology) A LAN that uses a shared communications medium; used on bus or ring LANs; uses shared access methods.

Distributed computing. The name of the trend to move computing resources such as minicomputers, or personal computers closer to individual workstations. See also distributed processing.

Distributed processing. An arrangement that allows separate computers to share work on the same application program. Often erroneously used to mean distributed computing.

Distribution block, distribution frame. Centralized connection equipment where telephone or data terminal wiring is terminated and cross-connections are made.

Diversity System. A system of communication in which a single received signal is derived from a combination of, or selections from, plurity of transmission channels or paths.

DL, Digital Data Link.

DLC, data link control. A communications protocol that sets up, controls, checks, and terminates information transfer between stations on a data link. See also HDLC and SDLC.

DMA, Directory Memory Access.

DMI, Digital Multiplexed Interface. (In LAN technology) A voice/data PABX standard (supported by AT&T) for using T1 transmission that involves 64 Kbps channels, representing a move toward an open architecture via ISDN. Compare with CPI.

DNIC, Data Network Identification Code. (In a packet-switched network) A 4-digit PDN identifier.

DoD, DOD, Department of Defense. Part of USA government executive branch that handles military matters, including data communications; responsible for some LAN-associated protocols and standards, such as TCP/IP, as well as selected FIPS.

Doppler Effect. The phenomenon evidenced by the change in the observed frequency of a wave caused by a time rate of change in the effective length of the path of travel between the source and the point of observation.

Doppler Radar. Any form of radar which detects radial motion of a distant object relative to a radar apparatus by means of the 'Doppler Effect'.

DOS, disk operating system. A program or set of programs that instruct a disk-based computing system to schedule/supervise work, manage computer resources, and operate/control peripheral devices.

Double Frequency Shift Keying (DFSK). A multiplex system in which two telegraph signals are combined and transmitted simultaneously by a method of frequency shifting between four radio frequencies.

Double Sideband Transmission. That method of communication in which the frequencies produced by the process of modulation are symmetrically spaced both above and below the carrier frequency and are all transmitted.

Downline loading. The process of sending configuration parameters, operating software, or related data from a central source to individual stations.

Downtime. Period when all or part of a system or network is not available to end users due to failure or maintenance. See availability.

DPNSS. Digital Private Network Signaling System (DNPSS) is a UK signaling standard for use between PABXs in a private network.

DPS, Dual Port Store.

DPSK, differential phase shift keying. The modulation technique used in Bell 201 modems; see also dibit.

Drafter. The person who actually composes a message for release by the originator or releasing officer.

DRDF. Digital Resolution Direction Finding. A precision position fixing system.

Driver. 1. A software module that controls an input/output port or external device.
2. Short for line driver.

Drop. Individual connections (sometimes called nodes) on a multipoint (also called multidrop) circuit.

DSR, Data Set Ready. An RS-232 modem interface control signal (sent from the modem to the DTE on pin 6) which indicates that the modem is connected to the telephone circuit. Usually a prerequisite to the DTE issuing RTS.

DSU, data service unit. DCE which replaces a modem in connections to DDS; a baseband device, often included in the cost of the DDS circuits.

DTE, data terminal equipment. The equipment serving as the data source, the data sink, or both. Refers to both terminals and computer ports.

DTMF, dual-tone multiple-frequency. Term used to describe the audio signaling frequencies on Touch-tone push-button telephones.

DTR, Data Terminal Ready. An RS-232 modem interface control signal (sent from the DTE to the modem on pin 20) which indicates that the DTE is ready for data transmission and which requests that the modem be connected to the telephone circuit.

Ducting. Trapping and refraction of radiated electromagnetic energy caused by abnormal change of the refractive index with altitude. See Anomalous Propagation (AP).

Dumb terminal. A term used to describe a Teletype or Teletype-compatible terminal. The dumb terminal is an asynchronous terminal that may operate at speeds as high as 9600 bps or higher. The dumb terminal is an ASCII terminal that, although it may be “intelligent” in many of the functions it provides, uses no communications protocol.

Dummy Message. A message sent for some purpose other than its content, which may consist of dummy groups or may have a meaningless text.

Duplex. Designating or pertaining to a mode of operation or the equipment concerned, by which information can be transmitted in both directions simultaneously between two points.

DVCS, Display and Voice Communications Sub-System.

D&CP,. Deflection and Colour Processor.

E

EA, External Agency.

EA, Electronic Attack. Also called Electronic Warfare (EW).

Earth-Return Circuit. A circuit which has a conductor (or a number of conductors in parallel) between two points, and which is completed through earth at these two points.

EBCDIC, Extended Binary Coded Decimal Interchange Code. An 8-bit character code used primarily in IBM equipment. The code provides for 256 different bit patterns.

ECC, Error Correcting Code.

ECCMO, Electronic Counter Counter Measures Officer.

Echo Area. See Scattering Cross-Section (of a target).

Echo suppressor. A device used by telcos or PTTs that blocks the receive side of the line during the time that the transmit side is in use.

Echo. The return of transmitted data.

Echoplex. A method of checking data integrity by returning characters to the sending station for verification of data integrity.

ECM, Electronic Counter Measures.

ECMA, European Computer Manufacturers Association. A western European trade organisation that issues its own standards and belongs to ISO. Membership include western European computer suppliers and manufacturers.

ECP, Engineering Control Position, also Engineering Change Proposal.

EDD, Electronic Data Display.

EEPROM, electrically erasable programmable read-only memory. An EPROM that can be cleared with electrical signals rather than the traditional ultraviolet light.

Electromagnetic Compatibility (EMC). The condition which prevails when telecommunications (communications-electronics) equipment is collectively performing its individually designed functions in a common electromagnetic environment without causing or suffering unacceptable degradation due to electromagnetic interference to or from other equipments/systems in the same environment.

Electromagnetic Emission Control (EMCON). See Emission Control (EMCON).

Electromagnetic Interference (EMI). Any electromagnetic disturbance which interrupts, obstructs, or otherwise degrades or limits the effective performance of electronics/electrical equipments. It can be indeed intentionally, as in some forms of electronic warfare, or unintentionally as a result of spurious emission responses, intermodulation products and the like.

Electromagnetic Signature. The electromagnetic energy radiated by personnel, equipment or vehicles that may provide a means of recognition and identification.

Electromagnetic Spectrum. The entire and orderly distribution of electromagnetic waves according to their frequency or wavelength. The electromagnetic spectrum includes radio waves, microwaves, heat radiation, visible light, ultraviolet radiation, x-rays, electromagnetic cosmic rays and gamma rays.

Electromagnetic Surveillance. Electromagnetic search applied to some geographical area. The surveillance is called exploratory when applied to an unknown or little-known environment. It is called verification surveillance when it aims to ensure that no new element has modified a given and known environment.

Electronic Camouflage. The use of electronic means, or exploitation of electronic characteristics, to reduce, submerge or eliminate the radio echoing properties of a target.

Electronic Countermeasures (ECM). That division of Electronic Warfare involving actions taken to prevent or reduce an enemy's effective use of the electromagnetic spectrum, through the use of electromagnetic energy. There are three sub-divisions of ECM: Electronic Jamming, Electronic Deception and Electronic Neutralization.

Electronic Countermeasures Target List. A compilation of enemy electromagnetically-dependent surveillance, weapons control and communications devices which should be temporarily nullified by ECM actions in support of a commander's battle plans.

Electronic Deception. The deliberate radiation, re-radiation, alteration, absorption or reflection of electromagnetic energy in a manner intended to confuse, distract or seduce an enemy or his electronic systems.

Electronic Emission Security (EES). Those measures taken to protect all transmissions from interception, direction finding and electronic analysis.

Electronic Intelligence (ELINT). Technical material and intelligence information derived from electromagnetic non-communications transmission (e.g. radar, navigational aids, jamming transmissions) by other than intended recipients.

Electronic Jamming. The deliberate radiation, re-radiation or reflection of electromagnetic energy, with the object of impairing the effectiveness of electronic devices, equipment or systems being used by an enemy.

Electronic mail. Messages sent between subscribers electronically via a public or private data communications system.

Electronic Neutralization. The deliberate use of electromagnetic energy to either temporarily or permanently damage enemy devices which rely exclusively on the electromagnetic spectrum.

Electronic Protective Measures (EPM). That division of Electronic Warfare involving actions taken to ensure friendly effective use of the electromagnetic spectrum despite the enemy's use of electromagnetic energy. There are two sub-divisions of EPM: **1.** Active EPM. Detectable measures, such as altering transmitter parameters as necessary, to ensure friendly effective use of the electromagnetic spectrum. **2.** Passive EPM. Undetectable measures, such as operating procedures and technical features of equipment, which are meant to ensure friendly effective use of the electromagnetic spectrum.

Electronic Search. An investigation of the electromagnetic spectrum (or portions thereof), in order to determine the existence, sources and pertinent characteristics of electromagnetic radiation's.

Electronic Security (ELSEC). The protection resulting from all measures designed to deny to unauthorized persons information of value which might be derived from their interception and study of non-communications electromagnetic radiation's, e.g. radar.

Electronic Spectrum. The range of frequencies of electromagnetic radiation from 0 to infinity. For electronic warfare purposes, the electromagnetic spectrum is divided into 26 alphabetically designated bands.

Electronic Warfare (EW). Military action to exploit the electromagnetic spectrum which encompasses the interception and identification of electromagnetic emissions, the employment of electromagnetic energy to reduce or prevent hostile use of the electromagnetic spectrum and actions to ensure its effective use by friendly forces.

Electronic Warfare Expendables. Electronic Warfare devices such as chaff, flares, non-recoverable unmanned vehicles and decoys, and unattended jammers.

Electronic Warfare Support Measures. That division of Electronic Warfare involving actions taken to search for, intercept and identify electromagnetic emissions and locate their sources for the purpose of immediate threat recognition. It provides a source of information required for immediate decisions involving ECM, EPM and other tactical actions.

Electronic. A generic term to describe that branch of electrical science and technology which treats the behavior of free electrons in vacuous or gaseous space and in semi-conductors and the circuitry associated therewith.

EME, Electromagnetic Environment. Was EW Environment.

Emission Control (EMCON). The selective and controlled use of electromagnetic, acoustic or other emitters to optimise command and control capabilities whilst minimizing, for operations security (OPSEC) reasons, detection by enemy sensors; to minimize mutual interference amongst friendly systems and/or to execute a military deception plan.

Emission Control Policy (EP). The policy which states what electromagnetic and acoustic emissions may be used.

Emission Security (EMSEC). The component of COMSEC that results from all measures taken to deny unauthorized persons information that might be derived from interception and analysis of compromising emanations from crypto equipment, information processing equipment and telecommunications systems.

Emission, Out-of Band. Emission on a frequency or frequencies immediately outside the necessary bandwidth which results from the modulation process, but excluding spurious emissions.

Emission, Spurious. Emission on a frequency or frequencies which are outside the necessary bandwidth and the level of which may be reduced without affecting the corresponding transmission of information. Spurious emissions include harmonic emissions, parasitic emissions, intermodulation products and frequency conversion products, but exclude out-of-band emissions.

Empty slot ring. (In LAN technology) A ring LAN in which a free packet circulates past (or, more precisely, through) every station; a bit in the packet's header indicates whether it contains any messages (if it contains messages, it also contains source and destination addresses).

Emulation. Computer representation of a real-time situation which is constrained to respond in a predicted manner.

Encode. To convert data by the use of a code or a coded character set in such a manner that reconversion to the original form is possible. **Note:** The term is sometimes loosely used when complete reconversion is not possible.

Encrypt. To convert a plain text message into disguised form by means of a cryptosystem. The term "encrypt" covers the meanings of "encipher" and "encode".

End of Transmission (EOT). 1. A standardised uninterrupted sequence of character and machine functions used to terminate a transmission and disconnect the circuit and transmitting equipment. **2.** A prosign used in manual systems to signify the completion of a transmission.

Ending. The part of a message containing all components following the text.

ENQ, enquiry. A control character (control E in ASCII) used as a request to obtain identification or status.

ENQ/ACK protocol. A Hewlett-Packard communications protocol: The HP3000 computer follows each transmission block with ENQ to determine if the destination terminal is ready to receive more data; the destination terminal indicates its readiness by responding with ACK.

EOCM, Electro-optic countermeasures.

EOMF, End of Message Functions. See Indicator, End of Message.

EOW. Engineering Order Wire. An exclusive circuit for use by operations or maintenance personnel. See also Circuit, Engineering.

EPM. See Electronic Protective Measure.

EPROM, erasable programmable read-only memory. A non-volatile semi conductor PROM that can have its current contents cleared (usually through exposure to ultraviolet light - but see EEPROM) and then accept new contents for storage.

Equalization. The process of compensating for line distortions.

Equalizer. A device used by modems to compensate for distortions caused by telephone line conditions.

Equipment, Terminal. Communications equipment in place at each end of a circuit to permit the stations involved to accomplish the mission for which the circuit was established.

ERCS, ECM resistant communications.

Error control. An arrangement that combines error detection and error correction.

Error Controller. A device that provides error control, usually installed in pairs between the modem and DTE at each end of a data link.

Error correction. An arrangement that restores data integrity in received data, either by manipulating the received data or by requesting retransmission from the source (see ARQ).

Error detection. An arrangement that senses flaws in received data by examining parity bits, verifying block check characters, or using other techniques

Error Detection. Error control making use of an appropriate code by which the presence of mutilation can be discovered at reception.

Error rate. A measure of data integrity, given as the fraction of bits which are flawed. Often expressed as a negative power of 10 - as in 10^{-6} (a rate of one error in every one million bits).

Essential facilities. (In packet-switched networks) Standard network facilities which are on all networks. Contrast with additional facilities.

ETF, Engineering Training Facility.

Ethernet. (In LAN technology) A defacto standard, developed first by Xerox and then sponsored by Xerox, Intel, and DEC. An Ethernet LAN uses coaxial cables and CSMA/CD. Ethernet is similar to an IEEE 802.3 LAN (they can share the same cable and communicate with each other).

ETSI. The European Telecommunications Standards Institute (ETSI) is an autonomous body with CEPT and was formed to undertake the standards writing activities of CEPT. The membership of ETSI is open and there are currently 135 member organisations including national administrations, public network operators, manufacturers, users and research bodies.

ETX, end of text. A control character used to indicate the conclusion of a message; it immediately precedes the block check character (BCC) in transmission blocks.

Evasion. In Electronic Warfare, tactics that are designed to take advantage of the limitations of radar to prevent or postpone radar detection, or to avoid revealing the true position of an attacking force.

EWCP. EW Control Panel. Aim to improve the survivability of a platform by more accurate and timely deployment of Softkill countermeasures and by generally improving the EW contribution to AWW.

EWRRF, EW Rapid Reaction Facility.

Exchange, Automatic. An exchange at which communication between subscribers is effected without the intervention of an operator, by means of switches set in motion by the operation of a dial on the originating subscriber's instrument.

Exchange, Central Battery (CB). A manual exchange that provides, from a battery situated at the exchange, the current needed for operating supervisory signals and subscribers' calling signals and also the current required to enable the subscriber to speak over his line. Also known as Common Battery Exchange.

Exchange, Common Battery. See Exchange, Central Battery (CB).

Exchange, Magneto Switchboard. See Switchboard, Magneto.

Exchange, Manual (Telephone). A telephone exchange providing only manual telephone operation.

Exchange, Private Branch (PBX). A switchboard, or automatic apparatus, installed at a headquarters or establishment to provide facilities for making outside calls and for intercommunication for all subscribers at the headquarters or establishment.

Exchange, Telecommunication. See Switching Entity.

Exchange, Trunk. An exchange (manual or automatic), the principal function of which is to control the switching of trunk traffic.

Exchange. A room or building equipped so that the telephone lines terminating there may be interconnected as required. The equipment may include a switchboard or automatic switching apparatus.

Exchange. A unit established by a common carrier for the administration of communications services in a specified geographical area such as a city. It consists of one or more central offices together with the equipment used in providing the communications services. Frequently used as a synonym for central office.

Executive Method. The method by which the transmitting station directs the addressees of a message to execute (take action on) its purport at a given moment.

Executive Signal. The transmission which indicates the instant at which messages are to be executed.

Exercise, Communications. Any transmission or reception of information directed specifically to evaluate the efficiency of communications facilities, procedures and training.

Expandor. A device that reverses the effect of analogue compression. See also Compandor.

Expendable Jammer. An electronic jamming transmitter, normally designed for one-time and unattended operation, to be placed in the vicinity of the enemy's radio or radar receiving antenna through clandestine, airdropped or other means.

Explicit access. (In LAN technology) A shared access method that allows stations to use the transmission medium individually for a specific time period; every station is guaranteed a turn, but every station must also wait for its turn. Contrast with contended access.

E3. Electromagnetic Environmental Effects. The impact of the electromagnetic environment upon the operational capability of military forces, equipment, systems and platforms. It encompasses all electromagnetic disciplines, including electromagnetic compatibility, electromagnetic interference, electromagnetic vulnerability, electromagnetic pulse, hazards of electromagnetic radiation to personnel, ordanance and volatile materials, and natural pehomena effects of lightning and static.

F

Facility Switching. A communications facility which effects the onward transmission of information, through interconnection of circuits, loops, channels or trunks.

Facility. 1. (In general) A feature or capability offered by as system, item of hardware or software. **2.** (In telco environments) Line and equipment used to furnish a completed circuit. **3.** (In packet-switched networks) See national facilities and network facilities.

Facsimile. A communications technology originally developed for the communication of graphic images, now widely used in business as a message communications medium.

Fading. A variation in strength of received signals due to variation with time in the conditions of propagation.

Fan Beam. A type of radar beam pattern with large vertical and narrow horizontal coverage, used normally with search radar's.

Fast select. (In packet-switched networks) A calling method which allows the user to expedite the transmission of a limited amount of information (usually 128 bytes): The information is sent along with the call request packet; therefore, the information arrives faster than in other call methods (which send the information in the packets that follow the call request packet).

FCS, frame check sequence. Usually a 16-bit field used for error detection in bit-oriented communications protocols.

FDDI. A high speed LAN standard being developed by an ANSI committee. Employs token passing on dual 100 Mbps fibre optic rings.

FDM, frequency division multiplexing, frequency division multiplexor. 1. A multiplexing technique that partitions the composite bandwidth into channels, assigning a specific range of frequencies to each channel. **2.** A device that performs this frequency partitioning.

Feedback. The return of energy from one point in a system to an earlier point.

FEP, front-end processor. See communications control unit.

FF, form feed. An ASCII or EBCDIC printer control character used to skip to the top of the next page (or form).

Fibre optic cable, fibre optics. A transmission medium composed of small strands of glass each of which provides a path for light rays which acts as a carrier.

Fidelity. The degree of accuracy with which a system (or portion of a system), reproduces in its output the essential characteristics of the signal which is impressed on its input.

Field. A group of bits that describes a specified characteristic; displayed on a reserved area of a CRT or located in a specific part of a record.

FIGS, figures shift. 1. A physical shift in a terminal using Baudot Code that enables the printing of numbers and symbols. **2.** The character that causes the shift.

File server protocol. (In LAN technology) A communications protocol that allows application programs to share files.

File. A collection of related data records.

Filing Time/Time Handed In. The date and time a message is received from an originator by the communication centre for transmission. The filing time for refile messages is the date and time the message is received by a communications centre for refile. See Julian Filing Time.

Filter. An arrangement of electronic components designed to pass signals in one or several frequency bands and to attenuate signals in other frequency bands.

Final Modulation (Carrier Wave of Radio Link Transmitter). Final modulation of a carrier wave is modulation applied to the transmitted carrier. A transmitter may be modulated either directly by multiplex telephony or by signals for premodulation. There are two types of final modulation; Amplitude Modulation (from all or nothing in the case of pulses) and Frequency Modulation (or phase modulation).

Fire Control Radar. A radar for the continuous tracking of a selected target to provide accurate positional data for the purpose of directing weapons.

Fire Support Coordination Centre. A single location in which are centralized communications facilities and personnel incident to the coordination of all forms of fire support.

Firmware. A computer program or software stored permanently in PROM or ROM or semi-permanently in EPROM or EEPROM.

Flags, Alphabet. Flags used on an international basis in visual communications to represent the letters of the alphabet.

Flags, Numeral. Flags used in visual communications to represent numerals 0 through 9.

Flank Communications. See Lateral Communications.

Flares. In Electronic Warfare, an infra-red decoy device used to deceive infra-red homing weapons.

Flash. See Precedence Designations.

Flow control. The procedure for controlling the transfer of messages or characters between 2 points in a data network - such as between a protocol converter and a printer - to prevent loss of data when the receiving device's buffer begins to reach its capacity

FM, frequency modulation. One of 3 basic ways (see also AM and phase modulation) to add information to a sine wave signal: The frequency of the sine wave, or carrier, is modified in accordance with the information to be transmitted.

4-wire circuit, 4-wire line. A circuit using 2 pairs of conductors, one pair for the transmit channel and the other pair for the receive channel.

Footprint. The area of the earth's surface which is covered by a satellite's antenna. The size and shape of this area is determined by the altitude of the satellite and the width and shape of the satellite's beam. The footprint is also known as the Cone of Earth View.

Forward Error Correction (FEC). A system allowing detection and correction of an error without reference to the transmitting station.

Forward Scatter. The reflected radiation of electromagnetic energy away from the emitting source.

FOSP. Fleet Ocean Surveillance Product. The generic term for the communications that carry the information that makes up the RMP. Software runs on outfit PDT.

Four-Frequency Duoplex Telegraphy. Frequency shift telegraphy used in radiotelegraphy in which each of the four possible combinations of signal elements to two telegraph channels is represented by a separate frequency.

Fox message. A diagnostic test message that uses all the letters (and that sometimes includes numerals): "THE QUICK BROWN FOX JUMPED OVER A LAZY DOG'S BACK 1234567890". (In French, "VOYEZ LE BRICK GEANT QUE J'EXAMINE PRES DU WHARF"). Often run continuously during system testing and fault isolation.

FPA, Floating Point Accelerator.

Frame. 1. Same as transmission block. **2.** The sequence of bits and bytes in a transmission block. **3.** The overhead bits and bytes which surround the information bits in a transmission block.

Framing. Process of inserting control bits to identify channels; used in TDM signals such as the formatted version of T1.

Frequencies, Distress. Frequencies allotted by international agreement to distress calls.

Frequency Agility (Radio). The ability of a radio set to change frequency according to an algorithm programmed into all component radios on the net.

Frequency Agility. The ability of a radar to change frequency within its operating band on a pulse-to-pulse basis.

Frequency Allotment Plan. A plan which shows the frequencies to be used in particular areas or by particular countries without specifying the stations to which the frequencies are to be assigned.

Frequency Assignment Plan. A plan which shows the frequencies to be used by specified stations.

Frequency Band, Assigned. The frequency band within which the emission of a station is authorized; the width of the band equals the necessary bandwidth plus twice the absolute value of the frequency tolerance. Where space stations are concerned, the assigned frequency band includes twice the maximum Doppler shift that may occur in relation to any point on the Earth's surface.

Frequency Deviation (of a frequency-modulated wave). The maximum value of the frequency shift corresponding to the maximum modulation amplitude.

Frequency Diversity. Diversity obtained by the use of two or more radio frequencies conveying the same intelligence.

Frequency Division Multiplex Access (FDMA). A method of several independent users using the same bandwidth at the same time. The frequency bandwidth is divided into segments or bands. These need not necessarily be of equal value. Each band is an access used for digital and analogue communications and data nets.

Frequency Division Multiplex. See Multiplex, Frequency Division.

Frequency Evasion. An electronic counter-countermeasure which consists of changing frequency to avoid jamming.

Frequency Exchange Keying (FEK). Telegraphy by amplitude modulation of two tones which are separated by a predetermined value. There is no phase continuity between the tones. These tones can be used to modulate a radio frequency carrier. (See Sub-carrier Frequency Shift).

Frequency Hopping. A method of changing frequency in a random fashion as an anti-jam measure within a given frequency band. This is achieved by using carefully synchronized equipment in both the receiver and the transmitters. Hopping rates vary in speed, but are referred to as: a. Slow (tens of hops per second) or b. Fast (thousands of hops per second

Frequency Nomenclature, Bands. The radio spectrum is subdivided into nine frequency bands which are designated by progressive whole numbers in accordance with the following table:

Band Number	Adjectival Designation	Frequency Range (Lower limit exclusive, upper limit inclusive)	Metric Subdivision
4	VLF	3 to 30 KHz	Myriametric Waves
5	LF	30 to 300 KHz	Kilometric Waves
6	MF	300 to 3000 KHz	Hectometric Waves
7	HF	3 to 30 MHz	Decametric Waves
8	VHF	30 to 300 MHz	Metric Waves
9	UHF	300 to 3000 MHz	Decimetric Waves
10	SHF	3 to 30 GHz	Centimetric Waves
11	EHF	30 to 300 GHz	Millimetric Waves
12		300 to 3000 GHz (or 3 THz)	Decimillimetric Waves

Frequency Modulation. See Modulation.

Frequency Nomenclature, Electronic Warfare Frequency Band Letter Designators. The following broadband letter designators may be used as a matter of convenience to designate frequency bands in the Electronic Warfare and Intelligence environments. However, they are NOT to be used in official correspondence, publications or instructions pertaining to frequency planning.

Letter	Band Frequency in MHz	Channel Width (MHz)
A	0-250	25
B	250-500	25
C	500-1000	50
D	1000-2000	100
E	2000-3000	100
F	3000-4000	100
G	4000-6000	200
H	6000-8000	200
I	8000-10000	200
J	10000-20000	1000
K	20000-40000	2000
L	40000-60000	2000
M	60000-100000	4000

Note: 1. Each band is divided into 10 numbered channels with width as shown
e.g. A5 = 100 - 125 MHz
H7 = 7200 - 7400 MHz
2. The exact frequency may be identified by defining the band, the channel (base or lowest frequency) and adding the MHz required
e.g. D4 plus 15 = 1315 MHz

Frequency Scanning. **1.** Conducting an electronic search over a frequency band by means of an automatically-tuned receiver, the tuning rate being fixed or variable, and mechanical (low speed) or electronic (high speed). **2.** A technique used to enable a radar to transmit on a clear frequency be searching a frequency band then tuning the system to a clear portion of that band.

Frequency Series. A group of several harmonically-related radio frequencies.

Frequency Shift Keying. See Frequency Shift Telegraphy.

Frequency Shift Telegraphy. Telegraphy by frequency modulation in which each significant condition is represented under steady-state conditions by a sinusoidal signal of specified frequency.

Frequency Stability. The ability of an oscillator to maintain its operation at a constant frequency.

Frequency Tolerance. The maximum permissible departure by the centre frequency of the frequency band occupied by an emission from the assigned frequency or, by the characteristic frequency of an emission from the reference frequency. The frequency tolerance is expressed in parts per 10^6 or in Hertz.

Frequency, Alternative. A frequency or a group of frequencies which may be assigned for use on any channel (or on a particular channel), at a certain time or for a certain purpose to replace or supplement the frequencies normally used on that channel.

Frequency, Assigned. The centre of the frequency band assigned to a station.

Frequency, Authorized. A portion of the radio spectrum the width of which is the necessary bandwidth of an emission plus twice the prescribed frequency tolerance.

Frequency, Characteristic. A frequency which can easily be identified and measured in a given emission. A carrier frequency may, for example, be designated as the characteristic frequency.

Frequency, Combat Scene of Action. A simplex channel for tactical communications in combat operations in which two or more elements of the same or different arms are employed in circumstances precluding the prior agreement of a communication plan.

Frequency, Maximum Usable High (MUF). The highest frequency that can be used at a particular time for propagation between two specified points by ionospheric reflection.

Frequency, Optimum Traffic. The most effective frequency at a specified time for ionospheric propagation of radio waves between two specified points (commonly taken as 85% of the monthly median value of MUF for the specified time and path.

Frequency, Primary. A frequency assigned for normal use on a particular circuit.

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 centre of the frequency band occupied by the emission.

Frequency, Scene of Air-Sea Rescue. A simplex channel for intercommunication between aircraft and surface vessels (including submarines) engaged in and at the scene of an air-sea rescue operation.

Frequency, Secondary. A frequency assigned for use on a particular radio circuit when primary frequency becomes unusable for any reason.

Frequency. The number of recurrences of a periodic phenomenon in a unit of time. In specifying the electrical frequency, the unit of time is the second, for example, the frequency is 15,000 hertz (Hz). Radio frequencies are normally expressed in kilohertz (KHz) at and below 30,000 kilohertz, and in megahertz (MHz) above this frequency.

FSK, frequency shift keying. An FM technique in which one frequency represents a mark and a second frequency represents a space.

Full-duplex transmission. Simultaneous 2-way independent transmission in both directions. Compare with half-duplex transmission. Also used to describe terminals in the Echoplex mode.

Fullerphone. An instrument which employs a very low direct current in the line, but converts this direct current into an intermittent current of audible frequency at the receiver and thus enables hand-speed morse telegraphy over good or bad lines with the least chance of remote reception.

Function Key. A term associated with specific keys on a teletypewriter (i.e. CR, LF, FIGS, LTRS etc.), which when operated, cause the teletypewriter to perform mechanical functions in order that a message may be received in proper form. A term also associated with specific keys on a computer keyboard which, when pressed, cause the computer to perform predefined operations.

FVA, Final Video Amplifier.

G

Garbage. An information term used to refer to corrupted data.

Garble Table. Any table, chart or other aid which may be used to correct a garble.

Garble. An error in transmission, reception or encryption which renders the message or a portion thereof incorrect or undecryptable.

Gateway. The interconnection between 2 networks with different communications protocols: Two examples are PADs and protocol converters. Gateways operate at the 4th through 7th layers of the OSI model. Contrast with bridge.

GD, Graphics Display.

Gee. A VHF system of radio navigation by which interrelated pulses transmitted from ground stations are received in a craft. The position of the craft can be determined by observing the interval between pulses from pairs of stations and plotting them on a map or navigational chart over-printed with the Gee-lattice.

GFI, Group Format Identifier. (In X25 packet-switched networks) The first 4-bits in a packet header; contains the Q bit, D bit and modulus value.

GIM, Graphics Interface Module.

GP, General Purpose.

GPTN, General Purpose Telephone Network.

Grass. On a radar display, deflection from the time-base of a range amplitude display due to random electrical noise.

Ground Clutter. An area of heavy returns extending for a few miles in all directions from a radar site, caused by radar reflections from the earth's surface. The pattern on a PPI scope is relatively circular and constant.

Ground Controlled Approach (GCA) System. A system of radionavigation comprising a surveillance radar element (SRE) and a precision approach radar (PAR and SPAR) element for the operation of a ground controlled approach.

Ground Controlled Interception (GCI). In aviation, the technique of directing an aircraft towards another from a ground radar, both being observed on the same display. The information is transmitted to the aircraft by radio.

Ground Returns. Wanted echoes received from the ground by an airborne radar.

Ground Wave. 1. A radio wave which travels between a transmitting and a receiving aerial situated above the earth which includes the direct wave, the ground-reflected wave and the surface wave; the ground-reflected wave and the surface wave are affected by the properties of the ground; the direct wave and the ground reflected wave may be refracted in the troposphere. **2.** In radar, (a) The direct transference of radio-frequency energy from a radar transmitter to its associated receiver. (b) The term is also used to describe the effect on the display of this transference of energy from the associated transmitter.

Ground/Earth. The term applied to any conductor common to a number of circuits and which serves to maintain a constant potential, or to provide a bond of very small impedance between the points of connection to it. In many cases, the Earth itself is used as the conductor.

Group, Address. See Address Group.

Group, Check. See Check Group.

GSM. Groupe Special Mobile (GSM) is a pan European standard for cellular mobile telephone networks.

GSTN, general switched telephone network. Same as public telephone network.

Guard (Radio Communication). To maintain a continuous receiver watch with transmitter ready for immediate use. A complete log is to be kept. See Copy (Radio Communication) and Cover (Radio Communication).

Guard, Radio Communication. See Communication Guard, Radio.

Guard band. The unused bandwidth separating channels to prevent crosstalk in an FDM system.

Guarded Frequency. In Electronic Warfare, an enemy frequency used as a source of intelligence.

Gull. In Electronic Warfare , a floating radar reflector used to simulate a surface target at sea for deceptive purposes.

H

Half-Duplex Operation. Communication between two points in a single direction only. A half duplex facility is exactly half of a full-duplex facility, and is not the same as a simplex facility.

Handset. Part of telephone containing mouthpiece and receiver.

Handshake, handshaking. A preliminary procedure, usually part of a communications protocol, to establish a connection.

Hardware. Equipment (as opposed to a computer program or a method of use), such as mechanical, electrical, magnetic or electronic devices. Compare with firmware and software.

Harmonic. An integral multiple of a fundamental frequency.

HCI, Human Computer Interface.

HDL, High Speed Data Link.

HDLC, high-level data link control. The international standard communications protocol (similar to SDLC). Defined by ISO 3309.

HDX, half-duplex transmission. Transmission in either direction but not in both directions simultaneously. Compare with full-duplex transmission.

Head-end unit. (In LAN technology) An item of hardware on a single or dual cable broadband network using split frequency bands to provide multiple services.

Header. The control information added to the beginning of a message - either a transmission block or a packet.

Heaviside Layer. One of the layers of the Ionosphere.

Heliograph. A mirror device for signalling by means of the sun’s rays.

Hertzian Waves. Electromagnetic waves having frequencies below those of infra-red waves.

Hexadecimal. A digital system that has 16 states, 0 through 9 followed by A through f. Any 8-bit byte can be represented by 2 hexadecimal digits.

Hierarchical switching. (In LAN technology). Similar to star switching; the switching is done in stages.

HIT, HF High interest Track Broadcast. All source non real-time broadcast compiled by the HIT Broadcast Active Unit using JOTS1 terminal from RMP, data links, command systems and signal traffic.

Home-on-Jam. An adaptation of active or semi-active radar guidance systems to give them a homing guidance system capability when their normal radar guidance capability is disrupted by jamming.

Homing Station (Homer). A radio aid to navigation incorporating DF facilities.

Homing. 1. The technique whereby a mobile station directs itself, or is directed, towards a source of primary or reflected energy, or to a specified point. **2.** In automatic telephony, the operation of a selector or similar device in returning to a predetermined normal condition following the release of the connection.

Host computer. The central computer (or one of a collection of computers) in a data communications system which provides the primary data processing functions such as computation, data base access, or special programs or programming languages; often shortened to "host".

HPO, high-performance option. Same as D1 conditioning.

Hub. (In LAN technology) The centre or a star topology network or cabling system.

Hunt group. Same as rotary

Hz, Hertz. A measure of frequency or bandwidth equal to one cycle per second. Named after experimenter Heinrich Hertz.

I

IBM, International Business Machines Corporation. A very large computer company known more recently for its Personal Computer (IBM PC) and 3270 Information Display System products.

IC, integrated circuit. A multi-function semi-conductor device; see table following LSI.

ICM, Inter Console Marker.

ICW, Interrupted Carrier Wave.

Identification, Friend or Foe. Personal Identifier (IFF-PI) - The discrete IFF code assigned to a particular aircraft, ship or other vehicle for identification by electronic means.

Identification. The indication by an act or means of your own friendly character, or individuality. See also Identification, Friend or Foe (IFF).

Idle character. See null character and SYN.

IEEE 802.2 (In LAN technology) A data link layer standard used with IEEE 802.3, IEEE 802.4 and IEEE 802.5.

IEEE 802.3. (In LAN technology) A physical layer standard that uses the CSMA/CD access method on a bus topology LAN. Similar to Ethernet.

IEEE 802.4 (In LAN technology) A physical layer standard that uses the token-passing access method on a bus topology LAN. Nearly identical to MAP.

IEEE 802.5 (In LAN technology) A physical layer standard that uses the token-passing access method on a ring topology LAN.

IEEE Project 802. (In LAN technology) An IEEE team that developed the IEEE 802 of LAN standards.

IEEE, Institute of Electrical and Electronic Engineers. An international professional society that issues its own standards and is a member of ANSI and ISO; created IEEE Project 802.

IM, Indicator Mode.

Imagery. Collectively, the representations of objects reproduced electronically or by optical means on film, electronic display devices, or other media.

Imitation. The introduction into enemy systems of radiation's imitating the enemy's own emissions.

Imitative Communications Deception. The transmission of messages in the enemy's radio channels by our operators with the intention of deceiving the enemy.

Immediate. See Precedence Designations.

Independent Sideband Transmission (Twin Sideband). 1. A method of operation in which each sideband corresponds to one or more modulating signals independent of the modulating signals(s) for the other sideband. **NOTE:** In practice, the carrier is either partially or wholly suppressed. **2.** A method op operation in which the two sidebands correspond to two independent modulating signals.

Indicator, Collective Routing. A group of letters which identifies all communication stations of a Service message relay network, all communications of a Service relay network in a specific geographical area, or all minor relay and tributary stations of a major relay station.

Indicator, End of Message (EOM) NNNN. An indicator used to terminate a transmission in message relay systems.

Indicator, Routing (RI). A group of letters assigned to identify a station within a message relay network to facilitate routing of traffic. It indicates the status of the station and may indicate its geographical area. Routing indicators are composed in accordance with the Routing Indicator Plan described in the ACP 121 series.

Indicator, Start-of-Message (SOM) ZCZC. An indicator employed to activate automatic message switching equipment. It is required on messages passing into or through automatic systems to indicate the start of the message.

Indirect Mode. Indirect mode is the operation or use of individual transmitters of a navigational system as radio beacons rather than as part of the system. See direct mode.

Information bit. A data bit, as opposed to an overhead bit.

Information Processing System. See Data Processing System.

Information Security, (INFOSEC). A generic term covering the following aspects of security: (a) Personnel security. (b) Physical security. (c) Radiation security. (d) Transmission security. (e) Crypto security. (f) Computer security.

Information System. Assembly of equipment, methods of procedures and, if necessary, personnel organized so as to accomplish specific information processing requirements.

Infra-Red. In visual communications. Transmission of signals by light outside the visual spectrum. This method necessitates the use of special equipment and affords greater security than normal visual means.

Instrument Landing System (ILS). A system of radio navigation, intended to assist aircraft in landing, which provides lateral and vertical guidance, including indications of distance from the optimum point of landing.

Integrated Communications Systems. Communications systems which are designed and installed to provide part or all of the communications requirements of two or more member Nations.

Integrity. In messaging, the assurance that a message or other data has not been altered or destroyed in an unauthorized manner while in the messaging system.

Intel. A semiconductor (chip) manufacturer, one of the sponsors of Ethernet.

Intelligence, intelligent. A term for equipment (or a system or network) which has a built-in processing power (often furnished by a microprocessor) that allows it to perform sophisticated tasks in accordance with its firmware.

Intelligent port selector. Same as data PABX.

Intelligent TDM. Same as concentrator.

Intercept Method. A method in which one transmitting station sends to as second station, the latter obtaining necessary repetitions to ensure correct reception, and repeating back, if so directed by the first station, or if so prescribed. The messages thus transmitted are addressed to other stations who are required to copy the transmission, but are not permitted to receipt for messages thus received, or to use their transmitters for any other purpose directly in connection with these transmissions.

Intercept Posts. Term currently used to denote the activities of intercepting, and recording in the field of communications intelligence. Also used to designate the units, stations (centres), and organisations responsible for (conducting) such activities.

Intercept Receiver. A receiver designed to detect and provide visual and/or aural indication of electromagnetic emissions occurring within the particular portion of the electromagnetic spectrum to which it is tuned.

Interception. The act of searching for and listening to and/or recording communications and/or electronic transmissions for the purpose of obtaining intelligence.

Interchange circuit. In any interface, a circuit with an associated pin assignment on the interface connector that is assigned a data, timing, or control function.

Interchangeability. A condition which exists when two or more items possess such functional and physical characteristics as to be equivalent in performance and durability and are capable of being exchanged one for the other without alteration of the items themselves or of adjoining items, except for adjustment and without selection for fit and performance. See also Compatibility.

Interface. 1. A shared boundary defined by common physical interconnection characteristics, signal characteristics, and meanings of interchanged signals. **2.** The equipment which provides this shared boundary.

Interface. A shared boundary between two functional units defined by common physical interconnection characteristics, signal characteristics and functional characteristics of the interchange circuits.

Interference, Accepted. Interference at a higher level than that defined as permissible interference and which has been agreed upon between two or more administrations without prejudice or other administrations.

Interference, Harmful. Interference which endangers the functioning of a radio navigation service or of other safety services or seriously degrades, obstructs or repeatedly interrupts a radio communication service operating in accordance with the current ITU Radio Regulations.

Interference, Permissible. Observed or predicted interference which complies with quantitative interference and sharing criteria contained in these Regulations or in CCIR Recommendations or in special agreements as provided for in the current ITU Radio Regulations.

Interference. The effect of unwanted energy due to one or a combination of emissions, radiation's, or induction's upon receipt in a radio communication system, manifested by any performance degradation, misinterpretation, or loss of information which could be extracted in the absence of such unwanted energy.

International Civil Aviation Organisation (ICAO). An international organisation established to provide standardised flight rules and regulations on a worldwide basis.

International Telecommunication Union (ITU). The telecommunications agency of the United Nations, established to provide standardised communications procedures and practices, including frequency allocation and radio regulations, on a worldwide basis.

Internet Protocol (IP). Standard that allows dissimilar hosts to connect to each other through the Internet.

Internetwork router. (In LAN technology) A device used for communications between sub-networks; only messages for the corrected sub-network are transmitted by this device. Internet routers function at the network layer of the OSI model.

Interoperability. The ability of systems, units or forces to provide services to and accept services from other systems, units or forces and to use the services so exchanged to enable them to operate effectively together.

Interphone/Intercom. A telephone apparatus by means of which personnel can talk to each other within an aircraft, tank, ship or activity.

Interrogator. A pulse transmitter used exclusively for exciting a transponder.

I/O, Input/Output.

Ionosphere. The part of the earth's outer atmosphere where free electrons arising from ionization are normally present in quantities sufficient to modify the propagation characteristics of radio waves traversing it. **Note:** For purposes of reference the ionosphere is divided into three regions, designated by letters D, E and F whose boundaries are approximately spherical and concentric with the surface of the earth.

Ionospheric Prediction. 1. A forecast, often in chart form, of ionospheric conditions relevant to communication service. **2.** The forecasting of ionospheric conditions and the preparation of radio propagation data derived therefrom.

ISDN, integrated services digital network. A CCITT standard, currently under development, that will cover a wide range of data communications issues but primarily the total integration of voice and data. Already having major effects on exchange and multiplexor design.

ISO, International Standards Organisation. An international and voluntary standards organisation, closely aligned with CCITT; its OSI model is widely quoted, and its OSI communications protocols are widely accepted. Membership includes standards organisations from participating nations (ANSI is the USA representative).

Isochrone Determination. Radiolocation in which a position line is determined by the difference in the transmit times of signals along two paths.

Isochrone. A line (on a map or chart) joining points associated with a constant time difference in reception of radio signals.

Isochronous. A form of data transmission in which individual characters are only separated by a whole number of bit-length intervals. Contrast with asynchronous transmission in which the characters may be separated by random length intervals.

ISU, integrated service unit. A single device that combines the functions of both a CSU and a DSU.

IT, Information Technology. A catch-all term used to describe the techniques used for the automation of information handling and retrieval, including computing, telecommunications and office systems.

ITD, Interactive Tabular Display.

ITI, interactive terminal interface. (In packet-switched networks) A PAD that supports network access by asynchronous terminals.

IU, Interface Unit.

J

Jabber, jabbering. (In LAN technology) Continuously sending random data (garbage); normally used to describe the action of a station (whose circuitry or logic has failed) that locks up the network with its incessant transmission.

Jammer Area Coverage. The ground or sea area over which an electronic jammer is capable of producing a jamming signal of effective strength.

Jammer Steerage. Any action taken to ensure the alignment of jamming transmissions accurately and promptly onto selected enemy signals.

Jammer. A transmitter designed specifically to prevent or reduce the enemy's effective use of the electromagnetic spectrum.

Jamming-to-Signal. (J/S) Ratio. The ratio, at a designated point in space or in the circuits of an electronic system, of jamming power to a signal power.

Jamming. The deliberate radiation of own, re-radiation or reflection of enemy's electromagnetic energy with the object to prevent or reduce the use of electromagnetic devices or systems by the enemy.

Jitter. Short term variations of the significant instants of a digital signal from their ideal positions in time.

Joint Operations Centre (JOC). A jointly manned facility of a joint force commander's headquarters established for planning, monitoring and guiding the execution of the commander's decisions.

JOTS, Joint Operational Tactical System. Designed to support Maritime Command, Control and intelligence requirements. Can read and display any OTH Gold formatted messages and Link 14 data.

JTIDS, Joint Tactical Information Distribution System. An advanced radio system which provides information distribution position location and identification capabilities in an integrated form for application to military tactical operations.

Julian Filing Time (JFT). A 7 figure number comprising of the Julian date and the time (Z) that the subject message was accepted for transmission by the Commcen.

Junction Stages. A junction stage represents a characteristic point in the electrical layout of a system, accessible from the point of view of interconnection to a similar point in another system: Examples: (a) Stage of voice frequency channels. (b) Intermediate frequency stage. (c) Stage of groups of channels (primary group or secondary group, etc.). (d) Radio frequency stage.

Justifiable Digit Time Slot. A digit time slot that may contain either an information concerning the status of the justifiable digit time slots.

Justification. A process of changing the rate of a digital signal in a controlled manner so that it can accord with a rate different from its own inherent rate, usually without loss of information.

Justifying Digit. A digit inserted in a digit time slot when that time slot does not contain an information digit.

K

Kbps. Thousands of bits per second (bps).

kHz, kiloHertz (10^3 Hz)

KSR, keyboard send/receive. A combination teleprinter transmitter and receiver with transmission capability from the keyboard only. Compare with ASR and RO.

L

LAD (Local Area Data) Channel. Same as Bell 43401 circuit.

LAN, local area network. A data communications network confined to a limited geographic area (up to 6 miles or about 10 kilometers) with moderate to high data rates (100 Kbps to 100 Mbps). The area served may consist of a single building, a cluster of building, or a campus-type arrangement. It is owned by its user, includes some type or switching technology, and does not use common carrier circuits - although it may have gateways or bridges to other public or private networks.

Land Line. A general term applied to metallic conductors used for conveyance of intelligence.

Language Media Format (LMF). Consists of two alpha characters which define the input media and the preferred output media.

LAP, Line Access Procedure. (In packet-switched networks) Superseded by LAPB.

LAPB, Line Access Procedure, Balanced. (In X25 packet-switched networks) A link initialization procedure which establishes and maintains communications between the DTE and DCE; LAPB involves the T1 timer and N2 count parameters. All PDNs now support LAPB.

LATA, Local Access and Transport Area. One of 161 USA geographical subdivisions used to define local (as opposed to long distance) telephone service.

Lateral Communications. Communications between adjacent (on left and/or right) commands/units/formations, normally of equivalent level of command.

Layer. 1. One of the divisions of the OSI model. **2.** One of the divisions of SNA and other communications protocols.

LDET, Local Data Entry Terminal.

Leased line. A telephone line reserved for the exclusive use of a leasing customer without inter-exchange switching arrangements. A leased line may be point-to-point or multipoint.

LED, light-emitting diode. Semiconductor device, much more reliable than an incandescent lamp, used for status display purposes in electronic equipment.

Level. 1. Magnitude, as in signal level or power level. **2.** Used as a synonym for layer.

LF, line feed. An ASCII or EBCDIC control character used to move to the next line on a printer or display terminal.

Light Warning Set (LWS). A mobile lightweight radar early warning apparatus used in air reporting.

Limited distance mode. See line driver.

Limited Probability of Exploitation (LPE). All those measures and techniques, both operational and technical, that may be used to restrict the unauthorized exploitation of acoustic and electromagnetic radiation's.

Limited probability of Intercept (LPI). All those measures and techniques, both operational and technical, that may be used to restrict the unauthorized intercept of own acoustic and electromagnetic radiation's.

Limited Range of intercept (LRI). All those measures and techniques, both operational and technical, that may be used to restrict the range at which unauthorized intercept may be made of own acoustic and electromagnetic radiation's

Limiter. Any device which sets (or tends to set) some boundary value or value upon a signal. In particular, a Limiter may be a device which, for varying inputs below a certain instantaneous value gives a proportional output, but, for inputs whose instantaneous amplitude is higher than a predetermined value, gives a constant peaks output.

Line discipline. Archaic term for communications protocol.

Line driver. A signal converter which conditions the digital signal transmitted by an RS-232 interface to ensure reliable transmission beyond the 50-foot RS-232 limit and often up to several miles; it is a baseband transmission device. Also see local dataset.

Line of Sight (LOS). In communications, a direct propagation path that does not go below the radio horizon.

Line turnaround. The reversal of transmission direction on a half-duplex circuit.

Linearity. The property of a transmission medium or of an item of equipment that allows it to carry signals without introducing distortion.

Link. A telecommunication facility with specified characteristics between two points. **Note:** (1) The type of transmission path or capacity is normally indicated. (2) Synonymous with Transmission path.

Link. Communications circuit or transmission path connecting 2 points.

Listening Watch (Radio Communication). A continuous receiver watch established for the reception of traffic addressed to, or of interest to, the unit monitoring the watch, with complete log optional. See Guard (Radio Communication).

LIU, line interfacing Unit.

Loaded line, loading coils. A telephone line equipped with coils (called loading coils) which minimize voice-frequency amplitude distortion by restoring the response at the higher frequencies with the voice bandwidth. Not generally suitable for line driver or local dataset applications.

Lobe Switching. See Beam Lobe Switching.

Local analogue loopback. An analogue loopback test that forms the loop at the line side (analogue output) of the local modem.

Local attachment. (In IBM environments) The connection of a peripheral device or control unit directly to a host channel.

Local channel loopback. A channel loopback test that forms the loop at the output (composite side) of the local multiplexor.

Local dataset. A signal converter which conditions the digital signal transmitted by a RS-232 interface to ensure reliable transmission over a dc continuous metallic circuit without interfering with adjacent pairs in the same telephone cable. Normally conforms with Bell 43401. Also erroneously called baseband modem, limited distance modem, local modem, or short-haul modem; also see line driver.

Local digital loopback. A digital loopback test that forms the loop at the DTE side (digital input) of the local modem.

Local exchange, local central office. The exchange or central office in which the subscriber's lines terminate.

Local line, local loop. A channel connecting the subscriber's equipment to the line terminating equipment in the central office, usually a metallic circuit (either 2-wire or 4-wire).

Local Loop. A circuit connecting an end instrument to a switching facility or distribution point.

Localizer Beacon. In aviation. A directional radio beacon, associated with the instrument landing system, which provides an aircraft, during approach and landing, with an indication of its lateral position relative to the runway in use. **Note:** When a beacon having a similar function is used as part of the standard beam approach system (SBA) it is called an Approach Beacon.

Log, Operator's. A chronological record of events relating to the operation of a particular circuit.

Log, Station. A chronological record of station events i.e. entries relating to message handling, equipment difficulties, personnel etc.

Logarithmic Receiver. A special type of receiver having a large dynamic range of automatic gain control which gives considerable protection against receiver saturation by strong jamming or interference signals. Useful against weather, clutter, chaff and spot jamming.

Logical channel number. (In packet-switched networks) A number assigned when a virtual call is placed; up to 4095 independent logical channels may exist on a single link.

Logical channel, logical connection. See virtual circuit.

Logical group, logical group number. (In packet-switched networks) Logical channels are divided into one of 16 logical groups.

Long Lines. Long lines include all forms of physical conductors used for communication purposes such as open wire systems, underground and overhead cables, and submarine cables, but do not include local circuits. They also may contain radio relay systems when they are integrated with the wire system.

Look-Through. A technique whereby the jamming emission is interrupted irregularly for extremely short periods in order to allow monitoring of the victim signal during jamming operations.

Loop disconnect. A signaling system used between a subscriber and the local exchange which transmits the digits of the required telephone number from the calling subscriber to the local exchange by making and breaking the local loop. Now being superseded by MF.

Loopback, loopback test. Type of diagnostic test in which the transmitted signal is returned to the sending device, after passing through all of or a portion of a data communications link or network; this allows a technician (or a built-in diagnostic circuit) to compare the returned signal with the transmitted signal. This comparison provides the basis for evaluating the operational status of the equipment and the transmission paths through which the signal travelled.

Loud Hailer. See bull Horn/Loud Hailer.

LP, Line Processor.

LRC, longitudinal redundancy check. An error detection method in which the BCC consists of bits calculated on the basis of odd or even parity for all the characters in the transmission block. The first bit of the LRC is set to produce an odd (or even) number of first bits that set set to **1** the second through eighth bits are set similarly. Also called horizontal parity check.

LRU, Line Replacement Unit or Lowest Repairable Unit.

LSD, Large Screen Display.

LSDD, Large Screen Display Driver.

LSI, large-scale integration. A term used to describe a multi- function semiconductor device, such as a microprocessor, with a high density (up to 1,000 circuits) of electronic circuitry contained on a single silicon chip. See following table for comparison of circuit density ranges.

Small (SSI)	2 to 10 circuits
Medium (MSI)	10 to 100 circuits
Large (LSI)	100 to 1,000 circuits
Very large (VLSI)	1,000 to 10,000 circuits
Ultra large (ULSI)	Over 10,000 circuits

Approximate Integration Ranges

LSU, Line Switch.

LTRS, letters shift. 1. A physical shift in a terminal using Baudot Code that enables the printing of alphabetic characters. **2.** The character that causes the shift.

M

Mainframe, mainframe computer. A large-scale computer (such as those made by IBM, Univac, Control data, Burroughs and others) normally supplied complete with peripherals and software by a single large vendor, often with a closed architecture. Also called host or CPU. Contrast with minicomputer.

MAN. A Metropolitan Area Network is a geographically extended high speed LAN designed to interconnect users within a city or metropolitan area.

Management information System. An information system designed to aid in the performance of management functions. **Note.** This term covers operational and administrative management systems, office automation systems and scientific systems.

Manchester encoding. A binary signaling mechanism that combines data and clock pulses.

Manipulation. The alteration of friendly electromagnetic emission characteristics, patterns or procedures to covey misleading telltale indicators that may be used by hostile forces.

Manipulative Communication Deception. Regulated insertion of misleading material into our own communications channels for the purpose of presenting a false traffic picture to the enemy.

Map, Line Route/Route Diagram. A map or overlay for signal communication operations that shows the actual routes and types of construction of wire circuits in the field.

MAP, manufacturing automation protocol. (In LAN technology) A token-passing bus designed for factory environments by General Motors; standard IEEE 802.4 is nearly identical to MAP.

Mark (Marking Signal). The signal corresponding to the inactive condition in a teleprinter. Normally MARK is the signalling condition which produces a STOP signal (ITA No 2).

Mark. 1. (In single-current telegraph communications) Represents the closed, current-flowing condition. **2.** (In data communications) Represents a binary 1; the steady-state, non-traffic state for asynchronous transmission. **3.** The idle condition; contrast with space.

MAS, Main Access Switch.

Maskings. The use of additional transmitters to hide a particular electromagnetic radiation as to location of source and/or purpose of the radiation.

Master station. 1. (In multipoint circuits) The unit which controls/polls the nodes. **2.** (In point-to-point circuits) The unit which controls the slave station. **3.** (In LAN technology) The unit on a taken-passing ring that allows recovery from error conditions, such as lost, busy or duplicate tokens; a monitor station.

Mbps. Millions of bits per second (bps).

MDI, MIPROC DEC Interface.

Meaconing. A system of receiving beacon signals and rebroadcasting them on the same frequency to confuse navigation. The Meaconing stations cause inaccurate bearings to be obtained by aircraft or ground stations.

Medium. Any material substance that can be used for the propagation of signals in the form of electrons, modulated radio, light or acoustic waves from one point to another such as optical fibre, cable, wire, air or free space.

Message Authentication. See Authentication, Message.

Message Centre. An agency charged with the responsibility for acceptance, preparation for transmission, receipt and delivery of messages.

Message Heading. The part of a message containing all components preceding the text.

Message identification. A combination of letters and figures used to identify a message between communication centres. It will normally consist of the following components in sequence taken from format line 3: A. The routing indicator. B. The station serial number. C. The Julian Filing Time. E.g. RPDLE 123 2571215

Message Switching. A message communications technique in which a complete message is stored and then forwarded to one or more destinations when the destination(s) are free to receive traffic. Frequently used in conjunction with telex to automate large telex installations.

Message Text Handling. Manual or automated administrative actions carried out on a message text such as identification, distribution, storage and retrieval.

Message Text Processing. Manual or automated exploitation of information in a message text comprising actions such as correlation, deduction and associated decision making.

Message, Book. A book message is one which is destined for two or more addressees and is of such nature that the originator considers that no addressees need to be informed on any other addressees. Each addressee must be indicated as action or information.

Message, Drill. Message intended for training communications personnel.

Message, Drop. See Drop Message.

Message, Exercise. Message sent during and relating to training exercises, command post exercises, tactical exercise and manoeuvres.

Message, General. Messages which have a wide standard distribution are termed General Messages. They are assigned an identifying title and usually a sequential serial number.

Message, Misrouted. A message bearing an incorrect routing instruction.

Message, Missent. A message which bears the correct routing instruction but has been transmitted to a station other than that indicated.

Message, Multiple Address. A multiple address message is one which is destined for two or more addressees each of whom is informed of all addressees. Each addressee must be indicated as action or information.

Message, Procedure. See Procedure Message.

Message, Q. A classified message relating to navigational dangers, navigational aids, mined areas and searched or swept channels.

Message, Service. A brief, concise message between operating or supervisory personnel at communication/signal centres or relay stations pertaining to any phase of traffic handling, status of communication facilities, circuit conditions or other matters affecting communication operation.

Message, Single Address. A single address message is one destined for only one addressee.

Message. 1. A complete transmission; used as a synonym for packet, but a message is often made up of several packets. **2.** Any thought or idea expressed briefly in plain or secret language, prepared in a form suitable for transmission by any means of communication. **3.** The document containing the information to be transmitted and any reproduction thereof made in the course of transmission or delivery to the addressee. Also known as signal.

Messaging System. Any system used for the electronic exchange of either organizational or individual messages.

Metric prefixes. A series of terms and their associated abbreviations used in the metric system to indicate multiples or portions of quantities which can be expressed as positive or negative power of 10.

MF. See Multiple frequency signalling.

MFM, Modified Frequency Modulation.

MHS, Message Handling Service. A general term for the Application Layer standards being defined by X.400.

mHz, megaHertz (10^6 Hz)

Microcomputer. 1. A desktop (or knee-top) computer; as personal computer. **2.** A microprocessor system.

Microprocessor. A computer-on-a-chip.

Microwave. A subclassification of the electromagnetic spectrum. Generally covers the wavelength region from VHF to EHF (3 Meters to .3 cm).

MIDS, Multifunctional Information Distribution System. An advanced information distribution system, using JTIDS waveform, that provides navigation, communication and identification capabilities in an integrated form for application in air, land, and maritime tactical operations.

Minicall. (In packet-switched networks) The process of sending a datagram.

Minicomputer. A small-scale or medium-scale computer (such as those made by DEC, Data General, Hewlett-Packard and others) usually operated with interactive dumb terminals and often having an open architecture. Also called mini for short. Contrast with mainframe computer and micro-computer.

Minimize. A condition wherein normal message and telephone traffic is drastically reduced in order that messages connected with an actual or simulated emergency shall not be delayed.

Minimum Discernible Signal (MDS). The lower limit of useful signal input to a radar receiver, as determined by the signal-to-noise at the output. See Radar Sensitivity.

Minimum Jamming Range, (Cross-over Point). See Burn Through Range.

Minimum Shift Keying (MSK). A derivative of QPSK developed for VLF submarine broadcast; used to increase the information rate in a given frequency band. See QPSK.

MIPS, millions of instructions per second. One measure of processing power.

MM, Management Monitor.

MMI, Man Machine Interface.

Mobile Communications Equipment. Communications equipment which is installed in or on a vehicle and can be operated while the vehicle is in motion. Some member Nations apply this term to similarly installed equipment which can only be operated while the vehicle(s) is/are stationary.

Mobile Service. A service of radio communication between mobile and land stations, or between mobile stations.

Modem, (modulator - demodulator). A device that converts serial digital data from a transmitting terminal to a signal suitable for transmission over a telephone channel and then reconverts the signal to serial digital data for the receiving terminal. Also called a Data Set (USA).

Modulation. The process in which the amplitude, frequency or phase of a carrier wave is varied with time in accordance with the wave form of superimposed intelligence.

Type of Modulation or Emission	**Type of Transmission**	**Supplementary Characteristics**	**Symbols**
Amplitude	Without Modulation		N0N
	Telegraph without the use of a modulating audio frequency tone (on/off keying. CW)		A1A
	Telegraphy by the on-off keying of a modulating audio frequency tone or tones	DSB full carrier (MCW)	A2A
	Tone shift telegraphy	SSB	R2A
	Telephony	DSB full carrier SSB reduced carrier ISB SSB full carrier SSB suppressed carrier	A3E R3E B8E H3E J3E

	Facsimile	DSB single channel	A3C
	Telegraph - multichannel voice frequency telegraphy	SSB reduced carrier	R8B
	Cases not covered by the above: a combination of telegraphy and telephony	Two independent side bands	B9W
Frequency	Telegraph without the use of a modulating audio frequency (FSK)		F1A
	Telegraphy by the keying of a modulating audio frequency tone or tones		F2A
	Telephony		F3E
	Facsimile		F3C
Phase	Telephony		G3E
	Cases not covered by the above		FXX
Pulse	Pulsed carrier without information modulation (e.g. Radar's)		P0N
	Cases not covered		PXX

Modem eliminator, modem emulator. A device used to connect a local terminal and a computer port in lieu of the pair of modems that they would expect to connect to: Allows DTE-to-DTE data and control signal connections otherwise not easily achieved by standard cables or connectors. Modified cables (crossover cables) or connectors (adapters) can also perform this function.

Modified Clear. A message which contains combinations of clear text or cipher codes.

Modulation Factor. Of an amplitude modulated wave, the ratio of the difference between the maximum and minimum amplitudes of the wave to the sum of these amplitudes. **Note.** The modulation factor is usually expressed as a percentage

Modulation index (in frequency shift modulation). In two-state frequency shift keying, the ratio of the frequency shift in hertz to the modulation rate in baud's.

Module. 1. (Hardware) Short for card module. **2.** (Software) A program unit or subdivision that performs one or more functions.

Modulo. A term used to express the maximum number of states for a counter; this term is used to describe several packet-switched network parameters, such as packet number (usually set to modulo 8 - counted from 0 to 7). When the maximum count is exceeded, the counter is reset to 0.

Monitor station. (In LAN technology) On ring networks, the unit responsible for removing damaged packets and for making sure that the ring is intact.

Monitoring. 1. The act of listening, carrying out surveillance on, and/or recording the emissions of one's own or allied forces for the purpose of maintaining and improving procedural standards and security, or for reference, as applicable. See also communication security (COMSEC). **2.** The act of listening, carrying out surveillance on, and/or recording of enemy emissions for intelligence purposes.

Morse Code. A two-condition telegraph code in which characters are represented by groups of dots and dashes, these groups being separated by spaces.

MOS, Metal Oxide Semi-conductor.

Moving Target Indicator (MTI). A radar presentation which shows only targets which are in motion. Signals from stationary targets are subtracted out of the return signal by the output of a suitable memory circuit.

MPL, multi-schedule private line. AT&T's tariff for a voice-grade leased line.

MSF, Master Synchronising Frequency.

MSI, medium-scale integration. A term used to describe a multi-function semiconductor device with a medium density (up to 100 circuits)or electronic circuitry contained on a single silicon chip. (See table following LSI for comparison of circuit density ranges).

MTA, Message Transfer Agent. The system responsible for relaying, storage and delivery of messages in MHS.

MTBF, mean-time-between-failures. A figure of merit for electronic equipment or systems that indicates the average duration of periods of fault-free operation. Used in conjunction with MTTR to derive availability figures.

MTTR, mean-time-to-repair. A figure of merit for electronic equipment or systems that indicates the average time required to fix the equipment or system. Used in conjunction with MTBF to derive availability figures.

Multicast bit. (In LAN technology) A bit in the Ethernet addressing structure used to indicate a broadcast message (a message to be sent to all stations).

Multichannel Radio Equipment. A radio equipment designed to provide several channels of communications simultaneously.

Multifrequency Radio Equipment. A radio equipment capable of operating on any one of a number of preset carrier frequencies.

Multiple frequency signalling (MF). A signalling system used between a subscriber and the local exchange which transmits the digits of the required telephone number from the calling subscriber to the local exchange by sending a dual tone for each digit of the number.

Multiplex, Frequency Division. Multiplexing in which a separate frequency band is allocated each tributary channel in the common channel. Abbreviated **FDM**.

Multiplex. Designating or pertaining to an installation in which a common transmission channel is divided into several separate tributary channels each capable of transmitting signals independently in the same direction.

Multiplexing, Multiplexors. 1. division of a composite signal among several channels; concentrators, FDMs and TDMs are different kinds of multiplexors. **2.** A device that allows the simultaneous use of a number of channels on a single circuit.

Multipoint Circuit. A circuit which connects terminals at more than two points. Sometimes referred to as a MULTIDROP circuit.

Multipoint line, multipoint connection. A single communications line or circuit interconnecting several stations supporting terminals in several different locations. Use of this type of line usually requires some kind of polling mechanism, with each terminal having a unique address. Also called multidrop line.

Multipurpose Jammer (MPJ). An electronic equipment capable of (1) jamming multiple frequencies throughout a very broad band of frequencies simultaneously, or (2) combining two or more jamming roles, e.g. barrage plus deception.

Mutual Screening. In Electronic Warfare. The protection of a unit not having a jamming capability by a unit which does have a jamming capability.

MUX. Information for multiplexor.

N

N connector. A threaded connector for coax; N is named after Paul Neill. See also BNC and TNC.

N2 count. (In X25 packet-switched networks) Counter for allowable number of retransmission's.

NAK, negative acknowledgment. 1. (In BSC communications protocol) A control character used to indicate that the previous transmission block was in error and the receiver is ready to accept retransmission of the erroneous transmission block; contrast with ACK. **2. (**In multipoint systems) The not-ready reply to a poll.

National facilities. (In packet-switched networks) Nonstandard facilities selected for a given (national) network - which may or may not be found on other networks.

Net (Communications). An organization of stations capable of direct communications on a common channel or frequency.

Net Authentication. See Authentication, Net.

Net Call Sign. See Call Sign, Net.

Net Control Station. A station designated to control traffic and enforce circuit discipline within a given net.

Net, Directed. A net in which no station other than the net control stations may communicate with any other station, except for transmission of urgent messages, without first obtaining the permission of the net control station.

Net, Free. A net in which any station may communicate with any other station in the same net without first obtaining permission from the net control station to do so.

Network facilities. (In a packet-switched network) Standard facilities are divided into essential facilities (found on all networks) and additional facilities (selected for a given network but which may or may not be selected for other networks).

Network layer. The third layer in the OSI model; responsible for addressing and routing between subnetworks.

Network, Teletypewriter. A network of interconnected teletypewriter stations serving a Command, Service or Nation.

Network. 1. A number of inter-related circuits. **2.** A circuit, or part of a circuit, containing a number of branches, which is considered as a unit. **3.** A combination of elements.

Network. An interconnection of computer systems, terminals or data communications facilities.

Neutral current loop. Same as single-current version of current loop; in double-current version, the no-current condition is illegal and indicates a system failure.

Nibble. The first or last half of an 8-bit byte.

Nickname. Two short separate words which may be formally or informally assigned by an appropriate authority to an event, project, activity, placename, topographical feature, or item of equipment for convenience of reference but not for the security of information.

Night Effect. An effect mainly caused by variations in the state of polarization of reflected waves, which sometimes result in errors in DF bearings. The effect in most frequent at nightfall.

NILE, Nato Approved Link 11.

Nil Return/No Change Report. Terminology used, particularly in respect of status reports, to indicate that there has been no alteration.

Node. 1. (In general) A point of interconnection to a network. **2.** (In multipoint networks) A unit that is polled. **3.** (In LAN technology) A unit on a ring; often used as a synonym for station. **4.** (In packet-switched networks) One of the switches forming the network's backbone.

Noise Jamming. Electronic jamming in which the carrier wave is modulated by noise, or in which noise at the desired output frequencies is amplified and radiated without a carrier.

Noise Modulation. The process of using random noise to modulate a carrier frequency.

Noise Temperature, Equivalent Satellite Link. The noise temperature referred to the output of the receiving antenna of the earth station corresponding to the radio frequency noise power which produces the total observed noise at the output of the satellite link excluding noise due to interference coming from satellite links using other satellites and from terrestrial systems.

Noise. Random electrical signals, generated by circuit components or by natural disturbances, that corrupt the data by introducing errors.

Non-persistent. (In LAN technology) A term used to describe a CSMA LAN in which the stations involved in a collision do not try to retransmit immediately - even if the network is quiet. Compare with persistent and p-persistent.

Nonvolatile. A term used to describe a data storage device (memory) that retains its contents when power is lost.

NOT, Node Organisation Table.

NOTAM (Notice to Airmen). A notice, containing information concerning the establishment, condition or change in any aeronautical facility, service, procedures or hazard. The timely knowledge of which is essential to personnel concerned with flight operations.

NRZI, non-return to zero inverted. (In SDLC) A binary encoding technique in which a change in state represents a binary 0 and no change in state represents a binary 1. Also known as invert-on-zero coding.

NTN, network terminal number. Number identifying the logical location of a DTE connected to a network; the NTN may contain a sub-address used by the DTE rather than by the network to identify equipment or circuits attached to it. The NTN can be up to 10 digits long.

NUI, network user identification. (In X25 packet-switched networks) A combination of the network user's address and the corresponding password; replaces the NTN in newer networks.

Null character. A character (with all bits set to mark) used to allow time for a printer's mechanical actions, such as return of carriage and for feeding, so that the printer will be ready to print the next data character. Same as idle character.

Null modem. Same as modem eliminator.

Number Tab (Message Relay). A sequential channel number perforated on tape.

Number, Open (Message Relay). A channel serial for which a transmission bearing a corresponding number has not been received.

Number, Originator's Reference. The number assigned to a message by an originator to provide a means of reference.

Number, Station Serial. A message reference number assigned within a Communication/Signal Centre. It will normally consist only of a number allotted in sequence. However, in those instances where station serial numbers are allotted at more than one position, as prescribed by in-station procedure, a single letter designator follows each number e.g. 107A, 119B.

O

1-persistent. (In LAN technology) See persistent.

OCP, Operational Computer Program.

Octal. A digital system with 8 states, 0 through 7.

Octet. (In packet-switched networks) A grouping of 8 bits; similar but not identical to byte.

Off hook. (In telephone environment) Activated; by extension, a modem automatically answering a call on the dial network is said to go "off hook".

Off-Line Cipher. A method of operation in which the processes of encryption and transmission (or reception and decryption) are performed in separate steps rather than automatically and simultaneously.

Off-Line Operation (Cryptographic). Encryption and decryption performed as a self-contained operation distinct from the transmission of the encrypted text, as by hand or by equipment not electrically connected to a single line.

Office automation. A term used to describe the process of making wide use of the latest data processing and data communications technology - electronic mail, work processing, file and peripheral sharing and electronic publishing - in the office environment, usually involving the installation of LAN.

Omnirange. A radio aid to air navigation which creates an infinite number of paths in space throughout 360 degrees of azimuth.

On hook. (In telephone environment) Deactivated; by extension, a modem not in use is said to be "on hook". Contrast with off hook.

On-line computer. A computer used for on-line processing.

On-line processing. A method of processing data in which data in input directly from its point of origin and output directly to its point of use.

On-Line. A method of transmission by which signals from telecommunications equipment are passed direct to a channel/circuit to operate automatically, compatible equipment at one or more distant stations (The term must be qualified by the addition of a self-explanatory word or words e.g. TOP SECRET on-line cipher operation, on-line cipher, on-line data processing etc.,).

One-Way Operation. One-way operation refers to communications between two points in one direction only. **Note.** This is preferred to the term Half-Duplex Operation, which has various interpretations.

Open architecture. An architecture that is compatible with hardware and software from any of many vendors. Contrast with closed architecture.

Operating Signal. A three-letter group used as necessary in connection with operations or communications to convey orders, instructions, requests, reports and information to facilitate communications.

Optical fibre. One of the glass strands - each of which is an independent circuit - in a fibre optic cable.

Order Wire. See Circuit, Engineering.

Originator. The command by whose authority a message is sent. The originator is responsible for the functions of the drafter and releasing officer.

Oscillator. A device which produces an electrical signal of relatively constant frequency and amplitude.

Oscilloscope. An instrument for showing, visually, graphical representations of the waveforms encountered in electrical circuits.

OSI model, Open Systems Interconnection model. A 7-layer hierarchical reference structure developed by the ISO for defining, specifying and relating communications protocols; not a standard nor a protocol; short for International Standard Reference Model of Open Systems Inter-connection.

Overhead bit. A non-data bit used in addressing, control, error detection, error control, or synchronization. Contrast with information bit.

Oversampling. A TDM technique where each bit from each channel is sampled more than once.

Overspeed. Condition in which the transmitting device runs slightly faster than the data presented for transmission; overspeeds of 0.1% for modems and 0.5% for data PABXs are typical.

P

P-persistent. (In LAN technology) A term used to describe a CSMA LAN in which the stations involved in a collision try to retransmit almost immediately - with a probability p. Compare with non-persistent and persistent.

PABX, private automatic branch exchange. A user-owned, automatic telephone exchange; specific types of PABXs include data PABXs and voice/data PABXs.

Packet header. (In packet-switched networks) The first 3 octets of an X25 packet.

Packet type identifier. (In X25 packet-switched networks) The third octet in the packet header that identifies the packet's function and, if applicable, its sequence number.

Packet-switched network. A data communications network that transmits packets. Packets from different sources are interleaved and sent to their destination over virtual circuits. The term includes PDNs and cable-based LANs.

Packet. A group of bits - including information bits and overhead bits - transmitted as a complete package on a packet-switched network. Usually smaller than a transmission block. Often called a message.

PAD, packet assembler/disassembler. (In an X25 packet-switched network) A device used to interface non-X25 devices to an X25 network; it may be synchronous or asynchronous, single or multiple channel.

Panel.. **1.** In visual signaling systems. Specially shaped and/or coloured cloth or other material displayed in accordance with a prearranged code to convey messages. See Code. **2.** A sub-division of the jack field of a switchboard section. **3.** A plate or slab upon which apparatus, controls and/or measuring ;instruments are mounted. **4.** A group of apparatus assembled and wired on a mounting plate.

Panoramic Indicator. Auxiliary equipment, used with a receiver, which presents a visual indication of all signals contained within the frequency coverage of the associated receiver. See also Adapter, Panoramic.

Panoramic Receiver. A receiver of very wide frequency coverage with integral or auxiliary panoramic indicator.

Parabolic Antenna. An antenna provided with a reflector having the characteristic that radio frequency waves emitted from a focal point will be reflected into space along parallel paths thus creating a narrow beam.

Parallel transmission. A technique that sends each bit simultaneously over a separate line; normally used to send data a byte (8 bits over 8 lines) at a time to a high-speed printer or other locally attached peripheral. Contrast with serial transmission.

Parity bit. The bit which is set to 1 or 0 in a character to ensure that the total number of 1 bits in the data field is even or odd. Or may be fixed at 1 (mark parity), fixed at 0 (space parity), or ignored (no parity).

Parity, parity check. Addition of overhead bits to ensure that the total number of 1s in a grouping of bits is either always even for parity or always odd for odd parity. This permits detection of single errors. It may be applied to characters, transmission blocks or any convenient bit grouping.

Passive Detection. In Electronic Warfare. The process of detecting an electromagnetic emitter by using the energy emitted.

Pathfinders. In Communications-Electronics. A radar device used for navigating or homing to an object when visibility precludes accurate visual navigation.

PAX, Physical Address Extension.

PBX, private branch exchange. A manual, user-owned telephone exchange. Sometimes used in a general sense to include both PBXs and PABXs.

PCB, Printed Circuit Board.

PCL, Parallel Communications Link.

PCM, plug-compatible machine. Term used to describe a device which can be directly substituted for an original manufacturer's device; the PCM device is usually an improvement over the original device - less expensive, more fully featured, or both.

PCM, pulse code modulation. A modulation technique used to convert analogue voice signals into digital form. Used for voice multiplexing on T1 circuits and megastream services.

PDL, Position Description Language.

PDN, packet data network. Often used to mean packet-switched network (but see entry below).

PDN, public data network. A network established and operated by a PTT, common carrier, or private operating company for the specific purpose of providing data communications services to the public. May be a packet-switched network or a digital network such as DDS or BT's Public Data Network - PDN.

PDP, Programmable Data Processor.

Pennants, Numeral. Pennants used in visual communications to represent the numbers 0 through 9.

Permanent Echo. Any dense and fixed radar return caused by reflection of energy from the earth's surface. Distinguished from "Ground Clutter" by being from definable locations rather than large areas.

Permutation Table. A table designed for the systematic construction of code groups. It may also be used to correct garbles in groups of code text.

Persistent. (In LAN technology) A term used to describe a CSMA LAN in which the stations involved in a collision try to retransmit almost immediately; p-persistent where p=1 (hence, also called 1-persistent). See non-persistent.

Personal computer. A microcomputer with an end user-oriented application program (used by data processing professionals and non-professionals alike) for an assortment of functions.

Personal Sign. Signs composed of one or more letters (normally initials) used when endorsing station records and messages to indicate individual responsibility of operating and supervisor personnel.

Phase modulation. One of 3 basic ways (see also AM and FM) to add information to a sine wave signal; The phase of the sine wave, or carrier, is modified in accordance with the information to be transmitted. With only discrete changes in phase, this technique is known as phase shift keying (PSK).

Phase Modulation. See Modulation.

Phase Shift Keying. Angle modulation in which each significant condition in a modulating discrete signal is represented by a specified phase of a periodic sinusoidal oscillation. Abbreviated PSK.

Phased Array. An array of dipoles in which the phase of the signal feeding each dipole is varied in such a way that antenna beams can be formed and scanned very rapidly in azimuth and elevation without requiring physical movement of the antenna. See Antenna Array.

Phonetic Alphabet. A list of standard words used to identify letters in a message transmitted by radio or telephone. The following are the authorized words in alphabetical order: ALFA, BRAVO, CHARLIE, DELTA, ECHO, FOXTROT, GOLF, HOTEL, INDIA, JULIETT, KILO, LIMA, MIKE, NOVEMBER, OSCAR, PAPA, QUEBEC, ROMEO, SIERRA, TANGO, UNIFORM, VICTOR, WHISKEY, XRAY, YANKEE and ZULU.

Physical layer. The lowest (first) layer in the OSI model; responsible for the physical signaling, including the connectors, timing, voltages and other related matters.

Physical Security. That component of security which results from all physical measures necessary to safeguard classified equipment, material and documents from access thereto or observation thereof by unauthorized persons.

Pilot (Message Relay). Instructions appearing in message format line 1 relative to the transmission or handling of the message.

Plain Language (Plain Text). Text or language which conveys an intelligible meaning in the language in which it is written with no hidden meaning; the intelligible text underlying encrypted text.

Plain Language Address (PLA). See Signal Message Address (SMA).

Plain Operation. The use of a circuit/channel without on-line cipher equipment.

Plain Text. See Plain Language (Plain Text).

Plaindress. A type of message in which the originator and addressee designations are indicated externally of the text.

Point-to-point connection. See link.

Point-to-Point. A circuit which connects terminals at two (and only two) points.

Polar transmission. See bipolar transmission.

Polarization Diversity. The use or availability of various polarization's such as horizontal, vertical, cross, circular or elliptical either simultaneously or singly.

Polarization. The direction of the electrical field component of radiated energy.

Polarized Wave, Left-Hand (Anti-clockwise). An elliptically or circularly-polarized wave, in which the electric field vector, observed in any fixed plane, normal to the direction of propagation, when looking in the direction of the propagation, rotates with time in a left-hand or anti-clockwise direction.

Polarized Wave, Right-Hand (Clockwise). An elliptically or circularly-polarized wave, in which the electric field vector, observed in any fixed plane, normal to the direction of propagation, whilst looking in the direction of propagation, rotates with time in the right-hand or clockwise direction.

Poll, polling. A means of controlling terminals on a multipoint line. The computer, acting as the master station, sends a message to each terminal in turn saying, "Terminal A: Have you anything to send?" If not, "Terminal B: Have you anything to send?" and so on. Each such message is called a poll.

Port concentrator, port concentration. A device that allows several terminals to share a single computer port; a concentrator link in which the port concentrator simplifies the software demultiplexing used in lieu of the demultiplexing normally performed by the computer-site concentrator.

Port selector. See data PABX.

Port. A computer interface capable of attaching to a modem for communicating with a remote terminal.

Position Line Determination. See Radio Position Line Determination.

Positive Control. In air traffic control within NATO, a method of regulation of all identified air traffic within a designated air space, conducted with electronic means by an air traffic control agency having the authority and responsibility therein.

POTS, plain old telephone service. A reference to the basic service provided by the public telephone network without any added facilities such as conditioning.

Power (of Radio Transmitter). When not otherwise specified the definition of Peak Power of a radio transmitter shall be used.

Power, Carrier. Of a radio transmitter, the average power supplied to the aerial transmission line or specified artificial load by a transmitter during one radio frequency cycle under conditions of no modulation. For each class of emission the condition of no modulation should be specified.

Power, Effective Radiated (ERP) (in a given direction). The product of the power supplied to the antenna and its gain relative to a half-wave dipole in a given direction.

Power, Effective Monopole Radiated (EMRP) (in a given direction). The product of the power supplied to the antenna and its gain relative to a short vertical antenna in a given direction.

Power, Equivalent Isotropically Radiated (EIRP). The product of the power supplied to the antenna and the antenna gain and given direction to an isotropic antenna (absolute or isotropic gain).

Power, Mean (of a radio transmitter). The average power supplied to the antenna transmission line by a transmitter during an interval of time sufficiently long compared with the lowest frequency encountered in the modulation taken under normal operating conditions.

Power, Peak Envelope (of a radio transmitter). The average power supplied to the antenna transmission line by a transmitter during one radio frequency cycle at the crest of the modulation envelope taken under normal operating conditions.

Precedence Designations. Precedence Designations and Definitions are as follows:

Precedence	Prosign	Definition
Flash	Z	Reserved for initial enemy contact messages or operational combat messages of extreme urgency. Brevity is mandatory.
Immediate	O	Reserved for very urgent messages relating to situations which gravely affect the security of National/Allied forces or populace.
Priority	P	Reserved for messages concerning the conduct of operations in progress and for other important and urgent matters when ROUTINE will not suffice.
Routine	R	To be used for all types of messages which justify transmission by rapid means but are not of sufficient urgency and importance to require a higher precedence.

Preamble. One of the components contained in the heading of a message whose elements include the degree of precedence, the date-time group and message instructions.

Precedence, Dual. Message containing two precedence designations, the higher one for all action addressees and the lower one for all information addressees.

Precedence. A destination assigned to a message by the originator to indicate to communication personnel the relative order of handling and to the addressee the order in which the message is to be noted.

Prefix. One of the components contained in the heading of a message whose elements may include the accounting information, group count and SVC.

Premises network. Same as cable system.

Premodulation. Premodulation is the combination of multiplex channel signals prior to the modulation of the carrier.

Presentation layer. The sixth layer in the OSI model; responsible for format and code conversion.

Prime Contractor. See Control PTT (or Prime Contractor).

Printer converter. A coaxial converter that allows an asynchronous printer to emulate an IBM 3287 printer.

Priority. See Precedence Designations.

Private Key. A cryptographic key used in a dual key system, uniquely associated with an entity and not made public; it is used to generate a digital signature. This key is linked mathematically with a corresponding public key.

Private line. Same as leased line.

Procedure Message. A message in which the text contains only prosigns, operating signals, addressee designation(s), identification of messages, parts of messages, and amplifying data, as necessary.

Procedure Sign (Prosign). One or more letters or characters or combination thereof, used to facilitate communication by conveying, in a condensed standard form, certain frequently used orders, instructions, requests and information related to communications.

Procedure Word (Proword). A word or phrase limited to radio-telephone procedure and used in lieu of a Prosign.

Profile. (In packet-switched networks) A set of parameter values, such as for a terminal, which can be defined and stored; the parameters can then be recalled and used as a group by identifying and selecting the appropriate profile.

Proforma (Message). A standard form of message, the nature of the successive elements of which is understood by pre-arrangement.

Program. A set of instructions for a computer. See software and firmware.

PROM, programmable read-only memory. Permanently stored data in a nonvolatile semi-conductor device. Compare with EPROM, RAM and ROM.

Propagation delay. The transit time through a link, network, system or piece of equipment.

Propagation. The manner in which an electromagnetic emission travels outward from its source.

Prosign. See Procedure Sign (Prosign).

Protected Frequency. A frequency on which interference must be minimized using special precautions, if necessary. See Taboo Frequency.

Protection Radio (RF). The minimum value of the wanted-to-unwanted signal radio, usually expressed in decibels, at the receiver input, determined under specified conditions such that a specified reception quality of the wanted signal is achieved at the receiver output.

Protocol. Hardware and software procedures used to control the transfer of data in communications networks and between networks and subscriber.

Protocol converter - PTT.

Protocol Converter. A device that translates from one communications protocol into another, such as IBM SNA/SDLC to ASCII; compare with gateway.

Protocol. See communications protocol.

Proword. See Procedure Word (Proword).

PSC, Peripheral Switch Card.

PSK, phase shift keying. A phase modulation technique in which phase shifts represent signaling elements; Compare with FSK.

PSTN. Public Switched Telephone Network. The familiar telephone system over which calls can be dialed.

PSU, Power Supply Unit.

PTO, Public Telecommunications Operator. An organization empowered to offer telecommunications services to the public. Often the same as a PTT.

PTT, Post, Telephone and Telegraphy Authority. The governmental agency that functions as the communications common carrier and administrator in many areas of the world.

Public Key. A cryptographic key used in a dual key system, uniquely associated with an entity and made public. It is used to verify a digital signature. This key is linked mathematically with a corresponding private key.

Public switched network. Any switching communications system - such as the Telex, TWX or public telephone networks - that provides circuit switching to many customers.

Public telephone network. A telephone network which is shared among many users, any one of which can establish communications with any other user by use of a dial or push-button telephone; include DDD service. In the United Kingdom and some other countries, the network is known as the PSTN, public switched telephone network.

Pulse Analyzer. An equipment used for analyzing pulses in order to determine their time, amplitude, duration, shape and other characteristics.

Pulse Code Modulation (Telephony) (PCM(T)). A method of converting analogue speech into digital by sampling the speech many thousands of times each second. Used worldwide by PTTs for digitized telephone transmissions.

Pulse Length/Width/Duration. The nominal duration of a standard pulse which is the time interval between the half amplitude points on the rise and decay points of the curve. For pulses and other shapes, the points on the curve must be stated.

Pulse Modulation. Modification of one or more of the characteristics of a pulse train used as a carrier. Also, modulation of a continuous wave carrier (whether already modulated or not) by means of pulses.

Pulse Repetition Frequency/Rate (PRF/PRR). The number of pulses per second.

Pulse Shape. The figure produced by the outline of a pulse when viewed on a cathode ray tube.

Pulse, RF. A train of radio frequency oscillations whose envelope has the form of a pulse.

Pulse. A variation in the value of an electrical quality as a function of time such that the value departs from a given datum for a time interval and then returns to this datum for a much longer time.

PVC, permanent virtual circuit. In a packet-switched network) A fixed virtual circuit between 2 users; no call setup or clearing procedures are necessary; the PDN equivalent of a leased line. Contrast with SVC.

Pyrotechnics. Ammunition containing chemicals that produce a smoke or brilliant light in burning, used for signaling or for lighting up an area at night; fireworks.

Q

QAM, quadrature amplitude modulation. A modulation technique that combines phase modulation and AM techniques to increase the number of bits per baud.

Q bit, qualifier bit. (In X25 packet-switched networks). Bit 8 in first octet of packet header; it is used to indicate if packet contains control information.

Quadrature Phased Shift Keying (QPSK). This is widely used to increase the information rate in a given bandwidth. Four phases are used which are 45 degrees, 135 degrees, 225 degrees and 315 degrees. These phases represent four possible combinations of two binary bits, each allowing two modulations to take place using one baseband frequency. This method is used widely in satellite communications and on modern link systems. See BPSK.

Queue. A line or list formed by items waiting for service, such as tasks waiting to be performed, stations waiting for connection, or messages waiting for transmission.

R

Rack-mount. Designed to be installed in a cabinet.

Rack. Same as cabinet.

Radar Absorbent Material (RAM). Material used in radar camouflage to reduce the echo area of an object.

Radar Camouflage. The use of radar absorbent or reflecting materials to change the radar echoing properties of a surface or an object.

Radar Coverage. The limits within which objects can be detected by one or more radar stations.

Radar Echo. 1. The radio frequency energy received after reflection from an object. **2.** The term is also used to describe the deflection or change of intensity on a cathode ray tube display produced by a radar echo.

Radar Height Finder. A radar intended to display the height of a target by measurement of its slant range and elevation angle.

Radar Horizon. The locus of points at which the rays from a radar antenna become tangential to the earth's surface. On the open sea this locus is horizontal but on land it varies according to the topographical features of the terrain.

Radar Navigation. The use of radar to assist in navigation and pilotage.

Radar Recognition and Identification (IFF - Identification, Friend or Foe). A system using radar transmissions to which equipment carried by friendly forces automatically responds; for example by emitting pulses, thereby distinguishing themselves form enemy forces. It is the primary method of determining the friendly or unfriendly character of aircraft and ships by other aircraft or ships and by ground forces employing radar detection equipment and associated IFF units. See also Recognition and Identification, Electronic and Selective Identification Feature (SIF).

Radar Reflectivity. That property of an object which causes it to reflect radar waves, usually expressed in units of equivalent area of a flat reflector placed normal to the radar antenna.

Radar Relay. The transmission of radar video information to a remote display.

Radar Repeater. A unit, employing one or more cathode ray tubes, fitted with facilities for display of selected radar information in positions normally remote from the radar.

Radar Scan. One revolution of a search radar.

Radar Sensitivity. The degree of response of a radar receiver to signals on its frequency. A measure of the ability of the receiver to amplify and make usable very weak signals.

Radar Shadows. Region obscured from the surveillance of a radar set by obstructions, either natural or artificial.

Radar Target Simulator. A device for producing a synthetic target on a radar display used for operator training.

Radar, Navigational. Radar equipment installed on a craft as an aid to its navigation.

Radar, Primary. Radar that determines the distances, the direction and eventually, the height of objects by using only their reflection of incident radiation.

Radar, Secondary. Radar using automatic retransmission by the object of a special pulse code on a different radio frequency. E.g. IFF

Radar, Tactical Control. A radar used for target allocation or target selection.

Radar. Radio detection and ranging equipment that determines the distance and usually the direction of objects by transmission and return of electromagnetic energy.

Radiation (in Radio Communication). 1. The outward flow of radio frequency energy from a source. **2.** Energy flowing in a medium in the form of radio waves.

Radiation Characteristics. In Electronic Warfare. Features of a radiated signal such as frequency, pulse width, pulse repetition frequency, beamwidth, polarization, etc.,.

Radio Approach Aids. Equipment making use of radio to determine the position of an aircraft with considerable accuracy from the time it is in the vicinity of an airfield or carrier until it reaches a position from which landing can be carried out.

Radio Autocontrol. The control of an object by radio reference from itself to other objects.

Radio Communication. See Communication, Radio.

Radio Control. The control of mechanism of other apparatus by radio waves.

Radio Detection. The detection of the presence of an object by radio-location without precise determination of its position. Synonymous with radio-warning.

Radio Determination. The determination of position or the obtaining of information relating to position, by means of the propagation properties of radio waves. See ITU Art 45.

Radio Direction Finding. Radio location in which only the direction of a station is determined by means of its emission.

Radio Doppler. The direct determination of the radial component of the relative velocity of an object by an observed radio-frequency change due to such velocity.

Radio Fix. 1. The locating of a radio transmitter by bearings taken from two or more direction finding stations, the site of the transmitter being at the point of intersection. **2.** The location of a ship or aircraft by determining the direction of radio signals coming to the ship or aircraft from two or more sending stations, the locations of which are known.

Radio Fixing Aids. Equipment making use of radio to assist a user to determine his geographical position.

Radio Goniometry. The determination of relative direction of a distant object by means of its radio emissions, whether independent, reflected or automatically retransmitted.

Radio Homing Aids. Equipment permitting the use of radio to assist in the location of an area with sufficient accuracy to effect an approach.

Radio landing Aids. Equipment permitting the use of radio to assist an aircraft in carrying out its actual landing.

Radio Navigational Aid. Any radio facility designed or usable for navigation.

Radio Position Line Determination. Determination of a position line by radio location.

Radio Range Finding. Radio location in which the distance of an object is determined by means of its radio emissions, whether independent, reflected or retransmitted on the same or other wave length. See also Radio Determination.

Radio Range. See Station, Radio Range (RLR).

Radio Recognition. The determination by radio means of the friendly or enemy character, or the individuality, of another.

Radio Relay System. A communications system used to perform a radio relay function. See Radio Relay.

Radio Relay. The reception and retransmission by a radio station of signals received from another radio station or from the line portion of an integrated line and radio communications system.

Radio Silence. A condition in which all or certain radio equipment capable of radiation is kept inoperative.

Radio Sonobuoy. See Sonobuoy.

Radio Station. One or more transmitters or receivers or a combination of transmitters and receivers, including the accessory equipment necessary at one location for carrying a radio communications service.

Radio Tele-Control. The distant control of mechanisms or other apparatus by radio waves.

Radio Warning. The detection of the presence of an object by radiolocation without precise determination of its position. **Note.** This function of radio is rarely used apart from others but must be separately defined. Synonymous with radio detection.

Radio Waves. See Hertzian Waves.

Radio. A descriptive term applied to the use of electromagnetic waves between 10 kiloHertz and 3,000,000 megaHertz. It is used principally as an adjective.

Radiolocation. Determination of relative direction, position or motion of an object, or its detection, by means of propagation characteristics of radio waves. **Note. 1.** The characteristics generally employed are those of approximate constant velocity and/or rectilinearly. **2.** The term Radio determination is used for this concept in Radio Regulations 1959.

Radionavigation. Radio determination used for the purposes of navigation, including obstruction warning.

Radiosonde. An automatic radio transmitter in the meteorological aid service usually carried on an aircraft, free balloon, kite or parachute which transmits meteorological data.

Radiotelegram. A telegram originating in or intended for a mobile station or a mobile earth station transmitted on all or part of its route over the radio-communication channels of a mobile service or the mobile-satellite service. See also Telegram.

Railings. Lines, normal to the time-base on a range-amplitude display, produced by a particular type of jamming.

RAM, random access memory. A storage device into which data can be entered (written) and read; usually (but not always) a volatile semiconductor memory.

Random Drop. In Electronic Warfare. Non-uniformity of interval between drops in window dispensing.

Range. The distance between specified radio stations over which effective communications can be provided.

RASP, Recognized Air and Surface Picture.

RATT. The system of communication by teleprinter over radio circuits. At present, International Telegraphic Alphabet No 2, as defined by CCITT, is employed. Sometimes referred to as RTT.

Raw Video. The intelligence of a radar echo before it is quantized and digitized.

RCRU, Radio Clock Receiver Unit.

RD, Received Data. An RS-232 data signal (received by DTE from DCE on pin 3).

RDC, Resource Data Catalogue.

RDET, Remote Data Entry Terminal.

Re-Addressal of Messages. A method whereby the originator or the original addressees may add new addressees, without change in the address or text, to previously transmitted messages.

Re-Encrypt. A process of encrypting again a previously encrypted and transmitted message, any of the plain text thereof, or a paraphrased version.

Readability. The ability to be understood, i.e. the readability of signals sent by any means of communications.

Real Time. The absence of significant time delay in the acquisition, transmission and reception of information.

Real-time system. An on-line computer that generates output nearly simultaneously with the corresponding inputs. Often, a computer system whose outputs follow by only a very short delay its inputs. See also transaction processing.

Rebecca-Eureka System. In aviation, a secondary-radar homing and distance measuring system employing an airborne interrogating installation (Rebecca) and a ground responding beacon (Eureka).

Receipt. A transmission made by a receiving station to indicate that a message has been satisfactorily received.

Receiver (Radio). A device connected to an aerial or other source of radio signals in order to make available in some desired form the required information content of the signals.

Reception. Listening to, copying, recording or viewing any form of emission.

Recognition and Identification, Electronic. The determination by electronic means of the friendly or enemy character or of the individuality of another and the identification of electronic means of your own friendly character or own individuality. See also Radar Recognition and Identification (IFF - Identification. Friend or Foe).

Recognition. The determination by any means of the friendly or enemy character or of the individuality of another, or of objects such as aircraft, ships, or tanks or of phenomena such as communications-electronics patterns.

Recovery Time. The time for a part of a receiver to recover to a zero signal condition after receiving an input signal (e.g. jamming pulse) of saturation intensity.

Reference Model. See OSI Reference Model.

Refile. The processing of a message into appropriate procedure for transfer to another system which involves alteration of the message format, e.g. message relay to radiotelegraph, point to point telegraph network to message relay network, military to civil/commercial.

Reflector, Confusion. A radio wave reflector used for creating echoes for confusion purposes against radar’s, proximity fuses and guided missiles.

Reflector, Corner. A device, normally consisting of three metallic surfaces or screens perpendicular to one another, designed to act as a radar target or marker.

Relay Station, Major. A message relay station is designated as a major message relay station when: 1. Two or more trunk circuits connected thereto provide and alternate route. 2. To meet command requirements.

Relay Station, Minor. A message relay station is designated as a minor relay station when it has message relay responsibility but does not provide an alternate message relay route.

Releasing Officer. The person who may authorize the transmission of a message for and in the name of the originator.

Remote analogue loopback. An analogue loopback test that forms the loop at the line side (analogue output) of the remote modem.

Remote composite loopback. A composite loopback test that forms the loop at the output (composite side) of the remote multiplexor.

Remote digital loopback. A digital loopback test that forms the loop at the DTE side (digital input) of the remote modem.

Repeater Jammer. A receiver-transmitter device which amplifies, multiplies and retransmits the signals received, for purposes of deception or jamming.

Repeater. A device used to extend transmission ranges/distances by restoring signals to their original size or shape. Repeaters function at the physical layer of the OSI model.

Reply. 1. A message to the originator of a previous message which asked a question. **2.** An answer to a challenge. Replies promulgated in key lists take the form of identities of pyrotechnics.

Rerun. The repetition of a message which was previously sent by tape, card or similar stored mode of communications.

Resolution. The ability of a radar or optical system to distinguish between two adjacent objects and display them as separate images.

Resource class. (In LAN technology) A collection of computers or computer ports that offer similar facilities, such as the same application program; each can be identified by a symbolic name.

Responder. An electronic device used to receive an electronic challenge and display a reply thereto.

Response time. The elapsed time between the generation of the last character of a message at a terminal and the receipt of first character of the replay (often an echo). It includes all propagation delays.

Retransmission. The repetition of a message which was previously transmitted by any mode of communications.

RFI, Radio Frequency Interference.

RI, Ring Indicator. An RS-232 modem interface signal (sent from the modem to the DTE on pin 22) which indicates that an incoming call is present.

Ring. (In LAN technology) A closed loop network topology; contrast with bus and star.

RJE, remote job entry. Submission of batch processing jobs through an input device (such as an IBM model 3780) that has access to a computer through a data link.

RLSD, Received Line Signal Detector. See CD; also called DCD.

RO, read-only. A teleprinter receiver without a transmitter. Compare with ASR and KSR.

ROM, read-only memory. Nonvolatile semiconductor storage device manufactured with predefined contents. Compare with EPROM, PROM and RAM.

Rope-Chaff. Chaff which contains one or more rope elements. See also Chaff, Rope.

Rope. An element of chaff consisting of a long roll of metallic foil or wire which is designed for broad-band, low-frequency response.

Rotary. An arrangement of a group of lines, such as telephone or data PABX lines, that are identified by a single symbolic name or number; upon request, connection is made to the first available (free) line.

Round robin retraining. A method of training in which the receiving modem acks for a training pattern by sending a training pattern.

Route Diagram. See Map, Line Route/Route Diagram.

Routine. See Precedence Designations.

Routing Indicator (RI). See Indicator, Routing.

Routing line (Message Relay). That procedure line which contains the routing indicators of the station to which a transmission is routed.

Routing Line Segregation. A method of routing wherein the basic routing line of the message heading is altered as the message passes through each relay station involved, so that only those routing indicators pertinent to the onward transmission are left in the routing line (message format line 2).

Routing, Alternative. A method of routing traffic in which, when a call cannot be connected to a free circuit on the normal route, it is directed to an alternative route, either automatically or by an operator.

Routing. 1. The process of determining and prescribing the path or method to be used in forwarding messages. **2.** The function which ensures that the correct path through a network is selected.

RP, Reporting Post.

RS-232, RS-232-c. An EIA recommended standard (RS); most common standard for connecting data processing devices. RS-232 defines the electrical characteristics of the signals in the cables that connect DTE with DCE; it specifies a 25-pin connector (the DB-25 connector is almost universally used in RS-232 applications); and it is functionally identical to CCITT V24/V28.

RS-422. An EIA recommended standard for cable lengths that extended the RS-232 50-foot limit. Although introduced as a companion standard with RS-449, RS-422 is most frequently implemented on unused pins of DB-25 (RS-232) connectors. Electrically compatible with CCITT recommendation V11.

RS-423. An EIA recommended standard for cable lengths that extended the RS-232 50-foot limit. Although introduced as a companion standard with RS-422, RS-423 is not widely used. Electrically compatible with CCITT recommendation V10.

RS-449. An EIA recommended standard for the mechanical characteristics of connectors; introduced as companion standard to RS-422 and RS-423 standards. Specifies two connectors <A> connects (a 37-pin connector and a 9-pin connector); not widely used.

RSX, Real-time System Executive.

RTS, Request-to-send. An RS-232 modem interface signal (sent from the DTE to the modem on pin 4) which indicates that the DTE has data to transmit.

Runway Approach Aids. System or markings which assist pilots to land their aircraft.

RW. Telegraphic Code Signal implying request for a repeat of signal just received.

S

SADOC, Standby Air Defence Operations Centre.

Safeguard, To The term "to secure" a radio transmission is used to indicate that action is taken to ensure that it cannot be used by an enemy as a navigational aid. Safeguarding action may take the form of navigational intelligence given by a system.

Safety Circuit. See Circuit, Safety.

SAGOP. Electronic equivalent of a General Operations Plot.

SAM, Surface to Air Missile.

Satellite, Geostationary. A geosynchronous satellite whose circular and direct orbit lies in the plane of the earth's equator and which thus remains fixed relative to the earth; by extension, a satellite which remains approximately fixed relative to the earth.

Satellite, Geosynchronous. An earth satellite whose period of revolution is equal to the period of rotation of the earth about its axis.

Saturation. The overwhelming of a receiver by an excessively high input signal such as jamming. See Recovery Time.

SBI, Synchronous Backplane Interconnect.

SC, System Control (Module).

Scan Period. The period taken by a radar to complete its scan pattern and return to its starting point.

Scan. In electromagnetic or acoustic search, one complete rotation of the antenna. It may determine a time basis.

Scatter, Ionospheric (FPIS; IFS). The propagation of radio waves scattering as a result of irregularities or discontinuities in the ionization of the ionosphere. See Scattering, Back and Scattering Forward (FPIS; FPTS; IFS; TFS).

Scatter, Troposheric (FPTS; TFS). The propagation of radio waves over the earth by scattering from irregularities or discontinuities in the atmospheric properties within the troposphere.

Scattering, Back. In radio wave propagation, scattering in which the propagation directions of the incident and scattered waves under consideration, resolved along a reference direction (usually horizontal) are oppositely directed. **Note.** A signal received by back scattering is often referred to as back scatter.

Scattering, Forward (FPIS; FPTS; IFS; TFS). In radio wave propagation, scattering in which the propagation directions of the incident and scattered waves under consideration, resolved along a reference direction (usually horizontal), are directed in the same sense. **Note.** A signal received by forward scatter, for example, ionospheric forward scatter, tropospheric forward scatter.

Scattering. See Scatter, Ionospheric and Scatter Tropospheric.

Scintillation. In a radio transmitter, unwanted momentary rapid fluctuation of the operating frequency.

Scramble. 1. In Telephony. To make telephony unintelligible to casual interception. **2.** In cryptography. To mix in a random or quasi-random fashion.

SDC, System Development Centre.

SDLC, Synchronous Data Link Control. An IBM communications protocol, commonly used in an SNA environment.

SDP, Small Devices Processor.

Sea Return. Wanted echoes received from the surface of the sea by a radar set.

Search Receiver. A receiver which can be tuned over a relatively wide frequency range in order to detect and measure electromagnetic signals.

Secure. A generic term referring to a method of communicating which denies information to unauthorized recipients. The channel/circuit/net is secured by physical means or by the provision of on-line crypto equipment (Cryptographic) as appropriate for telegraph, data, facsimile or voice operation (The term must be qualified by the addition of a self explanatory word or words e.g. voice, data, facsimile, telegraph etc.,).

Selective Identification Feature (SIF). Airborne pulse-type transponder which provides automatic selective identification of aircraft in which it is installed, to friend-or-foe identification installations, whether ground, shipboard or airborne.

Selectivity. The ability of a radar receiver to discriminate, by frequency-dependent selection, between a desired signal and coexistent undesired signals at other frequencies.

Selector channel. An input/output (I/O) channel designed to operate with only on I/O device at a time. Once the I/O device is selected, complete records are transferred in one byte intervals. Compare with block-multiplexor channel and multiplexor channel.

Selector lightpen. An instrument that can be attached to the display station as a special feature. When pointed at a portion of the display station's image on the screen and then activated, the selector lightpen identifies that portion of the displayed screen for subsequent processing.

Self-Screening Range. In Electronic Warfare. That range at which a target has a certain specified probability of avoiding detection by the use of its jamming mask.

Self-Screening. In Electronic Warfare. Concealing a target by means of radiating jamming energy (from self-contained jammers) at sufficient power levels to make the target radar echo indiscernible form the jamming.

Sensitivity. 1. The characteristic of a radio receiver which determines the minimum usable input. **2.** The least input which produces an output which satisfies certain specified requirements, including generally a specified signal-to-noise ratio.

Sensor. An equipment which detects, and may indicate, and/or record objects and activities by means of energy or particles emitted, reflected, or modified by objects. **Note.** The energy may be nuclear, electromagnetic, including the visible and invisible portions of the spectrum, chemical, biological, thermal or mechanical, including sound, blast and earth vibration.

Serial transmission. A technique in which each bit of information is sent sequentially on a single channel, rather than simultaneously as in parallel transmission. Serial transmission is the normal mode for data communications. Parallel transmission is often used between computers and local peripheral devices.

Service, Aeronautical Fixed. A fixed service intended for the transmission of information relating to air navigation, preparation for and safety of flight.

Service, Aeronautical Mobile. A mobile service between aircraft stations and aeronautical stations, or between aircraft stations.

Service, Aeronautical Radionavigation. A radionavigation service intended for the benefit of aircraft.

Service, Amateur. A service of self-training, intercommunication and technical investigations carried on by amateurs; that is, by duly authorized persons interested in radio techniques solely with a personal aim and without pecuniary interest.

Service, Broadcasting. A radio communication service in which the transmissions are intended for direct reception by the general public. This service includes sound transmission, television transmission or other types of transmission.

Service, Fixed. A service of radio communication between specified fixed points.

Service, Land Mobile. A mobile service between base stations and land mobile stations, or between land mobile stations.

Service, Maritime Mobile. A mobile service between ship stations and coast stations or between ship stations.

Service, Maritime Radionavigation. A radionavigation service intended for the benefit of ships.

Service, Meteorological Aids. A service of emissions of special radio signals intended solely for meteorological, including hydrological, observations and exploration.

Service, Mobile. A service of radio communication between mobile and land stations, or between mobile stations.

Service, Radiolocation. A service involving the use of radionavigation.

Service, Radionavigation. A radiolocation service involving the use of radionavigation.

Service, Safety. Any radio service, the operation of which is directly related, whether permanent or temporary, to the safety of human life and the safeguarding of property, shall be considered a safety service.

Service, Standard Frequency. A radio communication service for the transmission of standard and specified frequencies of known high accuracy intended for general reception.

Session layer. The fifth layer in the OSI model; responsible for establishing, managing, and terminating connections for individual application programs.

Session. In SNA communications protocol, a session is a logical network connection between 2 addressable units for the exchange of data. For example, a 3278 Display Station could be a logical unit in a session with a software application.

Seven layer model. See OSI model.

Shared access. (In LAN technology) An access method that allows many stations to use the same (shared) transmission medium; contended access and explicit access are 2 kinds of shared access methods. Contrast with discrete access.

Shift. See FIGS and LTRS.

SHORAN. A precise short-range electronic navigation system which uses the time of travel of pulse-type transmission from two or more fixed stations to measure slant-range distance from the stations. Also, in conjunction with a suitable computer used in precision bombing (This term is derived from the words Short Range Radio Navigation Systems).

Short-haul modem. See line driver and local dataset.

SIC, Subject Indicator Code. A Trigraph of letters and/or letters and figures, comprising of Subject Area, Subject Sphere and Subject Code, aiding Communication staffs in the distribution of messages without having to refer to the text.

Side Lobe Jamming. Jamming through a side lobe of a receiving antenna in an attempt to obliterate the desired signal received through the main lobe of the receiving antenna or to confuse the operator as to the true azimuth of the jammer by the injection of multiple strobes.

Sideband. A sideband is the frequency band, above or below the carrier, produced by the process of modulation.

SIF, Selective Identification Feature.

Sighting. Actual visual contact. It does not include other contacts which must be reported by type e.g. radar and sonar contacts.

Sign-on character. The first character sent on an ABR circuit; used to determine the data rate.

Signal Analysis. Study of complex electromagnetic radiation's to determine their technical characteristics and their tactical or strategic use. See Analysis.

Signal Characteristics. See Radiation Characteristics.

Signal Letters. See Call Sign, International.

Signal Message Address (SMA). A unique shortened form of address for use in the address component of a signal message. It identifies an authority and may contain a geographical location.

Signal Security (SIGSEC). A generic term which includes both communications security and electronic security.

Signal, Executive. See Executive Signal.

Signal, International Code. See Code, International Signal.

Signal, Operating. See Operating Signal.

Signal-to-Noise Ratio. The ratio, at a selected point in the circuit, of signal power to total circuit-noise power.

Signal-to-noise ratio. The relative strength of the desired signal compared to the strength of unwanted noise; usually measured in dB.

Signal. 1. As applied to electronics, any transmitted electrical impulse. **2.** Operationally, a type of message, the text of which consists of one or more letters, words, characters, signal flags, visual display or special sounds, with prearranged meanings and which is conveyed or transmitted by visual, acoustical, or electrical means. **3.** The document containing the information to be transmitted and or any reproduction thereof made in the course of transmission or delivery to the addressee. Also known as a message.

Signaling. In telephony, signaling refers to the process and the standards involved for passing control information between various terminal equipment on a network. E.g. between a PABX and a local exchange or between networked PABXs.

Signals Intelligence (SIGINT). The generic term used to describe COMINT and ELINT when there is no requirement to differentiate between these two types of intelligence, or to represent fusion of the two.

Silent Zone. See Skip Zone.

Simplex Operation. Simplex operation refers to communication between two points in both directions, but not simultaneously.

Simplex transmission. Transmission in only one direction.

Simulation. The creation of electromagnetic emissions to represent friendly notional or actual capabilities to mislead hostile forces.

Single Sideband (SSB) Transmission. That system of carrier transmission in which one sideband is transmitted and the other sideband is suppressed. The carrier wave may be either transmitted or suppressed.

Skin Paint. A radar indication caused by the reflected radar signal from an object.

Skin Tracking. The tracking of an object by means of a skin paint.

Skip Distance. For a specified operating frequency, the least distance in a given direction from the transmitter at which radio waves are received by reflection from the ionosphere. It is customary to ignore reflection from the sporadic E layer.

Skip Zone. The space or region wherein a transmission is not normally received between the farthest point reached by the ground wave and the nearest point at which the reflected waves come back to earth.

Sky Wave. That portion of a radiated wave which travels in space and is returned to earth by refraction in the ionosphere.

Slave station. (In point-to-point circuits) The unit controlled by the master station.

SM, Stores Management (Module).

SMA. See Signal Message Address. (Also known as a plain language Address).

SNA/SDLC. See SDLC.

SNAPS, Ships Navigation Processing System.

SNIPL, Secondary Node Inter Processor Link.

Software. A computer program or set of computer programs held in some kind of storage medium and loaded into read/write memory (RAM) for execution. Compare with firmware and hardware.

SOH, start of header. A control character used to indicate the beginning of the header.

Sonar Signaling/Supersonic Telegraphy. The process of transmitting and receiving morse signals by sonar apparatus.

Sonobuoy. An acoustic device, used mainly for the detection of submarines which, when activated, transmits information by radio.

Sound Powered. A term denoting that a device (e.g. a microphone) derives its power by converting acoustic energy to electrical power without the aid of an external power supply.

Sound Signaling. A means of communication which utilizes sound waves. Whistles, sirens, bells and signal devices are used to transmit sound messages consisting of prearranged signals. Sound may also be used for emergency communication using international morse code.

Space (Spacing Signal). The signal corresponding to the active condition in a teleprinter. Normally SPACE is the signaling condition which produces a START signal (ITA No 2).

Space Diversity (Spaced Serial Diversity). A term used to designate any method of transmission and/or reception for combating effects of flat or selective fading which employs antennae having common polarization and spatial separations.

Spare. 1. An ASCII or EBCDIC character that results in a 1-character-wide blank when printed. **2.** (In single-current telegraph communications) The open circuit or no-current-flowing condition. **3.** (In data communications) Represents a binary 0.

Special Handling. Special Handling is the term applied to control measures implemented to afford additional security protection and/or limited access to certain communications beyond the protection normally afforded. These control measures may include user-approved software locks, security clearance of personnel at terminals and interface areas to relevant levels of access and the use of off-line cryptographic equipment, special keying variables, dedicated facilities or any combination of these to protect the passage of such communications through a C-E Network.

Special Operating Group. A group of four letters, identical in appearance with address groups, provided for use in the headings of messages to give special instructions.

Speech plus. Technique used to combine voice and data on the same line by assigning the top part of the normal voice bandwidth to data.

Speech Scrambler. A device by which speech is converted into unintelligible form before transmission and is restored to intelligible form at reception to obtain some measure of privacy against casual overhearing by unauthorized persons.

Speed dialing. Process of using short sequences of digits to represent complete telephone numbers.

Speed. Same as data rate.

Spoiling. The process whereby suitably sited transmitters, operating in a synchronized group, mutually add to the service coverage of radio system, but reduce or nullify the value of the system as a direction-finding navigation aid.

Spoofing. In Electronic Warfare. Creation of false radar targets primarily used for deception. An alternative name for Deception.

Sporadic E Layer. Clouds of varying size up to several hundred kilometers across appear in the E layer. These are regions where the electron density is higher than normal for that layer. These occur most frequently during summer nights and give single hop ranges of 2000 km at frequencies of up to 50 MHz. See Ionosphere.

Spread Spectrum. A communications technique in which the modulated information is transmitted in a bandwidth considerably greater than the frequency bandwidth containing the original information.

Squelch. The reduction or elimination of the noise otherwise heard in a radio receiver when no carrier signal is present.

SSI, small-scale integration. A term used to describe a multi-function semiconductor device with a spare density (10 circuits or less) of electronic circuitry contained on a single silicon chip. (See table following LSI for comparison of circuit density ranges).

STANAG, Standard NATO Agreement.

Star. (In LAN technology) A network topology where the central control point is connected individually to all stations.

Start bit. (In asynchronous transmission) The first bit used to indicate the beginning of a character; normally, a space condition which serves to prepare the receiving equipment for the reception and registration of the character.

Start-Stop System. A telegraph system in which each group of code elements corresponding to an alphabetical signal is preceded by a start signal which serves to prepare the receiving mechanism for the reception and registration of a character, and is followed by a stop signal which serves to bring the receiving mechanism to rest in preparation for the reception of the next character.

Start-stop transmission. Asynchronous transmission such that a group of signals representing a character is preceded by a start bit and followed by a stop bit.

Static. See Interference.

Station Experimental (EX). A station utilizing electromagnetic waves between 10 MHz and 3,000,000 MHz in experiments with a view to the development of science or technique. This definition does not include amateur stations.

Station, Aeronautical (FA). A land station in the aeronautical mobile service carrying on a service with aircraft stations. In certain instances an aeronautical station may be placed onboard a ship.

Station, Aeronautical Broadcast (FAB). An aeronautical station which makes broadcasts of meteorological information and notices to airmen.

Station, Aeronautical Fixed (AX). A station in the aeronautical fixed service.

Station, Aeronautical Marker Beacon (RLA). A radionavigation land station in the aeronautical radionavigation service which provides a signal to designate a small area above the station. In certain instances an aeronautical marker beacon station may be placed onboard a ship.

Station, Aeronautical Radio Beacon (RLB). A radionavigation land station in the aeronautical radionavigation service, the emissions of which are intended to enable aircraft, or other mobile service, to determine its bearing or its direction in relation to the aeronautical radio beacon station.

Station, Aircraft (MA). A mobile station installed onboard any type of aircraft and continuously subject to human control.

Station, Airdrome Control (FAC). An aeronautical station providing communication between airdrome control tower and aircraft.

Station, Altimeter (ROA). A radionavigation mobile station in the aeronautical radionavigation service, the emissions of which are intended to determine the altitude of aircraft, aboard which the altimeter station is located, above the earth's surface.

Station, Amateur. A station in the amateur service.

Station, Base (FB). A land station in the land mobile service carrying on a service with land mobile stations. A base station may secondarily communicate with other base stations incident to communication with land mobile stations.

Station, Broadcasting (BC). A station in the broadcasting service.

Station, Coast (FC). A land station in the maritime mobile service carrying on a service with ship stations. A coast station may secondarily communicate with other coast stations incident to communication with ship stations.

Station, Fixed (FX). A station in the fixed service. A fixed station may, as a secondary service, transmit to mobile stations on its normal frequencies.

Station, Flight Test (FAT) An aeronautical station used for the transmission of essential communications in connection with the test of aircraft or major components of aircraft.

Station, Glide Path/Slope (RLG). A radionavigation land station in the aeronautical radionavigation service which provides vertical guidance in connection with an instrument landing system. In certain instances a glide path/slope station may be placed onboard a ship.

Station, Hydrological and Meteorological Fixed (FXH). A fixed station, the emissions of which are used for the automatic transmission of either hydrological or meteorological data, or both.

Station, Hydrological and Meteorological Mobile (MOH). A mobile station, the emissions of which are used for the automatic transmission of either hydrological or meteorological data, or both.

Station, International Broadcasting (BCI). A broadcasting station employing frequencies allocated to the broadcasting service, the transmissions of which are intended to be received directly by the general public in foreign countries.

Station, Land (FL). A station in the mobile service not intended for operation while in motion. A land station may communicate, on a secondary basis, with fixed stations or other land stations of the same category.

Station, Land Mobile (ML). A mobile station in the land mobile service capable of surface movement within the geographical limits of a country or continent.

Station, Localizer (RLL). A radionavigation land station in the aeronautical radionavigation service which provides signals for the lateral guidance of aircraft with respect to a runway centre line.

Station, LORAN (RLN). A long distance radionavigation land station transmitting synchronized pulses. Hyperbolic lines of position are determined by the measurement of the difference in the time of arrival of these pulses.

Station, Marine Broadcast (FCB). A coast station which makes scheduled broadcasts of time, meteorological and hydrographic information.

Station, Marine Radio Beacon (RLM). A radionavigation land station, the emissions of which are intended to enable a ship's station to determine its bearing or its direction in r elation to the marine radio beacon station.

Station, Meteorological Radar (WXD). A station in the meteorological aid service employing radar.

Station, Mobile (MO). A station in the mobile service intended to be used while in motion or during halts at unspecified points.

Station, Omnidirectional Range (RLO). A radionavigation land station in the aeronautical radionavigation service providing direct indication of the bearings of that station from an aircraft.

Station, RACON (RLC). A radionavigation land station which employs a RACON. In certain instances a RACON may be placed onboard a ship or aircraft. See also RACON.

Station, Radio Beacon. A radionavigation station, the emissions of which are intended to enable a mobile station to determine its bearing or its direction in relation to the radio beacon station.

Station, Radio Direction-Finding (RG). A radiolocation station intended to determine only the direction of other stations by means of transmission from the latter.

Station, Radio Positioning Land (PL). A station in the radiolocation service other than radionavigation station not intended for operation while in motion.

Station, Radio Positioning Mobile (PM). A station in the radiolocation service other than a radionavigation station intended to be used while in motion or during halts at unspecified points.

Station, Radio Range (RLR). A radionavigation land station in the aeronautical radionavigation service providing radio equisignal zones. In certain instances a radio range station may be placed onboard a ship.

Station, Radiolocation. A station in the radiolocation service.

Station, Radionavigation Land (RL). A station in the radionavigation service intended to be used while in motion or during halts at unspecified points.

Station, Radionavigation. A station in the radionavigation service.

Station, Radiosonde (WXR). A station in the meteorological air service employing Radiosonde.

Station Serial Number (SSN). See Number, Station Serial.

Station, Ship (MS). A mobile station in the maritime mobile service located onboard a vessel which is not permanently moored.

Station, Standard Frequency (SS). A station in the standard frequency service.

Station, Surveillance Radar (RLS). A radionavigation land station in the aeronautical radionavigation service employing radar to display the presence of aircraft within its range. In certain instances a surveillance radar station may be placed onboard a ship.

Station, Telemetering Fixed (FXE). A fixed station, the emissions of which are used for telemetering.

Station, Telemetering Mobile (MOE). A mobile station, the emissions of which are used for telemetering.

Station, Transfer. A designated relay station of one network that is connected to a designated relay in another network for the purpose of transferring traffic between the networks.

Station, Tributary. See Tributary Station (Message Relay).

Station. A separate transmitter or receiver or a combination of transmitters and receivers including the accessory equipment required for carrying on a definite radio communication service. The station assumes the classification of the service in which it operates permanently or temporarily.

Station. A unit (usually an item of DCE) on a network.

Stepped Tones. See Bagpipes.

Stop bit. (In asynchronous transmission) The last bit used to indicate the end of a character; normally a mark condition which serves to return the line to its idle or reset state.

Stored Program Control. Generally, the application of computer techniques to the control of private or public telephone exchanges.

Strobe Triangulation. A method of locating a jammer target by means of plotting the azimuths of the jammed sectors (strobes) of two or more remotely located radar's jammed simultaneously by the same jammer.

Strowger. Named after its inventor, this was the first switching technology used in public telephone exchanges.

STX, start of text. A control character used to indicate the beginning of a message; it immediately follows the header in transmission blocks.

Subcarrier Frequency Shift. The conveying of telegraphic information by shifting an audio frequency carrier which is then used to modulate a radio frequency carrier for radio transmission. Where only two discrete steps of subcarrier frequency shift are involved, it is also known as Two-Tone Keying.

Sudden Ionospheric Disturbance (SID). In propagation. Follows solar flare by abut two minutes. Characterized by a sudden fading or quietness across the entire high frequency band.

Surveillance Radar/Warning Search Radar. A radar with the normal functions of: (1) Maintaining continuous watch or search in its area of employment. (2) Supplying information on all targets with sufficient accuracy to permit acquisition by more accurate radar's or by weapon systems in sufficient time to allow effective engagements of the targets.

SVC, switched virtual circuit. (In a packet-switched network) A temporary virtual circuit between 2 users.

Sweep Jammer. A transmitter that emits a jamming signal consisting of a carrier wave (unmodulated or modulated), the frequency of which is continuously varied within a given bandwidth.

Sweep Jamming. A narrow band of jamming that is swept back and forth over a relatively wide operating band of frequencies.

Sweep. The pattern of light or marking on the face of a cathode ray tube caused by the predetermined deflection and modulation of the electron beam.

Switch. 1. Informal for data PABX. **2.** (In packet-switched networks) The device used to direct packets, usually located at one of the nodes on the network's backbone.

Switchboard. In an exchange, a suite of one or more operating positions at which the interconnection of lines is manually controlled.

Switched line. A communications link for which the physical path may vary with each usage, such as the public telephone network.

Switching Communications System. In telecommunications, assembly of equipment and procedures, organized so as to effect automatic interconnection of channels, circuits and trunks, and/or handing of traffic, through switching facilities.

Switching Matrix. (In LAN technology) The electronic equivalent of a cross-bar switch.

Switching, Automatic. A method of operation which effects automatic interconnection of channels, circuits and trunks and/or handling of traffic through a switching facility.

Symbolic name. A means used to identify a collection of stations (as in an access group) or computer ports (as in a resource class).

SYN, synchronous idle. (In synchronous transmission) A control character used to maintain synchronization and as a time fill in the absence of data. The sequence of 2 SYN characters in succession is used to maintain synchronization following each line turnaround.

Sync. Short for synchronous or for synchronous transmission.

Synchronization, synchronizing. The process of making the receiver be “in step” with the transmitter; usually achieved by having a constant time interval between successive bits, by having a pre-defined sequence of overhead bits and information bits, and by having a clock.

Synchronized Group. A synchronized group is several transmitters suitably sited for masking another transmitter. All transmitters carry the same modulation or keying supplied from a common source. All operate on exactly the same frequency.

Synchronous data channel. A communication channel capable of transmitting timing information in addition to data. More properly called an “isochronous” data channel.

Synchronous Operation (Cryptographic). A method of on-line crypto operation in which terminal cipher equipments have timing systems to keep them in step, synchronism of the system being independent of the traffic passing on the channel concerned and regardless of circuit conditions.

Synchronous transmission. Transmission in which the data characters and bits are transmitted at a fixed rate with the transmitter and receiver synchronized. This eliminates the need for individual start bits and stop bits surrounding each byte, thus providing greater efficiency. Contrast with asynchronous transmission.

System Controller. An individual at a technical system control point who is responsible for maintaining quality control and/or channel switching of telecommunications.

System X. SPC public telephone exchange technology developed in the UK and now deployed in most of the UK PSTN.

System. An overall term used to describe communication facilities from an engineering aspect including all the associated equipment.

Systems Control Point, Technical. The place at which those facilities/circuits/technical control installations and activities telecommunications are situated.

T

2-wire circuit, 2-wire line. One pair of wires which can be used for 1-way transmission, half-duplex transmission, or full-duplex transmission - depending on the type of modem or line driver employed.

3270, 3270 Information Display System. A very popular IBM data entry and display system which consists of control units, displays stations, printers and other equipment. See display screen following field.

T1 timer. (In X25 packet-switched networks) Used to measure timeout intervals in link initialization and data exchanges.

T1. A 1.544 (in the USA and Japan) or 2.048 (elsewhere) Mbps bandwidth, data communications facility available in many versions, 2 of which are: Formatted (Accunet is a formatted T1 offering), which requires compliance with both AT&T DSX-1 hardware and DS-1 software standards; and unformatted, which only requires compliance with the DSX-1 standard. (The formatted version provides less usable bandwidth).

Taboo Frequency. A frequency on which jamming or other interference is prohibited. See Protected Frequency.

TACAN (Tactical Air Navigation System). 1. An ultra-high frequency electronic air navigation system which provides a continuous indication of bearing and slant range to the TACAN station. The term is derived from TACtical Air Navigation. **2.** A navigation aid, measuring distance and bearing from the transponder type directional beacon. The craft carries a pulsed interrogating transmitter, a receiver and display equipment. The combined receive-transmit radiation pattern of the beacon rotates continuously about a vertical axis and the phase-characteristics of the amplitude modulation so imposed on the transmitted pulses carries the bearing information. **Notes. 1.** The amplitude modulation comprises two components on harmonically related frequencies providing course and fine bearing accuracy. Reference signals for phase measurements are provided by marker pulses transmitted by the beacon when its radiation pattern has particular orientations. **2.** When not interrogated random pulses as well as the markers are transmitted by the beacon which thus continues to provide a directional beacon service.

Tail circuit. A feeder circuit to a network node; normally a leased line.

Tandem Operation. Electrically or mechanically coupled two crypto equipments to produce locally automatic decryption simultaneous with encryption.

Tandem Switch. A manual or automatic switch connecting the output terminals of one trunk circuit to the input terminals of another trunk circuit, thereby connecting both circuits in tandem.

Tap. (In cable-based LANs) A connection to the main transmission medium.

Tape Copy. A message in tape form which is the result of transmission.

Tape Relay, Automatic. A system of tape relay which embodies automatic switching, Being replaced by the term "Message Relay".

Tape Relay, Semi-Automatic Continuous Tape (Switching). A method of teletypewriter operation whereby incoming messages are received in continuous printed/perforated tape and given onward electrical transmission according to routing requirements through the push button panel connection of a transmitter distributor into the appropriate outgoing channel(s).

Tape Relay, Torn Tape. A Message Relay system in which the perforated tape is transferred by an operator to the appropriate automatic transmitter position.

Tape Relay. A system of retransmitting traffic from one channel to another in which messages arriving on an incoming channel are recorded in the form of perforated tape, this tape being fed into an automatic transmitter on an outgoing channel.

Tape, Chad. A tape used in printing telegraphy/teletypewriter operation. The perforations are severed from the tape making holes representing the characters. The characters are not normally printed on Chad tape.

Tape, Chadless. Punched tape that has been punched in such a way that Chad is not formed.

Tape, Wheatstone (Boehme). Tape used for automatic (machine) transmission and reception of International Morse Code. **1.** For Transmission. A tape providing for two unit perforation i.e. two holes perforated vertically equal a dot and two holes perforated obliquely equal a dash. **2.** Ink Recording Tape. A tape drawn through an ink recorder, the flinger of which draws a continuous ink line. Dots or dashes are indicated by fluctuations in the ink line.

Target Acquisition. The detection, identification and location of a target in sufficient detail to permit the effective employment of weapons.

Target Reflectivity. The degree to which a target reflects electromagnetic energy.

Target Tracking and Illuminating Radar. A radar used to track a selected target and at the same time provide illumination to enable a missile to home on the selected target.

Tariff. The published schedule of rates for specific equipments, facilities, or services offered by a common carrier; also, the vehicle by which regulatory agencies approve the rates. Thus, a contract between the customer and the common carrier.

TCAM, Telecommunications Access Method. An IBM software routine; the telecommunications access method for 3270 control. See display screen following field.

TCP/IP, transmission control protocol/internet protocol. (In LAN technology) A communications protocol for internetwork routing and reliable message delivery; endorsed by the DoD and found in ARPANET. TCP/IP functions at the 3rd and 4th layers of the OSI model.

TCU, transmission control unit. A control unit (such as an IBM 2703) whose operations are controlled solely by programmed instructions from the computing system to which the unit is attached; no program is stored or executed in the unit. Contrast with communications control unit.

TD, Transmitted Data. An RS-232 data signal (sent from DTE to DCE on pin 2).

TDM, time-division multiplexor. A multiplexor which apportions the time available on its composite link between its channels, usually inter-leaving bits or bytes or data from successive channels.

TDMA, time-division multiple access. 1. (In LAN technology) A high-speed, burst mode of operation that can be used to interconnect LANs; first used as a multiplexing technique on shared communications satellites. **2.** A method of several independent sources using one bandwidth at the same time. Restricted to digital transmissions, the bandwidth is used by all users on a time-sharing basis. The access period (or time slots) need not be of equal duration.

Telecommunication. Any transmission, emission or reception of signals, signs, writing images and sounds, or intelligence of any nature by wire, radio, visual or other electromagnetic systems.

Teleconference. A conference between persons remote from one another but linked by a telecommunication system.

Telegram. Documentary matter, in written, printed or pictorial form entrusted to a telegraph service for transmission and delivery to an addressee. **Note.** The telegram includes the document entrusted to the telegraph service or delivered to the addressee. See radiotelegraph.

Telegraphy, Automatic. Any method of telegraph operation in which, by the use of automatic apparatus, the manual operations involved are effectively reduced or eliminated.

Telegraphy, Four-Frequency Diplex. See Four-Frequency Diplex Telegraphy.

Telegraphy, Frequency-Shift. See Frequency-Shift Telegraphy.

Telegraphy, Manual. Any method of telegraph operation in which the signal elements are formed individually by an operator from his knowledge of the code and simultaneously transmitted.

Telegraphy, Morse. Alphanumeric telegraphy using the Morse Code.

Telegraphy, Mosaic. Telegraphy in which the characters are formed as mosaics made up from units transmitted as individual signal elements.

Telegraphy, Voice Frequency (VFTG). A telegraph transmission within a telephone type channel using frequency division multiplexing.

Telegraphy. A form of telecommunications which is concerned in any process providing transmission and reproduction at a distance of documentary matter, such as written or printed matter or fixed images, or the reproduction at a distance of any kind of information in such a form. Unless otherwise stated, telegraphy shall mean a form of telecommunication for the transmission of written matter by the use of a signal code. This does not include Pulse Code Modulation (PCM) telephony.

Telegraphy. In the modern context, telegraphy generally refers to low speed (less than 200 bits/s) message and data communications using dedicated low grade circuits and/or telex network.

Telemetering. Automatic radio communication, in a fixed or mobile service, intended to indicate or record a measurable, variable quantity at a distance.

Telemetry. Transmission of coded analog data, often real-time parameters, from a remote site.

Telephony/Voice. A form of telecommunication primarily intended for the exchange of information in the form of speech.

Teleprinter (Teletypewriter). A start-stop apparatus comprising an alphanumeric keyboard transmitter with a printing character receiver.

Teleprinter Exchange Service (TWX or TELEX). A worldwide commercial, low speed data service, permitting teletypewriter communications on the same basis as the telephone service, operating through switchboards. This service is limited to subscribers as in the telephone service.

Teleprinter-on-Multiplex (TOM). Similar to TPR but adapted for a multiplex circuit.

Teleprinter-on-Radio (TPR). A designation for a particular system of conversion of the 5 Unit Teleprinter Code to 7 or more units for radio transmission so as to permit Automatic Error Detection at the receiving terminal and Automatic RQ.

Teleprinter. A terminal without a CRT that consists of a keyboard and a printer.

Teleprocessing. A form of information handling in which a data processing system utilizes communication facilities. (Originally, but no longer, an IBM trademark). Synonymous with data communications.

Teletex. The CCITT standard for text and message communications which was intended to replace Telex. Teletex operates at a high speed (2400 bps), can accommodate upper and lower case characters and has a well defined format for transmission and presentation of text.

Teletype, Teletype Corporation. 1. A contraction of "teletypewriter", the teletype was a simple hard copy terminal which was widely used as a computer terminal prior to the advent of the visual display unit. **2.** A manufacturer of teleprinters.

TEMPEST. Phenomenon of unintentional emanation of compromising electrical signals from an equipment, system or unit.

Terminal control unit. See cluster control unit.

Terminal instrument. A telecommunications device which provides a point of origin and/or termination of a circuit/channel.

Terminal server. (In LAN technology) A device that allows one or more terminals or other devices to connect to an Ethernet.

Terminal. 1. Any device capable of sending or receiving data over a data communications channel. **2.** Communication facilities which constitute a point of origin and/or termination of a circuit/channel.

Terrain Avoidance System. A system which provides the pilot or navigator of an aircraft with a situation display of the ground or obstacles which project above either a horizontal plane through the aircraft or a plane parallel to it, so that the pilot can maneouver the aircraft to avoid the obstruction.

Test, Communications. Any transmission or reception specifically intended to evaluate the efficiency of communications media or facilities.

Text. That part of a message which contains the thought or idea which the originator desires to be communicated.

Thin Ethernet. (In LAN technology) An Ethernet LAN or an IEEE 802.3 LAN that uses smaller-than-normal diameter coax; often used to link IBM personal computers together. Operates at same frequency as Ethernet but smaller distances; Also known informally as "Cheapernet".

Throughput delay. The length of time required to accept input and transmit it as output.

Throughput. A measurement of processing or handling ability which measures the amount of data accepted as input and processed as output by a device, link, network or a system.

tHz. terraHertz (10^{12}Hz)

Tie Line. See Circuit, Trunk.

Time Division Multiplex. Multiplexing in which a separate periodic time interval is allocated to each tributary channel in the common channel. See TDM.

Time Division Multiple Access (TDMA). See TDMA.

Time Handed In. See Filing Time/Time Handed In.

Time of Delivery. the date and time at which a message is delivered to an addressee.

Time of Dispatch. The date and time at which a communication is dispatched to an addressee or communication agency. Not to be used in connection with messages transmitted by telecommunications.

Time of origin. See Date-Time Group (DTG).

Time of Receipt. The date and time at which a communication agency completes reception of a message transmitted to it by another communication agency.

Time slot. (In LAN technology) An assigned period of time or an assigned position in a sequence.

Time Zones. The description and designation of letters assigned to time zones are given in ACP 127 series.

Time, Greenwich Mean (GMT). Mean solar time at the meridian of Greenwich.

Timeout. 1. The expiration of a predefined interval which then triggers some action - such as a disconnection that occurs following 30 seconds without any data activity (in a 30-second, no-activity timeout). **2.** The length or existence of such an interval.

Timesharing. A method of computer operation that allows several interactive to use a computer and its facilities; although the terminals are actually served in sequence, the high speed of the computer makes it appear as if all terminals were being served simultaneously.

TNC. A threaded connector for miniature coax; TNC is said to be short for threaded-Neill-Concelman (See N connector and C connector). Contrast with BNC.

TOD, Time of Day.

Token bus, token-passing bus (In LAN technology) A bus topology LAN that uses a token for explicit access. Specified in ISO 8802/4 and IEEE 802.4.

Token ring, token-passing ring. (In LAN technology) A ring topology LAN that uses a token for explicit access. Specified in ISO 8802/5 and IEEE 802.5.

Token. (In LAN technology) A packet (or part of a packet) used in explicit access LANs; the station that “owns” the token is the station that controls the transmission medium.

Trace. The visible or recordable path on the screen on target by the moving spot. Also called "line" and "scan".

Tracer. In message relay. The process by which communications staffs "Trace" a signal message to ascertain the reason for delay or loss.

Track Correlation. Correlating track information for identification purposes using all available data.

Track Telling. The process of communicating air surveillance and tactical data information between command and control systems or between facilities within the systems. Telling may be classified into the following types: **A.** Back Tell. The transfer of information from a higher to a lower echelon of command. **B.** Cross Tell. The transfer of information between facilities at the same operational level. Also called lateral tell. **C.** Forward Tell. The transfer of information to a higher level of command. **D.** Lateral Tell. See Cross Tell. **E.** Overlap Tell. The transfer of information to an adjacent facility concerning tracks detected in the adjacent facilities area of responsibility. **F.** Relateral Tell. The relay of information between facilities through the use of a third facility. This type of telling is appropriate between automated facilities in a degraded communications environment.

Track-While-Scan. The process whereby a radar system produced tracking data on a target or targets while simultaneously being used for surveillance or control.

Tracking. Precise and continuous position-finding of targets by radar, optical or other means.

Traffic (Communication). All transmitted and received messages.

Traffic Analysis. The analysis of the external characteristics of signal (message) communications and related material for the purpose of obtaining information concerning the enemy order of battle, operational activity, plans and the organization of a communications system.

Traffic Flow Security. The protection resulting from features, inherent in some crypto equipment, which conceal the presence of valid messages on communications circuits, normally achieved by causing the circuit to appear busy at all times.

Training pattern. The sequence of signals used in training.

Training time. The interval required to complete training.

Training. The process in which a receiving modem achieves equalization with a transmitting modem.

Transaction processing. A real-time of data processing in which individual tasks or items of data (transactions) are processed as they occur - with no primary editing or sorting.

Transceiver. A single device that combines the function of a transmitter and a receiver.

Transfer. The passing of traffic between networks.

Transmission Authentication. See Authentication, Transmission.

Transmission block. A sequence of continuous data characters or bytes transmitted as a unit, over which a coding procedure is usually applied for synchronization or error control purposes.

Transmission Identification (TI). A combination of letters and figures used to identify a transmission of a channel between two stations. It consists of the following components in sequence: **A.** Station and Channel Designator. Three letters which identify one or both of the stations and a specific channel between the two stations. These are as follows: 1. Either two letters to identify one or both of the stations; one letter to identify a specified channel, or, 2. Three letters to represent collectively one of the stations and a specific channel. **B.** Channel Serial. Three numeral characters which serve number each transmission sequentially and which start at one (001) on a daily basis.

Transmission Medium. Any material substance that can be or is used for the propagation of signals, usually in the form of modulated radio, light or acoustic waves, from one point to another, such as: Optical fibre, cable, or bundle; a wire; a dielectric slab; water; or air. By extension, free space can also be considered as a transmission medium for electromagnetic waves.

Transmission Section (Communications). One of two or more portions of a long message, each of which is transmitted separately. All transmission sections of the same complete message use the same Date-Time Group.

Transmission Security (TRANSEC). That component of communications security which results from all measures designed to protect transmissions from interception and exploitation by means other than cryptoanalysis.

Transmission System. In telecommunications, assembly of equipment and procedures organized so as to carry bulk information, independently from their sources and sinks, through a network of channels, circuits and trunks.

Transmitter (Radio). Apparatus producing radio frequency energy for the purpose of radio communication.

Transponder. 1. A receiver-transmitter which will generate a reply signal upon proper interrogation. See also responder. **2.** A component of a secondary radar system which receives pulses from a radar set or interrogator and, in response to the received pulse, transmits a pulse or sequence of pulses to enable the craft or beacon incorporating the transponder to be recognized by the interrogating station. Synonymous with responder.

Transport layer. The fourth layer in the OSI model; ensures error-free, end-to-end delivery.

Transportable Communications Equipment. Static communications installations or equipment specifically designed for ease of transportation, rapid assembly and disassembly for operation in a tactical environment.

TRAP, Tactical Related Applications. Broadcast that allows near real-time ELINT information to be displayed on ATW.

TRE, Tactical Receive Equipment. Enables the TRAP broadcast to be read direct from the USN UHF Fleet SATCOM.

TREE, Transient Radiation Effect on Electronics.

TRF, Test Rig Facilities.

Tributary Station (Message Relay). A station electrically connected to a Message Relay network but normally having no message relay responsibilities.

TRN, Test Rig Node.

True Date-Time Group (TDTG). The original date and time assigned to a message for identification purposes. The TDTG, which is not necessarily the Date-Time Group appearing in the external message heading, remains identified with a message regardless of the number of transmissions, retransmission’s, re-encryption's or re-addressals.

Trunk Group. A specified combination of trunks between switching facilities.

TTD, Tote Tabular Display.

TTL, Transistor Transistor Logic.

Tuning. The process of adjusting a circuit so that it resonates at a desired frequency.

TVP, Television Processor (Module).

Twisted pair cable. Two wires, usually loosely spun around each other to help cancel out any induced noise in balanced circuits.

TWX, Teletypewriter Exchange Service. A network of teleprinters connected over a North American public switched network; uses ASCII code.

Tymnet. A common carrier offering an X25 PDN.

Type A Coax. (In IBM 3270 systems) A serial transmission protocol operating at 2.35Mbps which provides for the transfer of data between a 3274 Control unit and attached display stations or printers.

U

UA, User Agent. Within MHS, the system responsible for originating and receiving messages.

UBA, Unibus Adaptor.

UC, Universal Console.

ULSI, ultra large-scale integration. A term used to describe a multi-function semiconductor device with an ultra-high density (over 10,000 circuits) or electronic circuitry contained on a single silicon chip. (See table following LSI for comparison of circuit density ranges).

Uninet. A common carrier offering an X25 PDN.

USASCII. See ASCII.

User Communications System. In telecommunications, assembly of equipment and procedures which constitute a point of origin and/or termination of a channel or a circuit. **Note.** A user system may be a single equipment like a telephone set or a telecopy terminal, as well as a local distributing system or a message handling system.

V

Validation Function. The repetition of the Station Serial Number (SSN) in the End Of Message Functions (EOMF).

VAN, value-added network. A network of data communications facilities leased from a common carrier - with extra equipment that provides more services. Many PDNs are also VANs.

VAX, Virtual Address Extension.

VCC, Voice Communications Controller (Module).

VDT, video display terminal. CRT terminal.

VDU, video display unit. Same as VDT.

Verify. To ensure that the meaning and phraseology of the transmitted message conveys the exact intention of the originator.

VHF Omni-Range. 1. In aviation, a short range very-high frequency, omni-directional beacon which provides an indication in an aircraft of its bearing with respect to the beacon, or left-right indication. **2.** An air navigational radio aid which uses phase comparison of a ground transmitted signal to determine bearing. This term is derived from the words "very high frequency Omnidirectional radio range". Abbreviated VOR.

Victim. In Electronic Warfare. The term used to describe the electronic equipment, or user thereof, against which ECM is being used.

Video Insertion. The technique by which symbol and graphic information may be simultaneously presented on a cathode ray tube.

Virtual call, virtual circuit. A circuit established only for the duration of the call, which may share a physical circuit with other virtual circuits.

Visual Aural Radio Range. A type of radio range having four radio range legs, one pair of which is identified by visual, the other by aural indications at the mobile stations.

VLSI, very large-scale integration. A term used to describe a multi-function semiconductor device with a very high density (up to 10,000 circuits) of electronic circuitry contained on a single silicon chip. (See table following LSI for comparison of circuit density ranges).

VOCODER. A telecommunications device which will convert an analogue voice pattern to a digital pattern for further processing (e.g. encryption) and vice versa.

Voice/data PABX. A device which combines the functions of a voice PABX and a data PABX, often with emphasis on the voice facilities.

Voice Frequency. The frequency of an acoustic oscillation which may be produced by the normal human voice.

Voice-grade channel, voice-grade line. A channel or line that offers the minimum bandwidth suitable for voice frequencies, usually 300 bps to 3400 bps.

Voice Operated Gain Adjusting Device (VOGAD). This can be used before or after SSB modulation. Compresses signal which allows the main power to be increased thus improving the signal-to-noise ratio at the receiver.

Voice PABX, voice-only PABX. A PABX for voice circuits; a telephone exchange.

Volatile. A term used to describe a data storage device (memory) that loses its contents when power is lost. Contrast with nonvolatile.

VTAM, Virtual Telecommunications Access Method. An IBM software routine; the virtual access method for 3270 systems.

W

WAN, wide-area network. A network which uses common carrier-provided lines; contrast with LAN.

Warning Receiver. A special type of intercept receiver having a primary function of alerting the user to imminent danger.

Warning, Security. A prosign or operating signal used to permit the transmission of unclassified or off-line encrypted messages over non-approved circuits/channels or to prevent the transmission of classified messages in plain language over non-approved circuits/channels. **Note. 1.** The security warning prosigns are: UU - UNCLASSIFIED or Off-line encrypted transmission; may be transmitted over non-approved circuits/channels. HH - CLASSIFIED transmission; must be transmitted over approved circuits/channels only. **2.** The relevant operating signals are contained in the ACP 131 series.

Warning Search Radar. See Surveillance Radar/Warning Search Radar.

Waveguide. A transmission line consisting of a system of material boundaries or structures for guiding electromagnetic waves. **Note.** The most common form of waveguide is a metallic conductor; other forms are dielectric rod, or a mixed structure of conducting and dielectric materials.

Wavelength. The distance between two successive points of a periodic wave in the direction of propagation, in which the oscillation has the same phase.

Wave Trap. A network used to reject certain signals and so to reduce interference with wanted signals in a receiving system.

Wideband. See broadband.

Window. A World War II code name for confusion reflector devices. The primary types of reflectors designated "Window" are "Chaff", "Rope" and "Corner Reflector". Today Window and Chaff are generally used synonymously within NATO. **Note.** Not used within the RN/USN/CN. See CHAFF.

Wire/Line Communication. See Communication, Line/Wire.

Word. In computing this is a unit of data, being a set of digits which are treated as a single unit. Typically it is 8 or 16 bits. Large computers may have words of different lengths depending on their function, e.g. data or instructions.

X

Xerox. The originator of Ethernet.

XNS/ITP, Xerox Network Systems' Internet Transport Protocol. (In LAN technology) A special communications protocol used between networks. XNS/ITP functions at the 3rd and 4th layer of the OSI model. Similar to TCP/IP.

XON, XOFF. Control characters used for flow control.

X.25 (1980), X.25 (1984). The variants of X.25 agreed by CCITT at its plenary meetings in 1980 and 1984, respectively. See CCITT recommendations.

X.400. The CCITT series of message Handling Service Recommendations for the interchange of text or mixed-media messages.

Z

Zero insertion. (In SDLC) Process of including a binary 0 in a transmitted data stream to avoid confusing data and SYN characters; the inserted 0 is removed at the receiving end.

Zeroize. To align cryptographic elements of a cipher machine to a fixed original position.

Z-Marker. A type of radio beacon, the emissions of which radiate in a vertical cone shaped pattern. Synonymous with beacon Z marker, cone of silence.

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