

Bell System

PUB 40000

# TECHNICAL REFERENCE

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JANUARY 1982



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## BELL SYSTEM TECHNICAL REFERENCES

### GENERAL

Bell System Technical References provide interface information to designers and manufacturers of business machines, communications systems and terminal equipment. At the present time, publications are available in the following basic categories: Data Communications, Voice Communications, Radio and Transmission Engineering, Direct Electrical Connection of Voiceband Terminal Equipment, Functional Product Class Criteria, Bell System Engineering Standards, Bell System Equipment Coding Procedures, Bell System Documentation Standards, Bell System Data Communication Protocol Standards, Network Distribution Products, Bell System Switched Network Capability and Performance Specifications, and Bell System Private Line Channel Network Compatibility and Performance Specifications.

As further needs are determined, additional Technical References will be provided in both new and existing categories.

Technical References are prepared in two forms. Standard and Preliminary. Standard Technical References are provided for equipment and services which are expected to remain unchanged and be available for a relatively long period of time. Preliminary Technical References are provided for new equipment and services and indicate information which may be revised. This does not mean that a manufacturer should not build equipment that is compatible with the information presented, but it does caution that the information presented could change.

This catalog lists all current Bell System Technical References. Included for each

Technical Reference is the title, a synopsis and an ordering number (PUBXXXXX)\*. In addition, listings are provided to permit ordering of complete sets of Technical References if appropriate.

Some Connecting Arrangements are assigned a Uniform Service Order Code (USOC), which should be used for ordering purposes when the customer installation requires a Telephone Company-provided connecting arrangement and when required, it is the customer's responsibility to order the proper USOC from the Telephone Company.

**ATTENTION:** PICTUREPHONE® Service, Conformance Programs, the Attestation Programs, Data Access Arrangements, other Voice (Protective) Connecting Arrangements, and Data Communications noted marginally by a bullet (•) next to their respective PUB numbers are no longer offered for connection of customer-provided equipment to Telephone Company facilities. Therefore, these publications are obsolete and no longer available. These obsolete publications are listed at the end of this catalog.

### ORDERING OF TECHNICAL REFERENCES

#### One-Time Orders

All orders should indicate the Technical Reference(s) desired by catalog number and quantity using the following format:

(Quantity) Technical References (Catalog Number)

If all Technical References in a particular category are desired, they may be ordered as a set using the catalog number assigned to that category. For example:

(Quantity) Complete Set of Data  
Communications Technical  
References — PUB41000

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\*The Select Code Number for each Technical Reference is listed following the synopsis for use by the Bell Operating Companies ONLY.

## **Bell System Companies**

Bell System Organizations may order Technical References using Form IND-1.80.80FA and addressing it to:

Western Electric Company, Incorporated  
Information Distribution Center  
P.O. Box 26205  
Indianapolis, Indiana 46226

Please note that ordering procedures vary slightly from company to company. Correct procedures should be determined before ordering.

## **Standing Orders**

In addition to one-time orders, it is also possible to place a standing order for all new and revised Technical References in a given category (e.g., Catalog, Voice or Data Communications). To place a standing order, use the following words:

Standing order for (Quantity) copies of all new and revised [Category, (e.g., Catalog, Voice or Data Communications)] Technical References

## **Federal Government**

Federal Government Agencies (DOD and Civil) should submit requests for prices and delivery schedules to the following address before ordering:

Western Electric Company, Incorporated  
Government and Commercial Sales  
Government Sales Manager  
P.O. Box 20046  
Greensboro, North Carolina 27420

## **Non-Bell Companies**

Non-Bell companies should submit requests for Technical References and related pricing information — in writing — to:

Publishers' Data Center, Inc.  
P.O. Box C738  
Pratt Street Station  
Brooklyn, New York 11205

All orders must be prepaid. New York and California residents must include all applicable sales taxes or an exemption certificate. Shipping addresses should also be included. Checks should be made payable to Publishers' Data Center, Inc.

## **Standing Mailing List**

In addition to one-time orders, it is also possible to be placed on a standing mailing list to receive written notification indicating the issuance of all new and revised Technical References in a given category (e.g., Catalog, Voice or Data Communications). To be placed on a standing mailing list, use the following words:

Standing Mailing List for (Quantity) copies of notification [specify desired category, (e.g., Catalog, Voice or Data Communications)] for all new and revised Technical References.

Send this request to:

AT&T Company  
Room 17-1222L3  
295 North Maple Avenue  
Basking Ridge, New Jersey 07920

## ADMINISTRATION

*PUB40000 and	Technical Reference Catalog — January 1982	Lists all current Bell System Technical References and provides ordering information, catalog numbers and synopses. Price List will be revised semi-annually, January and July. (326-299 & 326-340)***
**PUB40000A	Addendum — Price List — January — 1982	
PUB40001	Technical Reference Binder	A general purpose four-ring binder suitable for all categories of Bell System Technical References. This binder will hold approximately 15 individual Technical References. (326-301)***

## DATA COMMUNICATIONS

PUB41000	Complete Set of Data Communications Technical References
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### Facilities for Data Communications

PUB41001	30-Baud Private Line Channels Interface Specification — December 1967	Describes a private line channel capable of transmitting two-state ("mark-space", "binary") signals at rates up to 30-baud for metering, supervisory control and miscellaneous signaling purposes. Metallic continuity, end-to-end, is not a requirement of this channel and will generally not be available. The interface signal is two-state direct current. (326-518)***
PUB41002	45- 55- & 75-Baud Private Line Channels Interface Specification — December 1967	Describes three private line channels capable of transmitting two-state ("mark-space", "binary") signals up to their respective rated speeds for teletypewriter, data, metering, supervisory control and miscellaneous signaling purposes. Metallic continuity, end-to-end, is not a requirement of this channel and will generally not be available. The interface signal is two-state direct current. (326-524)***
PUB41003	150-Baud Private Line Channels Interface Specification — September 1975	Describes a private line channel capable of transmitting two-state ("mark-space", "binary") signals at speeds up to 150-baud for teletypewriter, data, metering, supervisory control and miscellaneous signalling purposes. Metallic continuity, end-to-end is not a requirement of this channel and will not be available. The interface to business machines is EIA Standard RS-232C type. (326-536)***
PUB41004	Data Communications Using Voiceband Private Line Channels — October 1973	Describes voiceband channel arrangements for private line data transmission. Provides analog impairment limits supported on channels and digital performance supported with Bell System service offerings, interface requirements for analog channels, engineering considerations for two-point and multipoint channel usage, and information on maintenance and channel availability. (326-584)***

\*Revised

\*\*New Addendum

\*\*\*For BOC Use Only

PUB41005	Data Communications Using The Switched Telecommunications Network — May 1971	Describes the structure and operation of the DDD network, presents switching and transmission performance data on the network, and discusses topics related to data communications on the DDD network. (326-563)*
PUB41006	Attenuation and Envelope Delay Characteristics from the 1969-70 Switched Telecommunications Network Connection Survey — June 1973	Provides detailed information on attenuation and envelope delay characteristics on toll connections from the 1969-70 Switched Telecommunications Network Connection Survey. (326-302)*
PUB41007	1969 - 70 Switched Telecommunications Network Connection Survey (Reprints of Bell System Technical Journal Articles) — April 1971	Describes analog transmission parameter performance, low-speed data transmission performance, and high-speed voiceband data transmission performance of the Switched Telecommunications Network. This is a series of three Bell System Technical Journal Articles which summarize Bell Telephone Laboratories' 1969-70 Connection Survey. (326-303)*
PUB41008	Analog Parameters Affecting Voiceband Data Transmission — Description of Parameters — July 1974	A tutorial describing analog parameters which may affect data transmission over voiceband channels. (326-305)*
PUB41009	Transmission Parameters Affecting Data Transmission — Measuring Techniques — May 1975	This Technical Reference briefly defines the parameters affecting data transmission described in the companion Technical Reference (PUB41008) and describes the techniques used by the Bell System to measure these parameters. In addition, physical and environmental requirements of test equipment used by the Bell System are provided (326-310)*
PUB41011	Transmission Specifications for Voice Grade Private Line Audio Tone Protective Relaying Channels — March 1978	This Technical Reference provides information on the voice grade private line channel specifically designed for power industry audio tone protective relaying applications. By providing an increased signal-to-noise ratio for audio tone signals in the local loop portion of the channel, improved reliability is obtained for protective relaying systems during the power fault interval over that which can be obtained from any other voice grade channel. The information includes a description of the channel arrangements provided, interface criteria, transmission facility parameter limits, systems design considerations, and maintenance considerations. (326-304)*

\*For BOC Use Only

PUB41012	1A Data Station, Multichannel Arrangement Used in Provision of Two-Point Channelizing Service — June 1973	The 1A Data Station, Multichannel Arrangement is a frequency division multiplexer capable of deriving 75 and/or 150 baud channels from a 3002 private line voiceband channel. It is arranged for mounting on the customers' premises and provides test capability for trouble sectionalization. (326-317)**
PUB41013	Transmission Specifications for Low Speed Signaling System Channels — July 1975	Describes a private line channel capable of unidirectional transfer of customer generated signals generally characterized as "McCulloh" systems. Metallic continuity is not a requirement of this channel. (326-318)**
PUB41014	Data Communications Using DATAPHONE® Select-A-Station Service — February 1978	Provides a guide for users and manufacturers of interface equipment for DATAPHONE Select — A — Station service. A multipoint private line voiceband data offering, this service allows a master station to exchange information with a number of remote stations, one at a time, in a rapid sequence. (326-128)**
PUB41021 and *PUB41021A	Digital Data System — Channel Interface Specifications — Preliminary — March 1973 Addendum — October 1981	Describes the Digital Data System (DDS) and the interface between the channel termination equipment of the DDS, contained in a Channel Service Unit (CSU) and the customer's data terminal equipment. A CSU is used when the customer's equipment performs the following functions: coding and decoding, timing recovery, synchronous sampling, formatting, and generation and recognition of control signals. (326-342 & 326-185)**
PUB41022	Multistation DATAPHONE Digital Service — Preliminary — September 1974	Describes the Multistation DATAPHONE Digital Service which utilizes the Digital Data System (DDS) to provide a full-duplex transmission capability between a control station and two or more remote stations. Each station has the service terminated in a DDS Channel Service Unit (CSU), described in PUB41021. Data can be transmitted at the synchronous data rates of 2.4, 4.8, 9.6, or 56 kb/s. (326-306)**

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\*New Technical Reference Addendum

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PUB41023	DATAPHONE Switched Digital Service — Channel Interface Specifications — Preliminary — March 1976	Describes the Switched Digital Data System (SDDS) and the interface between the channel termination equipment of the SDDS, contained in a Channel Service Unit (CSU) and the customer's data terminal equipment. A CSU is used when the customer's equipment performs the following functions: coding and decoding, timing recovery, synchronous sampling, formatting, generation and recognition of control signals, call origination, call addressing, call answering, and call termination. Also describes the system operation, including station addresses, the Not Ready condition and operating procedures. Also see PUB41452. (326-307)*
PUB41028	Data Communications Using Local Area Data Channels — June 1979	Provides information on Local Area Data Channels, the Bell System standard offering of private line channels for limited distance data transmission. The information includes a description of the channel arrangements provided, interface criteria, transmission facility parameters, and maintenance considerations. (326-986)*

**Data Sets, Data Auxiliary Sets and Data Service Units**

PUB41104	Data Set 113A-L1B Interface Specification — October 1980	Data Set 113A is an originate-only set which provides full-duplex operation of serial binary, a synchronous data at speeds up to 300 bps over the switched network. It is compatible with other low speed data sets such as the 103 and 113 type. (326-309)*
PUB41106	Data Sets 103J, 113C, 113D-Type Interface Specification — April 1977	Data Sets 103J, 113C, and 113D provide full-duplex, asynchronous, binary, serial data at speeds up to 300 bps over the switched network. Data Set 103J is an originate and answer set. Data Set 113C is an originate-only set, and Data Set 113D is an answer-only set. (326-322)*
PUB41209	Data Set 208A Interface Specification — November 1973	The Data Set 208A provides synchronous, binary 4800 bps service over basic (unconditioned) 3002-type four-wire channels. Features include automatic adaptive equalization, 50 millisecond turnaround time, status lamps and loop-around test capabilities. These features make the set especially well suited for multipoint polling applications as well as point-to-point systems. (326-368)*

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*PUB41210	Data Set 201C Interface Specification — April 1973	The Data Set 201-type transmits serial binary data over voice bandwidth facilities using PSK modulation. Operation is synchronous, full-duplex or half-duplex at 2400 bps over the switched telecommunications network or private line channels. (326-369)**
PUB41211 and PUB41211A	Data Set 208B Interface Specification — August 1973 Addendum — November 1979	The Data Set 208B provides synchronous, binary 4800 bps service on the switched telecommunications network. Features include automatic adaptive equalization, 50 millisecond turnaround time, built-in line control, status lamps, and extensive testing capabilities. These features make the set especially well suited for switched network systems requiring reliable high thruput service (326-373 & 326-374)**
PUB41212	Data Sets 202S and 202T Interface Specification — July 1976	Data Sets 202S and 202T provide 1200 bps asynchronous service on the switched network and 1800 bps asynchronous service on private line facilities, respectively. These data sets are line compatible with all 202-type data sets; and provide an optional 5 bps reverse channel, indicator lamps that visually display the status of the set, and test features which provide the customer with fault isolating capabilities. (326-375)**
PUB41213	Data Set 209A Interface Specification — Preliminary — May 1974	The Data Set 209A is a synchronous, binary serial 9600 bps data set for use on a voiceband (a 3002 data channel equipped with Type D-1, High Performance Data Conditioning) 4-wire private line. The data set features multiplexing options, rapid start-up times and extensive customer testing capabilities. (326-329)**
PUB41214	Data Set 212A Interface Specification — January 1978	The Data Set 212A is a 2-wire DDD full-duplex data set which operates at 0-300 bps, or 1200 bps. At 0-300 bps it is compatible with most 100-series data sets and at 1200 bps it is only compatible with another 212 data set. (326-330)**
PUB41215	Data Sets 108F, 108G, 108H, and 108J Interface Specification — October 1979	Data Sets 108F, 108G, 108H and 108J are serial, asynchronous, low-speed data sets for use on private line service. The 108F and 108G data sets find application in 2- or 4-wire service when an EIA interface with the terminal is desired. The 108H and 108J data sets find application in 2-wire service when a 20mA DC interface with the terminal is desired. (326-989)**

\*This Technical Reference is superseded by PUBs 41216 and 41217.

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PUB41216	Data Set 201C-L1C Interface Specification — Preliminary — December 1979	The Data Set 201C-L1C is a synchronous, binary, serial 2400 bps data set for use on the switched telecommunications network (DDS). This set uses PSK modulation and is line signal and interface compatible with Data Set 201C-L1. (326-993)*
PUB41217	Data Set 201C-L1D Interface Specification — Preliminary — January 1980	The Data Set 201C-L1D is a synchronous, binary, serial, 2400 bps data set for use on basic (unconditioned) 3002-Type 2- or 4-wire voiceband private lines. This set uses PSK modulation and is line signal and interface compatible with Data Set 201B and 201C-L1 type for private line applications. (326-313)*
PUB41302	Wideband Data Stations 303-Type Interface Specification — December 1974	Data Stations 303 comprise a family of wideband data stations for use in the transmission of serial binary synchronous or nonsynchronous data. Speeds available range from 19.2 to 460.8 kbps and operation may be over either analog or digital facilities. (326-403)*
PUB41304	Wideband Data Set 306-Type Interface Specification — July 1971	Data Set 306A provides for the transmission of serial binary synchronous data at the transfer rate of 1.344 mb/s over T1 carrier facilities. (326-411)*
PUB41408	Data Set 407 Interface Specification — Preliminary — June 1975	Data Set 407 is a multi-frequency data receiver designed for multiline installations. The data set receives at a rate of up to ten (10) characters per second over the switched telephone network or over basic (unconditioned) private lines from TOUCH-TONE® telephone sets. TOUCH-TONE pads, Bell System 401-type data sets transmitters in the "numeric mode" (two out of eight signals), or equivalent signal sources. (326-456)*
PUB41409	Data Set 407C Interface Specification — November 1977	The 407C data set is a multiple data set designed for use in short message inquiry/response using TOUCH-TONE signals for the inquiry. This document is intended to provide complete details about the features, options, and operation of the 407C. The 407C provides optional serial or parallel interface and a Frequency Shift Keyed (FSK) data transmitter. (326-457)*

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*PUB41450	Digital Data System — Data Service Unit Interface Specifications — November 1981	A 500 type Data Service Unit (DSU) is used on data services provided via the Digital Data System (DDS). DDS provides a private line, two-point or multipoint full-duplex transmission capability. This unit provides plug-for-plug interchangeability with existing EIA RS-232-C interfaces at synchronous speeds of 2.4, 4.8 and 9.6 kilobits per second (kbps). At 5.60 kbps the DSU provides the standard CCITT V.35 balanced dc interface. Also see PUB41021. (326-186)***
PUB41451	1.544 Mbps Digital Service — Channel Interface Specifications (Including 1.344 Mbps Service Option) — May 1977	This Technical Reference describes the 1.544 Mbps digital service channel interface, the 551A channel service unit, the 1.344 Mbps service option utilizing a Data Service Unit (the 306A data set described in PUB41304), service objectives, and signal constraints.  This service provides point-to-point, full-duplex transmission of serial, bipolar, synchronous pulses at a transfer rate of 1.544 Mbps with signal format constraints. At the customer's option, utilizing a data service unit, the service provides full-duplex transmission of serial binary pulses at a transfer rate of 1.344 Mbps without signal constraints. (326-463)***
PUB41452	DATAPHONE Switched Digital Service — Data Service Unit Interface Specification — Preliminary — March 1976	A 56,000 bps Data Service Unit (DSU) is used on data services provided via the Switched Digital Data System (SDDS). The DSU provides the standard CCITT V.35 type interface. The DSU also provides, as an option, a standard EIA RS-366 type — Automatic Calling Interface for automatic call origination. Also as an option, manual call origination and termination are provided via a manual call controller (DAS821A). See also PUB41023. (326-118)***
**PUB41601	Data Auxiliary Set 801A (Automatic Calling Unit) Interface Specification — March 1964	The Data Auxiliary Set 801A is a dc dial pulse Automatic Calling Unit (ACU) which permits a business machine to place calls over the switched telecommunications network. In operation, a telephone number stored in the business machine is passed to the ACU which sets up the call and transfers the circuit to the associated data set for the automatic transmission of data. (326-500)***

\*Revised — Supersedes “Digital Data System — Data Service Unit Interface Specifications — Preliminary — March 1973” and “Addendum — November 1974”.

\*\*This product is a Manufacture Discontinued item and may no longer be available for service.

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PUB41603	801C-L1/2 Data Auxiliary Set Interface Specification — Preliminary — November 1976	The Data Auxiliary Set 801C is a TOUCH-TONE dialing Automatic Calling Unit (ACU) which permits a business machine to place calls over the switched telecommunications network. In operation, a telephone number stored in the business machine is passed to the ACU which sets up the call and transfers the circuit to the associated data set for the automatic transmission of data. (326-507)*
PUB41605	Local Area Data Set (LADS) 48230 Interface Specification — Preliminary — April 1978	The 48230 Local Area Data Set (LADS) provides full-duplex synchronous data transmission at speeds of 2400, 4800, 7200, 9600 and 19200 bps over 4-wire Type 83 Local Area Data Channels (LADC). The LADS supports services between locations on contiguous or non-contiguous property for a maximum route distance of six (6) miles at 2400 and 4800 bps, four (4) miles at 7200 bps, three (3) miles at 9600 bps, and two (2) miles at 19200 bits per second. (326-141)*

**Data Communications Systems and Terminals**

PUB41701	83B3 Teletypewriter Selective Calling System — September 1967	The 83B3 Teletypewriter Selective Calling System is a five-level, half-duplex, private line system using Model 28 equipment at speeds up to 100 words per minute. The traffic flow is governed by a control station which automatically polls the other stations to start their tape readers. (326-530)*
PUB41703	86A1 and 86A2 Data Selective Calling Service Stations — June 1969	The 86A1 and 86A2 Data Selective Calling Service Stations are used in providing eight-level, half-duplex selective calling systems. The 86A1 station provides for 100 wpm operation using Model 33 or 35 equipment while the 86A2 station provides for 150 wpm operation using Model 37 equipment. Control of these stations is from a customer-provided computer (line control stations). 86A-type stations are used in applications where the customer-provided computer controls both half- and full-duplex circuits. (326-541)*
PUB41704	86B-Types Data Selective Calling System Stations — November 1968	86B-type Data Selective Calling System Stations are used in providing eight-level, full-duplex selective calling systems. The 86B1 stations operate at 100 wpm using Model 33 and 35 equipment. The 86B2 stations operate at 150 wpm using Model 37 equipment. Control of these stations is from a customer-provided computer. (326-121)*

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PUB41714	9131 Teletypewriter Selective Calling Station Arrangement — January 1974	The 9131 Teletypewriter Selective Calling Station Arrangement is used in providing an eight-level, half-duplex, private line selective calling system. It provides for 100 wpm operation using Model 33 or 35 teletypewriters. It is a contention type system (i.e., not controlled by a master station) intended primarily for handling intraline traffic. (326-555)*
PUB41715	DATASPEED® 40 Stations for DATAPHONE Service — Preliminary — December 1973	The DATASPEED 40 is a medium speed data terminal which provides advanced facilities for entering, displaying, editing, printing, sending and receiving data. DATAPHONE operation at 1050 or 1200 bits per second using 202-type data sets is described. (326-582)*
PUB41716	DATASPEED 40/4 Data Terminals — June 1978	The DATASPEED 40/4 is a clustered station arrangement with capability for up to 24 keyboard display and 12 printer devices. Data organization is field oriented with binary synchronous line protocol providing error checking and correcting. The line protocol also regulates message traffic by polling and selecting in a method similar to that used in selective calling systems. Data transmission is synchronous at 2400, 4800, or 9600 bps over point-to-point private line facilities using 201C, 208, or 209 data sets; or 2400 or 4800 bps over multipoint private line facilities using 201C or 208 data sets. (326-137)*
PUB41717	43 Teleprinter KSR — February 1978	This Technical Reference describes the operation and line characteristics of the Model 43 KSR Teleprinter over the switched network. (326-119)*
PUB41718	DATASPEED 40 Forms Access Printer — July 1979	The DATASPEED 40 Forms Access Printer is an 80-column, tractor-feed printer used in asynchronous 40/1, 40/2, 40/3 and Receive Only Printer (ROP) applications as well as in synchronous 40/4 and ROP configurations. It provides the user immediate access to the printed form which eliminates wasted forms and paper. (326-982)*

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PUB41719	Comm-Stor* II Communications Storage Unit — May 1980	This Technical Reference describes the Comm-Stor* II Communications Storage Unit. This unit equipped with diskette memory provides automatic sending and receiving capabilities, increases communications storage capacity and improves the message preparation and communications functions of the DATASPEED 40/1 and 2 terminals, the 43 Teleprinter and other asynchronous terminals with EIA RS-232C interfaces. (326-970)***
**PUB41720	DATASPEED 4540 Data Communications Terminals — January 1981	This Technical Reference describes the 4540 version of the DATASPEED 4500 data terminal family. This version is designed to be compatible with many in-use soft-ware supported systems for display devices and enables users to take advantage of the economies obtained by clustering several terminal devices on a common controller. Also, its efficient interactive mode of operation makes it attractive for a variety of on-line computer input-output applications such as inquiry-response, data entry and data retrieval.  Main features of the DATASPEED 4540 include a choice of BSC (Binary Synchronous Control) protocol with EBCDIC or ASCII code or ADCCP (Advanced Data Communications Control Procedures) protocol with EBCDIC code, clustering capability for up to 32 devices, up to 9600 bps operation, computer controlled display formatting and data entry, whole character impact printing, built-in internal diagnostics, modular construction and modern styling. (326-319)***
**PUB41721	DATASPEED 4540 Standard Serial Interface (SSI) Cables Assembly, Installation and Testing Procedures — Preliminary — May 1981	This Technical Reference is specifically intended for Bell System Customers of DATASPEED 4540 Terminal Station Arrangements where the customer provides the interconnecting cables within those arrangements.  The customer is required to provide an interface connection from the cable to the DATASPEED 4540 Terminal Station equipment that meets the requirements described within this document. This Technical Reference describes the material, assembly instructions, installation techniques and recommended tests to provide Standard Serial Interface (SSI) cables for a DATASPEED 4540 Terminal Station Arrangement. (326-184)***

\*Comm-Stor is a Registered Trademark of Sykes Datatronics, Inc.

\*\*New Technical References

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## Data Interconnection

PUB41803	Acoustic and Inductive Coupling For Data and Voice Transmission — October 1972	Provides information of interest to the designer of acoustically or inductively coupled data and voice transmission equipment. Information includes system design considerations, transmission speeds, transmission to other data sets, power limitations, and a test instrument assembly. (326-575)*
PUB41804	Switched Network Transaction Telephone System Interfacing With Audio Response Units — July 1976	This Technical Reference defines all the operational characteristics of the Transaction Telephone System interfacing with audio response units. (326-576)*
PUB41805	Switched Network Transaction Telephone System Interfacing With Transmission Control Units (Primary Response Mode Frequency Shift Keying) — January 1980	This Technical Reference covers the operation of the Transaction telephone system as it interfaces with serial Transmission Control Units or Customer computers. Specifically, the operation of the system as three interfaces is defined. They are the interfaces between the customer computer and the telephone company equipment, between the telephone line and the Transaction telephone, and between the Transaction telephone and the user. Additional telephone company equipment at the computer location, including Automatic Call Distributors to concentrate and distribute calls, and CALL DIRECTORS® are discussed. The functions and operation of both the Transaction I and Transaction II telephones, and the 407CR data set, are described in detail. (326-978)*
PUB41806	Transaction III Terminal — Preliminary — January 1977	The Transaction III terminal is a new station device intended to provide polled access to Transaction Network Service (TNS). TNS is a new service intended to provide the basic communication requirements of inquiry/response systems. (326-577)*
PUB41807	Transaction Printer — Preliminary — November 1977	Describes the Transaction printer and its use with a Transaction II telephone or a Transaction III terminal. The printer provides the means for printing — on forms or slips of paper — ASCII coded Frequency Shift Keyed (FSK) response messages containing transaction data transmitted to the Transaction II telephone or Transaction III terminal from a remotely located data base. (326-586)*

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PUB41901	DATAPHONE II service System Description — Preliminary — October 1979	DATAPHONE II service is a synchronous private line data set offering at 2400, 4800 and 9600 bps. In addition to diagnostic testing within the data sets, a Diagnostic Console and a Network Controller are offered to provide two additional levels of testing and control. (326-990)***
PUB41910	DATAPHONE II service Private Line Data Sets Software Version 1 — Preliminary — July 1980	This Technical Reference describes DATAPHONE service, Data Sets 2024A, 2048A, 2048C, and 2096A. These data sets are designed for duplex (two-way simultaneous), asynchronous, serial, binary private line DATAPHONE II service. Operation is over 4-wire basic 3002-Type voiceband private line channels. In addition, Data Set 2096A requires D1 high performance data conditioning. (326-968)***
PUB41920	DATAPHONE II service Diagnostic Console Software Version 1 — Preliminary — July 1980	The Diagnostic Console is one of the two Diagnostic Control Devices (DCDs) that expand the diagnostic features in DATAPHONE II service data sets. This Technical Reference covers Diagnostic Consoles with software version 1.1 and possible later version 1 software versions. (326-183)***
PUB41930	DATAPHONE II service Network Controller Software Version 2 — Preliminary — July 1980	The Network Controller is the higher of the two Diagnostic Control Devices (DCDs) that expand the diagnostic features found in DATAPHONE II service data sets. This Technical Reference covers the Network Controller with software version 2.1 and possible later version 2 software versions (i.e., 2.2, 2.3, etc.). (326-182)***

## VOICE COMMUNICATIONS

PUB42000 Complete Set of Voice Communications Technical References

### Protective Connecting Arrangements — Manual, Terminal\*

#### USOC

**PUB42110	Interface Arrangement POP Specifications — Preliminary — June 1981	This Technical Reference describes an Interface Arrangement used for connecting unregistered customer-provided terminal equipment (typically loudspeakers) or communications systems (typically private mobile radio systems or local radio stations) to registered equipment without affecting its registration status. The Interface Arrangement is intended for voiceband signals only, and is available for use only with telephone sets equipped with an exclusion key feature. (326-951)***
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\*PUB41803 listed under the Data Interconnection section provides information of interest to the designer of acoustically or inductively coupled devices for Voice as well as Data Transmission.

\*\*New Technical Reference

\*\*\*For BOC Use Only

### **Protective Connecting Arrangements — Automatic, System**

PUB42407	C24/C2H — Preliminary — October 1971	Voice Connecting Arrangement C24 is an automatic arrangement used for two-way service which provides a four-wire voice transmission interface for connecting customer-provided channel facilities to a Telephone Company PBX. An E and M type signaling interface is provided.  Voice Connecting Arrangement C2H is an automatic arrangement used for two-way service which provides a four-wire voice transmission interface for connecting customer-provided channel facilities to Telephone Company Centrex service. An E and M type signaling interface is provided. (326-624)*
PUB42408	C27/C2K — Preliminary — October 1971	Voice Connecting Arrangement C27 is an automatic arrangement used for two-way service which provides a two-wire voice transmission interface for connecting customer-provided channel facilities to a Telephone Company PBX. An E and M type signaling interface is provided.  Voice Connecting Arrangement C2K is an automatic arrangement used for two-way service which provides a two-wire voice transmission interface for connecting customer-provided channel facilities to a Telephone Company Centrex service. An E and M type signaling interface is provided. (326-672)*

### **Protective Connecting Arrangements — Private Line**

PUB42501	CDQ4W — Preliminary — August 1969	Automatic voice connecting arrangement arranged for two-way service which provides a four-wire voice transmission interface to customer-provided dial switching equipment — used with a Telephone Company-provided four-wire private line channel equipped with Telephone Company-provided channel signaling with a contact-type signaling interface. (326-665)*
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\*For BOC Use Only

PUB42502	CDQ2W/CDQ2X — Preliminary — June 1971	Voice Connecting Arrangement CDQ2W is arranged for two-way service, and provides a two-wire interface to customer-provided dial switching equipment. Used with Telephone Company-provided private line channel and Telephone Company-provided channel signaling with a contact-type signaling interface.
		Voice Connecting Arrangement CDQ2X is arranged for two-way service, and provides a two-wire interface to customer-provided dial switching equipment. Used with Telephone Company-provided private line channel and Telephone Company-provided channel signaling with an E and M type signaling interface. (326-667)*
PUB42503	C234W — Preliminary — February 1971	Voice connecting arrangement for two-way service, which provides a four-wire voice transmission interface to customer-provided dial switching equipment. Used with a Telephone Company-provided four-wire private line channel and customer-provided channel signaling. (326-659)*
PUB42504	C232W — Preliminary — September 1971	Voice connecting arrangement arranged for two-way service, which provides a two-wire interface to customer-provided dial switching or station terminal equipment. Used with a Telephone Company-provided private line channel and customer-provided channel signaling (inband signaling only). (326-622)*
PUB42505	CDQ4X — Preliminary — October 1971	Automatic voice connecting arrangement arranged for two-way service, which provides a four-wire interface to customer-provided dial switching equipment. Used with a Telephone Company-provided four-wire private line channel equipped with Telephone Company-provided channel signaling with an E and M signaling interface. (326-750)*

**Protective Connecting Arrangements — Miscellaneous**

PUB42601	CEK — Preliminary — April 1970	Connecting arrangement used to associate customer-provided message registers where the customer is providing the communications system and the necessary equipment to associate the station with the message registers with a central office trunk line. (326-698)*
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\*For BOC Use Only

PUB42607	VCP — NOTICE — May 25, 1973	Connecting Arrangement VCP provides the capability for a customer, on an optional basis, to supply the dc power to voice connecting arrangements associated with customer-provided PBX's and certain other voice connecting arrangements where specifically provided for in its technical reference. (326-875)**
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**Customer Switching Systems**

PUB42705 and *PUB42705A	Recorded Magnetic Tape — Formats For Station Message Detail Recording Features on Dimension® PBXs — Preliminary — June 1979 Addendum No. 2 — February 1981	Describes the formats of call detail data which are recorded on nine-track magnetic tape to provide the Station Message Detail Recording function in the Bell System Dimension family of Customer Switching Systems. (326-984 & 326-972)**
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PUB42706 and *PUB42706A	Direct Output Data Formats For Station Message Detail Recording Feature on Dimension PBXs — Preliminary — December 1979 Addendum No. 2 — February 1981	This is a general revision to PUB42706 dated April 1977 and includes information on a number of new features and enhancements to SMDR with the introduction of new Dimension software programs. (326-689 & 326-321)**
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PUB42707 and PUB42707A	DIMENSION PBX Feature Package 9 — Property Management System Data Link Interface Specification — Preliminary — February 1980 Addendum No. 1 — September 1980	This Technical Reference provides a description of the Property Management System (PMS) data link interface that is provided as a feature on the Bell System Dimension PBX equipped with Feature Package 9. The interface allows a PMS to provide front office and back office hotel/motel management features with communications related functions coordinated with Dimension PBX. (326-677 & 326-308)**
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PUB42708	Recorded Magnetic Tape Data Formats for No. 1 and No. 1A ESS Local Message Detail Recording Provided by the 93A Customer Premises System — September 1979	Describes the formats of call detail which are recorded on nine-track magnetic tape of the 93A CPS to provide the Station Message Detail Recording function in Centrex ESSX-1 and Electronic Tandem customers served by Bell System 1/1A ESS. (326-991)**
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\*New Technical Reference Addendum

\*\*For BOC Use Only

PUB42709	Tie Trunk Signaling Compatibility For Connecting to a Dimension PBX — July 1979	This document describes a) How Electronic Tandem Service is provided by a Dimension PBX equipped with Feature Package 8 and b) the signaling compatibility for PBXs connecting to a Dimension (e/w FP8) in a tandem switching environment. (326-983)**
*PUB42710	Customer Administration Center System (CACS) — Preliminary — November 1981	A CACS can poll, gather and store traffic data of each DIMENSION 2000 PBX and No. 1/1A ESS switch it administers. The CACS can generate either a formatted Traffic Summary Report or an unformatted hexadecimal dump of the same data file titled TRAFFIC FILE DUMP. CACS customers may store, analyze, manipulate and re-format the raw file data in any way they choose. This document discusses interface information, file format and organization, and provides the instructions needed to carry out the interface requirements and options for customer processing of the Raw Traffic File. (326-337)**
*PUB42711	Centralized Message Detail Formats For No. 1 and No. 1A ESS And DIMENSION Feature Packages 4, 7, 8, 10, 11, 12, And 15 As Recorded On Magnetic Tape By The 93B Customer Premises System — Preliminary — May 1981	This document describes the message detail data formats recorded on magnetic tape by the Centralized Station Message Detail Recording System (CSMDR) with a brief description of the system itself. (326-320)**
*PUB42712	Centralized Message Detail Formats Synchronous Data Link For No. 1 and No. 1A ESS And DIMENSION Feature Packages 4, 7, 8, 10, 11, 12, And 15 As Provided By The 93B Customer Premises System — Preliminary — November 1981	This document describes the message detail data formats transmitted by the Centralized Station Message Detail Recording System (CSMDR) on a Direct Output Basis over a Synchronous Data Link. It also provides a brief description of the system itself. (326-336)**
PUB42713	Interface Arrangement To Provide Music-On-Hold Access For Dimension PBX — Preliminary — October 1980	The Interface Arrangement for Music-On-Hold Access is described in this Technical Reference. One Interface Arrangement should be ordered for each Dimension PBX to be equipped with this feature. (326-311)**
PUB42714	Interface Arrangement To Provide Recorded Telephone Dictation Access for Dimension PBXs — Preliminary — October 1980	The Interface Arrangement for Recorded Telephone Dictation Access described in this Technical Reference is a hardware offering identified by the Telephone Company tariffs. (326-300)**

\*New Technical References

\*\*For BOC Use Only

- \*PUB42715      Interface Criteria  
For Centralized  
Attendant Service —  
Preliminary — February 1981
- The Interface Criteria for Centralized Attendant Service describes the interface arrangements of a (770A, 812A, or DIMENSION) Release Link Trunk (RLT) and its connection counterpart at a call distribution system (2B ACD, 4 CD, No. 1 ESS Centrex or DIMENSION 2000/Custom PBX). Interconnection compatibility with general trade CAS equipment or vice versa when the general trade switching machine meets Bell System technical specifications is also addressed. (326-969)\*\*\*
- \*PUB42716      Interface Arrangement  
To Provide Radio Paging  
Access For Dimension PBXs —  
Preliminary — February 1981
- The Interface Arrangement provides for the equipment-to-equipment connection of un-registered, customer-provided radio paging systems to DIMENSION PBXs. (326-328)\*\*\*

### Miscellaneous Customer Equipment Items

- PUB42902      Guidelines for Improvement  
of Telecommunications in  
Noisy Room Environments —  
Preliminary — February 1980
- This Technical Reference provides a discussion of room noise, noise measurement, characteristics of sound in enclosed spaces, and a guide to methods of reducing noise levels in rooms or offices. (326-994)\*\*\*

### RADIO AND TRANSMISSION ENGINEERING

- PUB43000      Complete Set of Radio and Transmission Engineering Technical References

#### Private Line Facilities

- PUB43101      Voice Grade Entrance Facilities  
For Extending Customer-  
Provided Communications  
Channels — Preliminary —  
May 1969
- Describes the various entrance facility serving arrangements, provides transmission characteristics of entrance facilities, describes signal power limitations and discusses the division of responsibility for design, operation and maintenance. (326-101)\*\*\*
- PUB43201      Private Line Interconnection  
and  
Voice Applications —  
\*\*PUB43201A      Preliminary — June 1970  
Addendum — December 1981
- Describes the standard private line offerings for voice applications which may be interconnected at one or both ends with customer-provided voice communications systems or terminal equipment. Also describes minimum protection criteria, signaling arrangements and maintenance techniques. (326-120 & 326-151)\*\*\*
- PUB43401      Transmission Specifications for  
Private Line Metallic Circuits —  
Preliminary — December 1971
- Describes the signal level criteria objectives for private line metallic circuits (cable pairs without signal battery or amplification devices). This material is provided for those who use the metallic continuity or local private line channels implemented by wire pairs. It should be noted that the Telephone Companies have no obligation to provide private line channels on a metallic basis. (326-180)\*\*\*

\*New Technical References

\*\* New Technical Reference Addendum

\*\*\*For BOC Use Only

PUB43601	Lightning and 60Hz Disturbances at the Bell System Network Terminal Interface — Preliminary — June 1978	This Technical Reference provides a description of the non-telephone voltages and currents that may be encountered between the Bell System network and terminal equipment. These voltages and currents are caused by lightning or abnormalities on power systems. (326-127)*
PUB43701	Private Line Interconnection — Connection to a Channel of a Communications System — Preliminary — February 1977	Revisions to Tariff FCC 260 permit the connection of 260 private line services to a customer or OCC provided communications channel. PUB43701 supplies information concerning the technical parameters of FCC No. 260 private line services, and is intended to serve as both a design and ordering aid to the customer. The document describes the voiceband services which can be provided, associates each service with all applicable terminations, and describes the functional operation of the service. In addition, PUB43701 lists the interfaces with which the services can be terminated for connection to a customer or OCC provided communications channel and describes, in detail, the characteristics of each interface. (326-133)*
PUB43720	Private Line Interconnection — Operational Features of Bell System Switch Terminations — Preliminary — February 1977	Revisions to Tariff FCC 260 permit the connection of 260 private line services to a customer or OCC provided communications channel. The revisions also direct that a summary of the operational features of Telephone Company-provided switching equipment located at the remote ends of the customer's composite communications configuration be supplied (to the customer) to allow the customer to ensure the compatibility of the remote terminations. PUB43720 describes the technical content and use of the compatibility checklists. These forms are provided by the Operating Telephone Company to the customer and describe certain characteristics of the Bell switch termination. These characteristics include the type of outpulsing control that can be provided (delay dial, wink start, dial tone), the type of addressing that can be generated outgoing and accepted incoming (TOUCH-TONE or Dial Pulse), and the maximum number of digits that can be outpulsed. (326-132)*

\*For BOC Use Only

## Digital Transmission Systems

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|-----------|--|---|
| PUB43801  | Digital Channel Bank —<br>Requirements and<br>Objectives —<br>Preliminary —<br>December 1978                 | Describes technical, administrative, and maintenance criteria listed as requirements which a digital channel bank should meet in order to ensure network integrity. The publication is intended to identify those administrative, engineering, maintenance, and technical requirements and objectives that should be met in order to ensure satisfactory operation in a Bell System environment. The criteria contained in the document describes the characteristics and features which to the best of our knowledge will ensure proper functioning of the product if used by the Telephone Company. (326-140)** |
| *PUB43803 | Facility Maintenance<br>Features Required for<br>Interoffice Digital<br>Transmission Equipment —<br>May 1981 | This Technical Reference describes facility maintenance features required for interoffice digital transmission systems. This document gives manufacturers of interoffice digital equipment the Bell System philosophy and detailed requirements needed to incorporate maintenance features into the equipment that they manufacture. These requirements are consistent with the Bell System Plan for centralized and automated maintenance of the highly complex and rapidly growing digital network. (326-973)**   |
| PUB43901  | Echo Suppressor Testing<br>System Design Information —<br>September 1980                                     | This Technical Reference contains an operational description, circuit drawings and descriptions, and alignment and maintenance information, for an in-service echo suppressor testing system designed and constructed in accordance with CCITT Recommendation 0.141. (326-315)**  |

## Mobile Radio

- |          |  |   |
|----------|--|---|
| PUB43301 | Domestic Public Land Mobile<br>Telephone Service — Customer-<br>Provided Dial Stations —<br>Preliminary — May 1974 | Provides information needed to interface customer-provided mobile telephone dial stations with Telephone Company-provided mobile telephone radio systems. (326-165)**   |
| PUB43302 | Intermodulation Interference in<br>Radio Systems —<br>November 1972  | With the explosive growth of radio systems, problems of "overpopulation" are beginning to misuse valuable radio spectrum. One of the principal overpopulation problems encountered today, yet one about which relatively little information is available, is intermodulation interference. This Technical Reference represents present views of the problem and presents some possible solutions. (326-250)** |

\*New Technical Reference

\*\*For BOC Use Only

- \* PUB43303      Bell System Public Switched Telephone Service Interconnection Criteria For Domestic Public Land Mobile Radio Service, Domestic Public Cellular Telecommunications Service, And Maritime Radio Service — Preliminary — December 1981
- This Technical Reference is a guide for designers, manufacturers, and operators of common carrier radio systems which interface with the Bell System telephone network. The document describes the electrical information which must pass between a Bell System Central Office and a common carrier radio system in order to originate and terminate calls. This Technical Reference is not intended to provide complete design specifications or parameters, or to assure the quality or performance of the common carrier radio system. (326-187) \*\*

### **Microwave Radio**

- PUB43501      6 GHZ Digital Radio Requirement and Objectives — December 1980
- This Technical Reference contains the requirements and objectives for 6 GHZ digital radio equipment with DS-3 interfaces intended for short-haul use in the Bell System. The particular electrical and physical requirements and objectives cited in this publication are based on Bell System maintenance and operating requirements, transmission objectives, equipment and design, and on realizable performance. (326-314)\*\*

### **DIRECT ELECTRICAL CONNECTION OF VOICEBAND TERMINAL EQUIPMENT**

- PUB47000      Complete Set of Technical References for Direct Electrical Connection of Voiceband Terminal Equipment
- PUB47001      Electrical Characteristics of Bell System Network Facilities at the Interface With Voiceband Ancillary and Data Equipment — Preliminary — August 1976
- Describes the electrical characteristics at the interface between the Bell System Network and customer-provided ancillary and data equipment. Describes normal telephone system voltages and currents and terminal equipment characteristics which are required for compatibility with the Bell System Network at the interface. (326-125)\*\*
- PUB47002      Electrical Characteristics of Bell System PBX and Key Equipment at the Interface With Voiceband Ancillary and Data Equipment — Preliminary — August 1976
- Describes the electrical characteristics at the interface between certain Bell System PBX and key equipment and customer-provided remote ancillary and data equipment. Describes normal telephone system voltages and currents and terminal equipment characteristics which are required for compatibility with Bell System PBX and key equipment at the interface. (326-126)\*\*

\* Revised — Supersedes "Domestic Public Land Mobile and Maritime Radio Service System Interface Criteria — Preliminary — June 1974".

\*\* For BOC Use Only

PUB47101 and *PUB47101A	Standard Plugs And Jacks — Preliminary — September 1979 Addendum — December 1981	This Technical Reference describes the standard jack arrangements to be provided by Bell Operating Companies for the connection of Telephone Company-provided and customer-provided registered equipment to the public switched network. (326-992 & 326-343)**
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## FUNCTIONAL PRODUCT CLASS CRITERIA

PUB48000	Complete Set of Functional Product Class Criteria Technical References	
PUB48001	Functional Product Class Criteria — Automatic Answering Devices — Preliminary — August 1978	<p>This Technical Reference presents criteria which are the minimum necessary to determine if an automatic answering device is technically suitable for standardization by AT&amp;T for use by the Bell System Operating Companies.</p> <p>It also contains generic compatibility, performance environment, and safety criteria useful to anyone engaged in the development and manufacture of automatic answering devices intended for direct connection to Bell System facilities and/or equipment. (326-138)**</p>
PUB48002	Functional Product Uses Criteria — PBX — Preliminary — September 1978	<p>This Technical Reference presents criteria which are the minimum necessary to determine if a Private Branch Exchange (PBX) is technically suitable for standardization by AT&amp;T for use by the Bell Telephone Operating Companies.</p> <p>It also contains generic compatibility, performance, environment, and safety criteria useful to anyone engaged in the development and manufacture of PBX's intended for direct connection to Bell System facilities and/or equipment. (326-144)**</p>
PUB48003	Functional Product Class Criteria — Alarm Dialing Systems — Preliminary — December 1978	<p>This Technical Reference presents criteria which are the minimum necessary to determine if an Alarm Dialing Device is technically suitable for standardization by AT&amp;T for use by the Bell Telephone Operating Companies.</p> <p>It also contains generic compatibility, performance, environment, and safety criteria useful to anyone engaged in the development and manufacture of Alarm Dialing Systems intended for direct connection to Bell System facilities and/or equipment. (326-146)**</p>

\*New Technical Reference Addendum

\*\*For BOC Use Only

PUB48004	Functional Product Class Criteria — Ancillary Repertory Dialer — Preliminary — June 1979	<p>This Technical Reference presents criteria which are the minimum necessary to determine if an Ancillary Repertory Dialer is technically suitable for standardization by AT&amp;T for use by the Bell System Operating Companies.</p> <p>It also contains generic compatibility, performance, environment, and safety criteria useful to anyone engaged in the development and manufacture of an Ancillary Repertory Dialer intended for direct connection to Bell System facilities and/or equipment. (326-985)*</p>
PUB48005	Functional Product Class Criteria — Telephones — Preliminary — January 1980	<p>This Technical Reference presents criteria which are the minimum necessary to determine if a telephone is technically suitable for standardization by AT&amp;T for use by the Bell Telephone Operating Companies.</p> <p>It also contains generic compatibility, performance, environment, and safety criteria useful to anyone engaged in the development and manufacture of Telephones intended for direct connection to Bell System facilities and/or equipment. (326-995)*</p>
PUB48006	Functional Product Class Criteria — Head Telephone Sets (Headsets) — Preliminary — February 1980	<p>This Technical Reference presents criteria which are the minimum necessary to determine if a Head Telephone set is technically suitable for standardization by AT&amp;T for use by the Bell Telephone Operating Companies.</p> <p>It also contains generic compatibility, performance, environment, and safety criteria useful to anyone engaged in the development and manufacture of Head Telephone sets for direct connection to Bell System facilities and/or equipment. (326-979)*</p>
PUB48007	Functional Product Class Criteria — Inside Wiring Cable (3 to 125 Pair Sizes) — Preliminary — June 1980	<p>This Technical Reference presents criteria which are the minimum necessary to determine if Inside Wiring Cable (3 to 125 pair sizes) is technically suitable for standardization by AT&amp;T for use by Bell Telephone Operating Companies.</p> <p>Specifically it contains generic dimensional requirements, material and mechanical requirements, as well as electrical requirements useful to anyone engaged in the development and manufacture of Inside Wiring Cable intended for direct connection to Bell System facilities and/or equipment. (326-974)*</p>

\*For BOC Use Only

PUB48008	Functional Product Class Criteria — Two-Pair Station Wire — Preliminary — June 1980	This Technical Reference presents criteria which are the minimum necessary to determine if Two-Pair Station wire is technically suitable for standardization by AT&T for use by the Bell Telephone Operating Companies.  It contains generic dimensional requirements, material and mechanical requirements, as well as electrical requirements useful to anyone engaged in the development and manufacture of Two-Pair Station wire intended for direct connection to Bell System facilities and/or equipment. (326-981)**
*PUB48010	Requirements For Solderless Wrapped Connections — March 1981	This Technical Reference outlines the requirements for solderless wrap terminals and connections, and may be used by any suppliers that furnish equipment or apparatus having solderless wrapped connections. (326-316)**
*PUB48012	Miniature Ribbon Connector Cable (25 to 150 Pair Sizes) — Preliminary — August 1981	This Technical Reference presents criteria which are the minimum necessary to determine if a miniature Ribbon Connector Cable is technically suitable for standardization by AT&T for use by the Bell Telephone Operating Companies.  It contains generic dimensional requirements, material and mechanical requirements, as well as electrical requirements useful to anyone engaged in the development and manufacture of connector cable intended for direct connection to Bell System facilities and/or equipment. (326-333)**
PUB48501	Local Switching System General Requirements (LSSGR) — Preliminary — December 1980	LSSGR Technical Reference is a comprehensive source of requirements and objectives for local switching systems to assure satisfactory operation in a Bell System environment. This document describes the features, functions and requirements of a local switching system by defining its interactions with customer equipment, operating company personnel, the physical environment, the electrical environment, other interconnecting switching systems and operations support systems. (326-326)**

\*New Technical References

\*\*For BOC Use Only

## BELL SYSTEM ENGINEERING STANDARDS

PUB51000	Complete Set of Bell System Engineering Standard Technical References	
*PUB51001	New Equipment — Building System (NEBS) — General Equipment Requirements — Issue 2 — March 1981	This Technical Reference covers the equipment-building interrelation requirements for all new central office (CO) equipment systems. The effective integration of these equipment-building requirements is commonly referred to as NEBS. The Technical Reference covers spatial requirements, hardware-craft interfaces, environmental requirements and test methods. Spatial requirements apply to the various central office equipment areas including: equipment and distributing frames, DC power equipment, operations support systems, cable distribution arrangements and cable entrance facilities. Requirements are also given for the preparation of Floor Plan Data. The new equipment environmental test methods cover office thermal environments, fire resistance, office vibration and earthquake environments, lighting system evaluation and shipping environments. Testing is anticipated to assure operation within the building environments. (326-130)**

## BELL SYSTEM EQUIPMENT CODING PROCEDURES

PUB52000	Complete Set of Bell System Coding Procedure Technical References	
PUB52001	General Trade Products Information Required for Common Language Equipment Identification Coding and Marking — May 1980	This Technical Reference outlines the kind of information needed from General Trade suppliers whose transmission products may be suitable for use within the Bell System's circuit provision process. It also contains guidelines for marking the common language equipment identification code on products. This Technical Reference has been revised to include provisions for General Trade (GT) manufacturers of telecommunications equipment to place bar code labels on plug-in products sold to the Bell Operating Companies (BOC's). (326-147)**
PUB52002	Common Language Identification of General Trade Manufacturers — September 1980	This Technical Reference describes the Common Language standard code (a 4-character alphanumeric code) for the representation of the various General Trade Manufacturers (GTMs) which sells telecommunications products and supplies to the Bell System. (326-181)**

\*Revised — Supersedes "New Equipment and Building System (NEBS) — May 1976".

\*\*For BOC Use Only

## BELL SYSTEM DOCUMENTATION STANDARDS

PUB53000 Complete Set of Bell System Documentation Standard Technical References

### General Documentation Information

PUB53111	Master Numerical Index — Bell System Practice Divisions — March 1976	Provides a Master Numerical Index of all division numbers and subjects covered by each division of Bell System Practices. (326-124)*
PUB53112	Master Alphabetical Index — Bell System Practice Divisions — November 1975	Provides an alphabetically arranged list of the subjects covered in all divisions of the Bell System Practices. (326-107)*
PUB53115	Bell System Practices — General Plan — July 1978	This Technical Reference outlines the general plan for the nine digit series of Bell System Practices. A recent revision provides General Trade Manufacturers an arrangement of thirteen characters, using four alphas and nine numeric characters (AAAA-XXX-YYY-ZZZ). (326-129)*
PUB53120	Bell System Practices — Printing Specification — July 1977	This Technical Reference provides standard printing requirements used in the preparation of Bell System Practices. (326-135)*
PUB53121	Bell System Practices — Typesetting Specification — November 1975	Provides standard typesetting requirements for (a) Bell System Practices (BSP's), (b) Addenda to BSP's, and (c) Appendices to BSP's. (326-100)*
PUB53145	Bell System Practices — Illustrating Specification — November 1975	Provides standard methods, procedures, and other general information used when preparing line illustrations, continuous tone illustrations, reproducible copy, and final printer's negatives for reproduction in letter size (8-3/8 by 10-7/8 inches) Bell System Practices. (326-109)*
PUB53200	Standard Word List — Bell System Practices — November 1975	Provides the standard word list for use in preparing and editing Bell System Practices. (326-108)*
PUB53250	Quality Program Evaluation — October 1979	This Technical Reference contains the guidelines utilized by the Bell System in evaluating quality programs of potential suppliers of telecommunications products. The evaluation assesses the capability of a supplier's program to provide assurance that the product will conform to engineering requirements and standards of good workmanship. It identifies the basic elements of a quality program which suppliers of telecommunications products may reasonably be expected to have implemented and documented, and gives guidelines for persons performing a Quality Program Evaluation. (326-988)*

\*For BOC Use Only

PUB53290	Workcenter Information Package (WIP) — June 1980	Contains guidelines for use by any supplier of a new outside plant product or procedure for the Bell System, when required to provide an AT&T approved supplemental training package. This Reference describes the production of a Workcenter Information Package (WIP) from its inception to its release to AT&T for distribution to the Bell Operating Companies. Guidelines for the initial decision for producing a WIP and for updating existing WIPs are given. (326-998)**
*PUB53295	Packaging, Packing And Container Marking Requirements — December 1981	<p>This Technical Reference describes to manufacturers of general trade equipment the established procedures for the packaging, packing and container marking requirements for all containers used to ship and store material.</p> <p>This information may be of use to manufacturers who might wish to offer telecommunications equipment for possible sale to Bell System Companies. (326-156)**</p>

**Drawings and Related Information**

PUB53304	Circuit Drawings, Requirement Tables, Circuit Description X Specifications, Assignment Lists — Description — November 1975	This Technical Reference contains descriptions of Circuit Drawings, Requirement Tables, Circuit Description X Specifications, Wiring Lists, and Terminal Assignment (Power Punching) Lists. (326-117)**
PUB53305	General Trade Supplier Guidelines for Product Change Notices — March 1979	Provides General Trade manufacturers of telecommunications equipment with guidelines and procedures for furnishing product change information and notifications to the Bell Operating Companies and Bell System Purchased Products Division. This document describes the various types of product change classifications and routines regarding the manner in which these changes are applied. (326-145)**
PUB53324	Wiring Diagrams — Methods Used — November 1975	This Technical Reference describes the point-to-point (full line) method, the former highway method, the present airline and simplified airline methods, and the manufacturing schematic method of showing connections on wiring diagrams. It also includes a description of critical wiring. (326-106)**

\*New Technical Reference

\*\*For BOC Use Only

PUB53325	Tabular Wiring Diagrams — Description — November 1975	Provides explanatory information and may be used as an aid in reading tabular wiring diagrams. It is not intended to be used as an instruction on how to prepare this type of wiring diagram. Refer to PUB53324 for description of pictorial type (airline method) wiring diagram. (326-102)*
PUB53328	Symbols for Circuit Schematic Drawings — November 1975	This Technical Reference covers graphic symbols used in Bell System circuit schematic drawings. The symbols agree with the American National Standard "Graphic Symbols for Electrical and Electronic Diagrams" 432.2. (326-103)*
PUB53329	Detached — Contact Type Schematic Drawings (SD's) — November 1975	Describes a type of circuit drawing being issued by the Bell Telephone Laboratories, Inc., in the SD drawing series. The drawings are called detached-contact schematics. The manner of presenting the circuit information, the symbols and conventions employed, and other facts concerning detached-contact schematics are covered in this Technical Reference. (326-111)*
PUB53333	Winding and Spring Designations — Apparatus Connecting Points Referred to in Circuit Requirements Tables — November 1975	Describes the method used in designating winding and spring terminals of relays and other apparatus specified as connecting points in circuit requirements tables. It also describes conventions employed to represent apparatus on attached contact type circuit drawings. The figures shown in this Technical Reference are merely representative examples of the general designation scheme for a particular type of apparatus. They do not cover all the various arrangements of winding and spring terminals. (326-112)*
PUB53337	Transmission Test Requirement Tables — Description — November 1975	Describes the transmission test requirements tables and transmission notes as shown on the circuit drawings. (326-104)*
PUB53351	Wiring Symbols, Wiring Abbreviations and Definitions — Wiring and Cabling — November 1975	Provides the wiring symbols and abbreviations generally used in equipment work. It also includes a list of definitions of wiring terms. (326-110)*

**Color Combinations**

PUB53401	Color Combinations and Uses — Wiring and Cabling General Equipment Requirements — November 1975	This Technical Reference covers the general principles underlying the use of colors in the wiring and cabling of central office equipment. (326-105)*
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\*For BOC Use Only

## BELL SYSTEM DATA COMMUNICATION PROTOCOL STANDARDS

PUB54000	Complete Set of Bell System Data Communication Protocol Standard Technical References	
PUB54001	Operations Systems Network Communications Protocol Specification BX. 25, Issue 2 — June 1980	This Technical Reference is published by American Telephone and Telegraph Company as a guide for the designers, manufacturers, consultants and suppliers of systems and equipment which connect with communications operations support, or other systems, or equipment used internally by the Bell System. (326-996)**
*PUB54010	X.25 Interface Specifications — Preliminary — August 1981	This Technical Reference describes the X.25 interface protocol currently being considered for support by the Bell System. The interface described conforms to the Data Circuit-terminating Equipment (DCE) procedures set forth in the 1980 version of CCITT Recommendation X.25. (326-940)**

## NETWORK DISTRIBUTION PRODUCTS

PUB55000	Complete Set of Network Distribution Product Technical References	
PUB55002	88mh Loading Coil Units — Specification — Issue 1 — Preliminary — March 1980	This specification details the construction and requirements for 88mh loading coil units which are intended for use in outside plant with voice frequency non-phantomed circuits transmitted over cable pairs. (326-325)**
PUB55011	Customer Station Gas Tube Surge — Protective Devices Specification — Issue 1 — Preliminary — May 1980	This specification details the electrical, mechanical, and environmental requirements and the operational, failsafe, and service life criteria for system standard two element gas tube surge protective devices used in an associated well-type mounting. (326-323)**
PUB55013	Current Limiting Registration Jack Specification — Issue 1 — Preliminary — November 1980	This specification details the requirements for a standard registration interface with protective units which can be used to establish an interface between certain PBX circuits and the Telephone Company. The unit will provide protection for those circuits which may experience foreign potentials below the operating value of the station protector. (326-324)**

\*New Technical Reference

\*\*For BOC Use Only

**\*BELL SYSTEM SWITCHED NETWORK CAPABILITY  
AND PERFORMANCE SPECIFICATIONS**

PUB61000	Complete Set of Bell System Switched Network Capability and Performance Specification Technical References	
**PUB61511	Video Teleconferencing Service Network Interface Specifications — Preliminary — July 1981	This Technical Reference describes the network interface specifications for video teleconferencing service via two DS1 channels (1.544 Mbps each). Video teleconferencing service utilizes digital encoding and transmission with two-way interactive audio and video on a reservation basis, between two compatible conference rooms. (326-150)***

**\*BELL SYSTEM PRIVATE LINE CHANNEL NETWORK  
COMPATIBILITY AND PERFORMANCE SPECIFICATIONS**

PUB62000	Complete Set of Bell System Private Line Channel Network Compatibility and Performance Specification Technical References	
**PUB62113	Network Channel Interface Specifications For Off-Premises Station Lines (PBX End) — Preliminary — November 1981	This Technical Reference describes the interface to private line off-premises station lines that accommodate Registered Terminal Equipment having facility interface codes OL13A, OL13B and OL13C. (326-335)***
**PUB62114	Network Channel Interface Specifications For Tie Trunks That Accommodate Registered Terminal Equipment Having Facility Interface Codes TL31M and TL32M — Preliminary — December 1981	This Technical Reference describes the interface to private line tie trunks that accommodate Four Wire Lossless, Type I and Type II E & M Connections (M-Lead Originates). (326-152)***
**PUB62115	Network Channel Interface Specifications For Tie Trunks That Accommodate Registered Terminal Equipment Having Facility Interface Codes TL31E and TL32E — Preliminary — December 1981	This Technical Reference describes the interface to private line tie trunks that accommodate Four Wire Lossless, Type I and Type II E & M Connections (E-Lead Originates). (326-153)***

- \*New Technical Reference Categories
- \*\*New Technical References
- \*\*\* For BOC Use Only

## OBSOLETE TECHNICAL REFERENCES

### DATA COMMUNICATIONS

#### Data Sets, Data Auxiliary Sets and Data Service Units

- (•)PUB41403    Data Set 401J Interface  
                  Specification — September 1965        Data Set 401J is a multi-frequency data receiver intended for use on DATAPHONE service. It can receive either 3-out-of-14 or 2-out-of-8 parallel signals at a speed of up to 20 characters/second.

#### Data Interconnection

- (•)PUB41801    Data Access Arrangement CDT  
                  for Manual Originating and  
                  Answering Terminals —  
                  May 1973                                Data Access Arrangement CDT is used to connect customer-provided terminal equipment to the switched telecommunications network. It provides for manual origination and answering of calls and includes a standard telephone set equipped with an exclusion key used to manually transfer between TALK and DATA modes.
- (•)PUB41802    Data Couplers CBS and CBT for  
                  Automatic Terminals —  
                  May 1974                                Data Couplers CBS and CBT are used to connect customer-provided terminal equipment to the switched telecommunications network. They provide for automatic answering, terminating and/or dc dial pulse originating of calls and include a network control signaling unit and a data access arrangement. Data Coupler CBS provides EIA RS-232C voltage type control leads. Data Coupler CBT provides contact closure type control leads. The conditions under which customer-provided data stations may generate tone signals for the purpose of addressing the switched telecommunications network are described.

### VOICE COMMUNICATIONS

#### Protective Connecting Arrangements — Manual, Terminal

##### USOC

- (•)PUB42101    QKT —  
                  June 1971                                Manual connecting arrangement used for the connection of customer-provided voice transmitting and/or receiving equipment or communications systems to a PBX or central office station line through a Telephone Company-provided telephone set equipped with an exclusion key.

- (●)PUB42102 CDX —  
February 1973
- Manual voice connecting arrangement used to connect a customer-provided device, typically patching devices, which enables the connection of an incoming call to a Telephone Company-provided PBX and an outgoing central office trunk line from a Telephone Company-provided PBX.
- (●)PUB42103 CEBAX/CEBBX — Preliminary —  
June 1970
- Voice Connecting Arrangement CEBAX permits a customer to manually connect and disconnect customer-provided equipment, typically, multi-line conferencing devices, to a specific line terminated on a Telephone Company-provided key set (control station). For use with customer-provided equipment with only one supervisory contact. Furnished on a per line per control station basis.
- Voice Connecting Arrangement CEBBX permits a customer to manually connect and disconnect customer-provided equipment, typically, multi-line conferencing devices, to a specific line terminated on a Telephone Company-provided key set (control station). For use with customer-provided equipment with two supervisory contacts. Furnished on a per line basis.
- (●)PUB42104 LOH — Preliminary —  
July 1970
- Voice connecting arrangement permitting the connection of customer-provided background music or other recorded material to central office lines terminated in a Telephone Company-provided switchboard.
- (●)PUB42105 LVH — Preliminary —  
July 1970
- Voice connecting arrangement permitting the connection of customer-provided background music or other recorded material to central office or PBX lines, terminated in Telephone Company-provided key telephone sets, while the line is in the hold mode.
- (●)PUB42106 CEBAV — Preliminary —  
August 1970
- Voice connecting arrangement which permits a customer to manually connect and disconnect customer-provided equipment, typically manual announcement sets, which answers an incoming call, to a specific line terminated on a Telephone Company-provided key set (control station). For use with customer-provided equipment with only one supervisory contact.

- (●)PUB42107    CEBAW — Preliminary —  
August 1970

Voice connecting arrangement which permits the customer to manually connect and automatically disconnect customer-provided equipment, typically intercom systems, to a specific line terminated on a Telephone Company-provided key set (associated station). For use with customer-provided equipment with two supervisory contacts.
- (●)PUB42108    FTP — Preliminary —  
April 1974

Voice Connecting Arrangement FTP provides a means of connecting a customer-provided source of music or recorded information to the Music-On-Hold and/or Background-Music-Over-Paging features of the Telephone Company-provided Com-Key® 718 and 1434 Communications Systems.
- (●)PUB42109    FTM — Preliminary —  
November 1975

Protective Connecting Arrangement FTM provides a means of connecting a customer-provided source of music or recorded information to the Music-On-Hold feature of a Telephone Company-provided key telephone system.

**Protective Connecting Arrangements — Automatic Terminal**

- (●)PUB42201    CAU/SU3/SU4/SU6 —  
October 1975

Protective Connecting Arrangement CAU is an alarm coupler which provides one-way transmission for use with a customer-provided alarm device with dial pulse signaling.

SU3 is a tone signaling unit for use with Protective Connecting Arrangements CAU or SU6 — permits the operation of the alarm device to be tested or verified from a remote location.

Protective Connecting Arrangement SU4 is the combination of Protective Connecting Arrangements CAU and SU3. There is no assigned code for the combination of Protective Connecting Arrangements SU6 and SU3.

Protective Connecting Arrangement SU6 is an alarm coupler modified to provide two-way transmission, to permit detection of dial tone or proper signal from a remote point. See SU6AQ.
- (●)PUB42202    SU7QW —  
April 1975

Protective Connecting Arrangement SU7QW provides the means for automatically connecting customer-provided dial pulse repertory dialers.
- (●)PUB42203    RTT — Preliminary —  
and                    January 1970
- (●)PUB42203A    Addendum — October 1974

Connecting arrangement that generates a tone to both parties under control of a customer-provided call duration timer.

®Registered Service Mark of AT&T Co.

- (•)PUB42204 RDL/RDM — Preliminary —  
January 1973
- Voice Connecting Arrangement RDL is a recorder coupler arranged for one-way recording or one-way announcements — not arranged for both at the same time. Voice Connecting Arrangement RDM is a recorder coupler modified to provide two-way simultaneous transmission. See RDMZR.
- (•)PUB42205 RCZ —  
July 1975
- Recorder connector used to connect customer-provided two-way recording equipment which provides a distinctive “beep” tone and includes a filter.
- (•)PUB42206 RC1 — Preliminary —  
and June 1971  
(•)PUB42206A Addendum — October 1974
- Connecting arrangement which provides the means for customer-provided equipment to cause a short burst of 1400Hz tone to be sent to the local part; used for call duration timing.
- (•)PUB42207 C2ACP/C2AKS —  
February 1975
- Protective Connecting Arrangement C2ACP is an automatic arrangement used to connect customer-provided terminal equipment to a WATS access line, a central office station line, or a PBX/Centrex extension line.
- Protective Connecting Arrangement C2AKS is an automatic arrangement used to connect customer-provided terminal equipment to a WATS access line, a central office station line, or a PBX/Centrex extension line which concurrently terminates in a Telephone Company-provided station.
- (•)PUB42208 STC — Preliminary —  
February 1974
- Voice connecting arrangement that provides the means of automatically connecting customer-provided transmitting and receiving speech terminal equipment, e.g., telephone sets, utilizing a three-wire interface.
- (•)PUB42209 RDMZR/RDY —  
December 1973
- Voice Connecting Arrangement RDMZR provides the means for automatically connecting customer-provided receive-only speech terminal equipment, e.g., answering sets; it supersedes and replaces Voice Connecting Arrangement RDM.
- Voice Connecting Arrangement RDY provides all of the features of Voice Connecting Arrangement RDMZR and, in addition, provides volume-limited receive transmission.

- (•)PUB42210    SU6AQ/STS — Preliminary —  
June 1971

Voice Connecting Arrangement SU6AQ provides the means for automatically connecting customer-provided transmitting and receiving speech terminal equipment, e.g., alarm systems, utilizing a multi-wire interface; it supersedes and replaces Voice Connecting Arrangement SU6.

Voice Connecting Arrangement STS provides all of the features of Voice Connecting Arrangement SU6AQ and, in addition, permits the transmission of customer-provided supervisory tone signals; it provides an alternative to Voice Connecting Arrangement SU3.
- (•)PUB42211    CEZ — Preliminary —  
November 1971

Voice connecting arrangement which permits the manual connection and automatic disconnection of customer-provided equipment (typically conferencing devices) to a specific line on an associated Telephone Company-provided key telephone set.
- (•)PUB42212    STP/C2F — Preliminary —  
March 1977

Voice Connecting Arrangement STP provides a means for automatically connecting customer-provided transmitting and receiving speech terminal equipment, e.g., key telephone systems.
- (•)PUB42213    ADI — Preliminary —  
October 1974

Connecting Arrangement ADI provides a means to associate dial pulse dialers with single or multiline telephone sets.
- (•)PUB42214    GTS — Preliminary —  
December 1974

Protective Connection Arrangement GTS provides a means of connecting an automatic answering device to a telephone line. The customer-provided answering device connects via a standard 4-prong telephone jack.

**Protective Connecting Arrangements — Manual, System**

- (•)PUB42301    2A (CDB) — Preliminary —  
February 1969

Manual voice connecting arrangement used to connect a line from a customer-provided system, which provides supervisory signals, to a central office trunk line through a Telephone Company-provided cord switchboard position.
- (•)PUB42302    1A (CDA) — Preliminary —  
June 1969

Manual voice connecting arrangement used to connect a cord switchboard position of a customer-provided system, which provides supervisory signals, to an exchange trunk line.
- (•)PUB42303    3A (CDN) — Preliminary —  
June 1969

Manual voice connecting arrangement used to connect a line from customer-provided system, which provides supervisory signals, to an exchange line through a Telephone Company-provided key station.

- (●)PUB42304    CD1 — Preliminary —  
    July 1969

Manual voice connecting arrangement used to connect a cord switchboard position of a customer-provided system, which does not provide supervisory signals, to an exchange trunk line.
- (●)PUB42305    CD4 — Preliminary —  
    August 1969

Manual voice connecting arrangement used to connect a line from a customer-provided system, which does not provide supervisory signals to an exchange trunk line through a Telephone Company-provided cord switchboard position.
- (●)PUB42306    CD5 — Preliminary —  
    August 1969

Manual voice connecting arrangement used to connect a line from a customer-provided system, which does not provide supervisory signals, to an exchange line through a Telephone Company-provided key telephone station.
- (●)PUB42307    CDY — Preliminary —  
    October 1969

Voice connecting arrangement used to terminate — without exchange connection — a line from a customer-provided system in a Telephone Company-provided key telephone station.

**Protective Connecting Arrangements — Automatic, System**

- (●)PUB42401    CDH and CBF —  
    March 1974

Automatic voice connecting arrangement used to connect the attendant position and dial switching equipment of a customer-provided system to an exchange trunk line arranged for two-way combination rotary or TOUCH-TONE service.

Connecting Arrangement CBF is provided in addition to CDH when Data Communications equipment is used behind the PBX. CBF provides a linear attenuator which limits the three-second average power level transmitted to the central office without distorting the signal. The maximum allowable power level is determined at the time of installation.

- (●)PUB42402 CD7/CD8/CD9/ and CBF —  
March 1974
- Voice Connecting Arrangement CD7 is an automatic arrangement used to connect the attendant position of a customer-provided system to an exchange trunk line arranged for one-way outgoing rotary or TOUCH-TONE service.
- Voice Connecting Arrangement CD8 is an automatic arrangement used to connect the dial switching equipment of a customer-provided system to an exchange trunk line arranged for one-way outgoing rotary or TOUCH-TONE service.
- Voice Connecting Arrangement CD9 is an automatic arrangement used to connect the attendant position of a customer-provided system to an exchange trunk line arranged for two-way rotary or TOUCH-TONE service.
- Connecting Arrangement CBF is provided in addition to CD7, CD8, or CD9, when Data Communications equipment is used behind the PBX. CBF provides a linear attenuator which limits the three-second average power level transmitted to the central office without distorting the signal. The maximum allowable power level is determined at the time of installation.
- (●)PUB42403 CET — Preliminary —  
and October 1970  
(●)PUB42403A Addendum — June 1974
- Automatic voice connecting arrangement used to connect a customer-provided system to an exchange trunk line arranged for one-way service to the operator position of a Telephone Company long distance switchboard (the equivalent of a toll terminal).
- (●)PUB42404 CD6 — Preliminary —  
December 1969
- Automatic voice connecting arrangement used to connect an exchange trunk line arranged for one-way incoming service to the attendant position of a customer-provided system.
- (●)PUB42405 CED — Preliminary —  
and April 1970  
(●)PUB42405A Addendum — June 1974
- Automatic voice connecting arrangement used to connect a customer-provided system to an exchange trunk line, arranged for two-way service, to the operator position of a Telephone Company long distance switchboard (the equivalent of a toll terminal).
- (●)PUB42406 C22 — Preliminary —  
July 1976
- Automatic voice connecting arrangement used to connect an exchange trunk line arranged for one-way direct inward dialing (DID) service to the dial switching equipment of a customer-provided system.



- (●)PUB42608    KTX — Preliminary —  
October 1973

Connecting arrangement used to connect customer-provided call diversion equipment to a Telephone Company line terminated in a Telephone Company Key Telephone System. The arrangement provides a high impedance line status indication of the supervisory and address signals on the line and receives a constant closure to divert an outgoing call. Restriction tone or an announcement is provided by the customer.
- (●)PUB42609    CTH — Preliminary —  
December 1973

Protective connecting arrangement used to connect customer-provided call diversion equipment to a Telephone Company CO trunk terminated in a Telephone Company PBX. The arrangement provides a high impedance line status indication of the supervisory and address signals on the trunk and receives a contact closure to cause diversion of the call. Restriction tone or an announcement is provided by the customer.

**Protective Connecting Arrangements — PBX Adjuncts**

- (●)PUB42701    DCT — Preliminary —  
June 1971

Voice connecting arrangement (formerly designated Recorded Telephone Dictation Trunk Circuit) which provides trunk level access, e.g., dial "7", from a station on a Bell System PBX or Centrex system to customer-provided dictation equipment.
- (●)PUB42702    DCW — Preliminary —  
July 1971

Voice connecting arrangement (formerly designated Interface Trunk Circuit) which provides a two-part trunk level access, e.g., dial "7", from a station on a Bell System PBX or Centrex system to customer-provided equipment capable of receiving dialed digits (serial or parallel coded) for central purposes.
- (●)PUB42703    DCK/DCL —  
October 1974

Voice Connecting Arrangements DCK and DCL provide trunk level access, e.g., dial "7", from a station on a Bell System PBX or Centrex system to customer-provided equipment (e.g., dictation or radio paging) capable of receiving TOUCH-TONE digits directly or dial pulse digits over a separate pair of control purposes.

- (●)PUB42704 TSPXY/TSPZ1 — Preliminary — Protective Connecting Arrangements TSPXY and  
and March 1975 TSPZ1 provide a means of connecting customer-  
(●)PUB42704A Addendum — December 1976 provided recording and control equipment to  
PBX trunks. With these arrangements, an  
outgoing trunk can be split to allow dialing extra  
digits or to pulse a number into the central office.

### Miscellaneous Customer Equipment Items

- (●)PUB42901 Acoustics of This Technical Reference provides basic rules for  
Teleconference Rooms — installing audio equipment consistent with  
Preliminary — August 1977 speech intelligibility and easy talker recognition.

### PICTUREPHONE SERVICE

PUB44000 Complete Set of PICTUREPHONE Service Technical References

### PICTUREPHONE Interconnection

- (●)PUB44101 PVF — Preliminary — PICTUREPHONE connecting arrangement  
September 1970 which permits the connection of customer-  
provided video/audio terminal equipment to  
PICTUREPHONE facilities using a Telephone  
Company-provided TOUCH-TONE telephone  
set.

### ATTESTATION PROGRAMS

PUB45000 Complete Set of Attestation Program Technical References

#### Headsets

- (●)PUB45001 4-Wire Headset Interface Provides the procedural requirements and  
and Terminations and Interface technical specifications (Interface Specification  
(●)PUB45001A Specification 1001 — 1001) for the attestation of certain customer-  
Preliminary — July 1973 provided 4-wire headsets for use with headset  
Addendum — August 1974 jacks (Headset Interface Terminations) in Bell  
System attendant switchboards, attendant  
consoles, and telephone sets.
- (●)PUB45002 6-Wire Headset Interface Provides the procedural requirements and  
and Terminations and Interface technical specifications (Interface Specification  
(●)PUB45002A Specification 1002 — 1002) for the attestation of certain customer-  
Preliminary — October 1974 provided 6-wire headsets for use with headset  
Addendum — January 1975 jacks (Headset Interface Terminations) in Bell  
System attendant switchboards, attendant  
consoles, and telephone sets.

## Non-Powered Conferencing Devices

- |              |                                |   |
|--------------|--------------------------------|---|
| (●)PUB45101  | Interface Termination JTC and  | Provides the procedural requirements and technical specifications (Interface Specification 2001) for the attestation of certain non-powered conferencing devices for use with Interface Termination JTC which is associated with Bell System key telephone system stations. |
| and          | Interface Specification 2001 — |   |
| (●)PUB45101A | Preliminary — May 1973         |   |
|              | Addendum — October 1973        |   |

## CONFORMANCE PROGRAMS

- |              |   |  |
|--------------|---|--|
| PUB46000     | Complete Set of Conformance Program Technical References              |  |
| (●)PUB46001  | Conformance Program for   | Provides the procedural requirements and technical specifications (Interface Specification 3001) for the conforming of certain customer-provided automatic answering devices for use with individual line exchange service or PBX/Centrex station service. |
| and          | Answering Devices Incorporating                                       |  |
| (●)PUB46001A | Authorized Protective Connecting Modules — Preliminary — January 1975 |  |
|              | Addendum — October 1975   |  |