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#### **ACCESS SERVICES**

- 7. SPECIAL ACCESS SERVICE-(Continued)
- 7.2 Service Descriptions-(Continued)
- 7.2.1 Metallic Service-(Continued)
  - C. Channel Interfaces

Compatible channel interfaces are set forth in Technical References at the end of Paragraph 7.2.

- (AT) D. Optional Features, BSEs and Functions
- (AT) 1. Central Office Bridging BSE Capability
  - a. Three Premises Bridging Provision of tip-to-tip and ring-to-ring connection in a central office of a metallic pair to a third customer designated premises.
  - b. Series Bridging of up to 26 customer designated premises.
- The following table shows the technical specifications packages with (AT) which the optional features, BSEs and functions are available.

	Available with Technical Specifications Package MT-				
	<u>C</u>	<u>1</u>	<u>2</u>	<u>3</u>	
Three Premises Bridging	X	X		X	
Series Bridging	X		X		

Issued: March 26, 1993 Effective: April 11, 1993

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#### ACCESS SERVICES

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SPECIAL ACCESS SERVICE-(Continued)

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7.2 Service Descriptions-(Continued)

7.2.1 Metallic Service-(Continued)

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C. Channel Interfaces

(CT) (CT) Compatible channel interfaces are set forth in Technical References at the end of Paragraph 7.2.

- D. Optional Features and Functions
  - 1. Central Office Bridging Capability
    - Three Premises Bridging Provision of tip-to-tip and ringto-ring connection in a central office of a metallic pair to a third customer designated premises.
    - Series Bridging of up to 26 customer designated premises.

The following table shows the technical specifications packages with which the optional features and functions are available.

	Available with Technical Specifications Package MT				
	С	1	2	3	
Three Premises Bridging	X	X		X	
Series Bridging	X		x		

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(CP) ACCESS SERVICES

- SPECIAL ACCESS SERVICE-(Continued)
- 7.2 Service Descriptions-(Continued)
  - 7.2.1 Metallic Service-(Continued)
  - C. Channel Interfaces

Compatible channel interfaces are set forth in Paragraph 7.3.5, A., following.

- D. Optional Features and Functions
  - 1. Central Office Bridging Capability
    - a. Three Premises Bridging Provision of tip-to-tip and ringto-ring connection in a central office of a metallic pair to a third customer designated premises.
    - b. Series Bridging of up to 26 customer designated premises.

The following table shows the technical specifications packages with which the optional features and functions are available.

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Public Service Commission

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#### ACCESS SERVICES

7. SPECIAL ACCESS SERVICE-(Continued)

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- 7.2 Technical Service Descriptions for Special Access Service-(Continuéd)
  - 7.2.1 Analog Services-(Continued)
    - A. Narrowband Services-(Continued)
      - 5. Narrowband 5 (NB5) Special Access Service-(Continued)
        - a. Description-(Continued)

direct current continuity of this service nor the capability to transport continuously varying alternating currents is assured.

b. Illustrative Applications

Special Access Service NB5 is suitable for use as part of the facilities required to provide intrastate telecommunications services such as:

- Extension Service Telegraph Grade
- Teletypewriter Service
- Alarm Circuits
- Control/Remote Metering Telegraph Grade
- c. Optional Feature
  - Central office bridging capability.
- d. Transmission Performance
  - Telegraph Distortión

Remedial action will be initiated whenever the telegraph distortion is observed to exceed 12 percent.

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Effective: JAN 0 1 1984

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#### **ACCESS SERVICES**

### 7. SPECIAL ACCESS SERVICE-(Continued)

- 7.2 Service Descriptions-(Continued)
- 7.2.2 Telegraph Grade Service
  - A. Basic Channel Description

A telegraph grade channel is an unconditioned channel capable of transmitting binary signals at rates of 0-75 baud or 0-150 baud. This channel is furnished for half-duplex or duplex operation.

Telegraph grade channels are provided between customer designated premises or between a customer designated premises and a Telephone Company Hub.

B. Technical Specifications Packages

	<u>Packa</u>	ge To	<u> </u>
<u>Parameter</u>	<u>C</u>	<u>1</u>	<u>2</u>
Telegraph Distortion	X	X	X

The technical specifications are delineated in Technical Reference PUB 62502.

C. Channel Interfaces

Compatible channel interfaces are set forth in Technical References at the end of Paragraph 7.2.

- (AT) D. Optional Features, BSEs and Functions
- (AT) 1. Telegraph Bridging BSE (two-wire and four-wire)

The following table shows the technical specifications packages (AT) with which the optional features, BSEs and functions are available.

Available with Technical Specifications Package TG-

 $\begin{array}{cccc} \underline{C} & \underline{1} & \underline{2} \\ \text{Telegraph Bridging} & X & X & X \end{array}$ 

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By A. D. ROBERTSON, Assistant Vice President-External Affairs Southwestern Bell Telephone Company St. Louis, Missouri

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#### ACCESS SERVICES

SPECIAL ACCESS SERVICE-(Continued)

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7.2 Service Descriptions-(Continued)

SEP 25 1989

7.2.2 Telegraph Grade Service

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Public Service Commission

A. Basic Channel Description

A telegraph grade channel is an unconditioned channel capable of transmitting binary signals at rates of 0-75 baud or 0-150 baud. This channel is furnished for half-duplex or duplex operation.

Telegraph grade channels are provided between customer designated premises or between a customer designated premises and a Telephone Company Hub.

B. Technical Specifications Packages

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	<u>Packa</u>	ge TG-	APR 11 1993
Parameter	С	1	2 BY 3 R. S. #17 Public Service Commission
Telegraph Distortion	X	X	X MISSOURI

The technical specifications are delineated in Technical Reference PUB 62502.

C. Channel Interfaces

(CT)

Compatible channel interfaces are set forth in Technical References at the end of Paragraph 7.2.

- D. Optional Features and Functions
  - Telegraph Bridging (two-wire and four-wire)

The following table shows the technical specifications packages with which the optional features and functions are available.

			th Technica ons Package	
	С	1	2	
Telegraph Bridging	Х	x	X	
	·	_		ED.
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## (CP)ACCESS SERVICES

- SPECIAL ACCESS SERVICE-(Continued)
- 7.2 Service Descriptions-(Continued)
- 7.2.2 Telegraph Grade Service
- A. Basic Channel Description

A telegraph grade channel is an unconditioned channel capable of transmitting binary signals at rates of 0-75 baud or 0-150 baud. This channel is furnished for half-duplex or duplex operation.

Telegraph grade channels are provided between customer designated premises or between a customer designated premises and a Telephone Company Hub.

B. Technical Specifications Packages

	Package TG-					
Parameter	<u>C</u>	1_	_2_			
Telegraph Distortion	X	X	X			

The technical specifications are delineated in Technical Reference PUB 62502.

Channel Interfaces

Compatible channel interfaces are set forth in Paragraphy 3.3.3.1.E.P. following.

Optional Features and Functions

The following table shows the technical specifications packages with which the optional features and functions are available

Available with Technical Specifications Package TG JUL 1 X X Telegraph Bridging 86-84 Public Service Commiss 📖

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ACCESS SERVICES

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SPECIAL ACCESS SERVICE-(Continued)

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- 7.2 Technical Service Descriptions for Special Access Service-(Continued) LUSSOURI
  - 7.2.1 Analog Services-(Continued)

Public Service Commission

- A. Narrowband Services-(Continued)
  - 5. Narrowband 5 (NB5) Special Access Service-(Continued)
    - e. Available Facility Interface Combinations

<u>IC</u>	<b>End User</b>	<u>IC</u>	End User
2DB2-10	10IA2	4DS9-(2)	10IA2
4DB2-10	10IA2	4AH5-B(3)	10IA2
2DB2-43(1)	101A2	4AH6-C(3)	101A2
4DB2-43(1)	10IA2	4AH6-D(3)	10IA2

B. Voice Grade Services

There are nine types of Voice Grade Service, each having a different transmission performance. The transmission performances determine the applications that the various types of Voice Grade Service can be used for. VG1 through VG3 services are intended for voice applications only. VG5 through VG10 are suitable for voiceband data or voice/data applications. The VG 1-3 and 5-10 are provided primarily as end-link designs for interexchange carriers and Private Line Services.

- Voice Grade 1 (VG1) Special Access Service
  - a. Description

Special Access Service VG1 provides a channel for voice frequency transmission capability. Usable frequencies are nominally 300 to 300 the between an IC terminal location

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(1) Supplemental channel assugnment viet or mertial required.
(2) See Paragraph 7.3.3, following of assemblanation.

(3) Available only to IC's selecting the four-wire multiplexed High Capacity

analog facility interface option at the IC terminal location and providing subsequent system and channel assignment data.

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Effective: JAN 0 1 1984

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#### **ACCESS SERVICES**

- 7. SPECIAL ACCESS SERVICE-(Continued)
- 7.2 Service Descriptions-(Continued)
  - 7.2.3 Voice Grade Service
  - A. Basic Channel Description

A voice grade channel is a channel which provides voice frequency transmission capability in the nominal frequency range of 300 to 3000 Hz and may be terminated two-wire or four-wire. Voice grade channels are provided between customer designated premises, between a customer designated premises and a Telephone Company Hub, or between a customer designated premises and the WATS serving office.

# B. Technical Specifications Packages

		Package VG-													
(AT)	<u>Parameter</u>	<u>C(1)</u>	1	<u>2</u>	<u>3</u>	<u>4</u> 5	<u> 5</u> <u>6</u>	<u>5</u>	<u>7</u>	<u>8</u>	9	<u>10</u>	<u>11</u>	<u>12</u>	<u>W*</u>
j	Attenuation														
	Distortion	X	X	X	X	X Y	X	X	$\mathbf{X}$	X	X	X	X	X	X
	C-Message Noise	X	X	X	X	X Y	X	X	$\mathbf{X}$	X	X	X	X	X	X
	Echo Control Envelope Delay	X	X	X	X	2	X		X	X			X	X	X+
	Distortion	X					Σ	X	X	X	X	X	X	X	X
	Frequency Shift	X					Σ	X	X	X	X	X	X	X	X
	Impulse Noise Intermodulation	X				Х		X	X	X	X	X	X	X	X
İ	Distortion	X					3	X	X	X	X	X	X		X
	Loss Deviation Phase Hits, Gain Hits, and	X	X	X	X	X	X	X	X	X	X	X	X	X	X
İ	Dropouts	X													
	Phase Jitter Signal-to-C	X						X	X	X	X	X	X	X	
	Message Noise Signal-to-C					X									
(AT)	Notch Noise	X					X	X	X	X	X	X	X	X	X

- (AT) \* Denotes WATS Access Lines (WALs)
- (AT) + When WAL extensions are provided, Echo Control limits are not applicable.
  - (1) The desired parameters are selected by the customer from the list of available parameters.

October 14, 1987

By R. D. BARRON, President-Missouri Division
Southwestern Bell Telephone Company
St. Louis, Missouri

Issued:

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(CP) ACCESS SERVICES.

- SPECIAL ACCESS SERVICE-(Continued)
- 7.2 Service Descriptions-(Continued)
- 7.2.3 Voice Grade Service
- A. Basic Channel Description

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A voice grade channel is a channel which provides voice frequency transmission capability in the nominal frequency range of 300 to 3000 Hz and may be terminated two-wire or four-wire. Voice grade channels are provided between customer designated premises or between a customer designated premises and a Telephone Company Hub.

B. Technical Specifications Packages

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(1) The desired parameters are selected by the customer from the list of available parameters.

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ACCESS SERVICES

- 7. SPECIAL ACCESS SERVICE-(Continued)
- 7.2 Technical Service Descriptions for Special Access Service-(Continued)
  - 7.2.1 Analog Services-(Continued)
  - B. Voice Grade Services-(Continued)
    - 1. Voice Grade 1 (VG1) Special Access Service-(Continued)
      - a. Description-(Continued)

and End User's premises. The transmission interface can be either two-wire or four-wire at both the IC terminal location and the End User's premises. Various interface options are available. This service will support effective two-wire or effective four-wire transmission.

b. Illustrative Applications

Special Access Service VG1 is suitable for use as part of the facilities used to provide intrastate telecommunications services such as:

- Voice Grade Facility
- Alarm Circuits
- c. Optional Feature
  - Improved return loss at four-wire point of interface, applicable to each two-wire leg of effective four-wire channel.

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#### **ACCESS SERVICES**

- 7. SPECIAL ACCESS SERVICE-(Continued)
  - 7.2 Service Descriptions-(Continued)
    - 7.2.3 Voice Grade Service-(Continued)
    - B. Technical Specifications Packages-(Continued)

The technical specifications for these parameters are delineated in Technical References set forth at the end of Paragraph 7.2.

C. Channel Interfaces

The following channel interfaces for Voice Grade Service do not require signaling capability: AH, DA, DB, DD, DE, DS, NO, PR and TF.

The following channel interfaces for Voice Grade Service require signaling capability: AB, AC, CT, DX, DY, EA, EB, EC, EX, GO, GS, LA, LB, LC, LO, LR, LS, RV and SF (1).

Combination of channel interfaces DS, GS, and LS for WALs require signaling as defined in Section 6.2.5.

Compatible channel interfaces and available WAL channel interfaces are set forth in Technical References at the end of Paragraph 7.2.

D. Analog Service to Service Through Connect Arrangement

Multiplexed Arrangement

This provides for the interconnection of two subtending analog channels derived from DS1 multiplexed services. The through connect will be provisioned in lieu of a typical voice grade channel termination. The ordering customer must provide channel assignments for both. Voice Grade channel mileage is required if the multiplexed services are terminated in two separate Hubs.

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(1) This feature is obsolete, and limited to existing installations at existing locations for existing customers as of October 6, 1995.

Issued: September 6, 1995 Effective: October 6, 1995

CANCELLED
June 29, 2007
TO-2002-185
Missouri Public
Service Commission

By HORACE WILKINS, JR., President-Missouri Southwestern Bell Telephone St. Louis, Missouri

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ACCESS SERVICES

SPECIAL ACCESS SERVICE-(Continued)

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7.2 Service Descriptions-(Continued)

MAR 29 1993

7.2.3 Voice Grade Service+(Continued)

MISSOURI Public Service Commission

B. Technical Specifications Packages-(Continued)

The technical specifications for these parameters are delineated in Technical References set forth at the end of Paragraph 7.2.

C. Channel Interfaces

The following channel interfaces for Voice Grade Service do not require signaling capability: AH, DA, DB, DD, DE, DS, NO, PR and TF.

The following channel interfaces for Voice Grade Service require signaling capability: AB, AC, CT, DX, DY, EA, EB, EC, EX, GO, GS, LA, LB, LC, LO, LR, LS, RV and SF.

Combination of channel interfaces DS, GS, and LS for WALs require signaling as defined in Section 6.2.5.

Compatible channel interfaces and available WAL channel interfaces Chiefel forth in Technical References at the end of Paragraph 7.2.

Analog Service to Service Through Connect Arrangement

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Multiplexed Arrangement

This provides for the interconnection of two subtending and the Service Commission derived from DS1 multiplexed services. The through connect will improve the provisioned for 1. provisioned in lieu of a typical voice grade channel termination. The ordering customer must provide channel assignments for both. Voice Grade channel mileage is required if the multiplexed services are terminated in two separate Hubs.

(TA) Optional Features, BSEs and Functions

(AT) 1. Central Office Bridging BSE Capability FILED

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Data Bridging (two-wire and four-wire)

Voice Bridging (two-wire and four-wire)

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DATAPHONE Select-A-Station Bridging with sequential arrangement ports or addressable arrangement ports

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Replacing 3rd Revised Sheet 19

#### ACCESS SERVICES

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7. SPECIAL ACCESS SERVICE-(Continued)

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7.2 Service Descriptions-(Continued)

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7.2.3 Voice Grade Service-(Continued)

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B. Technical Specifications Packages-(Continued)

(CT) The technical specifications for these parameters are delineated in Technical References set forth at the end of Paragraph 7.2.

C. Channel Interfaces

The following channel interfaces for Voice Grade Service do not require signaling capability: AH, DA, DB, DD, DE, DS, NO, PR and TF.

The following channel interfaces for Voice Grade Service require signaling espability: AB, AC, CT, DX, DY, EA, EB, EC, EX, GO, GS, LA, LB, LC, LO, LR, LS, RV and SF.

Combination of channel interfaces DS, GS, and LS for WALs require signaling as defined in Section 6.2.5.

Compatible channel interfaces and available WAL channel interfaces are set forth in Technical References at the end of Paragraph 7.2.

(AT) D. Analog Service to Service Through Connect Arrangement

Multiplexed Arrangement

This provides for the interconnection of two subtending analog channels derived from DS1 multiplexed services. The through connect will be provisioned in lieu of a typical voice grade channel termination. The ordering customer must provide channel assignments for both. Voice Grade channel mileage is required if the multiplexed services are terminated in two separate Hubs.

(FC) E. Optional Features and Functions

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- 1. Central Office Bridging Capability
  - a. Voice Bridging (two-wire and four-wire)
  - b. Data Bridging (two-wire and four-wire)

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c. DATAPHONE Select-A-Station Bridging with sequential arrangement ports or addressable arrangement ports

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Effective: MAR 2 6 1990

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By R. D. BARRON, President-Missouri Division Southwestern Bell Telephone Company St. Louis, Missouri

MAR 26 1990

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#### ACCESS SERVICES

SPECIAL ACCESS SERVICE-(Continued)

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7.2 Service Descriptions-(Continued)

SEP 25 1989

7.2.3 Voice Grade Service-(Continued)

MISSOURI Public Service Commission

B. Technical Specifications Packages-(Continued)

The technical specifications for these parameters (except for dropouts, gain hits and phase hits) are delineated in Technical Reference PUB 62500 (WALs), PUB 62501 and associated Addendum. The technical specifications for dropouts, phase hits and gain hits are delineated in Technical Reference PUB 41004, Table 4.

C. Channel Interfaces

(CT)

The following channel interfaces for Voice Grade Service do not require signaling capability: AH, DA, DB, DD, DE, DS, NO, PR and TF.

The following channel interfaces for Voice Grade Service require signaling capability: AB, AC, CT, DX, DY, EA, EB, EC, EX, GO, GS, LA, LB, LC, LO, LR, LS, RV and SF.

Combination of channel interfaces DS, GS, and LS for WALs require signaling as defined in Section 6.2.5.

Compatible channel interfaces and available WAL channel interfaces are set forth in Technical References at the end of Paragraph 7.2.

Optional Features and Functions

- Central Office Bridging Capability
  - Voice Bridging (two-wire and four-wire)
  - Data Bridging (two-wire and four-wire)
  - DATAPHONE Select-A-Station Bridging with sequential arrangement ports or addressable arrangement ports ED CANCELLED

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Replacing 1st Revised Sheet 19

#### ACCESS SERVICES

7. SPECIAL ACCESS SERVICE-(Continued)

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7.2 Service Descriptions-(Continued)

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7.2.3 Voice Grade Service-(Continued)

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B. Technical Specifications Packages-(Continued)

The technical specifications for these parameters (except for dropouts, gain hits and phase hits) are delineated in Technical Reference PUB 62500 (WALs), PUB 62501 and associated Addendum. The technical specifications for dropouts, phase hits and gain hits are delineated in Technical Reference PUB 41004, Table 4.

C. Channel Interfaces

(AT)

The following channel interfaces for Voice Grade Service do not require signaling capability: AH, DA, DB, DD, DE, DS, NO, PR and TF.

The following channel interfaces for Voice Grade Service require signaling capability: AB, AC, CT, DX, DY, EA, EB, EC, EX, GO, GS, LA, LB, LC, LO, LR, LS, RV and SF.

(AT) Combination of channel interfaces DS, GS, and LS for WALs require signaling as defined in Section 6.2.5.

(AT) Compatible channel interfaces and available WAL channel interfaces are set forth in Paragraph 7.3.5, C., following.

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D. Optional Features and Functions

1. Central Office Bridging Capability

OCT 1 1989 BY 3 8 S.#19

a. Voice Bridging (two-wire and four-wire) Public Service Commission

b. Data Bridging (two-wire and four-wire)

DATAPHONE Select-A-Station Bridging with sequential arrangement ports or addressable arrangement ports

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OCT 16 1987 70-87-42—Public Service Commission

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Effective: 007 16 1987.

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(CP)ACCESS SERVICES

- SPECIAL ACCESS SERVICE-(Continued)
- 7.2 Service Descriptions-(Continued)
- 7.2.3 Voice Grade Service-(Continued)
- B. Technical Specifications Packages-(Continued)

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The technical specifications for these parameters (except for dropouts, gain hits and phase hits) are delineated in Technical Reference PUB 62501 and associated Addendum. The technical specifications for dropouts, phase hits and gain hits are delineated in Technical Reference PUB 41004, Table 4.

C. Channel Interfaces

The following channel interfaces for Voice Grade Service do not require signaling capability: AH, DA, DB, DD, DE, DS, NO, PR and TF.

The following channel interfaces for Voice Grade Service require signaling capability: AB, AC, CT, DX, DY, EA, EB, EC, EX, GO, GS, LA, LB, LC, LO, LR, LS, RV and SF.

Compatible channel interfaces are set forth in Paragraph 7.3.5, C., following.

- Optional Features and Functions
  - 1. Central Office Bridging Capability
    - Voice Bridging (two-wire and four-wire)
    - Data Bridging (two-wire and four-wire) ь.

OCT 16 1987 BY ZALR.S. #19 Public Service Commission

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DATAPHONE Select-A-Station Bridging with sequential arrangement ports or addressable arrangement ports

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Public Service Commission

JUN 27 1986 Issued:

Effective:

JUL 1 1986

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#### ACCESS SERVICES

- 7. SPECIAL ACCESS SERVICE-(Continued)
  - 7.2 Technical Service Descriptions for Special Access Service (Continued) Commission
    - 7.2.1 Analog Services-(Continued)
    - B. Voice Grade Services-(Continued)
      - 1. Voice Grade 1 (VG1) Special Access Service-(Continued)
        - d. Transmission Performance
          - C-Message Noise

The C-Message Noise shall be less than:

•		Limit (d	Limit (dBrnCO)(1)						
Channel	Mileage (mi)	Type Vl	Type V2						
0	- 50	32	38						
51	- 100	33	39						
. 101	- 200	35	41 -						
201	- 400	. 37	43						
401	- 1000	39	45						

- Echo Control

Echo Control, identified as Equal Level Echo Path Loss at four-wire interfaces or Return Loss at two-wire interfaces, and expressed as Echo Return Loss and Singing Return Loss, at either the End User's premises or IC terminal location shall be not less than the following limits:

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(1) Where facility network conditions will support the parameters, Type VI will be provided. Where the Type VI parameters cannot be supported, Type V2 will be provided.

Issued: DEC 29 1983

Effective: JAN 0 1 1984

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#### **ACCESS SERVICES**

- 7. SPECIAL ACCESS SERVICE-(Continued)
  - 7.2 Service Descriptions-(Continued)
    - 7.2.3 Voice Grade Service-(Continued)

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(MT) E. Optional Features, BSEs and Functions

- 1. Central Office Bridging BSE Capability
  - a. Voice Bridging (two-wire and four-wire)
  - b. Data Bridging (two-wire and four-wire)
  - c. DATAPHONE Select-A-Station Bridging with sequential arrangement ports or addressable arrangement ports
  - d. Telemetry and Alarm Bridging

Split Band, Active Bridging Passive Bridging Summation, Active Bridging

2. Central Office Multiplexing BSE

Voice to Telegraph Grade (43-Type Carrier): An arrangement that converts a voice grade channel to telegraph grade channels using frequency division multiplexing.

3. Conditioning BSE

Conditioning provides more specific transmission characteristics for Voice Grade Services. C-type conditioning controls attenuation distortion and envelope delay distortion. Sealing current helps maintain continuity on dry metallic loops.

For two-point services, the parameters apply to each service. For multipoint services, the parameters apply to each mid-link or end link. C-type conditioning and data capability may be combined on the same service.

Issued: September 6, 1995 Effective: October 6, 1995

By HORACE WILKINS, JR., President-Missouri Southwestern Bell Telephone St. Louis, Missouri

CANCELLED June 29, 2007 TO-2002-185 Missouri Public Service Commission

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#### ACCESS SERVICES

SPECIAL ACCESS SERVICE-(Continued)

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7.2 Service Descriptions-(Continued)

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7.2.3 Voice Grade Service-(Continued)

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- (AT) E. Optional Features, BSEs and Functions-(Continued)
- (AT) 1. Central Office Bridging BSE Capability-(Continued)
  - d. Telemetry and Alarm Bridging

Split Band, Active Bridging Passive Bridging Summation, Active Bridging

(AT) 2. Central Office Multiplexing BSE

Voice to Telegraph Grade (43-Type Carrier): An arrangement that converts a voice grade channel to telegraph grade channels using frequency division multiplexing.

(AT) 3. Conditioning BSE

Conditioning provides more specific transmission characteristics for Voice Grade Services. C-type conditioning controls attenuation distortion and envelope delay distortion. Sealing current helps maintain continuity on dry metallic loops.

For two-point services, the parameters apply to each service. For multipoint services, the parameters apply to each mid-link or end link. C-type conditioning and data capability may be combined on the same service.

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7. SPECIAL ACCESS SERVICE-(Continued)

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7.2 Service Descriptions-(Continued)

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7.2.3 Voice Grade Service-(Continued)

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- (FC) E. Optional Features and Functions-(Continued)
  - 1. Central Office Bridging Capability-(Continued)
    - d. Telemetry and Alarm Bridging

Split Band, Active Bridging Passive Bridging Summation, Active Bridging

2. Central Office Multiplexing

Voice to Telegraph Grade (43-Type Carrier): An arrangement that converts a voice grade channel to telegraph grade channels using frequency division multiplexing.

3. Conditioning

Conditioning provides more specific transmission characteristics for Voice Grade Services. C-type conditioning controls attenuation distortion and envelope delay distortion. Sealing current helps maintain continuity on dry metallic loops.

For two-point services, the parameters apply to each service. For multipoint services, the parameters apply to each mid-link or end link. C-type conditioning and data capability may be combined on the same service.

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(CP) ACCESS SERVICES

- SPECIAL ACCESS SERVICE-(Continued)
  - 7.2 Service Descriptions-(Continued)
    - 7.2.3 Voice Grade Service-(Continued)
    - D. Optional Features and Functions-(Continued)
      - 1. Central Office Bridging Capability-(Continued)
        - d. Telemetry and Alarm Bridging

Split Band, Active Bridging Passive Bridging Summation, Active Bridging

2. Central Office Multiplexing

Voice to Telegraph Grade (43-Type Carrier): An arrangement that converts a voice grade channel to telegraph grade channels using frequency division multiplexing.

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Conditioning provides more specific transmission characteristics for Voice Grade Services. C-type conditioning controls attenuation distortion and envelope delay distortion. Sealing current helps maintain continuity on dry metallic loops.

For two-point services, the parameters apply to each service. For multipoint services, the parameters apply to each mid-link or end link. C-type conditioning and data capability may be combined on the same service.

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#### ACCESS SERVICES

SPECIAL ACCESS SERVICE-(Continued)

DEC 25 1000

- 7.2 Technical Service Descriptions for Special Access Service-(Continued) Public Service Commission
  - 7.2.1 Analog Services-(Continued)
    - Voice Grade Services-(Continued)
      - Voice Grade 1 (VG1) Special Access Service-(Continued)
        - Transmission Performance-(Continued)
          - Echo Control-(Continued)

	Echo Return Loss	Singing Return Loss
Standard Return Loss		
Interface (Return Loss)	5 dB	2.5 dB
Four-Wire Interface	16 dB	11 dB
(Equal Level Echo Path	•	
Loss)		

#### Effective Four-Wire Transmission

(Two-wire interface at the End User's premises).

	Echo Return Loss	Singing Return Loss
Two-Wire Interface		
(Return Loss)	24 dB	18 dB
Four-Wire Interface	20 dB	14 dB
(Equal Level Echo Path Loss)		
(For Centrex application		• A
2 dB pad is "in")		i di
	ann nem	1

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#### **ACCESS SERVICES**

- 7. SPECIAL ACCESS SERVICE-(Continued)
- 7.2 Service Descriptions-(Continued)
- 7.2.3 Voice Grade Service-(Continued)
- (AT) E. Optional Features, BSEs and Functions-(Continued)
- (AT) 3. Conditioning BSE-(Continued)
  - a. C-Type Conditioning (1)

C-type conditioning is provided for the additional control of attenuation distortion and envelope delay distortion on data services. The attenuation distortion and envelope delay distortion specifications for C-type conditioning are:

Attenuation Distortion (Frequency Response) Relative to 1004 Hz

Frequency Range (Hz)	Variation (dB)
400-2800	-1.0 to +2.0
300-3000	-1.0 to +3.0
3000-3200	-2.0 to +6.0

# Envelope Delay <u>Distortion</u>

	Variation
Frequency	(micro-
Range (Hz)	seconds)
1000-2600	100
800-2600	200
600-2600	300
500-2800	600
500-3000	3000

(1) This feature is obsolete, and limited to existing installations at existing locations, for existing customers.

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ACCESS SERVICES

SPECIAL ACCESS SERVICE-(Continued)

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7.2 Service Descriptions-(Continued)

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7.2.3 Voice Grade Service-(Continued)

MISSOURI
Public Service Commission

- (FC) E. Optional Features and Functions-(Continued)
  - 3. Conditioning-(Continued)

a. C-Type Conditioning(1)

C-type conditioning is provided for the additional control of attenuation distortion and envelope delay distortion on data services. The attenuation distortion and envelope delay distortion specifications for C-type conditioning are:

Attenuation Distortion (Frequency Response) Relative to 1004 Hz

Frequency	Variation (dB)	
Range (Hz)		
400-2800	-1.0 to +2.0	
300-3000	-1.0 to $+3.0$	
3000-3200	-2.0 to $+6.0$	

Envelope Delay Distortion

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Frequency Range (Hz)	Variation (micro- seconds)	
1000-2600	100	
800-2600	200	
600-2600	300	
500-2800	600	
500-3000	3000	

(AT) (1) This feature is obsolete, and limited to existing installations at existing (AT) locations, for existing customers.

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By R. D. BARRON, President-Missouri Division Southwestern Bell Telephone Company St. Louis, Missouri MAR 26 1990

(CP) ACCESS SERVICES

- 7. SPECIAL ACCESS SERVICE-(Continued)
- 7.2 Service Descriptions-(Continued)
- 7.2.3 Voice Grade Service-(Continued)
- D. Optional Features and Functions-(Continued)
  - Conditioning-(Continued)
    - a. C-Type Conditioning

C-type conditioning is provided for the additional control of attenuation distortion and envelope delay distortion on data services. The attenuation distortion and envelope delay distortion specifications for C-type conditioning are:

Attenuation Distortion (Frequency Response) Relative to 1004 Hz

Frequency Range (Hz)	Variation (dB)
400-2800	-1.0 to +2.0
300-3000	-1.0 to $+3.0$
3000-3200	-2.0 to +6.0

# Envelope Delay Distortion

Variation (micro- seconds)
100
200
300
600
3000

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ACCESS SERVICES

SPECIAL ACCESS SERVICE-(Continued)

DEC 20 1000

- 7.2 Technical Service Descriptions for Special Access Service-(Continued)
  - 7.2.1 Analog Services-(Continued)

Public Service Commission

- B. Voice Grade Services-(Continued)
  - 1. Voice Grade 1 (VG1) Special Access Service-(Continued)
    - d. Transmission Performance-(Continued)
      - Improved Return Loss

The Return Loss (RL), expressed as Echo Return Loss (ERL) and Singing Return Loss (SRL), on two-wire ports of a four-wire point of interface shall be equal to or greater than:

	dard RL	Improved	RL
	5 dB	ERL 20	₫B
SRL	2.5 dB	SRL 13.5	ďΒ

- Loss Variation

The long term loss variation from the nominal 1004 Hz EML shall not exceed +4.0 dB.

- Attenuation Distortion

The attenuation distortion between 404 Hz and 2804 Hz shall be within -2.0 dB and +10.0 dB with reference to the loss at 1004 Hz (minus equals less loss, plus equals more loss). The attenuation distortion between 504 Hz and 2504 Hz shall be within -2.0 dB and +8.0 dB and between 304 Hz and 3004 Hz shall be within -3.0 dB and +12.0 db.

e. Available Facility Interface Combinations

VG1 is available only with specific facility interface combinations as set forth the paragraph 12.1, B.14., following.

2. Voice Grade 2 (VG2) Special Access Service

a. Description

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Special Access Service VG2 provide SalChannel for voice of frequency transmission capability. Usable frequencies are nominally 300 to 3000 Hz between an IC terminal location and an End User's premises.

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#### **ACCESS SERVICES**

- 7. SPECIAL ACCESS SERVICE-(Continued)
- 7.2 Service Descriptions-(Continued)
- 7.2.3 Voice Grade Service-(Continued)
- (AT) E. Optional Features, BSEs and Functions-(Continued)
- (AT) 3. Conditioning BSE-(Continued)
  - b. Sealing Current Conditioning

Sealing current conditioning is provided to help maintain continuity on dry metallic loops. It is usually associated with four-wire DA or NO-type channel interfaces.

c. Improved Attenuation Distortion (IAD)

Improved Attenuation Distortion upgrades the frequency versus loss response limits of the channel. The specifications for Improved Attenuation Distortion are delineated in Technical Reference set forth at the end of Paragraph 7.2.

d. C-Conditioning

C-Conditioning upgrades the frequency response and envelope delay distortion limits of the analog data channel. The specifications for C-Conditioning, which are less stringent than C-Type conditioning, are delineated in Technical References set forth at the end of Paragraph 7.2.

e. Improved Envelope Delay Distortion

Improved Envelope Delay Distortion Upgrades the frequency vs. delay response limits of the analog data channel. The specifications for Improved Envelope Delay Distortion are delineated in Technical References set forth at the end of Paragraph 7.2.

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ACCESS SERVICES

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SPECIAL ACCESS SERVICE-(Continued)

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7.2 Service Descriptions-(Continued)

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7.2.3 Voice Grade Service-(Continued)

- (FC) E. Optional Features and Functions-(Continued)
  - Conditioning-(Continued)
    - b. Sealing Current Conditioning

Sealing current conditioning is provided to help maintain continuity on dry metallic loops. It is usually associated with four-wire DA or NO-type channel interfaces.

Improved Attentuation Distortion (IAD)

- c. Improved Attenuation Distortion upgrades the frequency versus loss response limits of the channel. The specifications for Improved Attenuation Distortion are delineated in Technical References set forth at the end of Paragraph 7.2.
- d. C-Conditioning

C-Conditioning upgrades the frequency response and envelope delay distortion limits of the analog data channel. The specifications for C-Conditioning, which are less stringent than C-Type conditioning, are delineated in Technical References set forth at the end of Paragraph 7.2.

Improved Envelope Delay Distortion

Improved Envelope Delay Distortion Upgrades the frequency vs. delay response limits of the analog data channel. The specifications for Improved Envelope Delay Distortion are delineated in Technical References set forth at the end of Paragraph 7.2.

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- SPECIAL ACCESS SERVICE-(Continued)
- 7.2 Service Descriptions-(Continued)
- 7.2.3 Voice Grade Service-(Continued)
- D. Optional Features and Functions-(Continued)
  - Conditioning-(Continued)
    - Sealing Current Conditioning

Sealing current conditioning is provided to help maintain continuity on dry metallic loops. It is usually associated with four-wire DA or NO-type channel interfaces.

Improved Attenuation Distortion upgrades the frequency versus loss response limits of the channel. The specifications for Improved Attenuation Distortion are delineated in Technical Reference PUB 62500 for WALs.

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(CP) ACCESS SERVICES

- SPECIAL ACCESS SERVICE-(Continued)
  - 7.2 Service Descriptions-(Continued)
  - 7.2.3 Voice Grade Service-(Continued)
  - D. Optional Features and Functions-(Continued)
    - 3. Conditioning-(Continued)
      - b. Sealing Current Conditioning

Sealing current conditioning is provided to help maintain continuity on dry metallic loops. It is usually associated with four-wire DA or NO-type channel interfaces.

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- SPECIAL ACCESS SERVICE-(Continued)
  - AUG 1 1-0 1 7.2 Technical Service Descriptions for Special Access Service-(Continued)
  - 7.2.1 Analog Services-(Continued)
  - B. Voice Grade Services-(Continued)
    - Voice Grade 2 (VG2) Special Access Service-(Continued)
      - Description-(Continued)

The transmission interface at the End User's premises is two-wire or four-wire and the IC terminal location interface is four-wire. This service will support effective two-wire or effective four-wire transmission.

b. Illustrative Applications

Special Access Service VG2 is suitable for use as part of the facilities required to provide intrastate telecommunications services such as:

- Centrex C.O. Line
- Concentrator Identifier Trunk
- Extension Service
- Off-Premises Intercommunications Line
- Private Line Voice Circuit
- Paging Circuit
- Foreign Exchange Line (Closed End)
- Centrex Station Line Off-Premises
- Off-Premises Extension
- Off-Premises PBX Station Line

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ACCESS SERVICES

- SPECIAL ACCESS SERVICE-(Continued)
- 7.2 Technical Service Descriptions for Special Access Service-(Continued) Public Service Commission
  - 7.2.1 Analog Services-(Continued)
  - B. Voice Grade Services-(Continued)
    - 2. Voice Grade 2 (VG2) Special Access Service-(Continued)
      - Description-(Continued)

The transmission interface at the End User's premises is two-wire or four-wire and the IC terminal location interface is four-wire. This service will support effective two-wire or effective four-wire transmission.

b. Illustrative Applications

Special Access Service VG2 is suitable for use as part of the facilities required to provide intrastate telecommunications services such as:

- Centrex C.O. Line
- Concentrator Identifier Trunk
- Extension Service
- Off-Premises Intercommunications Line
- Private Line Voice Circuit
- Foreign Exchange Line (Closed End)
- Centrex Station Line Off-Premises
- Off-Premises Extension
- Off-Premises PBX Station Line

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# **ACCESS SERVICES**

- 7. SPECIAL ACCESS SERVICE-(Continued)
- 7.2 Service Descriptions-(Continued)
- 7.2.3 Voice Grade Service-(Continued)
- (AT) E. Optional Features, BSEs and Functions-(Continued)
  - 4. Reserved for future use.

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#### ACCESS SERVICES

7. SPECIAL ACCESS SERVICE-(Continued)

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7.2 Service Descriptions-(Continued)

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7.2.3 Voice Grade Service-(Continued)

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(FC) E. Optional Features and Functions-(Continued)

4. Reserved for future use.

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- 7. SPECIAL ACCESS SERVICE-(Continued)
- 7.2 Service Descriptions-(Continued)
  - 7.2.3 Voice Grade Service-(Continued)
  - D. Optional Features and Functions-(Continued)
    - 4. Reserved for future use.

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SPECIAL ACCESS SERVICE-(Continued)

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- 7.2 Technical Service Descriptions for Special Access Service-(Continued)
- 7.2.1 Analog Services-(Continued)

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B. Voice Grade Services-(Continued)

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Public Service Commission
2. Voice Grade 2 (VG2) Special Access Service-(Continued) Service

- c. Optional Features
  - Central office bridging capability.
  - Improved return loss for effective two-wire transmission at the End User's premises.
  - IC specified End User premises receive level within a range acceptable to the Telephone Company.
  - Improved return loss at four-wire point of interface, applicable to each twowire leg of effective four-wire channel.
- d. Transmission Performance
  - C-Message Noise

The C-Message Noise shall be less than:

	Limit (di	$3\operatorname{rn}(0)(1)$
Channel Mileage (mi)	Type, V1	Type V2
0 - 5manna [ ]	【【信】	38
0 - 5 PAN (1) (E)	33	39
101 - 200	400C 35	41
201 - 400 111 1	1980 37	43
401 - 1000	- 1ス <sup>39</sup>	45

- Echo Control BY FUBLIC SERVICE COMMISSION

Echo Control, identified as Equal Level Echo Path Loss at four-wire interfaces or Return Loss at two-wire interfaces, and expressed as Echo Return Loss and Singing Return Loss, at either the End User's premises or IC terminal location shall be not less than the following limits:

(1) Where facility network conditions will support the parameters, Type WI Will be provided. Where the Type VI parameters cannot be supported, Type V2 will be provided.

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By R. D. BARRON, President-Missouri Division Southwestern Bell Telephone Company St. Louis, Missouri

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#### ACCESS SERVICES

- SPECIAL ACCESS SERVICE-(Continued)
- 7.2 Technical Service Descriptions for Special Access Service-(Continued)
  - 7.2.1 Analog Services-(Continued)
  - B. Voice Grade Services-(Continued)
    - 2. Voice Grade 2 (VG2) Special Access Service-(Continued) C Service Commission
      - c. Optional Features
        - Central office bridging capability.
        - Improved return loss for effective two-wire transmission at the End User's premises.
        - IC specified End User premises receive level within a range acceptable to the Telephone Company on effective four-wire transmission.
        - Improved return loss at four-wire point of interface, applicable to each twowire leg of effective four-wire channel.

d. Transmission Performance

- C-Message Noise

The C-Message Noise shall be less than:

	Limit (dBrnCO)(1								
Channel Mileage (mi)	Type V1	Type V2							
0 - 50	32	38							
51 - 100	33	39							
101 - 200	35	41							
201 - 400	37	43							
401 - 1000	39	45							

- Echo Control

Echo Control, identified as Equal Level Echo Path Loss at four-wire interfaces or Return Loss at two-wire interfaces; and expressed as Echo Return Loss and Singing Return Loss, at either the End User's premises or IC terminal locations; shall be not less than the following limits:

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(1) Where facility network conditions will support the parameters, Type V1 will be provided. Where the Type V1 parameters cannot be supported, Type V2 will be provided.

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#### ACCESS SERVICES

- 7. SPECIAL ACCESS SERVICE-(Continued)
- 7.2 Service Descriptions-(Continued)
- 7.2.3 Voice Grade Service-(Continued)
- (AT) E. Optional Features, BSEs and Functions-(Continued)
  - 5. Improved Termination

Improved termination at a four-wire point of termination, ordered with either an effective two-wire or effective four-wire channel: Provides for a fixed 600 ohm impedance, variable level range and simplex reversal. Telephone Company equipment is required at the customer's premises where this option is ordered. The improved termination parameters are delineated in Technical References set forth at the end of Paragraph 7.2.

6. Improved Return Loss

Improved return loss at a two-wire point of termination ordered only on effective two-wire channels: Provides for more stringent echo control specifications. In order for this option to be applicable, the transmission path must be four-wire at one POT and two-wire at the other POT. Placement of Telephone Company equipment may be required at the customer's premises with the two-wire POT. The improved return loss parameters are delineated in Technical References set forth at the end of Paragraph 7.2.

# 7. Data Capability

Data capability provides transmission characteristics suitable for data communications. Specifically, data capability provides for the control of signal to C-notched noise ration and intermodulation distortion.

The signal to C-notched noise ratio and intermodulation distortion parameters for data capability are:

- Signal to C-notched noise ratio is equal to or greater than 32 dB

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#### ACCESS SERVICES

7. SPECIAL ACCESS SERVICE-(Continued)

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7.2 Service Descriptions-(Continued)

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7.2.3 Voice Grade Service-(Continued)

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(FC) E. Optional Features and Functions-(Continued)

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CT) 5. Improved Termination

(CT) Improved termination at a four-wire point of termination, ordered with either an effective two-wire or effective four-wire channel: Provides for a fixed 600 ohm impedance, variable level range and simplex reversal. Telephone Company equipment is required at the customer's premises where this option is ordered. The improved termination parameters are delineated in Technical References set forth at the end of Paragraph 7.2.

- (AT) 6. Improved Return Loss
- Improved return loss at a two-wire point of termination ordered only on effective two-wire channels: Provides for more stringent echo control specifications. In order for this option to be applicable, the transmission path must be four-wire at one POT and two-wire at the other POT. Placement of Telephone Company equipment may be required at the customer's premises with the two-wire POT. The improved return loss parameters are delineated in Technical References set forth at the end of Paragraph 7.2.
- (FC) 7. Data Capability

(RT)

Data capability provides transmission characteristics suitable for data communications. Specifically, data capability provides for the control of signal to C-notched noise ration and intermodulation distortion.

The signal to C-notched noise ratio and intermodulation distortion parameters for data capability are:

- Signal to C-notched noise ratio is equal to or greater than 32 dB

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(CP)ACCESS SERVICES

- 7. SPECIAL ACCESS SERVICE-(Continued)
  - 7.2 Service Descriptions-(Continued)
  - 7.2.3 Voice Grade Service-(Continued)
  - D. Optional Features and Functions-(Continued)
    - 5. Improved Return Loss
      - a. Improved return loss at a four-wire point of termination, ordered with either an effective two-wire or effective four-wire channel: Provides for a fixed 600 ohm impedance, variable level range and simplex reversal. Telephone Company equipment is required at the customer's premises where this option is ordered. The improved return loss parameters are delineated in Technical Reference PUB 62501.
      - b. Improved return loss at a two-wire point of termination ordered only on effective two-wire channels: Provides for more stringent echo control specifications. In order for this option to be applicable, the transmission path must be four-wire at one POT and two-wire at the other POT. Placement of Telephone Company equipment may be required at the customer's premises with the two-wire POT. The improved return loss parameters are delineated in Technical Reference PUB 62501.
    - 6. Data Capability

Data capability provides transmission characteristics suitable for data communications. Specifically, data capability provides for the control of signal to C-notched noise ratio and intermodulation distortion. It is available for two-point services or multipoint services.

The signal to C-notched noise ratio and intermodulation distortion parameters for data capability are:

- Signal to C-notched noise ratio is equal to or great

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SPECIAL ACCESS SERVICE-(Continued)

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- 7.2 Technical Service Descriptions for Special Access Service-(Continued)
  - 7.2.1 Analog Services-(Continued)

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- B. Voice Grade Services-(Continued)
  - 2. Voice Grade 2 (VG2) Special Access Service-(Continued)
    - d. Transmission Peformance-(Continued)
      - Echo Control-(Continued)

# Effective Two-Wire Transmission

(Four-wire interface at the IC terminal location and two-wire interface at the End User's premises.)

	Ecl	10	Singin	8
	Retur	Loss	Return	Loss
Standard Return Loss		•		
(at Two-Wire Interface)	5	dB	2.5	dB
Improved Return Loss (at Two-wire Inter- face)	13	dB	8	dB
Four-Wire Interface (Equal Level Echo Path Loss) (For Centrex Application,	16	dB	. 11	₫ <b>B</b>
2 dB pad is "in")				

Effective Four-Wire Transmission

(Two-wire interface at the End User's premises.)

Two-wire Interface Public SERVICE COMMISSION Return Loss

(Return Loss)

Four-wire Interface
(Equal Level Echo Path Loss)

20 dB

Singing
Return Loss
Return Loss

18 dB

18 dB

18 dB

18 dB

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## **ACCESS SERVICES**

- 7. SPECIAL ACCESS SERVICE-(Continued)
- 7.2 Service Descriptions-(Continued)
- 7.2.3 Voice Grade Service-(Continued)
- (AT) E. Optional Features, BSEs and Functions-(Continued)
  - 7. Data Capability-(Continued)
    - Intermodulation distortion:
    - Signal to second order modulation products (R2) is equal to or greater than 38 dB
    - Signal to third order modulation products (R3) is equal to or greater than 42 dB

When a service equipped with data capability is used for voice communications, the quality of the voice transmission may not be satisfactory.

# 8. Improved Echo Control

Improved Echo Control for two-wire WALs provides more stringent control of reflected signals. Placement of Telephone Company equipment may be required at the customer's premises. The Improved Echo Control specifications are delineated in Technical References set forth at the end of Paragraph 7.2.

9. Improved Equal Level Echo Path Loss

Provides improved echo control at four-wire interface for effective two- wire voice grade configurations. Specifications can only be met with limited facility configurations. Improved Equal Level Echo Path Loss specifications are delineated in Technical References set forth at the end of Paragraph 7.2.

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#### ACCESS SERVICES

SPECIAL ACCESS SERVICE-(Continued)

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7.2 Service Descriptions-(Continued)

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7.2.3 Voice Grade Service-(Continued)

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- (FC) E. Optional Features and Functions-(Continued)
- (FC) 7. Data Capability-(Continued)
  - Intermodulation distortion:
    - Signal to second order modulation products (R2) is equal to or greater than 38 dB
    - Signal to third order modulation products (R3) is equal to or greater than 42 dB

When a service equipped with data capability is used for voice communications, the quality of the voice transmission may not be satisfactory.

(FC) 8. Improved Echo Control

(CT)

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(AT)

Improved Echo Control for two-wire WALs provides more stringent control of reflected signals. Placement of Telephone Company equipment may be required at the customer's premises. The Improved Echo Control specifications are delineated in Technical References set forth at the end of Paragraph 7.2.

9. Improved Equal Level Echo Path Loss

Provides improved echo control at four-wire interface for effective two-wire voice grade configurations. Specifications can only be met with limited facility configurations. Improved Equal Level Echo Path Loss specifications are delineated in Technical References set forth at the end of Paragraph 7.2.

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7. SPECIAL ACCESS SERVICE-(Continued)

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7.2 Service Descriptions-(Continued)

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7.2.3 Voice Grade Service-(Continued)

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- D. Optional Features and Functions-(Continued)
  - Data Capability-(Continued)
    - Intermodulation distortion:
      - Signal to second order modulation products (R2) is equal to or greater than 38 dB
      - Signal to third order modulation products (R3) is equal to or greater than 42 dB

When a service equipped with data capability is used for voice communications, the quality of the voice transmission may not be satisfactory.

7. Improved Echo Control

(AT)

(AT)

Improved Echo Control for two-wire WALs provides more stringent control of reflected signals. Placement of Telephone Company equipment may be required at the customer's premises. The Improved Echo Control specifications are delineated in Technical Reference PUB 62500 for WALs.

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(CP)ACCESS SERVICES

- SPECIAL ACCESS SERVICE (Continued)
- 7.2 Service Descriptions-(Continued)
  - 7:2.3 Voice Grade Service-(Continued)
  - D. Optional Features and Functions-(Continued)
    - Data Capability-(Continued)
      - Intermodulation distortion:
        - Signal to second order modulation products (R2) is equal to or greater than 38 dB
        - Signal to third order modulation products (R3) is equal to or greater than 42 dB

When a service equipped with data capability is used for voice communications, the quality of the voice transmission may not be satisfactory.

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#### ACCESS SERVICES

SPECIAL ACCESS SERVICE-(Continued)

DEU 20 (co

- 7.2 Technical Service Descriptions for Special Access Service (Continued)
  - 7.2.1 Analog Services-(Continued)
  - B. Voice Grade Services-(Continued)
    - 2. Voice Grade 2 (VG2) Special Access Service-(Continued)
      - d. Transmission Peformance-(Continued)
        - Improved Return Loss

The Return Loss (RL), expressed as Echo Return Loss (ERL) and Singing Return Loss (SRL), on two-wire ports of a four-wire point of interface shall be equal to cr greater than:

Stan	dard RL	Improved	RL
ERL	5 dB	ERL 20	
SRL	2.5 dB	SRL 13.5	ďΒ

- Loss Variation

The long term loss variation from the nominal 1004 Hz EML shall not exceed  $\pm 1.5$  dB.

- Attenuation Distortions

The attenuation distortion between 404 Hz and 2804 Hz shall be within -1.0 dB and +4.0 dB with reference to the loss at 1004 Hz (minus equals less loss, plus equals more loss). The attenuation distortion between 304 Hz and 3004 Hz shall be within -1.0 dB and +5.0 dB.

e. Available Facility Interface Combinations

VG2 is available only interface combinations as set forth in Paragraph 7.2.1, B.14.7, [2], following.

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#### **ACCESS SERVICES**

- 7. SPECIAL ACCESS SERVICE-(Continued)
  - 7.2 Service Descriptions-(Continued)
  - 7.2.3 Voice Grade Service-(Continued)
- (AT) E. Optional Features, BSEs and Functions-(Continued)
  - 10. Signaling Capability

Signaling capability provides for the process by which one customer premises alerts another customer premises on the same service with which it wishes to communicate.

11. Selective Signaling Arrangement

An arrangement that permits code selective ringing for up to ten codes on a multipoint service.

12. Transfer Arrangement

An arrangement that affords the customer an additional measure of flexibility in the use of their access channel(s). The arrangement can be utilized to transfer a leg of a Special Access Service to another channel that terminates in either the same or a different customer premises. A key activated or dial-up control service is required to operate the transfer arrangement. A spare line, if required, is not included as part of the option.

The following table shows the technical specifications packages with which the optional features, BSEs and functions are available.

Available with Technical Specifications Package VG-

<u>C 1 2 3 4 5 6 7 8 9 10 11 12 W</u>

C-Type Condi-				
tioning (1)	X		X X X X	X X X
Central Office				
Bridging				
Capabilit	X	X	XX	X X X
Central Office				
Multiplexing	X		X	
C-Conditioning	X		X X X X	X X X

(1) This feature is obsolete, and limited to existing installations at existing locations, for existing customers.

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By A. D. ROBERTSON, Assistant Vice President-External Affairs Southwestern Bell Telephone Company St. Louis, Missouri

(AT)

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SPECIAL ACCESS SERVICE-(Continued)

7.2 Service Descriptions-(Continued)

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7.2.3 Voice Grade Service-(Continued)

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(FC) E. Optional Features and Functions-(Continued)

(FC) 10. Signaling Capability

Signaling capability provides for the process by which one customer premises alerts another customer premises on the same RCELLED vice with which it wishes to communicate.

(FC) 11. Selective Signaling Arrangement

An arrangement that permits code selective ringing for up BY ten Commission, codes on a multipoint service.

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(FC) 12. Transfer Arrangement

An arrangement that affords the customer an additional measure of flexibility in the use of their access channel(s). The arrangement can be utilized to transfer a leg of a Special Access Service to another channel that terminates in either the same or a different customer premises. A key activated or dial-up control service is required to operate the transfer arrangement. A spare line, if required, is not included as part of the option.

The following table shows the technical specifications packages with which the optional features and functions are available.

# Available with Technical Specifications Package VG-

	<u>c</u>	<u>1</u>	2	<u>3</u>	<u>4</u>	<u>5</u>	<u>6</u>	7	<u>8</u>	<u>9</u>	<u>10</u>	<u>11</u>	<u>12</u>	¥
C-Type Condi- tioning (1) Central Office	X					X	X	x	X	X	X			
Bridging Capabilit Central Office	X		x			X	X				x	X	X	
Multiplexing C-Conditioning	X					x	X X	X	X	X	X			
	tioning (1) Central Office Bridging Capabilit Central Office Multiplexing	C-Type Condi- tioning (1) X Central Office Bridging Capabilit X Central Office Multiplexing X	C-Type Condi- tioning (1) X Central Office Bridging Capabilit X Central Office Multiplexing X	C-Type Condi- tioning (1) X Central Office Bridging Capabilit X X Central Office Multiplexing X	C-Type Condi- tioning (1) X Central Office Bridging Capabilit X X Central Office Multiplexing X	C-Type Condi- tioning (1) X Central Office Bridging Capabilit X X Central Office Multiplexing X	C-Type Condi- tioning (1) X X Central Office Bridging Capabilit X X X Central Office Multiplexing X	C-Type Condi- tioning (1) X X X Central Office Bridging Capabilit X X X X Central Office Multiplexing X X	C-Type Condi- tioning (1) X X X X Central Office Bridging Capabilit X X X X Central Office Multiplexing X X	C-Type Condi- tioning (1) X X X X X Central Office Bridging Capabilit X X X X Central Office Multiplexing X X	C-Type Condi- tioning (1) X X X X X X Central Office Bridging Capabilit X X X X Central Office Multiplexing X X	C-Type Condi- tioning (1) X X X X X X X X X X X X X X X X X X X	C-Type Condi- tioning (1) X X X X X X X Central Office Bridging Capabilit X X X X X X X Central Office Multiplexing X X	tioning (1) X X X X X X X X X Central Office Bridging Capabilit X X X X X X X X X X X X X X X X X X X

(AT) (1) This feature is obsolete, and limited to existing installations at existing

AT) locations, for existing customers.

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7. SPECIAL ACCESS SERVICE-(Continued)

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7.2 Service Descriptions-(Continued)

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7.2.3 Voice Grade Service-(Continued)

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D. Optional Features and Functions-(Continued)

8. Signaling Capability

Signaling capability provides for the process by which one customer premises alerts another customer premises on the same service with which it wishes to communicate.

9. Selective Signaling Arrangement

An arrangement that permits code selective ringing for up to ten codes on a multipoint service.

10. Transfer Arrangement

(AT)

An arrangement that affords the customer an additional measure of flexibility in the use of their access channel(s). The arrangement can be utilized to transfer a leg of a Special Access Service to another channel that terminates in either the same or a different customer premises. A key activated or dial-up control service is required to operate the transfer arrangement. A spare line, if required, is not included as part of the option.

The following table shows the technical specifications packages with which the optional features and functions are available.

Available with Technical Specifications Package VG-1 2 3 4 10 11 12 W C-Type Conditioning X X X X X X Central Office Bridging Capability X X X Central Office FILED X Multiplexing Service Commission OCT 16 1987 TO-87-42 Public Service Commission

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(CP)ACCESS SERVICES

- SPECIAL ACCESS SERVICE-(Continued)
- · 7.2 Service Descriptions-(Continued)
  - 7.2.3 Voice Grade Service-(Continued)
  - D. Optional Features and Functions-(Continued)
    - 8. Signaling Capability

Signaling capability provides for the process by which one customer premises alerts another customer premises on the same service with which it wishes to communicate.

9. Selective Signaling Arrangement

An arrangement that permits code selective ringing for up to ten codes on a multipoint service.

10. Transfer Arrangement

An arrangement that affords the customer an additional measure of flexibility in the use of their access channel(s). The arrangement can be utilized to transfer a leg of a Special Access Service to another channel that terminates in either the same or a different customer premises. A key activated or dial-up control service is required to operate the transfer arrangement. A spare line required is not included as part of the option.

The following table shows the technical specifications packages of 1087 with which the optional features and functions

Specifications Package VGF UDIO Service Commission

Specifications Package VGF UDIO SANSSOURI 10 11 12 7 2 3 C-Type Condi-X X X X X X tioning Х Central Office Bridging Capability X X X X Central Office Multiplexing X X 86-84 fic Service Commission Issued: Effective: JUN 27 1986

> By R. D. BARRON, President-Missouri Division Southwestern Bell Telephone Company St. Louis, Missouri

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#### ACCESS SERVICES

- SPECIAL ACCESS SERVICE-(Continued)
- 7.2 Technical Service Descriptions for Special Access Service (Continued) MENISSION
  - 7.2.1 Analog Services-(Continued)
    - Voice Grade Services-(Continued)
      - Voice Grade 3 (VG3) Special Access Service
        - Description

Special Access Service VG3 provides a channel for voice frequency transmission capability. Usable frequencies are nominally 300 to 3000 Hz between an IC terminal location and an End User's premises. The transmission interface at the End User's premises is two-wire or four-wire, and the IC terminal location interface is four-wire. This service will support effective two-wire or four-wire transmission.

b. Illustrative Applications

Special Access Service VG3 is suitable for use as part of the facilities required to provide intrastate telecommunications services such as:

- Foreign Exchange Trunk (Closed End)
- Alternate Use Service
- PBX/CTX Tie Trunks
- SSN Access Line
- SSN Station Line
- SSN Network Line
- SSN Tie Trunk
- Station and Premises Connecting Facilities

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## **ACCESS SERVICES**

- 7. SPECIAL ACCESS SERVICE-(Continued)
- 7.2 Service Descriptions-(Continued)
- 7.2.3 Voice Grade Service-(Continued)
- (AT) E. Optional Features, BSEs and Functions-(Continued)

# Available with Technical Specifications Package VG-

	<u>C</u> <u>1</u> <u>2</u> <u>3</u> <u>4</u>	<u>5</u> <u>6</u> <u>7</u> <u>8</u>	9 10 11 12 W
Data Capability Improved Attenuation	X	X	X X
Distortion (IAD)	X	X X X X	
Improved Echo	71	71 71 71 71	11 11
Control at two-wire			
WAL point of termination			X+
Improved Termination at four-wire			
point of termina- tion	X  X  X  X	XXXX	XXXX
Improved Return Loss at two-wire			
point of termina-	X - X - X	X	
Improved ELEPL	X X X X	X X	
Sealing Current			
Conditioning	XX	XX	X - X
Selective Signal-			
ing Arrangement	X X		
Signaling			
Capability	X X X X	X X	X *
Improved Envelope Delay			
Distortion(IEDD)	X	X X X	X X X X
Transfer			
Arrangement	X  X  X  X	X  X  X  X	X  X  X  X  X  X

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<sup>\*</sup> Signaling is provided in conjunction with Switched Access Service.

<sup>+</sup> When WAL extensions are provided, Echo Control limits are not applicable.

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#### ACCESS SERVICES

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SPECIAL ACCESS SERVICE-(Continued)

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7.2 Service Descriptions-(Continued)

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7.2.3 Voice Grade Service-(Continued)

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(FC) E. Optional Features and Functions-(Continued)

•									Tec Pack						
		Ē	1	<u>2</u>	<u>3</u>	4	<u>5</u>	<u>6</u>	<u>7</u>	8	9	<u>10</u>	11	<u>12</u>	Ä
(RT)	Data Capability Improved Attenuation	X						X				X			x
(AT)	Distortion (IAD) Improved Echo Control at two-wire WAL point of termination	x					X	X	X	X	X	X			X+
(CT)	Improved Termination at four-wire point of termina- tion	X	X	x	x	x	X	X	X	x	X	X	vČ!	ΕĽL	ED
(TA)	Improved Return Loss at two-wire point of termina- tion	x		x	x				x		(				93 <del>*</del> 5. <u>- 3</u> 7
(AT)	Improved ELEPL Sealing Current	X	X	X	X		X	٠	X	•	aithl	BY ic S	<u>≥</u> ervi¢	e C	ommission JRI
	Conditioning Selective Signal- ing Arrangement	X X	X	X			X	X		`4	- U.D.	X	MIS	SQU	), <sub>'</sub> ,
(AT)	Signaling Capability Improved Envelope	x	x	x	x				x	X	X				*
	Delay Distortion(IEDD) Transfer	X					X	X	X	X	X	X			
	Arrangement	X	X	X	X	X	X	X	X	X	X	X	X	X	

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\* Signaling is provided in conjunction with Switched Access Service.

+ When WAL extensions are provided, Echo Control limits are not applicable.

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By R. D. BARRON, President-Missouri Division Southwestern Bell Telephone Company St. Louis, Missouri

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7.2 Service Descriptions-(Continued)

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7.2.3 Voice Grade Service-(Continued)

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D. Optional Features and Functions-(Continued)

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Transfer Arrangement-(Continued)

		_			Spe							chni ge V			
(AT)		<u>c</u>	<u>1</u>	_	_	<u>4</u>	_	<u>6</u>	7	_	<u>9</u>	<u>10</u>	<u>11</u>	<u>12</u>	W
(AT)	Data Capability Improved Attenuation Distortion Improved Echo Control at two-wire	X				MA' MA' BY	_ ^	C \	ワッ‐	_	1	χ			X
(AT)	WAL point of termination Improved Return Loss at four-wire			71	الطايا	BY IC S	ery M	ce SS	OU' Co'	VI Ww	1851	no			<b>X</b> +
	<pre>point of termina- tion at two-wire point of termina-</pre>	_	X		-	X	X	X	X	X	X	X	X	X	
	tion	X		X	X				X						
	Sealing Current Conditioning Selective Signal-	X	X				X	X				X		X	
	ing Arrangement Signaling	X		X											
(RT)	Capability	X	X	X	X				X	X	X				¥
	Transfer Arrangement	X	X	X	x	X	X	X	X	x	X	X	x	X	

E. Four-Wire/Two-Wire Conversion

When a customer requests that an effective four-wire channel be terminated with a two-wire channel interface at the customer-designated premises, a four-wire to two-wire conversion is required. The rate for the conversion is included as part of the basic Channel Termination rate.

(AT) \* Signaling is provided in conjunction with Switched Access Service. OCT 16 1987

(AT) + When WAL extensions are provided, Echo Control limits are not applicable 7-42

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Effective: OCT 16 1987

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- SPECIAL ACCESS SERVICE-(Continued)
- 7.2 Service Descriptions-(Continued)
  - 7.2.3 Voice Grade Service-(Continued)
  - D. Optional Features and Functions-(Continued)

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	<u>c</u>	1	2	<u>3</u>	<u>4</u>	<u>5</u>	<u>6</u>	7	<u>8</u>	<u>9</u>	<u>10</u>	11	<u>12</u>
Data Capability Improved Return Loss At Four-Wire	X						X	X			Х		
Point Of Termination At Two-Wire	X	X	X	X	X	X	X	X	X 1	ED	X	X	X
Point Of Termination Sealing Current	X		X	X						ÊD			
Conditioning Selective Sig- naling Arrange-	X	X				X	x <sub>0</sub>	CT : 139	16 19 2d S	301 2.5.#	27 nissio	nc	X
ment Signaling	X		X			Out	o hlic'	Serv	ice (	x NEI MOS	1110		
Capability	X	X	X	X		₽ ().	<b>5</b>	X <sub>M</sub>	SSC X	X			
Transfer Arrangement	X	X	X	X	X	X	X	X	X	X	X	X	X

E. Four-Wire/Two-Wire Conversion

When a customer requests that an effective four-wire channel be terminated with a two-wire channel interface at the customer-designated premises, a four-wire to two-wire conversion is required. The rate for the conversion is included as part of the basic Channel Termination rates of

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SPECIAL ACCESS SERVICE-(Continued)

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- 7.2 Technical Service Descriptions for Special Access Service-(Continued)
  - 7.2.1 Analog Services-(Continued)

AUG 14 1004

B. Voice Grade Services-(Continued)

MISSOURI

- 3. Voice Grade 3 (VG3) Special Access Service-(Continued)blic Service Commission
  - c. Optional Features
    - Improved return loss for effective two-wire transmission at the End User's premises.
    - IC specified End User's premises receive level within a range acceptable to the Telephone Company.
    - Improved return loss at four-wire point of interface, applicable to each two-wire leg of effective four-wire channel.
  - d. Transmission Performance
    - C-Message Noise

The C-Message noise shall be less than:

	Limit (d	BrnCO)(1)
Channel Mileage (mi)	Type Vl	Type V2
0 - 50 51 - 100 ANG 101 - 200	<b>≈</b> n n ∈ m³²	38
51 - 100@ [] [] []	是1上1上1号UB3	<b>3</b> 9
101 - 200	35	41
201 - 400	600C 37	43
401 - 1000 JUL 1	1986 39	45

- Echo Control BY

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Echo Control, identif Ded Tagual Level Echo Path Loss at fourwire interfaces or Return Loss at two-wire interfaces, for both
Echo Return Loss and Singing Return Loss, at either the End
User's premises or IC terminal location shall be not less
than the following limits:

(1) Where facility network conditions will support the parameters, Type VI will be provided. Where the Type VI parameters cannot be supported Type V23Will be provided.

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# ACCESS SERVICES

7. SPECIAL ACCESS SERVICE-(Continued)

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- 7.2 Technical Service Descriptions for Special Access Service-(Continued)
  - 7.2.1 Analog Services-(Continued)
    - B. Voice Grade Services-(Continued)
      - Voice Grade 3 (VG3) Special Access Service-(Continued)
        - c. Optional Features
          - Improved return loss for effective two-wire transmission at the End User's premises.
          - IC specified End User's premises receive level within a range acceptable to the Telephone Company on effective four-wire transmission.
          - Improved return loss at four-wire point of interface, applicable to each two-wire leg of effective four-wire leg channel.
        - d. Transmission Performance

- C-Message Noise

The C-Message noise shall be less than:

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PUBLIC SERVICE COMMISSION
OF MISSOURI

Limit (dBrnCO)(1) Type Vl Channel Mileage (mi) Type V2 0 - 5032 38 51 - 100 33 39 101 - 20035 41 201 - 400 37 43 401 - 1000 39

- Echo Control

Echo Control, identified as Equal Level Echo Path Loss at four-wire interfaces or Return Loss at two-wire interfaces, for both Echo Return Loss and Singing Return Loss, at either the End User's premises or IC terminal location shall be not less than the following limits:

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 Where facility network conditions will support the parameters, Type V1 will be provided. Where the Type V1 parameters cannot be supported, Type V2 will be provided.

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# **ACCESS SERVICES**

- 7. SPECIAL ACCESS SERVICE-(Continued)
- 7.2 Service Descriptions-(Continued)
- 7.2.3 Voice Grade Service-(Continued)
- (FC) F. Four-Wire/Two-Wire Conversion

When a customer requests that an effective four-wire channel be terminated with a two-wire channel interface at the customer-designated premises, a four-wire to two-wire conversion is required. The rate for the conversion is included as part of the basic Channel Termination rate.

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SPECIAL ACCESS SERVICE-(Continued)

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7.2 Service Descriptions-(Continued)

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# (CP)ACCESS SERVICES

- SPECIAL ACCESS SERVICE-(Continued)
  - 7.2 Service Descriptions-(Continued)
  - 7.2.4 Program Audio Service
  - A. Basic Channel Description

A Program Audio channel is a channel measured in Hz for the transmission of a complex signal voltage. The actual bandwidth is a function of the channel interface selected by the customer. Only one-way transmission is provided. Program Audio channels are provided between customer designated premises or between a customer designated premises and a Telephone Comp CANCEL pany Hub.

B. Technical Specifications Packages

		Pac	kage A	P	amy	4.3.11
Parameter	<u>C(1)</u>	1	2	ə≟öli	BY DO	10.111 1111.07
Actual Measured Loss	X	X	X	X	X	
Amplitude Tracking Crosstalk	X X	X	X	X	X	
Distortion Tracking Gain/Frequency	X					
Distortion	X	X	X	X	X	
Group Delay	X					
Noise	X	X	X	X	X	
Phase Tracking Short-Term Gain	X					
Stability	X					
Short-Term Loss	X					
Total Distortion	X	X	X	X	X	

The technical specifications are delineated in Technical Reference PUB 62503 and associated Addendum.

C. Channel Interfaces

The following channel interfaces (CI's) define the bandwidth available for a Program Audio channel:

(1) The desired parameters are selected by the customer from the 13846 of 84 available parameters.

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#### ACCESS SERVICES

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SPECIAL ACCESS SERVICE-(Continued)

- 7.2 Technical Service Descriptions for Special Access Service (Continued) mmscio
  - 7.2.1 Analog Services-(Continued)
  - B. Voice Grade Services-(Continued)
    - 3. Voice Grade 3 (VG3) Special Access Service-(Continued)
      - Transmission Performance-(Continued)
        - Echo Control-(Continued)

# Effective Two-Wire Transmission

(Four-wire interface at the IC terminal location, twowire interface at the End User's premises.)

	Echo	Singing
	Return Loss	Return Loss
Standard Return Loss		
<pre>(at Two-Wire Interface)</pre>	5 dB	2.5 dB
Improved Return Loss		
(at Two-Wire Interface)	13 dB	8 dB
Four-Wire Interface	16 dB	11 dB
(Equal Level Echo		
Path Loss)		•
(For Centrex application,		
2 dB pad is "in")		

Effective Four-Wire Transmission

(Two-wire interface at the End User's premises).

Echo Singing Return Loss Return Loss (Return Loss) PUBLIC SERVICE COMMISSION Two-Wire Inter 24 dB 18 dB 1 11/14 dB: Four-Wire Interface 20 dB (Equal Level Echo Path Loss) JAN - 1 185. 83 - 253

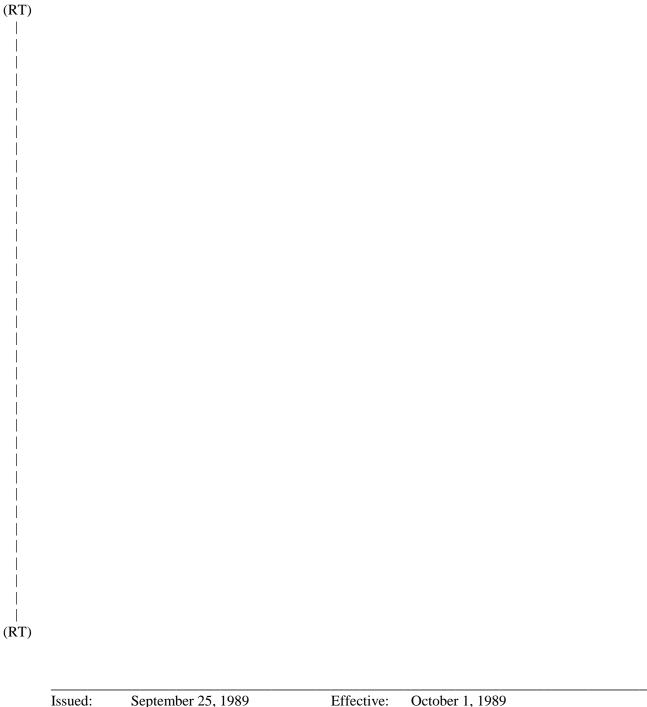
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# **ACCESS SERVICES**

- 7. SPECIAL ACCESS SERVICE-(Continued)
- 7.2 Service Descriptions-(Continued)



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#### (CP) ACCESS SERVICES

- SPECIAL ACCESS SERVICE-(Continued)
  - 7.2 Service Descriptions-(Continued)
  - 7.2.4 Program Audio Service-(Continued)
  - C. Channel Interfaces-(Continued)

PG-1 Nominal frequency from 50 to 15000 Hz PG-3 Nominal frequency from 200 to 3500 Hz PG-5 Nominal frequency from 100 to 5000 Hz PG-8 Nominal frequency from 50 to 8000 Hz	<u>.</u>	<u>-</u>		Bandwidr	<u>n</u>			
PG-5 Nominal frequency from 100 to 5000 Hz	P	G-1 N	ominal	frequency	from	50 to 15	000	Hz
11-11-11-11-11-11-11-11-11-11-11-11-11-	P(	G-3 N	ominal	frequency	from	200 to 3.	500	Ηz
PG-8 Nominal frequency from 50 to 8000 Hz	P	G-5 N	ominal	frequency	from	100 to 5	000	Ηz
	P	2-8 N	ominal	frequency	from	50 to 80	00 H	2

Da = 3. . . 3 + b

Compatible channel interfaces are set forth in Paragraph 7.3.5, D., following.

- D. Optional Features and Functions
  - 1. Central Office Bridging Capability Distribution Amplifier
  - 2. Gain Conditioning

Public Service Commission Control of 1004 Hz AML at initiation of service to 0 dB  $\pm$  .05 dB.

3. Stereo

Provision of a pair of gain/phase equalized channels for stereo applications. (additional AP channel must be ordered separately.)

The following table shows the technical specifications packages with which the optional features and functions are available.

> Available with Technical Specifications Package AP-

	<u>c</u>	1	2	3 ECLED
Central Office Bridging Capability Gain Conditioning Stereo	X X X	X X	X X	x XII 1 1986 x X8 6 - 8 4 Public Service Commission

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ACCESS SERVICES

SPECIAL ACCESS SERVICE-(Continued)

- 7.2 Technical Service Descriptions for Special Access Service-(Continued)
  - 7.2.1 Analog Services-(Continued)

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- B. Voice Grade Services-(Continued)
  - 3. Voice Grade 3 (VG3) Special Access Service-(Continued)
    - Transmission Performance-(Continued)
      - Improved Return Loss

The Return Loss (RL), expressed as Echo Return Loss (ERL) and Singing Return Loss (SRL), on two-wire ports of a four-wire point of interface shall be equal to or greater than:

Stan	dard	RL	Improved	RL
ERL	5	dB	ERL 20	dB
SRL	2.5	dB	SRL 13.5	dВ

- Loss Variation

The long term loss variation from the nominal 1004 Hz EML shall not exceed  $\pm 1.5$  dB.

- Attentuation Distortions

The attenuation distortion between 404 Hz and 2804 Hz shall be within -1.0 dB and +3.0 dB with reference to the loss at 1004 Hz (minus equals less loss, plus equals more loss). The attenuation distortion between 304 Hz and 3004 Hz shall be within -1.0 dB and +5.0 dB.

e. Available Facility Interface Combinations

VG3 is available only with specific facility interface combinations as set forth in Paragraph 7.2.1, B., 14, following.

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## **ACCESS SERVICES**

# 7. SPECIAL ACCESS SERVICE-(Continued)

# 7.2 Service Descriptions-(Continued)

#### 7.2.5 Wideband Analog Service

## A. Basic Channel Description

A Wideband Analog channel is a channel with a bandwidth measured in kHz for the transmission of a wideband signal. The actual bandwidth is a function of the channel interface selected by the customer. Wideband Analog channels are provided between customer designated premises or between a customer designated premises and a Telephone Company Hub.

# B. Technical Specifications Packages

	Package WA-			
<u>Parameter</u>	1 2 2A 3 4			
Amplitude Stability	$\mathbf{X} - \mathbf{X}$			
Background Noise	X  X  X  X  X			
Frequency Shift	X  X  X			
Gain/Frequency				
Characteristics of:				
-Group Connections	$X \qquad \qquad X \qquad X$			
-Supergroup				
Connections	X			
-Mastergroup				
Connections	X			
Impulse Noise	X  X  X			
Net Loss Variations	X  X  X  X  X			
Pilot Slot	X  X  X			
Spurious Single				
Frequency Tone	X  X  X			

The technical specifications are delineated in Technical References (CT) listed in Paragraph 7.2, preceding.

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(CP)ACCESS SERVICES

- SPECIAL ACCESS SERVICE-(Continued)
  - 7.2 Service Descriptions-(Continued)
    - 7.2.5 Wideband Analog Service
    - A. Basic Channel Description



A Wideband Analog channel is a channel with a bandwidth measured in kHz for the transmission of a wideband signal. The actual bandwidth is a function of the channel interface selected by the customer. Wideband Analog channels are provided between customer designated premises or between a customer designated premises and a Telephone Company Hub.

B. Technical Specifications Packages

		Pac	ckage W	<u> </u>		
Parameter	1	2	<u>2A</u>	<u>3</u>	4	CANCELLED
Amplitude Stability Background Noise Frequency Shift Gain/Frequency Characteristics of:	X X X	X X X	X X	x	X Pub!i	SEP 3 0 1991 BY 2 R.S. \$35 c Service Commission
-Group Connections -Supergroup Connections -Mastergroup	Х	X		X	Х	MISSOURI
Connections Impulse Noise Net Loss Variations Pilot Slot	X X X	X X X	X X X X	x	X	
Spurious Single Frequency Tone	X	Х	X			

The technical specifications are delineated in Technical Reference PUB 62505 and associated Addendum.

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- 7. SPECIAL ACCESS SERVICE-(Continued)
  - 7.2 Technical Service Descriptions for Special Access Service-(Continued)
    - 7.2.1 Analog Services-(Continued)

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- B. Voice Grade Services-(Continued)
  - 4. Voice Grade 4 (VG4) Special Access Service

Reserved For Future Use

- 5. Voice Grade 5 (VG5) Special Access Service
  - a. Description

Special Access Service VG5 provides a channel for voiceband data transmission capability. Usable frequencies are nominally 300 to 3000 Hz between an IC terminal location and an End User's premises. The transmission interface can be either two-wire or four-wire at the End User's premises and the IC terminal location. This service will support effective two-wire or four-wire transmission.

b. Illustrative Applications

Special Access Service VG5 is suitable for use as part of the facilities required to provide intrastate telecommunications services such as:

- Protective Alarm
- DATAPHONE Select-A-Station
- c. Optional Features
  - C-Conditioning
  - Central office bridging capability.
  - Improved return loss at four-wire point of interface, applicable to each two-wire leg of effective four-rise channel.

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## **ACCESS SERVICES**

- 7. SPECIAL ACCESS SERVICE-(Continued)
- 7.2 Service Descriptions-(Continued)
- 7.2.5 Wideband Analog Service-(Continued)
  - C. Channel Interfaces

The following channel interfaces (CIs) define the bandwidths that are available for a Wideband Analog channel:

<u>CI</u>	<u>Bandwidth</u>
AH-B	60 kHz to 108 kHz (Group)
AH-C	312 kHz to 552 kHz (Supergroup)
AH-D	564 kHz to 3084 kHz (Mastergroup)
WD-1	300 Hz to 18 kHz
WD-2	29 kHz to 44 kHz
WD-3	28 kHz to 44 kHz

Compatible channel interfaces are set forth in Technical References at the end of Paragraph 7.2.

- (AT) D. Optional Features, BSEs and Functions
- (AT) 1. Central Office Multiplexing BSE
  - a. Mastergroup to Supergroup

An arrangement that converts a Mastergroup channel to ten Supergroup channels using frequency division multiplexing.

b. Supergroup to Group

An arrangement that converts a Supergroup channel to five Group channels using frequency division multiplexing.

c. Group to Voice

An arrangement that converts a Group channel to twelve Voice Grade channels using frequency division multiplexing. A channel(s) of this Group level service to the Hub can also be used for Program Audio service.

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By A. D. ROBERTSON, Assistant Vice President-External Affairs Southwestern Bell Telephone Company St. Louis, Missouri

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7. SPECIAL ACCESS SERVICE-(Continued)

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7.2 Service Descriptions-(Continued)

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7.2.5 Wideband Analog Service-(Continued)

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C. Channel Interfaces

The following channel interfaces (CI's) define the bandwidths that are available for a Wideband Analog channel:

<u>CI</u>	Bandwidth
AH-B	60 kHz to 108 kHz (Group)
AH-C	312 kHz to 552 kHz (Supergroup)
AH-D	564 kHz to 3084 kHz (Mastergroup)
WD-1	300 Hz to 18 kHz
WD-2	29 kHz to 44 kHz
WD-3	28 kHz to 44 kHz

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Compatible channel interfaces are set forth in Technical References at the end of Paragraph 7.2.

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- D. Optional Features and Functions
  - 1. Central Office Multiplexing
    - a. Mastergroup to Supergroup

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An arrangement that converts a Mastergroup channel to ten Supergroup channels using frequency division multiplexing.

b. Supergroup to Group

An arrangement that converts a Supergroup channel to five Group channels using frequency division multiplexing.

c. Group to Voice

An arrangement that converts a Group channel to twelve Voice Grade channels using frequency division multiplexing. A channel(s) of this Group level service to the Hub can also be used for Program Audio service.

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(CP)ACCESS SERVICES

- 7. SPECIAL ACCESS SERVICE-(Continued)
- 7.2 Service Descriptions-(Continued)
- 7.2.5 Wideband Analog Service-(Continued)
- C. Channel Interfaces

The following channel interfaces (CI's) define the bandwidths that are available for a Wideband Analog channel:

<u>CI</u>	Bandwidth
AH-B	60 kHz to 108 kHz (Group)
AH-C	312 kHz to 552 kHz (Supergroup)
AH-D	564 kHz to 3084 kHz (Mastergroup)
WD-1	300 Hz to 18 kHz
WD-2	29 kHz to 44 kHz
WD-3	28 kHz to 44 kHz

Compatible channel interfaces are set forth in Paragraph 7.3.5, E., following.

- D. Optional Features and Functions
  - 1. Central Office Multiplexing

a. Mastergroup to Supergroup

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An arrangement that converts a Mastergroup channel to ten Supergroup channels using frequency division multiplexing.

b. Supergroup to Group

An arrangement that converts a Supergroup channel to five Group channels using frequency division multiplexing.

c. Group to Voice

An arrangement that converts a Group channel—to-twelve-Voice—Grade channels using frequency division multiplexing. A channel(s) of this Group level service to the Hub can also be used for Program Audio service.

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- SPECIAL ACCESS SERVICE-(Continued)
  - 7.2 Technical Service Descriptions for Special Access Service-(Continued)
    - 7.2.1 Analog Services-(Continued)

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- B. Voice Grade Services-(Continued)
  - 5. Voice Grade 5 (VG5) Special Access Service-(Continued)
    - d. Transmission Performance
      - C-Message Noise

The C-Message Noise shall be less than:

	Limit (dBrnCO)(1)			
Channel Mileage (mi)	Type V1	Type V2		
0 - 50	32	38		
51 - 100	<b>33</b> ·	3 <del>9</del>		
101 - 200	35	41		
201 - 400	37	43		
401 - 1000	39	45		

- Echo Control

Echo Control, identified as Equal Level Echo Path Loss at four-wire interfaces or Return Loss at two-wire interfaces, for both Echo Return Loss and Singing Return Loss, at either the End User's premises or IC terminal location shall be not less than the following limits:

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(1) Where facility network conditions wold will be provided. Where the Type VI wps put the parameters, Type VI will be provided.

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# **ACCESS SERVICES**

- 7. SPECIAL ACCESS SERVICE-(Continued)
- 7.2 Service Descriptions-(Continued)
- 7.2.5 Wideband Analog Service-(Continued)
- (AT) D. Optional Features, BSEs and Functions-(Continued)
- (AT) 1. Central Office Multiplexing BSE-(Continued)
  - d. Group to DS1

An arrangement that converts two Group channels to a DS1 channel using analog to digital conversion.

The following table shows the technical specifications packages (AT) with which the optional features, BSEs and functions are available.

Available with Technical Specifications Package WA-

<u>1</u> <u>2</u> <u>2A</u> <u>3</u> <u>4</u>

Central Office

Multiplexing:

- -Mastergroup to Supergroup
- -Supergroup to Group
- -Group to Voice
- -Group to DS1(1)

X

X

X

(1) Requires two channels with technical specifications package WA1 to form a WA1T service.

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(CP)ACCESS SERVICES

- SPECIAL ACCESS SERVICE-(Continued)
- 7.2 Service Descriptions-(Continued)
  - 7.2.5 Wideband Analog Service-(Continued)
  - D. Optional Features and Functions-(Continued)
    - Central Office Multiplexing-(Continued)
      - d. Group to DSI

An arrangement that converts two Group channels to a DS1 channel using analog to digital conversion.

X

The following table shows the technical specifications packages with which the optional features and functions are available.

> Available with Technical Specifications Package WA-

2 <u>2A</u>

Central Office Multiplexing:

-Mastergroup to Supergroup

-Supergroup to Group

-Group to Voice

-Group to DS1(1)

X X

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(1) Requires two channels with technical specifications package W a WAlT service.

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7. SPECIAL ACCESS SERVICE-(Continued)

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- 7.2 Technical Service Descriptions for Special Access Service-(Continued)
  - LUSBOUR! Public Service Commission

- 7.2.1 Analog Services-(Continued)
- B. Voice Grade Services-(Continued)
  - 5. Voice Grade 5 (VG5) Special Access Service-(Continued)
    - d. Transmission Performance-(Continued)
      - Echo Control-(Continued)

# Effective Two Wire Transmission

(Four-wire interface at the IC terminal location and two-wire interface at the End User's premises.)

	Eci <u>Retur</u>	no Loss	Sing: Return	_
Standard Two-Wire Interface			•	•
(Return Loss)	5	dB	2.5	dB
Four-Wire Interface (Equal Level Echo Path Loss)	16	dB	. 11	dВ

# Effective Four-Wire Transmission

(Two-wire interface at the End User's premises.)

•	Ech <u>Return</u>	_	Singi <u>Return</u>	_
Two-Wire Interface (Return Loss) Four-Wire Interface (Equal Level Echoffeth)	LLED°		18	dB dB
(For Centrey application 1	1986	1		 1:

2 db pad is "in")

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# (CP)ACCESS SERVICES

# 7. SPECIAL ACCESS SERVICE-(Continued)

# 7.2 Service Descriptions-(Continued)

#### 7.2.6 Wideband Data Service

# A. Basic Channel Description

A Wideband Data channel is an analog channel for the transmission of synchronous serial data at the rate of 19.2, 50.0 or 230.4 kbps or of asynchronous serial data at rates of up to 19.2, 50.0 or 230.4 kbps. Optional arrangements are available for transmission of synchronous serial data at 18.75 or 40.8 kbps. The actual bit rate is a function of the channel interface selected by the customer. This service requires a 303 Data Station(s). The 303 Data Station provides coupling between the customer's business machine and the wideband data transmission medium. A voiceband coordinating channel is also provided. Wideband data channels are provided between customer designated premises.

# B. Technical Specifications Packages

	Package WI			
	<u>1</u>	<u>2</u>	<u>3</u>	
<u>Parameter</u>				
Error-Free Seconds	X	X	X	

While in service, the monthly average of error-free seconds will be equal to or greater than 98.75 percent.

#### C. Channel Interfaces

The following channel interfaces (CI's) define the bit rates that are available for a Wideband Data channel:

<u>CI</u>	Bit Rate
WB-18S WB-19A WB-19S WB-23A WB-23S WB-40S WB-50A	18.75 kbps, synchronous up to 19.2 kbps, asynchronous 19.2 kbps, synchronous up to 230.4 kbps, asynchronous 230.4 kbps, synchronous 40.8 kbps, synchronous up to 50.0 kbps, asynchronous 50.0 kbps, synchronous

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SPECIAL ACCESS SERVICE-(Continued)

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- 7.2 Technical Service Descriptions for Special Access Service-(Continued)
- 7.2.1 Analog Services-(Continued)

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- B. Voice Grade Services-(Continued)
  - 5. Voice Grade 5 (VG5) Special Access Service-(Continued)
    - d. Transmission Performance-(Continued)
      - Improved Return Loss

The Return Loss (RL), expressed as Echo Return Loss (ERL) and Singing Return Loss (SRL), on two-wire ports of a four-wire point of interface shall be equal to or greater than:

	dard		Improved	RL
	5		ERL 20	
SRL	2.5	dΒ	SRL 13.5	dΒ

- Loss Variation

The long term loss variation from the nominal 1004 Hz EML shall not exceed +1.5 dB.

- Attenuation Distortion

The attenuation distortion between 404 Hz and 2804 Hz shall be within -1.0 dB and +5.0 dB with reference to the loss at 1004 Hz (minus equals less loss, plus equals more loss).

- Signal-to-C Notch Noise

The Signal-to-C Notch noise ratio shall not be less than 26 dB.

- Impulse Noise

The number of Uniquise hoise courts exceeding a targeto 12 5 3 of 67 dBrnCO in 15 minutes shall be less than 15

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# **ACCESS SERVICES**

- 7. SPECIAL ACCESS SERVICE-(Continued)
- 7.2 Service Descriptions-(Continued)
- 7.2.6 Wideband Data Service-(Continued)

Compatible channel interfaces are set forth in Technical References at the end of Paragraph 7.2.

- (AT) D. Optional Features, BSEs and Functions
  - 1. Key Activated Transfer Arrangement

Key Activated Transfer

Arrangement

An arrangement that affords the customer an additional measure of flexibility in the use of their access channel(s). The arrangement can be utilized to transfer a leg of a Special Access Service to either a spare or working channel that terminates in either the same or a different customer premises. A key activated control service is required to operate the transfer arrangement. A spare line, if required, is not included as a part of the option.

(AT) The following table shows the technical specifications packages with which the optional features, BSEs and functions are available.

Available with Technical Specifications Package WD
1 2 3

X

X

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June 29, 2007
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Service Commission

By A. D. ROBERTSON, Assistant Vice President-External Affairs Southwestern Bell Telephone Company St. Louis, Missouri

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#### ACCESS SERVICES

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7. SPECIAL ACCESS SERVICE-(Continued)

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7.2 Service Descriptions-(Continued)

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7.2.6 Wideband Data Service-(Continued)

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Compatible channel interfaces are set forth in Technical References at the end of Paragraph 7.2.

- D. Optional Features and Functions
  - 1. Key Activated Transfer Arrangement

An arrangement that affords the customer an additional measure of flexibility in the use of their access channel(s). The arrangement can be utilized to transfer a leg of a Special Access Service to either a spare or working channel that terminates in either the same or a different customer premises. A key activated control service is required to operate the transfer arrangement. A spare line, if required, is not included as a part of the option.

The following table shows the technical specifications packages with which the optional features and functions are available.

Available with Technical Specifications Package WD-  $\frac{1}{2} \qquad \frac{2}{3}$  Key Activated Transfer Arrangement X X X X

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(CP)ACCESS SERVICES

- SPECIAL ACCESS SERVICE-(Continued)
- 7.2 Service Descriptions-(Continued)
- 7.2.6 Wideband Data Service-(Continued)

Compatible channel interfaces are set forth in Paragraph 7:3:5, F., following.

- D. Optional Features and Functions
  - Key Activated Transfer Arrangement

An arrangement that affords the customer an additional measure of flexibility in the use of their access channel(s). The arrangement can be utilized to transfer a leg of a Special Access Service to either a spare or working channel that terminates in either the same or a different customer premises. A key activated control service is required to operate the transfer arrangement. A spare line, if required, is not included as a part of the option.

The following table shows the technical specifications packages with which the optional features and functions are available.

> Available with Technical Specifications Package WD-

<u>3</u>

Key Activated Transfer Arrangement

X

X

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7. SPECIAL ACCESS SERVICE-(Continued)

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- 7.2 Technical Service Descriptions for Special Access Service-(Continued)
  - 7.2.1 Analog Services-(Continued)

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- B. Voice Grade Services-(Continued)
  - 5. Voice Grade 5 (VG5) Special Access Service-(Continued)
    - e. Available Facility Interface Combinations

VG5 is available only with specific facility interface combinations as set forth in Paragraph 7.2.1, B., 14, following.

- 6. Voice Grade 6 (VG6) Special Access Service
  - a. Description

Special Access Service VG6 provides a channel for voiceband data transmission capability. Usable frequencies are nominally 300 to 3000 Hz between an IC terminal location and an End User's premises. The transmission interface is fourwire at both the IC terminal location and the End User's premises. This service will support effective four-wire transmission.

b. Illustrative Applications

Special Access Service VG6 is suitable for use as part of the facilities required to provide intrastate telecommunications services such as:

- Private Line Data Circuit
- Control/Remote Metering

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#### ACCESS SERVICES

- 7. SPECIAL ACCESS SERVICE-(Continued)
  - 7.2 Service Descriptions-(Continued)
    - 7.2.7 MegaLink Data Service
      - A. Basic Channel Description

A MegaLink Data channel is a channel for duplex four-wire transmission of synchronous serial data at the rate of 2.4, 4.8, 9.6, 19.2, 56.0 kbps or 64 kbps Clear Channel (CC)\*. The actual bit rate is a function of the channel interface selected by the customer. The channel provides a synchronous service with timing provided by the Telephone Company through the Telephone Company's facilities to the customer in the received bit stream. MegaLink Data channels are provided between customer-designated premises for two-point service at all speeds or between a customer - designated premises and a Telephone Company digital hub for multipoint or multiplexed service at all speeds except 64 kbps (CC).

It is the responsibility of the customer to provide the Channel Service Unit-type equipment or other Network Channel Terminating Equipment associated with the MegaLink Data Channel at the customer premises.

Package DA

(CT) This service is classified as competitive.

B. Technical Specifications Packages

	1	аск	agc	חת	=	
Parameter	<u>1</u>	<u>2</u>	<u>3</u>	<u>4</u>	<u>5</u>	<u>6</u>
Error-Free Seconds	X	X	X	X	X	X

The Telephone Company will provide a channel capable of meeting a monthly average performance equal to or greater than 99.875 percent error-free seconds (if provided through a Digital Data Hub) while the channel is in service, if it is measured through a CSU equivalent which is designed, manufactured and maintained to conform with the specifications contained in the appropriate technical reference listed in Paragraph 7.2, preceding.

Voltages which are compatible with MegaLink Data Service are delineated in the appropriate technical reference listed in Paragraph 7.2, preceding.

\*64 kbps Clear Channel (CC) is offered only where equipment and facilities are available.

Issued: February 20, 2002 Effective: March 29, 2002

By JAN NEWTON, President-Missouri Southwestern Bell Telephone, L.P., d/b/a Southwestern Bell Telephone Company St. Louis, Missouri

Access Services Tariff Section 7 6th Revised Sheet 35 Replacing 5th Revised Sheet 35

ACCESS SERVICES

SPECIAL ACCESS SERVICE - (Continued)

CANCELLED

JAN - 9 1995

7.2 Service Descriptions-(Continued)

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7.2.7 MegaLink Data Service

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A. Basic Channel Description

A MegaLink Data channel is a channel for duplex four-wire transmission of synchronous serial data at the rate of 2.4, 4.8, 9.6, 19.2, 56.0 kbps or 64 kbps Clear Channel (CC) \*. The actual bit rate is a function of the channel interface selected by the customer. The channel provides a synchronous service with timing provided by the Telephone Company through the Telephone Company's facilities to the customer in the received bit stream. MegaLink Data channels are provided between customer-designated premises for two-point service at all speeds or between a customerdesignated premises and a Telephone Company digital hub for multipoint or multiplexed service at all speeds except 64 kbps (CC).

It is the responsibility of the customer to provide the Channel Service Unit-type equipment or other Network Channel Terminating Equipment associated with the MegaLink Data Channel at the customer premises.

This service was classified as transitionally competitive efective January 10, 1993.

Technical Specifications Packages

Package DA-

(AT) Parameter

(AT)

(AT)

(AT)

(AT)

5 <u>6</u> 1

(TA) Error-Free Seconds X Х X X X X

The Telephone Company will provide a channel capable of meeting a monthly average performance equal to or greater than 99.875 percent error-free seconds (if provided through a Digital Data Hub) while the channel is in service, if it is measured through a CSU equivalent which is designed, manufactured and maintained to conform with the specifications contained in the appropriate technical reference listed in Paragraph 7.2, preceding.

Voltages which are compatible with MegaLink Data Service are delineated in the appropriate technical reference listed in Paragraph 7.2, preceding.

(AT) \*64 kbps Clear Channel (CC) is offered only where equipment and facilities are (AT) available.

Issued:

JAN 0 9 1995

Effective:

By HORACE WILKINS, JR., President-Missouri Southwestern Bell Telephone St. Louis, Missouri

FEB - 9 1995

Access Services Tariff
Section 7
5th Revised Sheet 35
Replacing 4th Revised Sheet 35

# ACCESS SERVICES

7. SPECIAL ACCESS SERVICE-(Continued)

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SEP 29 1992

- 7.2 Service Descriptions-(Continued)
  - 7.2.7 MegaLink Data Service

MISSOURI Public Service Commission

A. Basic Channel Description

A MegaLink Data channel is a channel for duplex four-wire transmission of synchronous serial data at the rate of 2.4, 4.8, 9.6 or 56.0 kbps. The actual bit rate is a function of the channel interface selected by the customer. The channel provides a synchronous service with timing provided by the Telephone Company through the Telephone Company's facilities to the customer in the received bit stream. MegaLink Data channels are provided between customer-designated premises for two-point service or between a customer-designated premises and a Telephone Company digital hub for multipoint or multiplexed service.

It is the responsibility of the customer to provide the Channel Service Unit-type equipment or other Network Channel Terminating Equipment associated with the MegaLink Data Channel at the customer premises.

This service was classified as transitionally competitive efective CANCELLED

B. Technical Specifications Packages

Parameter

1 2 3 Public Service Commission
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The Telephone Company will provide a channel capable of meeting a monthly average performance equal to or greater than 99.875 percent error-free seconds (if provided through a Digital Data Hub) while the channel is in service, if it is measured through a CSU equivalent which is designed, manufactured and maintained to conform with the specifications contained in the appropriate technical reference listed in Paragraph 7.2, preceding.

Voltages which are compatible with MegaLink Data Service are delineated in the appropriate technical reference listed in Paragraph 7.2, preceding.

Issued: **OCT 01** 1992

Effective: JAN 1 0 1993

FILED

By A. D. ROBERTSON, Assistant Vice President-External Affairs

Southwestern Bell Telephone Company
St. Louis, Missouri

JAN 10 1993
93-116

Access Services Tariff Section 7 4th Revised Sheet 35 Replacing 3rd Revised Sheet 35

ACCESS SERVICES

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SPECIAL ACCESS SERVICE-(Continued)

AUG 9 1991

7.2 Service Descriptions-(Continued)

MISSOURI Public Service Commission

7.2.7 MegaLink Data Service

A. Basic Channel Description

A MegaLink Data channel is a channel for duplex four-wire transmission of synchronous serial data at the rate of 2.4, 4.8, 9.6 or 56.0 kbps. The actual bit rate is a function of the channel interface selected by the customer. The channel provides a synchronous service with timing provided by the Telephone Company through the Telephone Company's facilities to the customer in the received bit stream. MegaLink Data channels are provided between customer-designated premises for two-point service or between a customer-designated premises and a Telephone Company digital hub for multipoint or multiplexed service.

It is the responsibility of the customer to provide the Channel Service Unit-type equipment or other Network Channel Terminating Equipment associated with the MegaLink Data Channel at the customer premises. JAN 101993 12 P. S. # 3.5

(RT) (RT)

B. Technical Specifications Packages

Package DA-Parameter 1 X Error-Free Seconds

The Telephone Company will provide a channel capable of meeting a monthly average performance equal to or greater than 99.875 percent error-free seconds (if provided through a Digital Data Hub) while the channel is in service, if it is measured through a CSU equivalent which is designed, manufactured and maintained to conform with the specifications contained in the appropriate technical reference listed in Paragraph 7.2, preceding.

(CT)

Voltages which are compatible with MegaLink Data Service are delineated in the appropriate technical reference listed in Paragraph 7.2, preceding.

(CT)

(CT)

Access Services Tariff Section 7 3rd Revised Sheet 35 Replacing 2nd Revised Sheet 35

#### ACCESS SERVICES

7. SPECIAL ACCESS SERVICE-(Continued)

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7.2 Service Descriptions-(Continued)

SEP 25 1989

(CT) 7.2.7 MegaLink Data Service

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Public Service Commission

A. Basic Channel Description

(CT) A MegaLink Data channel is a channel for duplex four-wire transmission of synchronous serial data at the rate of 2.4, 4.8, 9.6 or 56.0 kbps. The actual bit rate is a function of the channel interface selected by the customer. The channel provides a synchronous service with timing provided by the Telephone Company through the Telephone Company's facilities (CI) to the customer in the received bit stream. MegaLink Data channels are provided between customer designated premises for two point service or between a customer designated premises and a Telephone Company digital hub

for multipoint or multiplexed service.

It is the responsibility of the customer to provide the Channel Service Unit-type equipment or other Network Channel Terminating Equipment associated with the MegaLink Data Channel at the customer premises. interim program for interconnection of such equipment is set forth in ED

Technical Reference PUB AS No. 1.

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B. Technical Specifications Packages

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Error-Free Seconds

Parameter

The Telephone Company will provide a channel capable of meeting a monthly average performance equal to or greater than 99.875 percent error-free seconds (if provided through a Digital Data Hub) while the channel is in service, if it is measured through a CSU equivalent which is designed, manufactured and maintained to conform with the specifications contained in Technical Reference PUB 62310.

Voltages which are compatible with MegaLink Data Service are delineated in Technical Reference PUB 62507.

SEP 2 5 1989 Issued:

Effective:

307 1; 1989<sub>00</sub> By R. D. BARRON, President-Missouri Division Southwestern Bell Telephone Company Public Service Commission St. Louis, Missouri

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Access Services Tariff Section 7 2nd Revised Sheet 35 Replacing 1st Revised Sheet 35

#### ACCESS SERVICES

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SPECIAL ACCESS SERVICE-(Continued)

JUN 22 1988

7.2 Service Descriptions-(Continued)

7.2.7 Digital Data Service

**MISSOURI Public Service Commission** 

A. Basic Channel Description

A Digital Data channel is a channel for duplex four-wire transmission of synchronous serial data at the rate of 2.4, 4.8, 9.6 or 56.0 kbps. The actual bit rate is a function of the channel interface selected by the customer. The channel provides a synchronous service with timing provided by the Telephone Company through the Telephone Company's facilities to the customer in the received bit stream. Digital Data channels are only available via Telephone Company designated Hubs and are provided between customer-designated premises or between a customer-designated premises and a Telephone Company Hub.

(CP) It is the responsibility of the customer to provide the Channel Service Unit-type equipment or other Network Channel Terminating Equipment associated with the Digital Data Channel at the customer premises. The interim program for interconnection of such equipment is set forth in Technical Reference PUB AS No. 1.

Technical Specifications Packages ELLED

	-ot 1 1989	Pack	age DA-	
	00 2 2 +35			
<u>Parameter</u>	BUNK STITUTE BUNK STITUTE COMMISSION	<u>2</u>	<u>3</u>	4
Error-Free Seconds	NISSOURI X	X	X	Х

The Telephone Company will provide a channel capable of meeting a monthly average performance equal to or greater than 99.875 percent error-free seconds (if provided through a Digital Data Hub) while the channel is in service, if it is measured through a CSU equivalent which is designed, manufactured and maintained to conform with the specifications contained in Technical Reference PUB 62310.

Voltages which are compatible with Digital Data Service are delineated in Technical Reference PUB 62507.

Issued: JUN 2 2 1988

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JUL 8 1988

FILED

By R. D. BARRON, President-Missouri Division Southwestern Bell Telephone Company St. Louis, Missouri

JUL 8 1988 88-287

Public Service Commission

Access Services Tariff Section 7 1st Revised Sheet 35 Replacing Original Sheet 35

JUN 27 1986

**WI2200KI** Public Service Commission

(CP)ACCESS SERVICES

- SPECIAL ACCESS SERVICE-(Continued)
- 7.2 Service Descriptions-(Continued)
- 7.2.7 Digital Data Service
- A. Basic Channel Description

A Digital Data channel is a channel for duplex four-wire transmission of synchronous serial data at the rate of 2.4, 4.8, 9.6 or 56.0 kbps. The actual bit rate is a function of the channel interface selected by the customer. The channel provides a synchronous service with timing provided by the Telephone Company through the Telephone Company's facilities to the customer in the received bit stream. Digital Data channels are only available via Telephone Company designated Hubs and are provided between customer-designated premises or between a customer-designated premises and a Telephone Company Hub.

The customer may provide the Channel Service Unit-type equipment or other Network Channel Terminating Equipment associated with the Digital Data channel at the customer premises. The interim program for interconnection of such equipment is set forth in Technical Reference PUB AS No. 1.

B. Technical Specifications Packages

	•		Packag	e DA-	
Parameter		1	2	<u>3</u>	4
Error-Free Seconds		x	Х	X	Х

The Telephone Company will provide a channel capable of meeting a monthly average performance equal to or greater than 99.875 percent error-free seconds (if provided through a Digital Data Hub) while the channel is in service, if it is measured through a CSU equivalent which is designed, manufactured and maintained to conform with the specifications contained in Technical Reference PUB 62310.

Voltages which are compatible with Digital Data Service are delineated in Technical Reference PUB 62507.

CANCELLED Public Service Commission

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Issued:

JUN 27 1986

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By R. D. BARRON, President-Missouri Division Southwestern Bell Telephone Company St. Louis, Missouri

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#### ACCESS SERVICES

SPECIAL ACCESS SERVICE-(Continued)

DEC 29 1883

- 7.2 Technical Service Descriptions for Special Access Service-(Continued)
  - 7.2.1 Analog Services-(Continued)

**Public Service Commission** 

- B. Voice Grade Services-(Continued)
  - 6. Voice Grade 6 (VG6) Special Access Service-(Continued)
    - Optional Features
      - C-Conditioning
      - DA-Conditioning.
      - Central office bridging capability.
      - Improved return loss at four-wire point of interface, applicable to each two-wire leg of effective four-wire channel.
      - Central Office Multiplexing
    - Transmission Performance
      - C-Message Noise

The C-Message Noise shall be less than:

	Limit (d	BrnCO)(1)
Channel Mileage (mi)	Type Vl	Type V2
0 - 50	32	38
51 - 100	33	39
101 - 200	35	41
201 - 400	37	43
401 - 1000	39	45

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(1) Where facility network conditions will support the parameters, Type VI will be provided. Where the Type V1 parameters cannot be supported, Type V2 will be provided.

Issued: DEC 2 9 1983

Effective: JAN 0 1 1984

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Section 7
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Replacing 5th Revised Sheet 36

#### ACCESS SERVICES

- 7. SPECIAL ACCESS SERVICE-(Continued)
  - 7.2 Service Descriptions-(Continued)
  - 7.2.7 MegaLink Data Service-(Continued)
    - C. Channel Interfaces

The following channel interfaces (CI's) define the bit rates that are available for a Digital Data channel:

Compatible channel interfaces are set forth in Technical References at the end of Paragraph 7.2.

D. Service to Service Through Connect Arrangement

This provides the interconnection of two subtending digital data channels derived from DS1 multiplexed services. The through connect will be provisioned in lieu of a typical MegaLink Data channel termination. The through connect will be provisioned for all MegaLink Data speeds; 2.4, 4.8, 9.6, 19.2, 56 kbps and 64 kbps (CC). The ordering customer must provide channel assignments for both. Channel mileage is required if the multiplexed services are terminated in two separate digital Hubs.

- E. Optional Features, BSEs and Functions
  - 1. Central Office Bridging BSE Capability
  - 2. Transfer Arrangement

An arrangement that affords the customer an additional measure of protection and/or flexibility in the use of their access channel(s) on a lxN basis. The arrangement can be utilized to transfer a leg of a Special Access Service to either a spare or working channel that terminates in either the same or a different customer premises. This arrangement is only available at a Telephone Company-designated Hub. A Key Activated or Dial-Up Control Service is required to operate the transfer arrangement. A spare line, if required, is not included as a part of the option.

(AT) \*MegaLink Data Service 64 kbps channel interface is offered only with Clear Channel.

Issued: January 9, 1995

By HORACE WILKINS, JR., President-Missouri

Southwestern Bell Telephone

St. Louis, Missouri

CANCELLED June 29, 2007 TO-2002-185 Missouri Public Service Commission

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Access Services Tariff Section 7 5th Revised Sheet 36 Replacing 4th Revised Sheet 36

#### ACCESS SERVICES

SPECIAL ACCESS SERVICE-(Continued)

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7.2 Service Descriptions-(Continued)

MAR 29 1993

7.2.7 MegaLink Data Service-(Continued)

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C. Channel Interfaces

Public Service Commission

The following channel interfaces (CI's) define the bit rates that are available for a Digital Data channel:

CI	<u>Bit Rate</u>
DU-24	2.4 kbps
DU-48	4.8 kbps
DU-96	9.6 kbps
DU-56	56.0 kbps

Compatible channel interfaces are set forth in Technical References at the end of Paragraph 7.2.

Service to Service Through Connect Arrangement

This provides the interconnection of two subtending digital data channels derived from DS1 multiplexed services. The through connect will be provisioned in lieu of a typical MegaLink Data channel termination. The through connect will be provisioned for all MegaLink Data speeds; 2.4, 4.8, 9.6 and 56 kbps. The ordering customer must provide channel assignments for both. Channel mileage is required if the multiplexed services are terminated in two separate digital Hubs. CANCELLED

(AT) Optional Features, BSEs and Functions

Central Office Bridging BSE Capability (AT)

FEB 9-1995

Transfer Arrangement

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An arrangement that affords the customer an additional measured of protection and/or flexibility in the use of their or a law had on a lxN basis. The arrangement can be utilized to transfer a leg of a Special Access Service to either a spare or working channel that terminates in either the same or a different customer premises. This arrangement is only available at a Telephone Company-designated Hub. A Key Activated or Dial-Up Control Service is required to operate the transfer arrangement. A spare line, if required, is not included as a part of the option.

Issued: -

MAR 2 6 1993

Effective:

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By R. D. BARRON, President-Missouri Division Southwestern Bell Telephone Company St. Louis, Missouri

APR 11 1993 92 - 304

Access Services Tariff Section 7 4th Revised Sheet 36 Replacing 3rd Revised Sheet 36

ACCESS SERVICES

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7. SPECIAL ACCESS SERVICE-(Continued)

FEB 2 0 1990

7.2 Service Descriptions-(Continued)

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Public Service Commission 7.2.7 MegaLink Data Service-(Continued)

C. Channel Interfaces

The following channel interfaces (CI's) define the bit rates that are available for a Digital Data channel:

<u>CI</u>	Bit Rate
DU-24	2.4 kbps
DU-48	4.8 kbps
DU-96	9.6 kbps
DU-56	56.0 kbps

Compatible channel interfaces are set forth in Technical References at the end of Paragraph 7.2.

D. Service to Service Through Connect Arrangement

This provides the interconnection of two subtending digital data channels derived from DS1 multiplexed services. The through connect will be provisioned in lieu of a typical MegaLink Data channel termination. The through connect will be provisioned for all MegaLink Data speeds; 2.4, 4.8, 9.6 and 56 kbps. The ordering customer must provide channel assignments for both. Channel mileage is required if the multiplexed services are terminated in two separate digital Hubs.

Optional Features and Functions (FC)

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1. Central Office Bridging Capability

2. Transfer Arrangement

An arrangement that affords the customer an additional measure measure of their access channelles. The arrangement that affords the customer an additional measure of their access channelles. of a Special Access Service to either a spare or working channel that terminates in either the same or a different customer premises. This arrangement is only available at a Telephone Company-designated Hub. A Key Activated or Dial-Up Control Service is required to operate the transfer arrangement. A spare line, if required, is not included as a part of the option.

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(AT)

Effective: MAR 2 6 1990

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By R. D. BARRON, President-Missouri Division Southwestern Bell Telephone Company St. Louis, Missouri

MAR 26 1990

Access Services Tariff Section 7 3rd Revised Sheet 36 Replacing 2nd Revised Sheet 36

# ACCESS SERVICES

7. SPECIAL ACCESS SERVICE-(Continued)

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7.2 Service Descriptions-(Continued)

SEP 25 1989

(CT) 7.2.7 MegaLink Data Service-(Continued) MIESSELT

Public Service Commission

C. Channel Interfaces

The following channel interfaces (CI's) define the bit rates that are available for a Digital Data channel:

<u>CI</u>	<u>Bit Rate</u>
DU-24	2.4 kbps
DU-48	4.8 kbps
DU-96	9.6 kbps
DU-56	56.0 kbps

(CT) Compatible channel interfaces are set forth in Technical References at the end of Paragraph 7.2.

- D. Optional Features and Functions
  - 1. Central Office Bridging Capability
  - 2. Transfer Arrangement

An arrangement that affords the customer an additional measure of protection and/or flexibility in the use of their access channel(s) on a lxN basis. The arrangement can be utilized to transfer a leg of a Special Access Service to either a spare or working channel that terminates in either the same or a different customer premises. This arrangement is only available at a Telephone Company-designated Hub. A Key Activated or Dial-Up Control Service is required to operate the transfer arrangement. A spare line, if required, is not included as a part of the option.

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Access Services Tariff
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2nd Revised Sheet 36
Replacing 1st Revised Sheet 36

#### ACCESS SERVICES

7. SPECIAL ACCESS SERVICE-(Continued)

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7.2 Service Descriptions-(Continued)

SEP 17 1987

7.2.7 Digital Data Service-(Continued)

MISSOURI
Public Service Commission

C. Channel Interfaces

The following channel interfaces (CI's) define the bit rates that are available for a Digital Data channel:

CI	<u>Bit Rate</u>	1089
DU-24	2.4 kbps	0CT 1 1989 By 328 R S. #36
DU-48	4.8 kbps	BY 3
DU-96	9.6 kbps	- The Comice Commi
DU-56	56.0 kbps	MISSOURI

Compatible channel interfaces are set forth in Paragraph 7.3.5, G., following.

- D. Optional Features and Functions
  - 1. Central Office Bridging Capability
  - 2. Transfer Arrangement

An arrangement that affords the customer an additional measure of protection and/or flexibility in the use of their access channel(s) on a lxN basis. The arrangement can be utilized to transfer a leg of a Special Access Service to either a spare or working channel that terminates in either the same or a different customer premises. This arrangement is only available at a Telephone Company-designated Hub. A Key Activated or Dial-Up Control Service is required to operate the transfer arrangement. A spare line, if required, is not included as a part of the option.

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Effective: OCT 19 1987

FILED

By R. D. BARRON, President-Missouri Division Southwestern Bell Telephone Company St. Louis, Missouri

(CP)ACCESS SERVICES

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Replacing Original Sheet 36

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JUN 27 1986

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Public Service Commission

- SPECIAL ACCESS SERVICE-(Continued)
- 7.2 Service Descriptions-(Continued)
- 7.2.7 Digital Data Service-(Continued)
  - C. Channel Interfaces

The following channel interfaces (CI's) define the bit rates that are available for a Digital Data channel:

CI	Bit Rate
DU-24	2.4 kbps
DU-48	4.8 kbps
DU-96	9.6 kbps
DU-56	56.0 kbps

Compatible channel interfaces are set forth in Paragraph 3.5, G., following.

D. Optional Features and Functions

OCT 11) 1987

1. Central Office Bridging Capability

Public Service Commission

2. Transfer Arrangement

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An arrangement that affords the customer an additional measure of protection and/or flexibility in the use of their access channel(s) on a lxN basis. The arrangement can be utilized to transfer a leg of a Special Access Service to either a spare or working channel that terminates in either the same or a different customer premises. This arrangement is only available at a Telephone Company-designated Hub. A Key Activated or Dial-Up Control Service is required to operate the transfer arrangement. A spare line, if required, is not included as a part of the option.

The following table shows the technical specifications packages with which the optional features and functions are available.

Available with Technical Specifications Package DA

Issued:

JUN 27 1986

Effective:

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Access Services Tariff Section 7 Original Sheet 36

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#### ACCESS SERVICES

SPECIAL ACCESS SERVICE-(Continued)

DEC 29 1203

- 7.2 Technical Service Descriptions for Special Access Service (Continued) **Public Service Commission** 
  - 7.2.1 Analog Services-(Continued)
  - Voice Grade Services-(Continued)
    - 6. Voice Grade 6 (VG6) Special Access Service-(Continued)
      - Transmission Performance-(Continued)
        - Improved Return Loss

The Return Loss (RL), expressed as Echo Return Loss (ERL) and Singing Return Loss (SRL), on two-wire ports of a four-wire point of interface shall be equal to or greater than:

	dard RL	Impr	oved	RL
	5 dB	ERL	20	dB
SRL	2.5 dB	SRL	13.5	dВ

- Loss Variation

The long term loss variation from the nominal 1004 Hz EML shall not exceed +1.5 dB.

- Attenuation Distortions

The attenuation distortion between 404 Hz and 2804 Hz shall be within -1.0 dB and +4.0 dB with reference to the loss at 1004 Hz (minus equals less loss, plus equals more loss). The attenuation distortion between 504 Hz and 2504 Hz shall be within -1.0 dB and +3.0 dB with reference to the loss at 1004 Hz. The attenuation distortion between 304 Hz and 3004 Hz shall be within -1.0 dB and +5.0 dB.

- Signal-to-C Notch Noise

The Signal-to-C Notch noise ratio shall not be less than 30 dB.

- Envelope Delay Distortion

The Envelope Delay Distortion (EDD) shall not exceed 150 700 microseconds between 800 and 2600 Hz. JAH - 1 1984

PUBLIC SERVICE COMMISSION 83 - 253 - Impulse Noise The number of impulse noise counts exceeding a threshold of SSION

of 67 dBrnCO in 15 minutes shall be less than 15.

DEC 2 9 1983 Issued:

JAN 0 1 1984 Effective:

Access Services Tariff
Section 7
4th Revised Sheet 36.01
Replacing 3rd Revised Sheet 36.01

# **ACCESS SERVICES**

- 7. SPECIAL ACCESS SERVICE-(Continued)
- 7.2 Service Descriptions-(Continued)
- 7.2.7 MegaLink Data Service-(Continued)
- E. Optional Features, BSEs and Functions (Continued)
  - 3. Secondary Channel Capability BSE
- Secondary Channel capability provides for an additional low-speed digital transmission channel within the existing 2.4, 4.8, 9.6, 19.2 and 56.0 kbps primary channels. It is available as a point-to-point or a multipoint service utilizing a nonrepeated channel termination. The Secondary Channel can be used as a communications channel for the controlling and monitoring of a customer's network.

The following table shows the technical specifications packages with which the optional features, BSEs and functions are available.

		Available with Technical Specifications Package DA-					
(AT)	1	<u>2</u>	<u>3</u>	<u>4</u>	<u>5</u>	<u>6</u>	
	Central Office Bridging Capability Transfer Arrangement Secondary Channel				X X		X
(AT)	Capability	X	X	X	X	X	

Issued: January 9, 1995 Effective: February 9, 1995

CANCELLED
June 29, 2007
TO-2002-185
Missouri Public

Service Commission

(AT)

Access Services Tariff
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Replacing 2nd Revised Sheet 36.01

#### ACCESS SERVICES

- SPECIAL ACCESS SERVICE-(Continued)
- 7.2 Service Descriptions-(Continued)

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7.2.7 MegaLink Data Service-(Continued)

MAR 29 1993

(AT) E. Optional Features, BSEs and Functions (Continued)

MISSOURI
Public Service Commission

(AT) 3. Secondary Channel Capability BSE

Secondary Channel capability provides for an additional low-speed digital transmission channel within the existing 2.4, 4.8, 9.6, and 56.0 kbps primary channels. It is available as a point-to-point or a multipoint service utilizing a nonrepeated channel termination. The Secondary Channel can be used as a communications channel for the controlling and monitoring of a customer's network.

The following table shows the technical specifications packages with which the optional features, BSEs and functions are available.

	Available with Technical Specifications Package DA-			
	1	<u>2</u>	<u>3</u>	<u>4</u>
Central Office Bridging Capability	X	x	X	Х
Transfer Arrangement	X	X	X	X
Secondary Channel Capability	X	X	X	X

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FEB 9-1995
BY 4Th R.S.# 36.01
Public Service Commission
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Access Services Tariff
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Replacing 1st Revised Sheet 36.01

#### ACCESS SERVICES

SPECIAL ACCESS SERVICE-(Continued)

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7.2 Service Descriptions-(Continued)

FEB 20 1990

7.2.7 MegaLink Data Service-(Continued)

MISSOURI

E. Optional Features and Functions (Continued)

Public Service Commission

3. Secondary Channel Capability

Secondary Channel capability provides for an additional low-speed digits transmission channel within the existing 2.4, 4.8, 9.6, and 56.0 kbps primary channels. It is available as a point-to-point or a multipoint service utilizing a nonrepeated channel termination. The Secondary Channel can be used as a communications channel for the controlling and monitoring of a customer's network.

The following table shows the technical specifications packages with which the optional features and functions are available.

	Available with Technical			
	Specifications		s Package	<u>DA</u> =
	1	2	3	4
Central Office Bridging				
Capability	X	X	X	X
Transfer Arrangement Secondary Channel	X	X	X	X
Capability	X	X	X	X

APR 11 1993 3 3 6 0 Public Service Commission MISSOURI

Issued: FEB 2 2 1990

Effective: MAR 2 6 1990

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#### ACCESS SERVICES

7. SPECIAL ACCESS SERVICE-(Continued)

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7.2 Service Descriptions-(Continued)

SEP 25 1989

(CT) 7.2.7 MegaLink Data Service-(Continued)

MISSOURI Public Service Commission

- D. Optional Features and Functions (Continued)
  - 3. Secondary Channel Capability

Secondary Channel capability provides for an additional low-speed digital transmission channel within the existing 2.4, 4.8, 9.6, and 56.0 kbps primary channels. It is available as a point-to-point or a multipoint service utilizing a nonrepeated channel termination. The Secondary Channel can be used as a communications channel for the controlling and monitoring of a customer's network.

The following table shows the technical specifications packages with which the optional features and functions are available.

	Available with Technical			
	Specifications		Package	DA-
	<u>1</u>	2	3	4
Central Office Bridging				
Capability	X	X	X	X
Transfer Arrangement Secondary Channel	X	X	X	X
Capability	X	X	X	X

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St. Louis, Missouri

Access Services Tariff
Section 7
Original Sheet 36.01

#### ACCESS SERVICES

SPECIAL ACCESS SERVICE-(Continued)

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- 7.2 Service Descriptions-(Continued)
- 7.2.7 Digital Data Service-(Continued)

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- D. Optional Features and Functions (Continued)
- (NR) 3. Secondary Channel Capability

Secondary Channel capability provides for an additional low-speed digital transmission channel within the existing 2.4, 4.8, 9.6, and 56.0 kbps primary channels. It is available as a point-to-point or a multipoint service utilizing a nonrepeated channel termination. The Secondary Channel can be used as a communications channel for the controlling and monitoring of a customer's network.

(MT) The following table shows the technical specifications packages with which the optional features and functions are available.

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