

ACCESS SERVICE

5. Special Access Service**

5.1 General

Special Access Service provides a transmission path to connect Customer designated premises, either directly or through a Telephone Company hub where bridging or multiplexing functions are performed*. Special Access Service also provides a transmission path to connect a Customer designated premises and a WATS serving office. Special Access Service includes all exchange access not utilizing Telephone Company end office switches. This type of Access Service is used, for example, by Customers for the provision of private line service.

A list of end offices capable of performing the necessary screening functions for Special Access Service used in connection with Switched Access Service will be provided to the Customer upon request.

The provision of Special Access in all situations is dependent upon the availability of Telephone Company plant and equipment.

5.1.1 Channel Types

There are nine types of channels used to provide Special Access Service. These channels can be either analog or digital. Analog channels are differentiated by spectrum and bandwidth. Digital connections are differentiated by bit rate. The specific types of channels (e.g., Narrowband, Voice Grade, Wideband Digital) provided under Special Access are described in Section 5.2.

Each of the nine channel types has its own characteristics. All of the channel types are subdivided by one or more of the following:

- Transmission specification
- Bandwidth
- Speed (i.e., bit rate)
- Spectrum

The Customer can order a basic channel and select from a list of available transmission parameters, protocol combinations, and optional features to design a channel which meets the Customer's specific communications needs.

For purposes of ordering channels, each has been identified as a type of Special Access Service. However, such identification is not intended to limit a Customer's use of the channel nor to imply that the channel is limited to a particular use. For example, if a Customer's equipment is capable of transmitting voice over a channel that is identified as a Narrowband Service in this tariff, there is no restriction against doing so.

*Telephone Company Centrex CO-like switches are considered to be Customer premises for purposes of this tariff.

** Pursuant to FCC 17-43, released April 28, 2017, Frontier has detariffed (1) TDM channel terminations for wire centers in competitive counties; (2) TDM transport charges; and (3) packet-based services. Terms and Conditions for detariffed services can be found in the Interstate Service Guide and Pricelist.

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5. Special Access Service (Cont'd)

5.1 General (Cont'd)

5.1.2 Rate Categories

There are three basic rate categories which apply to Special Access Service:

- Channel Termination
- Channel Mileage
- Optional Features and Functions

These categories are described in Sections 5.1.2 (A) through (C).

(A) Channel Termination

The Channel Termination rate category provides for the communications path between a Customer designated premises and the serving wire center of that premises. It also provides for the unrecovered portion of Inside Wire investment assigned to Special Access Service. Included as part of the Channel Termination is a standard channel interface arrangement which defines the technical characteristics associated with the type of facilities to which the Access Service is to be connected at the point of termination (POT) and the type of signaling capability if any. The signaling capability itself is provided as a part of this rate category. One Channel Termination charge applies per Customer designated premises at which the channel is terminated. This charge will apply even if the Customer designated premises and the serving wire center are co-located in a Telephone Company building. For Special Access Service used in connection with Switched Access Service, and for Video service only one Channel Termination charge applies. Special Access Service used in connection with Switched Access Service is provided as set forth in Section 4.1.1. Channel Termination rates for each type of channel are set forth in Section 15 following.

(B) Channel Mileage

The Channel Mileage rate category provides for the end office equipment and the transmission channel between the serving wire centers associated with two Customer designated premises, between a serving wire center associated with a Customer designated premises and a Telephone Company hub, between two Telephone Company hubs or between a WATS Serving Office and a Customer serving wire center when the two are not co-located. Channel Mileage rates are made up of the Channel Mileage Facility rate and the Channel Mileage Termination rate. Channel Mileage charges are set forth in Section 15 following.

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5. Special Access Service (Cont'd)5.1 General (Cont'd)5.1.2 Rate Categories (Cont'd)(B) Channel Mileage (Cont'd)(1) Channel Mileage Facility

The Channel Mileage Facility rate recovers the cost for the transmission path which extends between the Telephone Company serving wire centers and/or hub(s) and includes primarily outside plant used to provide the facility.

(2) Channel Mileage Termination

The Channel Mileage Termination rate recovers the cost for end office equipment associated with terminating the facility (i.e., basic circuit equipment and terminations at serving wire centers and hubs). Channel Mileage Termination rate will apply at the serving wire center(s) for each Customer designated premises and Telephone Company hub where the channel is terminated. If the Channel Mileage is between Telephone Company bridging hubs, the Channel Mileage Termination rate will apply per Telephone Company designated hub. When the Channel Mileage Facility is zero (i.e., collocated serving wire centers), neither the Channel Mileage Facility rate nor the Channel Mileage Termination rate will apply.

(C) Optional Features and Functions

Optional Features and Functions may be added to a service to improve its quality or utility to meet the Customer's specific communications requirements. These are not necessarily identifiable with specific equipment, but rather represent the end result in terms of performance characteristics which may be obtained. These characteristics may be obtained by using various combinations of equipment. Examples of Optional Features and Functions that are available include, but are not limited to, the following:

- Conditioning
- Automatic Protection Switching
- Bridging

The list of Optional Features and Functions is set forth in Section 15 following.

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5. Special Access Service (Cont'd)

5.1 General (Cont'd)

5.1.3 Protocol Combinations

The protocol (i.e., interface) defines the technical characteristics associated with the type of signaling and type of facilities presented for connection to the Access Service at the Customer designated premises. The protocol specified for the Customer premises may be asymmetrical or symmetrical. However, only certain combinations are technically possible. Therefore, for the purposes of this tariff, protocol is being described in terms of acceptable combinations.

When ordering Special Access Service, the Customer must specify the protocol combination that is desired for the service ordered. Only certain protocol combinations are considered to be standard and included in the charge for the Channel Termination. These protocol combinations are set forth for each Channel type in Section 5.2. When the Customer requests a protocol combination which is not standard, an additional charge will be assessed on an individual case basis. Not all protocol combinations are available at all Telephone Company locations.

5.1.4 Service Configurations

There are two types of service configurations over which Special Access Service is provided: two-point service and multi-point service.

(A) Two-Point Service

A two-point service connects two Customer designated premises, either on a directly connected basis or through a hub where multiplexing functions are performed or a Customer designated premises and a WATS Serving office. All types of Special Access Service may be provided as two-point service.

(B) Multipoint Service

A multipoint service connects three or more Customer designated premises. Only certain types of Special Access Service may be provided as multipoint service. These are so designated in the descriptions for the appropriate channel.

When ordering multipoint service, the Customer may specify the desired bridging hub. EXCHANGE CARRIER ASSOCIATION TARIFF F.C.C. No. 4 identifies serving wire centers, hub locations and the type of bridging functions available.

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5. Special Access Service (Cont'd)

5.1 General (Cont'd)

5.1.5 Special Facilities Routing

A Customer may request that the facilities used to provide Special Access Service be specially routed. The regulations, rates and charges for Special Facilities Routing are as set forth in Section 11.

5.1.6 Circuit Design Layout

At the request of the Customer, the Telephone Company will provide a Design Layout Report (DLR) setting forth the make-up of the facilities and services provided under Special Access to aid the Customer in designing its overall service. The information the DLR will be provided to the Customer at no charge and updated whenever facilities provided to the Customer are materially changed.

5.1.7 Acceptance Testing

At no additional charge, the Telephone Company will, at the Customer's request, cooperatively test, at the time of installation, the following parameters:

For Voice Grade Services (VG): loss, 3-tone slope, d.c. continuity and operational signaling, where technically appropriate. Where a four-wire voice transmission interface provides two-wire voice transmission, (i.e., there is a four-wire to two-wire conversion), balance (equal level echo path loss) will also be tested. Additionally, C-notched noise and C-message noise tests will be provided where technically appropriate, as well as frequency response, harmonic distortion, phase jitter, impulse noise and delay distortion for all analog facilities.

Test results will be made available to the Customer upon request.

All other Special Access Services will be tested to the performance parameters specified for the individual services.

5.1.8 Ordering Options and Conditions

The facilities provided under Special Access can be ordered by using a Facilities Access Order as specified in Section 9. Minimum period and cancellation charges associated with Special Access Service are also included in Section 9.

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5. Special Access Service (Cont'd)

5.1 General (Cont'd)

5.1.9 Alternate Use

Alternate use occurs when a Customer uses a service for different types of transmission at different times. The Customer may transfer from one type of operation to another at will. A Customer may use transmission services in any privately beneficial way but, where technical or engineering changes are required to effectuate an alternate use, charges set forth in Section 8 of this tariff may be applicable.

Alternate uses will be allowed provided that such use meets the technical protection parameters as set forth in Section 5.2.

5.2 Technical Service Descriptions for Special Access Service

This section includes the technical service descriptions for each type of Analog and Digital service provided, typical applications for which each type of service can be used, the Optional Features and Functions available with specific services, transmission performances and the standard protocol combinations with which service can be provided.

When ordering Special Access Service, the Customer must select the type of channel desired from the nine categories of Special Access Service. These categories are:

- Analog: Narrowband 1
 Narrowband 2
 Voice Grade
 Program Audio
 Video
 Wideband

- Digital: Wideband
 Digital Data
 High Capacity

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5. Special Access Service (Cont'd)5.2 Technical Service Descriptions for Special Access Service (Cont'd)

The Telephone Company will maintain existing transmission specifications on services installed prior to the effective date of this tariff, except that existing services with performance specifications exceeding the standards listed in this provision will be maintained at the performance levels specified in this tariff. All services installed after the effective date of this tariff will conform to the transmission specification standards contained in this tariff or in the following Technical References for each category of service:

Narrowband 1 and 2 Voice Grade	PUB 62502 TR-NPL-000335 PUB 41004, Table 4
Program Audio	TR-NPL-000337 and Associated Addendum
Video	PUB 62504 and Associated Addendum
Wideband Analog	PUB 62505 and Associated Addendum
Wideband Digital	PUB 62506
Digital Data	PUB 62507 PUB 62310
High Capacity	TR-NPL-000342 PUB 62411

5.2.1 Analog Services(A) Narrowband Services(1) Narrowband 1 Service(a) Description

A Narrowband 1 (NB1) channel is an unconditioned two-wire channel capable of transmitting low speed varying signals at rates up to 30 baud. This channel is provided by metallic or equivalent facilities.

(b) Transmission Specifications

- DC Resistance Between Conductors
- Loop Resistance
- Shunt Capacitance

The technical specifications for these parameters are set forth in Technical Reference PUB 62502.

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5. Special Access Service (Cont'd)5.2 Technical Service Descriptions for Special Access Service (Cont'd)5.2.1 Analog Services (Cont'd)(A) Narrowband Services (Cont'd)(1) Narrowband 1 Service (Cont'd)(c) Standard Protocol Combinations

A Narrowband 1 channel is available with the standard protocol combinations set forth below. Non-standard protocols are available at rates determined on an individual case basis.

2DC8-3 -	2DC8-3
2DC8-2 -	2DC8-1
2DC8-1 -	2DC8-2

(d) Optional Features and Functions

- Central Office Bridging: provides for the parallel connection of one virtual circuit to another virtual circuit without interrupting the integrity or continuity of the first.
- Bridging: up to 25 Customer designated premises - special bridging required for McCullough signaling.

Additional features and functions are available as set forth in Section 15 following.

(2) Narrowband 2 Service(a) Description

A Narrowband 2 (NB2) channel is an unconditional channel for transmission of asynchronous transitions between two current levels at rates of up to 150 baud. This channel is furnished for half-duplex or duplex operation. Neither direct current continuity of this service nor the capabilities to transport continuously alternating current is assured.

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5. Special Access Service (Cont'd)5.2 Technical Service Descriptions for Special Access Service (Cont'd)5.2.1 Analog Services (Cont'd)(A) Narrowband Services (Cont'd)(2) Narrowband 2 Service (Cont'd)(b) Transmission Specifications

- Telegraph Distortion

The technical specifications for this parameter are set forth in Technical Reference PUB 62502.

(c) Standard Protocol Combinations

A Narrowband 2 channel is available with the standard protocol combination set forth below. Other protocols are available at rates determined on an individual case basis.

2TT2-2	2TT2-2	4DB2-10	4TT2-2
2TT2-3	2TT2-2	4DB2-43**	4TT2-2
2DB2-10	2TT2-2	2DB2-10	2TT2-6
2DB2-43**	2TT2-2	2DB2-43**	2TT2-6
4DB2-10	2TT2-2	4DB2-10	2TT2-6
4DB2-43**	2TT2-2	4DB2-43**	2TT2-6
2TT2-3	4TT2-2	2DB2-43**	4TT2-6
2DB2-10	4TT2-2	4TT2-6	4TT2-6
2DB2-43**	TT2-2	4DB2-43**	4TT2-6
4TT2-2	4TT2-2	2DB2-10	101A2
4DB2-10	101A2	2DB2-43**	101A2
4DB2-43**	101A2		

**Supplemental Channel Assignment information required.

(d) Optional Features and Functions

- Central Office Bridging: provides for the parallel connection of one virtual circuit to another virtual circuit without interrupting the integrity or continuity of the first.

Additional features and functions are available as set forth in Section 15 following.

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5. Special Access Service (Cont'd)5.2 Technical Service Descriptions for Special Access Service (Cont'd)5.2.1 Analog Services (Cont'd)(B) Voice Grade Service(1) Description

A Voice Grade (VG) 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.

(2) Transmission Specifications

- Attenuation Distortion
- C-Message Noise
- Echo Control
- Envelope Delay Distortion
- Frequency Shift
- Impulse Noise
- Intermodulation Distortion
- Phase Hits, Gain Hits, and Dropouts
- Phase Jitter
- Signal-to-C Message Noise
- Signal-to-C Notch Noise

The technical specifications for these parameters (except for dropouts, gain hits, and phase hits) are set forth in Technical Reference TR-NPL-000335. The technical specifications for dropouts, phase hits, and gain hits are set forth in Technical Reference PUB 41004, Table 4.

Increased performance specifications can be attained with the provision of the appropriate Optional Features and Functions under Section 15 following.

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5. Special Access Service (Cont'd)5.2 Technical Service Descriptions for Special Access Service (Cont'd)5.2.1 Analog Services (Cont'd)(B) Voice Grade Service (Cont'd)(3) Standard Protocol Combinations

A Voice Grade channel is available with the standard protocol combination set forth below. Other protocols are available at rates determined on an individual case basis.

2N02	2N02	4DS9*	2L02	4DS9*	2GS2
4N02	2N02	4LS2-X	2L02	4G02-X	2GS2
4AH5-B**	2N02	2L02	2LS2	4LS2	2LA2
4AH6-C**	2N02	4DS0*	2LS2	4LS2	2LB2
4AH6-D**	2N02	4DS6*	2LS2	4LS2	2LC2
4DS0*	2N02	4L02-X	2LS2	4LS2	2L03
4DS6*	2N02	2GS2	2G02	4SF2	2LA2
4DS9*	2N02	4GS2	2G02	4SF2	2LB2
4N02	4N02	4AH5-B**	2G02	4SF2	2LC2
4AH5-B**	4N02	4AH6-C**	2G02	4SF2	2L03
4AH6-C**	4N02	4AH6-D**	2G02	4AH5-B**	2LA2
4AH6-D**	4N02	4DS0*	2G02	4AH5-B**	2LB2
4DS0*	4N02	4DS6*	2G02	4AH5-B**	2LC2
4DS6*	4N02	4DS9*	2G02	4AH5-B**	2L03
4DS9*	4N02	4GS2-X	2G02	4DS0*	2LA2
4N02	2L02	2G02	2GS2	4DS0*	2LB2
4LS2	2L02	4G02	2GS2	4DS0*	2LC2
4AH5-B**	2L02	4AH5-B**	2GS2	4DS0*	2L03
4AH6-C**	2L02	4AH6-C**	2GS2	4DS6*	2LA2
4AH6-D**	2L02	4AH6-D**	2GS2	4DS6*	2LB2
4DS0*	2L02	4DS0*	2GS2	4DS6	2LC2
4DS6*	2L02	4DS6*	2GS2	4DS6	2L03
4DS9*	2LA2	4L02	2LS3	4DS6*	2LS2-M
4DS9*	2LB2	4L02	2IS3-M	4DS6*	2LS3
4DS9*	2LC2	4SF2	2LS2	4DS6*	2LS3-M
4DS9*	2L03	4SF2	2LS2-M	4DS9*	2LS2
4GS2	2G03	4SF2	2LS3	4DS9*	2LS2-M
4SF2	2G03	4SF2	2LS3-M	4DS9*	2LS3

* See Section 5.3.3 following for explanation.

** Compatible only with a multiplex 4-Wire High Capacity analog facility interface option at the Customer's designated premises and where the Customer provides subsequent system and channel assignment data.

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5. Special Access Service (Cont'd)5.2 Technical Service Descriptions for Special Access Service (Cont'd)5.2.1 Analog Services (Cont'd)(B) Voice Grade Service (Cont'd)(3) Standard Protocol Combinations (Cont'd)

4AH6-C**	2LA2	4AH5-B**	2LS2	4DS9*	2LS3-M
4AH6-C**	2LB2	4AH5-B**	2LS2-M	4L02	4LS2
4AH6-C**	2LC2	4AH5-B**	2LS3	4SF2	4LS2
4AH6-C**	2L03	4AH5-B**	2LS3-M	4DS0*	4LS2
4AH6-D**	2LA2	4AH6-C**	2LS2	4AH5-B**	4LS2
4AH6-D**	2LB2	4AH6-C**	2LS2-M	4AH6-C**	4LS2
4AH6-D**	2LC2	4AH6-C**	2LS3	4AH6-D**	4LS2
4AH6-D**	2L03	4AH6-C**	2LS3-M	4DS6*	4LS2
4AH5-B**	2G03	4AH6-D**	2LS2	4DS9*	4LS2
4AH6-C**	2G03	4AH6-D**	2LS2-M	4LR2	2LR2
4AH6-D**	2G03	4AH6-D**	2LS3	4SF2	2LR2
4DS0*	2G03	4AH6-D**	2LS3-M	4DS0*	2LR2
4DS6*	2G03	4DS0*	2LS2	4DS6*	2LR2
4DS9*	2G03	4DS0*	2LS2-M	4DS9*	2LR2
4GS2-X	2G03	4DS0*	2LS3	4AH5-B**	2LR2
4L02	2LS2	4DS0*	2LS3-M		
4L02	2LS2-M	4DS6*	2LS2		
4AH6-C**	2LR2	4AH5-B**	2AC2	4DS9*	2GS3-C
4AH6-D**	2LR2	4AH5-B**	2AC2-R	4DS9*	4GS2-C
4LR2	4LR2	4AH5-B**	4AC2	4DS9*	4GS2
4SF2	4LR2	4AH5-B**	4AC2-R	4AH5-B**	2GS3-C
4DS0*	4LR2	4AH6-C**	2AC2	4AH5-B**	4GS2-C
4DS6*	4LR2	4AH6-C**	2AC2-R	4AH5-B**	4GS2
4DS9*	4LR2	4AH6-C**	4AC2	4AH6-C**	2GS3-C
4AH5-B**	4LR2	4AH6-C**	4AC2-R	4AH6-C*	4GS2-C
4AH6-C**	4LR2	4AH6-D**	2AC2	4AH6-C**	4GS2
4AH6-D**	4LR2	4AH6-D**	2AC2-R	4AH6-D**	2GS3-C
4AB2	4AC2	4AH6-D**	4AC2	4AH6-D**	4GS2-C
4AB2	4AC2-R	4AH6-D**	4AC2-R	4AH6-D**	4GS2
4AB2	2AC2	4DS0*	4SF2-L0	4SF2	2RV2-T
4AB2	2AC2-R	4DS0*	4SF2-LS	4SF2	2RV3-T

* See Section 5.3.3 following for explanation.

** Compatible only with a multiplex 4-Wire High Capacity analog facility interface option at the Customer's designated premises and where the Customer provides subsequent system and channel assignment data.

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5. Special Access Service (Cont'd)5.2 Technical Service Descriptions for Special Access Service (Cont'd)5.2.1 Analog Services (Cont'd)(B) Voice Grade Service (Cont'd)(3) Standard Protocol Combinations (Cont'd)

4SF2	4AC2	4DS6*	4SF2-LO	4DS0*	2RV2-T
4SF2	4AC2-R	4DS6*	4SF2-LS	4DS0*	2RV3-T
4SF2	2AC2	4DS9*	4SF2-L0	4DS6*	2RV2-T
4SF2	2AC2-R	4DS9*	4SF2-LS	4DS6*	2RV3-T
4DS0*	2AC2	4G02	2GS3-C	4DS9*	2RV2-T
4DS0*	2AC2-R	4G02	4GS2-C	4DS9*	2RV3-T
4DS0*	4AC2	4G02	4GS2	4AH5-B**	2RV2-T
4DS0*	4AC2-R	4SF2	2GS3-C	4AH5-B**	2RV3-T
4DS6*	2AC2	4SF2	4GS2-C	4AH6-C**	2RV2-T
4DS6*	2AC2-R	4SF2	4GS2	4AH6-C**	2RV3-T
4DS6*	4AC2	4DS0*	2GS3-C	4AH6-D**	2RV2-T
4DS6*	4AC2-R	4DS0*	4GS2-C	6EA2-E	2RV2-T
4DS9*	2AC2	4DS0*	4GS2	6EA2-E	2RV3-T
4DS9*	2AC2-R	4DS6*	2GS3-C	6EA2-M	2RV2-T
4DS9*	4AC2	4DS6*	4GS2-C	6EA2-M	2RV3-T
4DS9*	4AC2-R	4DS6*	4GS2		
8EB2-E	2RV2-T	8EB2-M	4EA2-E	4DS0*	6EA2-E
8EB2-E	2RV3-T	8EB2-M	6EB2-M	4DS0*	8EB2-M
8EB2-M	2RV2-T	8EB2-M	6EB2-E	4DS0*	8EB2-E
8EB2-M	2RV3-T	8EB2-M	6EA2-M	4DS0*	2CT3
6EA2-E	4EA2-M	8EB2-M	6EA2-E	4DS0*	4CT2
6EA2-E	4EA2-E	8EB2-M	8EB2-M	4DS6*	4EA2-M
6EA2-E	6EB2-M	8EB2-M	8EB2-E	4DS6*	4EA2-E
6EA2-E	6EB2-E	8EB2-M	8EB2-E	4DS6*	6EB2-M
6EA2-E	6EA2-M	8EB2-M	2CT3	4DS6*	6EB2-E
6EA2-E	6EA2-E	8EB2-M	4CT2	4DS6*	6EA2-M
6EA2-E	8EB2-M	8EC2	4EA2-M	4DS6*	6EA2-E
6EA2-E	8EB2-E	8EC2	4EA2-E	4DS6*	8EB2-M
6EA2-E	2CT3	8EC2	6EB2-M	4DS6*	8EB2-E
6EA2-E	4CT2	8EC2	6EB2-E	4DS6*	2CT3

* See Section 5.3.3 following for explanation.

** Compatible only with a multiplex 4-Wire High Capacity analog facility interface option at the Customer's designated premises and where the Customer provides subsequent system and channel assignment data.

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5. Special Access Service (Cont'd)5.2 Technical Service Descriptions for Special Access Service (Cont'd)5.2.1 Analog Services (Cont'd)(B) Voice Grade Service (Cont'd)(3) Standard Protocol Combinations (Cont'd)

6EA2-M	4EA2-M	8EC2	6EA2-M	4DS6*	4CT2
6EA2-M	4EA2-E	8EC2	6EA2-E	4DS9*	4EA2-M
6EA2-M	6EB2-M	8EC2	8EB2-M	4DS9*	4EA2-E
6EA2-M	6EB2-E	8EC2	8EB2-E	4DS9*	6EB2-M
6EA2-M	6EA2-M	8EC2	CT3	4DS9*	6EB2-E
6EA2-M	6EA2-E	8EC2	4CT2	4DS9*	6EA2-M
6EA2-M	8EB2-M	4SF2	4EA2-M	4DS9*	6EA2-E
6EA2-M	8EB2-E	4SF2	4EA2-E	4DS9*	8EB2-M
6EA2-M	2CT3	4SF2	6EB2-M	4DS9*	8EB2-E
6EA2-M	4CT2	4SF2	6EB2-E	4DS9*	2CT3
8EB2-E	4EA2-M	4SF2	6EA2-M	4DS9*	4CT2
8EB2-E	4EA2-E	4SF2	6EA2-E	4AH5-B**	4EA2-M
8EB2-E	6EB2-M	4SF2	8EB2-M	4AH5-B**	4EA2-E
8EB2-E	6EB2-E	4SF2	8EB2-E	4AH5-B**	6EB2-M
8EB2-E	6EA2-M	4SF2	2CT3	4AH5-B**	6EB2-E
8EB2-E	6EA2-E	4SF2	4CT2	4AH5-B**	6EA2-M
8EB2-E	8EB2-M	4DS0*	4EA2-M	4AH5-B**	6EA2-E
8EB2-E	8EB2-E	4DS0*	4EA2-E	4AH5-B**	8EB2-M
8EB2-E	2CT3	4DS0*	6EB2-M	4AH5-B**	8EB2-E
8EB2-E	4CT2	4DS0*	6EB2-E	4AH5-B**	2CT3
8EB2-M	4EA2-M	4DS0*	6EA2-M		
4AH5-B**	4CT2	4N02	4N02-S	4DS6*	4N02-S
4AH6-C**	4EA2-M	4DB2	4DA2	4DS9*	4DA2
4AH6-C**	4EA2-E	4DB2	4DA2-S	4DS9*	4DA2-S
4AH6-C**	6EB2-M	4DB2	6DA2	4DS9*	6DA2
4AH6-C**	6EB2-E	4DB2	6DA2-S	4DS9*	6DA2-S
4AH6-C**	6EA2-M	4DB2	4N02	4D59*	4N02-S
4AH6-C**	6EA2-E	4DB2	4N025S	4AH5-B**	4DA2
4AH6-C**	8EB2-M	2DB2	2DA2	4AH5-B**	4DA2-S
4AH6-C**	8EB2-E	2DB2	2N02	4AH5-B**	6DA2
4AH6-C**	2CT3	4DB2	2DA2	4AH5-B**	6DA2-S
4AH6-C**	4CT2	4DB2	2N02	4AH5-B**	4N02-S

* See Section 5.3.3 following for explanation.

** Compatible only with a multiplex 4-Wire High Capacity analog facility interface option at the Customer's designated premises and where the Customer provides subsequent system and channel assignment data.

ACCESS SERVICE

5. Special Access Service (Cont'd)5.2 Technical Service Descriptions for Special Access Service (Cont'd)5.2.1 Analog Services (Cont'd)(B) Voice Grade Service (Cont'd)(3) Standard Protocol Combinations (Cont'd)

4AH6-D**	4EA2-M	2N02	2DA2	4AH6-C**	4DA2
4AH6-D**	4EA2-E	4N02	2DA2	4AH6-C**	4DA2-S
4AH6-D**	6EB2-M	4N02-S	2DA2	4AH6-C**	6DA2
4AH6-D**	6EB2-E	4N02-S	2N02	4AH6-C**	6DA2-S
4AH6-D**	6EA2-M	4DS6*	2DA2	4AH6-C**	4N02-S
4AH6-D**	6EA2-E	4DS9*	2DA2	4AH6-D**	4DA2
4AH6-D**	8EB2-M	4AH5-B**	2DA2	4AH6-D**	4DA2-S
4AH6-D**	8EB2-E	4AH6-C**	2DA2	4AH6-D**	6DA2
4AH6-D**	2CT3	4AH6-D**	2DA2	4AH6-D**	6DA2-S
4AH6-D**	4CT2	4N02-S	4DA2	4AH6-D**	4N02-S
4DS0*	4SF2-EA	4N02-S	4DA2-S	4DD3	4DE2
4DS0*	4SF2-GO	4N02-S	6DA2	4DD3	2DE2
4DS0*	4SF2-LO	4N02-S	6DA2-S	4N02	4DE2
4DS6*	4SF2-EA	4N02-S	4N02	4N02	2DE2
4DS6*	4SF2-GO	4N02-S	4N02-S	4DS0*	4DE2
4DS6*	4SF2-LO	4DS0*	4DA2	4DS0*	2DE2
4DS9*	4SF2-EA	4DS0*	4DA2-S	4DS6*	4DE2
4DS9*	4SF2-GO	4DS0**	6DA2	4DS6	2DE2
4DS9*	4SF2-LO	4DS0*	6DA2-S	4DS9*	4DE2
4N02	4DA2	4DS0*	4N02-S	4DS9*	2DE2
4N02	4DA2-S	4DS6*	4DA2	4AH5-B**	4DE2
4N02	6DA2	4DS6*	6DA2	4AH5-B**	2DE2
4N02	6DA2-S	4DS6*	6DA2-S	4AH6-C**	4DE2
4AH6-C**	2DE2	4G02	2GS2-M	4DS9*	8EC2
4AH6-D**	4DE2	4G02-X	2GS2-M	4AH5-B**	8EC2
4AH6-D**	2DE2	4G02-X	2GS3-M	4AH6-C**	8EC2
4DA2	4DA2	4SF2	2GS2	4AH6-D**	8EC2
4DA2	4DA2-S	4SF2	2GS3-M	6EA2-E	4DX2
6DA2	4DA2	4SF2	2GS2-M	6EA2-M	4DX2
6DA2	4DA2-S	4DS0*	2GS3-M	8EB2-E	4DX2
4DA2-S	4DA2	4DS0*	2GS2-M	8EB2-M	4DX2
4DA2-S	4DA2-S	4DS6*	2GS2-M	4SF2	4DX2
6DA2-S	4DA2	4DS6*	2GS3-M	4DS0*	4DX2
6DA2-S	4DA2-S	4DS9*	2GS2-M	4DS6*	4DX2

* See Section 5.3.3 following for explanation.

** Compatible only with a multiplex 4-Wire High Capacity analog facility interface option at the Customer's designated premises and where the Customer provides subsequent system and channel assignment data.

ACCESS SERVICE

5. Special Access Service (Cont'd)5.2 Technical Service Descriptions for Special Access Service (Cont'd)5.2.1 Analog Services (Cont'd)(B) Voice Grade Service (Cont'd)(3) Standard Protocol Combinations (Cont'd)

4DB2	4DA2	4DS9*	2GS3-M	4DS9*	4DX2
4DB2	4DA2-S	4AH5-B**	2GS2-M	4AH5-B**	4DX2
4DA2	6DA2	4AH5-B**	2GS3-M	4AH6-C**	4DX2
4DA2	6DA2-S	4AH6-C**	2GS2-M	4AH6-D**	4DX2
6DA2	6DA2	4AH6-D**	2GS3-M	4DS0*	4SF-EA
6DA2	6DA2-S	4G02-X	2GS2	4DS6*	4SF-EA
4DA2-S	6DA2	4G02-X	4GS2	4DS9*	4SF-EA
4DA2-S	6DA2-S	4G02-X	2GS3-C	2TF2	2TF2
6DA2-S	6DA2	4G02-X	4GS2-C	4DS0*	2TF2
6DA2-S	6DA2-S	4L02-X	2LS2	4DS6*	2TF2
4DS0*	4N02-S	4L02-X	4LS2	4DS9*	2TF2
4DS6*	4N02-S	4L02-X	2LS2-M	4AH5-B**	2TF2
4DS9*	4N02-S	4L02-X	2LS3-M	4AH6-C**	2TF2
4AH5-B**	4N02-S	6EA2-E	8EC2	4AH6-D**	2TF2
4AH6-C**	4N02-S	6EA2-M	8EC2	4TF2	4TF2
4AH6-D**	4N02-S	8EB2-E	8EC2	4DS0*	4TF2
4LS2-X	2LA2	8EB2-M	8EC2	4DS6*	4TF2
4LS2-X	2LB2	8EC2	8EC2	4DS9*	4TF2
4LS2-X	2LC2	4SF2	8EC2	4AH5-B**	4TF2
4LS2-X	2L03	4DS0*	8EC2	4AH6-C**	4TF2
4G02	2GS3-M	4DS6*	8EC2		
4AH6-D**	4TF2	6EX2-A	4LS2	6EX2-A	2GS2-M
2PR2	2PR2	6EX2-A	2LR2	4DX2	8EC2
2DB2	2PR2	6EX2-A	2GS3-C	4DX2-X	8EC2
2N02	2PR2	6EX2-A	4GS2-C	4DX2	2LS2
4DS0*	2PR2	6EX2-A	4GS2	6EA2-E	2LS2
4DS6*	2PR2	4RV2-0	2RV2-T	6EA2-M	2LS2
4DS9*	2PR2	4RV2-0	2RV3-T	8EB2-E	2LS2
4AH5-B**	2PR2	4DX2	2RV2-T	8EB2-M	2LS2
4AH6-C**	2PR2	4DX2	2RV3-T	4DX2	4DX2
4AH6-D**	2PR2	4DX2-X	2RV2-T	4DX2-X	4DX2
4PR2	4PR2	4DX2-X	2RV3-T	2N02	4N02
4DB2	4PR2	4DX2	4EA2-M	2LS2	2LA2
4N02	4PR2	4DX2	4EA2-E	2LS2	2LB2

* See Section 5.3.3 following for explanation.

** Compatible only with a multiplex 4-Wire High Capacity analog facility interface option at the Customer's designated premises and where the Customer provides subsequent system and channel assignment data.

ACCESS SERVICE

5. Special Access Service (Cont'd)5.2 Technical Service Descriptions for Special Access Service (Cont'd)5.2.1 Analog Services (Cont'd)(B) Voice Grade Service (Cont'd)(3) Standard Protocol Combinations (Cont'd)

4DS0*	4PR2	4DX2	6EB2-M	2LS2	2LC2
4DS6*	4PR2	4DX2	6EB2-E	2LS2	2L03
4DS9*	4PR2	4DX2	6EA2-M	2LR2	2LR2
4AH5-B**	4PR2	4DX2	6EA2-E	2LR2	4LR2
4AH6-C**	4PR2	4DX2	83B2-M	2AC2	2AC2
4AH6-D**	4PR2	4DX2	83B2-E	2AC2	4AC2
6EX2-B	2L02	4DX2	2CT3	4AC2	2AC2
6EX2-A	2LS2	4DX2	4CT2	4AC2	4AC2
2L03	2LS2	4DX2-X	4EA2-M	2GS2	2G03
6EX2-B	2G02	4DX2-X	4EA2-E	2LS2	2L02
6EX2-A	2GS2	4DX2-X	6EB2-M	2LS2	4L02
6EX2-B	2LA2	4DX2-X	6EB2-E	4LS2	4L02
6EX2-B	2LB2	4DX2-X	6EA2-M	4EA2-E	4EA2-E
6EX2-B	2LC2	4DX2-X	6EA2-E	4EA2-E	4EA2-M
6EX2-B	2L03	4DX2-X	8EB2-M	4EA2-E	6EA2-E
6EX2-B	2G03	4DX2-X	8EB2-E	4EA2-E	6EA2-M
6EX2-A	2LS2-M	4DX2-X	2CT3	4EA2-E	6EA2-E
6EX2-A	2LS3	4DX2-X	4CT2	4EA2-E	6EA2-M
6EX2-A	2LS3-M	6EX2-A	2GS3-M	4EA2-E	8EB2-E
4EA2-E	8EB2-M	4GS2-C	4G02	2DA2	4DA2
4EA2-E	2CT3	2CT3	4EA2-E	2DA2	6DA2
4EA2-E	4CT2	2CT3	4EA2-M	2DA2	2N02
4EA2-M	4EA2-E	2CT3	6EA2-E	2DA2	4DA2
4EA2-M	4EA2-M	2CT3	6EA2-M	2DA2	4DA2-S
4EA2-M	6EA2-E	2CT3	6EB2-E	2DA2	6DA2-S
4EA2-M	6EA2-M	2CT3	6EB2-M	2DA2	4N02-S
4EA2-M	6EB2-E	2CT3	8EB2-E	4DA2	2DA2
4EA2-M	6EB2-M	2CT3	8EB2-M	4DA2	2N02
4EA2-M	8EB2-E	2CT3	2CT3	4DA2	4N02
4EA2-M	8EB2-M	2CT3	4CT2	4DA2	4N02-S
4EA2-M	2CT3	4CT2	4EA2-E	6DA2	2DA2
4EA2-M	4CT2	4CT2	4EA2-M	6DA2	2N02

* See Section 5.3.3 following for explanation.

** Compatible only with a multiplex 4-Wire High Capacity analog facility interface option at the Customer's designated premises and where the Customer provides subsequent system and channel assignment data.

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ACCESS SERVICE

5. Special Access Service (Cont'd)5.2 Technical Service Descriptions for Special Access Service (Cont'd)5.2.1 Analog Services (Cont'd)(B) Voice Grade Service (Cont'd)(3) Standard Protocol Combinations (Cont'd)

6EB2-M	2CT3	4CT2	6EA2-E	6DA2	2N02
6EB2-M	4CT2	4CT2	6EA2-M	6DA2	4N02-S
6EB2-E	2CT3	4CT2	6EB2-E	4DA2-S	2DA2
6EB2-E	4CT2	4CT2	6EB2-M	4DA2-S	2N02
2GS2	4G02	4CT2	8EB2-E	4DA2-S	4N02
2GS3-C	2G02	4CT2	8EB2-M	4DA2-S	4N02-S
2GS3-C	4G02	4CT2	2CT3	6DA2-S	2DA2
4GS2	4G02	4CT2	4CT2	6DA2-S	2N02
4GS2-C	2G02	2DA2	2DA2	6DA2-S	4N02
				6DA2-S	4N02-S
2N02	4DA2				
2N02	6DA2				
2N02	2N02				
2N02	4N02				
2N02	4DA2-S				
2N02	6DA2-S				
2N02	4N02-S				
4N02	2N02				
4N02	4N02				
4N02	4N02-S				
4N02-S	2N02				

* See Section 5.3.3 following for explanation.

** Compatible only with a multiplex 4-Wire High Capacity analog facility interface option at the Customer's designated premises and where the Customer provides subsequent system and channel assignment data.

ACCESS SERVICE

5. Special Access Service (Cont'd)5.2 Technical Service Descriptions for Special Access Service (Cont'd)5.2.1 Analog Services (Cont'd)(B) Voice Grade Service (Cont'd)(4) Optional Features and FunctionsCentral Office Bridging Capability

- Voice Bridging (two-wire or four-wire): provides for the parallel connection of one voice circuit to another without interrupting the integrity or continuity of the first.
- Data Bridging (two-wire or four-wire): provides for the parallel connection of one data circuit to another without interrupting the integrity or continuity of the first.
- Telephoto Bridging (two-wire or four-wire): provides for the parallel connection of one Telephoto circuit to another without interrupting the integrity or continuity of the first.

Central Office Multiplexing

Voice to Narrowband: A voice frequency telegraph system arrangement that converts to a Voice Grade channel to Narrowband channels using frequency division multiplexing.

Conditioning

Conditioning provides more specific transmission characteristics for data or telephoto services. C-Type conditioning controls attenuation distortion and envelope delay distortion; DA-Type conditioning controls the Signal to C-Notched Noise Ratio and intermodulation distortion. Sealing Current helps maintain continuity on dry metallic loops. Telephone conditioning controls attenuation distortion and envelope delay distortion.

Conditioning is charged for on a channel termination basis. C-Type and DA-Type conditioning may be combined on the same service.

ACCESS SERVICE

5. Special Access Service (Cont'd)5.2 Technical Service Descriptions for Special Access Service (Cont'd)5.2.1 Analog Services (Cont'd)(B) Voice Grade Service (Cont'd)(4) Optional Features and Functions (Cont'd)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 of C-Type Conditioning are:

Attenuation Distortion
(Frequency Response)
Relative 1004 Hz

<u>Frequency Range (Hz)</u>	<u>Variation (dB)</u>
504-2804	-0.5 + 2.5
304-3004	-1.5 + 5.5

Envelope Delay Distortion

<u>Frequency Range (Hz)</u>	<u>Variation Microseconds</u>
1004-2604	≤ 475
604-2604	≤ 1450
504-2804	≤ 2950

ACCESS SERVICE

5. Special Access Service (Cont'd)5.2 Technical Service Descriptions for Special Access Service (Cont'd)5.2.1 Analog Services (Cont'd)(B) Voice Grade Service (Cont'd)(4) Optional Features and Functions (Cont'd)Improved Attenuation Distortion

Improved Attenuation Distortion upgrades the frequency vs. loss response limits as shown below:

<u>Frequency Range (Hz)</u>	<u>Variation (dB)</u>
404-2804	-0.8 to + 1.5 dB
304-3004	-0.8 to + 2.5 dB
304-3204	-1.5 to + 5.5 dB

Improved Envelope Delay Distortion

Improved Envelope Delay Distortion upgrades the frequency vs. delay response limits as shown below:

<u>Frequency Range (Hz)</u>	<u>Variation Microseconds</u>
1004-2604	≤ 85
804-2604	≤ 150
604-2604	≤ 250
504-2804	≤ 550
504-3004	≤ 2950

ACCESS SERVICE

5. Special Access Service (Cont'd)5.2 Technical Service Descriptions for Special Access Service (Cont'd)5.2.1 Analog Services (Cont'd)(B) Voice Grade Service (Cont'd)(4) Optional Features and Functions (Cont'd)DA-Type Conditioning

DA-Type Conditioning is provided for the control of Signal to C-Notched Noise Ratio and intermodulation distortion. DA-Type conditioning is available for two-point services or multipoint services.

The Signal to C-Notched Ratio and intermodulation distortion parameters for DA-type conditioning are:

- Signal to C-Notched Noise Ratio is equal to or greater than 34 dB.
- Intermodulation distortion.
- Signal to second order modulation products (R2) is equal to or greater than 40 dB.
- Signal to third order modulation products (R3) is equal to or greater than 44 dB.

When a service equipped with DA-Type conditioning is used for voice communications, the quality of the voice transmission may not be satisfactory.

ACCESS SERVICE

5. Special Access Service (Cont'd)5.2 Technical Service Descriptions for Special Access Service (Cont'd)5.2.1 Analog Services (Cont'd)(B) Voice Grade Service (Cont'd)(4) Optional Features and Functions (Cont'd)Telephoto Conditioning

Telephoto Conditioning is provided for the control of attenuation distortion and envelope delay distortion on telephotographic services. The attenuation distortion and envelope delay distortion parameters for Telephoto Conditioning are:

Attenuation Distortion
(1004 Hz Reference)

<u>Frequency Range (Hz)</u>	<u>Variation (dB)</u>
500-3000	-0.5 + 1.5
300-3200	-1.0 + 2.5

Envelope Delay Distortion

<u>Frequency Range (Hz)</u>	<u>Variation Microseconds</u>
1000-2600	≤ 75
800-2800	≤ 130

Hybrid

Provides conversion from a four-wire channel to two-wire termination at a Customer premises. Required to meet effective four-wire performance with a two-wire Customer premises protocol combination.

ACCESS SERVICE

5. Special Access Service (Cont'd)

5.2 Technical Service Descriptions for Special Access Service (Cont'd)

5.2.1 Analog Services (Cont'd)

(B) Voice Grade Service (Cont'd)

(4) Optional Features and Functions (Cont'd)

Improved Return Loss for Effective Four-Wire Transmission

On Effective Four-Wire Transmission at Four-Wire Point of Termination (applicable to each two-wire port): 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 TR-NPL-000335.

On Effective Two-Wire Transmission at Two-Wire Point of Termination: Provides for more stringent Echo Control specifications. In order for this option to be applicable, the transmission path must be four-wire at one point of termination and two-wire at the other point of termination. Placement of Telephone Company equipment may be required at the Customer's premises with the two-wire point of termination. The Improved Return Loss parameters are delineated in Technical Reference TR-NPL-000335.

Additional features and functions are available set forth in Section 15 following.

ACCESS SERVICE

5. Special Access Service (Cont'd)5.2 Technical Service Descriptions for Special Access Service (Cont'd)5.2.1 Analog Services (Cont'd)(C) Program Audio Service(1) Description

A Program Audio (PA) channel is a channel measured in Hz for the transmission of a complex signal voltage. The actual bandwidth is a function of the protocol combination selected by the Customer. Only one-way transmission is provided.

Program Audio channels are provided in the following bandwidths:

200 - 3500 Hz
100 - 5000 Hz
50 - 8000 Hz
50 - 15000 Hz

(2) Transmission Specifications

- Actual Measured Loss
- Gain/Frequency Distortion
- Signal-to-Idle Circuit Noise

The technical specifications are set forth in Technical Reference TR-NPL-000337 and associated Addendum.

(3) Standard Protocol Combinations

A Program Audio channel is available with the standard protocol combinations set forth below. Other protocols are available at rates determined on an individual case basis.

2PG2-3	2PG2-3	2PG2-3	2PG1-3
4DS9-15E*	2PG2-3	4DS9-15E*	2PG1-3
4AH5-B**	2PG2-3	4AH5-B**	2PG1-3
4AH6-C**	2PG2-3	4AH6-C**	2PG1-3
4AH6-D**	2PG2-3	4AH6-D**	2PG1-3
2PG2-5	2PG2-5	2PG2-5	2PG1-5
4DS9-15F*	2PG2-5	4DS9-15F*	2PG1-5
4AH5-B**	2PG2-5	4AH5-B**	2PG1-5
4AH6-C**	2PG2-5	4AH6-C**	2PG1-5
4AH6-D**	2PG2-5	4AH6-D**	2PG1-5

ACCESS SERVICE

5. Special Access Service (Cont'd)5.2 Technical Service Descriptions for Special Access Service (Cont'd)5.2.1 Analog Services (Cont'd)(C) Program Audio Service (Cont'd)(3) Standard Protocol Combinations (Cont'd)

2PG2-8	2PG2-8	2PG2-8	2PG1-8
4DS9-15G*	2PG2-8	4DS9-15G*	2PG1-8
4AH5-B**	2PG2-8	4AH5-B**	2PG1-8
4AH6-C**	2PG2-8	4AH6-C**	2PG1-8
4AH6-D**	2PG2-8	4AH6-D**	2PG1-8
2PG2-1	2PG2-1	2PG2-1	2PG1-1
4DS9-15H*	2PG2-1	4DS9-15H*	2PG1-1
4AH5-B**	2PG2-1	4AH5-B**	2PG1-1
4AH6-C**	2PG1-1	4AH6-C**	2PG1-1
4AH6-D**	2PG2-1	4AH6-D**	2PG1-1

* Compatible only with a multiplexed 4-wire DSX protocol option at the Customer's designated premises and where the Customer provides subsequent system and channel assignment data.

** Compatible only with a multiplexed 4-wire High Capacity Analog protocol option at the Customer's designated premises and where the Customer provides subsequent system and channel assignment data.

(4) Optional Features and Functions

- Gain Conditioning--Control of 1004 Hz Actual Measured Loss at initiation of service to 0 dB + 0.5 dB.
- Central office bridging capability: provides for the parallel connection of one virtual circuit to another virtual circuit without interrupting the integrity or continuity of the first.
- Stereo--provision of a pair of gain/phase equalized channels for stereo applications.

Additional features and functions are available as set forth in Section 15 following.

ACCESS SERVICE

5. Special Access Service (Cont'd)5.2 Technical Service Descriptions for Special Access Service (Cont'd)5.2.1 Analog Services (Cont'd)(D) Video Service(1) Description

A Video (TV) channel is an operational 4.2 MHz channel with one-way transmission capability for a standard 525 line/60 field monochrome, or National Television Systems Committee color, video signal and one or two associated 5 to 15 kHz audio signal(s). The associated audio signal(s) may be either duplexed or provided as one or two separate channels. The provision and bandwidth of the associated audio signal(s) is a function of the protocol combination selected by the Customer.

For Video service, the standby of technician(s) is mandatory. The Telephone Company will inform the Customer of standby charges before providing a Firm Order Confirmation Date. Standby charges are set forth in Section 8.2.7(B).

(2) Transmission Specifications

- Video Performance: Insertion Gain Variation and Luminance Signal/CCIR Weighted Noise.
- Audio Performance: Insertion Gain and Signal/15 kHz Flat Weighted Noise.

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

(3) Standard Protocol Combinations

A Video channel is available with the standard protocol combinations set forth below. Other protocols are available at rates determined on an individual case basis.

2TV6-1	4TV6-15
2TV7-1	4TV7-15
2TV6-2	6TV6-15
2TV7-2	6TV7-15
4TV6-5	4TV6-5
4TV7-5	4TV7-5
6TV6-5	6TV6-5
6TV7-5	6TV7-5

ACCESS SERVICE

5. Special Access Service (Cont'd)5.2 Technical Service Descriptions for Special Access Service (Cont'd)5.2.1 Analog Services (Cont'd)(D) Video Service (Cont'd)(4) Optional Features and Functions

Optional Features and Functions are available as set forth in Section 15 following.

(E) Wideband Analog Service(1) Description

A Wideband Analog (WA) 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 protocol combination selected by the Customer.

Wideband Analog channels are provided in the following bandwidths:

60 kHz - 108 kHz
312 kHz - 552 kHz
564 kHz - 3084 kHz
300 kHz - 16 kHz
29 kHz - 44 kHz

(2) Transmission Specifications

- Amplitude Stability
- Background Noise
- Frequency Shift
- Gain/Frequency Characteristics of:
 - Group Connections
 - Supergroup Connections
 - Mastergroup Connections
 - Impulse Noise
 - Net Loss Variations
 - Pilot Slot
 - Spurious Single
 - Frequency Tone

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

ACCESS SERVICE

5. Special Access Service (Cont'd)5.2 Technical Service Descriptions for Special Access Service (Cont'd)5.2.1 Analog Services (Cont'd)(E) Wideband Analog Service (Cont'd)(3) Standard Protocol Combinations

A Wideband Analog channel is available with the standard protocol combinations set forth below. Other protocols are available at rates determined on an individual case basis.

4AH5-B	4AH5-B
4AH6-C	4AH5-B
4AH6-D	4AH5-B
4AH6-C	4AH6-C
4AH6-D	4AH6-C
4AH6-D	4AH5-D
4WD-1	4WA5-1
4WD-2	4WA5-1

* Compatible only with a multiplexed 4-wire High Capacity Analog protocol option at the Customer's designated premises and where the Customer provides subsequent and channel assignment data.

(4) Optional Features and Functions

- Central office multiplexing: provides a voice frequency telegraph system arrangement that converts a Voice Grade channel to a Wideband channel using frequency division multiplexing.

Additional features and functions are available as set forth in Section 15 following.

ACCESS SERVICE

5. Special Access Service (Cont'd)5.2 Technical Service Descriptions for Special Access Service (Cont'd)5.2.2 Digital Services(A) Wideband Digital Service(1) Description

A Wideband Digital (WD) channel is a channel for the transmission of synchronous serial data at the rate of 19.2, 50.0, or 230.4 kpbs. Optional arrangements are available for additional transmission rates or for the transmission of nonsynchronous data. The actual bit rate is a function of the protocol combination selected by the Customer. A voiceband coordinating channel is provided with this service.

(2) Transmission Specifications

- Error-Free Seconds

While in service, 98.75% of the one-second intervals will be error-free 95% of the time.

(3) Standard Protocol Combinations

A Wideband Digital channel is available with the standard protocol combinations set forth below. Other protocols are available at rates determined on an individual case basis.

8WB5-19S	12WC6-10
8WB5-19S	12WC6-18
8WB5-19A	10WC6-19
8WB5-50S	12WC6-50
8WB5-40S	12WC6-40
82B-50A	10WC6-50
8WB5-23S	12WC6-23S
82B5-23A	12WC6-23

(4) Optional Features and Functions

Additional features and functions are available as set forth in Section 15 following.

ACCESS SERVICE

5. Special Access Service (Cont'd)

5.2 Technical Service Descriptions for Special Access Service (Cont'd)

5.2.2 Digital Services (Cont'd)

(B) Digital Data Access Service

(1) Description

A Digital Data Access (DA) channel is a channel for duplex four-wire transmission of 2.4, 4.8, 9.6, 56, or 64 kbps. The actual bit rate is a function of the protocol combination selected by the Customer. The channel provides a synchronous service with timing provided through the Telephone Company's facilities to the Customer in the received bit stream. Digital Data Access channels are only available via Telephone Company designated digital hubs. All other locations are connectable through an analog off-network extension which is provided as a Voice Grade service as set forth in Section 5.2.1(B).

The Customer may provide in accordance with Part 68 of the FCC Rules and Regulations the Channel Service Unit-type equipment or other Network Channel Terminating Equipment associated with the Digital Data Access channel at the Customer premises.

(2) Transmission Specifications

- Error Free Seconds

While in service, the monthly average of the error-free seconds will be equal to or greater than 99.875%, if the channel is measured through a CSU equivalent which conforms with the specifications set forth in Technical Reference PUB 62310.

Voltages which are compatible with Digital Data Access Service are set forth in Technical Reference PUB 62507.

ACCESS SERVICE

5. Special Access Service (Cont'd)5.2 Technical Service Descriptions for Special Access Service (Cont'd)5.2.2 Digital Services (Cont'd)(B) Digital Data Access Service (Cont'd)(3) Standard Protocol Combinations

A Digital Data Access channel is available with the standard protocol combinations set forth below. Other protocols are available at rates determined on an individual case basis.

4DS9-15*	6DU5-24
6DU5-24	6DU5-24
4D05	6DU5-24
DATAPOINT	DATAPOINT
5DS9-15*	6DU5-48
6DU5-48	6DU5-48
6DS9-15*	6DU5-96
6DU5-96	6DU5-96
4DS9-15*	6DU5-56
6DU5-56	6DU5-56
4DS9-15*	6DU5-64
6DU5-64	6DU5-64

* Compatible only with a multiplexed 4-wire DSX protocol option at the Customer's designated premises and where the Customer provides subsequent system and channel assignment data.

(4) Optional Features and Functions

- Transfer arrangement: Customer controlled equipment used to selectively terminate the service in either of two locations within the same rate center.
- Central office bridging: provides for the parallel connection of one virtual circuit to another virtual circuit without interrupting the integrity or continuity of the first.
- Secondary channel: a data transmission channel having a lower signaling rate capability than the primary channel in a system in which two channels share a common interface.

Additional features and functions are available as set forth in Section 15 following.

ACCESS SERVICE

5. Special Access Service (Cont'd)5.2 Technical Service Descriptions for Special Access Service (Cont'd)5.2.2 Digital Services (Cont'd)(C) High Capacity Service(1) Description

A High Capacity channel is a channel for the transmission of nominal 1.544, 44.736 or 155.520 Mbps synchronous serial data. The actual bit rate is a function of the protocol combination selected by the Customer.

Common industry terminology for the offered bit rates is as follows:

<u>Interface</u>	<u>Bit Rate</u>
DS1	1.544 Mbps
DS3	44.736 Mbps
OC3 or OC3c	155.520 Mbps

The Customer may provide in accordance with Part 68 of the FCC Rules and Regulations the Network Channel Terminating Equipment associated with the High Capacity channel at the Customer's premises.

(2) Transmission Specifications

- Error-Free Seconds

1.544 channel will be capable of an error-free second performance of 98.75% over a continuous 24 hour period as measured at the 1.544 Mbps rate through a CSU equivalent which conforms with the specifications set forth in Technical Reference PUB 62411.

ACCESS SERVICE

5. Special Access Service (Cont'd)5.2 Technical Service Descriptions for Special Access Service (Cont'd)5.2.2 Digital Services (Cont'd)(C) High Capacity Service (Cont'd)(3) Standard Protocol Combinations

A High Capacity channel is available with the standard protocol combinations set forth below. Other protocols are available at rate determined on an individual case basis.

49S9-15J	6DU9-A
4DS9-15	6DU9-B
4DS9-15K	6DU9-B
4DS9-15K	6DU9-C
4DS9-31*	6DU9-A, B or C
4DS0-63*	6DU9-A, B or C
4DS6-44*	6DU9-A, B or C
4DS6-27*	6DU9-A, B or C
4DS9-31	4DS9-31
4DS0-63	4DS0-63
4DS6-44	4DS6-44
4DS6-27	4DS6-27

* Compatible only with a multiplexed 4-wired DSX protocol option at the Customer's designated premises and where the Customer provides subsequent system and channel assignment data.

(4) Optional Features and FunctionsAutomatic Protection Switching

Automatic Protection Switching provides protection against failure of the facilities between a Customer designated premises and the wire center serving that premises.

Protection may be provided on a 1 x 1 nonexpandable basis which automatically switches to the spare channel line when the working channel fails.

Protection may be provided on a 1 x N basis, which provides one spare channel for up to a maximum of twelve working channels which reroutes the signal to the spare line when one of the working lines fail.

ACCESS SERVICE

5. Special Access Service (Cont'd)5.2 Technical Service Descriptions for Special Access Service (Cont'd)5.2.2 Digital Services (Cont'd)(C) High Capacity Service (Cont'd)(4) Optional Features and Functions (Cont'd)Central Office Multiplexing

DS1 to Voice: Under this option the Telephone Company will provide a digital channel bank with 24 channel plug-in mounting positions. The channel plug-in units will be provided by the Telephone Company when the Customer orders each individual service and specifies the channel position to be used and the plug-in unit specific interface code required. The multiplexing is accomplished using time division multiplexing.

DS3 to DS1: Under this option the Telephone Company converts a 44.736 Mbps channel to 28 DS1 channels using time division multiplexing.

OC3 to DS3: Under this option the Telephone Company converts an OC3 (155.520 Mbps) channel to 3 DS3 (44.726 Mbps) channels using time division multiplexing.

OC3 to DS1: Under this option the Telephone Company converts an OC3 (155.520 Mbps) channel to 84 DS1 (1.544 Mbps) channels using time division multiplexing.

ACCESS SERVICE

5. Special Access Service (Cont'd)5.2 Technical Service Descriptions for Special Access Service (Cont'd)5.2.2 Digital Services (Cont'd)(C) High Capacity Service (Cont'd)(4) Optional Features and Functions (Cont'd)Clear Channel Capability

Clear Channel Capability (CCC) is an arrangement that alters a DS1/1.544 Mbps signal with unconstrained information bits, to meet pulse density requirements outlined in TR-NPL-000054 and TA-TSY-000342. This will allow a Customer to transport an all zero octet over a DS1/1.544 Mbps High Capacity channel, providing an available combined maximum 1.536 Mbps data rate. This arrangement requires the Customer signal at the channel interface to conform to Bipolar with 8 Zero Substitution (B8ZS) line code as described in TR-NPL-000054 and TA-TSY-000342.

CCC is provided on DS1/1.544 Mbps High Capacity channels between two Customer designated premises and is subject to the availability of facilities. This optional feature may be ordered at the same time the DS1/1.544 Mbps High Capacity channel is ordered, or it may be ordered as an additional feature of an existing channel.

ACCESS SERVICE

5. Special Access Service (Cont'd)

5.2 Technical Service Descriptions for Special Access Service (Cont'd)

5.2.2 Digital Services (Cont'd)

(C) High Capacity Service (Cont'd)

(4) Optional Features and Functions (Cont'd)

Term Discount Plans[#]

(T)

(a) Customers may purchase DS1, DS3, or OC3 services with Term Discount Plans (“TDPs”) as described in Section 5.4.8 following. Customers purchasing DS1, DS3, or OC3 services with a TDP may choose between 18, 36, or 60 month service commitments.

(b) For DS1, DS3, or OC3 term discount plans in effect or ordered before August 5, 2008, the following provision applies:

Should TDP rates increase during the term of any given plan, the Company will continue to provide those services at the then applicable rate of the plan for the lesser of either the remaining life of the term plan or one year.

(c) For DS1, DS3, or OC3 term discount plans ordered after August 5, 2008, the following provision applies:

Should any of the monthly recurring charge rate elements for a term discount plan increase by more than 10% from the rates in effect at the start of the term of any given plan, the customer may, at their option, terminate the service without penalty of liability.

Additional features and functions are available as set forth in Section 15 following.

Effective November 19, 2021, DS1 and DS3 Term Discount Plans are no longer permitted. DS1 and DS3 Term Discount Plans in effect as of November 19, 2021 may continue the existing term but will not be eligible to extend, renew, reenroll in, convert to a new term period, or in any other way continue their existing plan beyond its current expiration. At expiration of the Term Discount Plan, the service will convert to the Month to Month Rate. If at any time an existing customer terminates its Term Discount Plan, the customer may not re-subscribe to the rate.

(N)
 |
 (N)

ACCESS SERVICE

5. Special Access Service (Cont'd)5.3 Protocol Codes

This section explains the protocol codes that the Customer must specify when ordering Special Access Service. Included is an example which explains the specific characters of the code, a glossary of protocol codes and impedance levels. Example: If the Customer specifies a 2AB2 protocol at the Customer premises, it is requesting the following:

2--Number of physical wires at interface is two.

AB--Protocol code for 20 Hz ringing

2--Code for nominal impedance of 600 ohms

5.3.1 Glossary of Protocol Codes and Options

<u>Code</u>	<u>Option</u>	<u>Definition</u>
AB		Accepts and provides a nominal 20 Hz ringing signal at Customer designated premises.
AC		Accepts and provides 20 Hz ringing signal at point of termination.
AH	R	Two-Digit Code Select (≤ 10)
	B	Analog high-capacity interface 60 to 108 KHz (12 channels)
	C	312 to 552 KHz (60 channels)
	D	564 to 3084 KHz (600 channels)
CT		CO Centrex tie trunk termination
DA		Data stream in VF frequency band at point of termination.
DB	S	Sealing current option for 4-wire transmission. Data stream in VF frequency band at Customer designated premises.
	10	Frequency shift (108 data set type)
	43	43A1 to 43B1 carrier format
DC		Direct current or voltage
	1	Monitoring interface with series RC combination (McCullough format)
	2	Telephone Company energized alarm channel
	3	Metallic facilities (DC continuity) for Direct Current/low frequency control signals or Slow Speed data (60 baud)

ACCESS SERVICE

5. Special Access Service (Cont'd)5.3 Protocol Codes (Cont'd)5.3.1 Glossary of Protocol Codes and Options (Cont'd)

<u>Code</u>	<u>Option</u>	<u>Definition</u>
DD		Dataphone Select-A-Station (and TABS) interface at Customer designated premises.
DE		Dataphone Select-A-Station (and TABS) interface at point of termination.
DO		Digital interface at Customer designated premises at the digital signal zero A (DS-OA).
DSO	63	6.312 Mb/s; DS-2; Robbed Bit
	63L	6.312 Mb/s; DS-2; Single Frequency
DS6	27	274.176 Mb/s; DS-4; Robbed Bit
	27L	274.176 Mb/s; DS-4; Single Frequency
	44	44.736 Mb/s; DS-3; Robbed Bit
	44L	44.736 Mb/s; DS-3; Single Frequency
DS9	15	1.544 Mb/s; DS-1; Robbed Bit
	15L	1.544 Mb/s; DS-1; Single Frequency
	15K	1.544 Mb/s; DS-1; Extended Framing Format
	31	3.152 Mb/s; DS-1C; Robbed Bit
	31L	3.152 Mb/s; DS-1C; Single Frequency
DU		Digital access interface at point of termination.
	24	2.4 Kb/s
	28	4.8 Kb/s
	56	56.0 Kb/s
	64	64.0 Kb/s
	96	9.6 Kb/s
	A	1.544 Mb/s format per PUB 41451
	B	1.544 Mb/s format per PUB 41451 plus D4
	C	1.544 Mb/s format per PUB 41451 plus extended framing format
DX		Duplex signaling interface at Customer designated premises
	X	Simplex reversal (4-wire)
EA		Type I, EM signaling at either Customer designated premises or point of termination
	E	Originates on E lead
	M	Originates on M lead
EB		Type II, EM signaling at either Customer designated premises or point of termination
	E	Originates on E lead
	M	Originates on M lead
EC		Type III, EM signaling at Customer designated premises; originates on M lead

ACCESS SERVICE

5. Special Access Service (Cont'd)5.3 Protocol Codes (Cont'd)5.3.1 Glossary of Protocol Codes and Options (Cont'd)

<u>Code</u>	<u>Option</u>	<u>Definition</u>
EX		Back-to-back carrier arrangement with tandem signaling
	A	LEC has closed end
	B	LEC provides dial tone
GO		Ground-start loop signaling - open end
	X	Simplex reversal (4-wire)
GS		Ground-start loop signaling - closed end
	C	Centrex foreign exchange trunk termination
	M	CO answering service concentrator
	X	Simplex reversal (4-wire)
IA		E.I.A. (25 pin RS - 232)
LA		End-user loop start loop signaling - Type A registered port, open end
LB		End-user loop start loop signaling - Type B registered port, open end
LC		End-user loop start loop signaling - Type C registered port, open end
LO		Loop-start loop signaling - open end
	X	Simplex reversal (4-wire)
LR		20 Hz automatic ringdown interface at Customer designated premises with LEC provided PLAR
LS		Loop-start loop signaling - closed end
	M	CO answering service concentrator
	X	Simplex reversal (4-wire)
NO		No signaling interface, transmission only
	S	Sealing current option for 4-wire transmission
PG		Program transmission, no dc signaling
	1	Nominal frequency from 50 to 15,000 Hz
	3	Nominal frequency from 200 to 3,500 Hz
	5	Nominal frequency from 100 to 5,000 Hz
	8	Nominal frequency from 50 to 8,000 Hz
PR		Protective relaying
RV		Loop reverse battery supervision
	O	Battery supplied by LEC, Customer originates
	T	Battery supplied by Customer, Customer terminates

ACCESS SERVICE

5. Special Access Service (Cont'd)5.3 Protocol Codes (Cont'd)5.3.1 Glossary of Protocol Codes and Options (Cont'd)

<u>Code</u>	<u>Option</u>	<u>Definition</u>
SF		Single-frequency signaling with VF band at Customer designated premises.
	AB	SF to manual ring
	EA	SF to E&M signaling
	GO	SF to loop signaling, ground start, open-end
	GS	SF to loop signaling, ground start, closed-end
	LO	SF to loop signaling, loop start, open end
	LS	SF to loop signaling, loop start, closed end
	LR	SF to automatic ring
TF		Telephotograph interface
TT		Telegraph/Teletypewriter interface at either Customer designated premises or point of termination
	2	20.0 milliamperes
	3	3.0 milliamperes
	6	62.5 milliamperes
TV		Television interface
	1	Combined video and one audio signal
	2	Combined video and two audio signals
	5	Video plus one (or two) audio 5 kHz signal(s) on one (or two) two-wire
	15	Video plus one (or two) audio 15 kHz signal(s) to be duplexed wide-band bandwidth interface at point of termination
WA	1	Limited bandwidth
	2	Nominal passband from 29,000 to 44,000 Hz
WB		Wideband data interface at Customer designated premises
	1	8S 18.75 Kbps, synchronous
	19A	Up to 19.2 Kbps asynchronous
	19S	19.2 Kbps synchronous
	23A	up to 230.4 Kbps, asynchronous
	40S	40.8 Kbps, synchronous
	50A	up to 50.0 Kbps, asynchronous
	50S	50.0 Kbps, synchronous
64	64.0 Kbps, restored polar	

ACCESS SERVICE

5. Special Access Service (Cont'd)5.3 Protocol Codes (Cont'd)5.3.1 Glossary of Protocol Codes and Options (Cont'd)

<u>Code</u>	<u>Option</u>	<u>Definition</u>
WC	18	Wideband data interface at point of termination
	19	18.75 Kbps, synchronous
		for 12-wire interface: 19.2 Kbps, synchronous for
		10-wire interface: up to 19.2 Kbps,
		asynchronous
		Up to 230.4 Kbps, asynchronous
WD	23S	230.4 Kbps, synchronous
	40	40.8 Kbps, synchronous for 12-wire interface:
		50.0 Kbps, synchronous
	50	for 10-wire interface: up to 50.0 Kbps,
		asynchronous
		Wideband bandwidth interface at Customer
		designated premises
	1	Nominal passband from 300 to 18,000 Hz
	2	Nominal passband from 28,000 to 44,000 Hz
	3	Nominal passband from 29,000 to 44,000 Hz

5.3.2 Impedance

The nominal reference impedance with which the Customer will terminate the channel for the purpose of evaluating transmission performance are:

<u>Value (ohms)</u>	<u>Code(s)</u>
110	0
150	1
600	2
900	3
1200	4
135	5
75	6
124	7
Variable	8
100	9

ACCESS SERVICE

5. Special Access Service (Cont'd)5.3 Protocol Codes (Cont'd)5.3.3 Digital Hierarchy Protocol Codes (4DSX)

This protocol is compatible only with a multiplexed four-wire DSX-1 or higher interface option at the Customer's designated premises and where the Customer provides subsequent system and channel assignment data.

The various digital bit rates in the digital hierarchy employ the protocol code 4DS0, 4DS6 or 4DS9 plus the speed options indicated below:

<u>SPEED OPTION</u>	<u>NOMINAL BIT RATE (Mbps)</u>	<u>DIGITAL HIERARCHY LEVEL</u>
15	1.544	DS1
31	3.152	DS1C
63	6.312	DS2
44	44.736	DS3
27	274.176	DS4

HIGH CAPACITY CROSSCONNECT CODE COMBINATIONS

4DS*G0	4DS*GS
4DS*LO	4DS*LS
4DS*NO	4DS*NO
4DS*EA	4DS*EA
4DS*GS	4DS*GO
4DS*LS	4DS*LO

* 0 = DS1/DS1C rate; 6 = DS2 rate; 9 = DS3 or higher rate

ACCESS SERVICE

5. Special Access Service (Cont'd)5.4 Rate Regulations

This section contains the specific regulations governing the rates and charges that apply for Special Access Service.

5.4.1 Types of Rates and Charges

There are three types of rates and charges. These are monthly rates, daily rates and nonrecurring charges. The rates and charges are described as follows:

(A) Monthly Rates

Monthly rates are flat recurring rates that apply each month or fraction thereof that a Special Access Service is provided. For billing purposes, each month is considered to have 30 days.

(B) Daily Rates

Daily rates are flat recurring rates that apply to each twenty-four (24) hour period or fraction thereof. Daily rates are available only for Video Service provided for part-time use. For purposes of applying daily rates, the twenty-four (24) hour period is not limited to a calendar day.

(C) Nonrecurring Charges

Nonrecurring charges are one-time charges that apply for specific work activity (e.g., installation or a change to an existing service). The nonrecurring charges are set forth in Section 9.2.

Administrative changes will be made without charge(s) to the Customer. Administrative changes are as follows:

- Change of Customer name,
- Change of Customer or Customer's end user premises address when the change of address is not a result of physical relocation of equipment,
- Change in billing data (name, address, or contact name or telephone number),
- Change of agency authorization,
- Change of Customer circuit identification,
- Change of billing account number,
- Change of Customer test line number,
- Change of Customer or Customer's end user contact name or telephone number, and
- Change of jurisdiction.

ACCESS SERVICE

5. Special Access Service (Cont'd)5.4 Rate Regulations (Cont'd)5.4.2 Minimum Periods

Special Access Service is provided for a minimum period of one (1) month. Exceptions to the minimum period exists for part-time Video services and Term Discount Plan Services. The part-time Video Services may be ordered and paid for on a daily basis. If the daily rate is greater than one-thirtieth of the monthly rate, then a Customer shall be charged no more than the monthly rate for any given month. The minimum service period for Term Discount Plan (TDP) Services is the length of the TDP specified in the customer's contract. Minimum usage requirements are set forth in Section 9.

5.4.3 Moves

A move involves a change in the physical location of one of the following:

- The point of termination at the Customer designated premises.
- The Customer designated premises.

The charges for the move and the associated minimum period obligation are dependent on whether the move is to a new location within the same wire center area or to a different wire center area.

(A) Moves to a Different Wire Center Area

When a Customer moves to a different wire center area, the move will be treated as a disconnect and a start of service and Facilities Access Order charges as set forth in Section 9 shall apply. A new minimum period will be established. The Customer will also remain responsible for fulfilling all outstanding minimum period obligations associated with the disconnected service.

(B) Moves to a Different Building Within the Same Wire Center

When a Customer designated premise is moved to a new location in a different building in the same wire center area, the existing minimum period obligations will continue in effect.

(C) Moves Within the Same Building

When a Customer moves to a new location within the same building in the same wire center area, the existing minimum period obligations will continue in effect.

ACCESS SERVICE

5. Special Access Service (Cont'd)

5.4 Rate Regulations (Cont'd)

5.4.4 Mileage Measurement

The mileage to be used to determine the monthly rate for the Channel Mileage Facility rate element is calculated on the airline distance between the serving wire centers involved, i.e., the serving wire centers associated with two Customer designated premises, a serving wire center associated with a Customer designated premises and a Telephone Company hub, or two Telephone Company hubs or between the serving wire center associated with a Customer designated premises and a WATS serving office. The serving wire center associated with a Customer designated premises is the serving wire center from which the Customer designated premises would normally obtain dial tone. The V&H coordinates method is used to determine mileage. This method is explained in the EXCHANGE CARRIER ASSOCIATION TARIFF F.C.C. No. 4. If the method results in fractional miles, the fractional miles are rounded up to the nearest whole number before determining the rate to be billed. The serving wire center and hub V&H coordinates are also included in that tariff. When hubs are involved, mileage is computed and rates applied separately for each section of the Channel Mileage, i.e., Customer designated premises serving wire center to hub, hub to hub and/or hub to Customer designated premises serving wire center. However, when any service is routed through a hub for purposes other than Customer specified bridging or multiplexing (e.g., the Telephone Company chooses to so route for test access purposes), rates will be applied only to the distance calculated between the serving wire centers associated with the Customer designated premises.

5.4.5 Shared Use Analog and Digital High Capacity Services

Shared use occurs when Special Access Service and Switched Access Service are provided over the same Wideband Analog or High Capacity facilities through a common interface. The facility is ordered and rated as Special Access Service (i.e., Channel Termination, Channel Mileage, as appropriate, and multiplexer) until such time as the Customer chooses to use a portion of the available capacity for providing Switched Access Service. As each individual channel is activated for Switched Access Service, the Special Access Channel Termination, Channel Mileage, and Optional Features and Functions rates will be reduced accordingly (e.g., 1/12th for a Group level service, 1/24th for a DS1 service, etc.) The rates for Switched Access Service set forth in Section 4 apply to Switched Access Services provided over shared facilities. When placing an order for Shared Use Facilities, the Customer must specify the channels to be used for each service. Nonrecurring and ordering charges apply on the basis of the Wideband Analog or the Digital High Capacity facility ordered. After the service date, Facilities Access Order charges apply for a change in the Special Access Service or Switched Access Service configuration provided over shared facilities.

ACCESS SERVICE

5. Special Access Service (Cont'd)5.4 Rate Regulations (Cont'd)5.4.6 Special Access Surcharge(A) General

Special Access Services provided under this tariff may be subject to the monthly Special Access Surcharge. Applicable rates and charges can be found in Section 15 following.

(B) Application

- (1) The Special Access Surcharge will apply to each interstate Special Access Service that terminates on an end user's PBX or other device, where through a function of the device, the Special Access Service interconnects to the local exchange network. Interconnection functions include, but are not limited to, wiring and software functions, bridging, switching or patching of calls or stations. The Surcharge will apply irrespective of whether the interconnection function is performed in equipment located at the Customer's premises or in a Centrex CO-type switch.
- (2) Special Access Service will be exempted from the Surcharge by the Telephone Company upon receipt of the Customer's written certification for the following Special Access Service terminations:
 - (a) an open-end termination in a Telephone Company switch of an FX line, including CCSA and CCSA-equivalent ONALS; or
 - (b) an analog channel termination that is used for radio or television program transmission; or
 - (c) a termination used for TELEX service; or
 - (d) a termination that by the nature of its operating characteristics could not make use of Telephone Company common lines such as, terminations which are restricted through hardware or software; or

ACCESS SERVICE

5. Special Access Service (Cont'd)5.4 Rate Regulations (Cont'd)5.4.6 Special Access Surcharge (Cont'd)(B) Application (Cont'd)

- (e) a termination that interconnects either directly or indirectly to the local exchange network where the usage is subject to Carrier Common Line charges such as, where the Special Access Service accesses only FGA and no local exchange lines, or Special Access Service between Customer points of termination, or Special Access Service connecting CCSA or CCSA-type equipment; or
- (f) a termination that the Customer certifies to the Telephone Company is not connected to a PBX or other device which interconnects the Special Access Service to a local exchange subscriber line.

(C) Exemption of Special Access Service

- (1) Special Access Services which are terminated as set forth in Section 5.4.6 (B)(2) preceding will be exempted from the Special Access Surcharge, if the Customer provides the Telephone Company with written exemption certification. The certification may be provided to the Telephone Company as follows:
 - at the time the Special Access Service is ordered or installed;
 - at such time as the service is reterminated to a device which does not interconnect the service to local exchange facilities; or
 - at such time as the service becomes associated with a Switched Access Service that is subject to Carrier Common Line Charges.
- (2) The exemption certification is to be provided by the Customer ordering the service. The certification must be signed by the Customer or authorized representative and include the category of exemption, as set forth in Section 5.4.6 (B)(2) preceding, for each termination, and the date which the exemption is effective.

ACCESS SERVICE

5. Special Access Service (Cont'd)5.4 Rate Regulations (Cont'd)5.4.6 Special Access Surcharge (Cont'd)(C) Exemption of Special Access Service (Cont'd)

- (3) The Customer shall also notify the Telephone Company when an exempted Special Access Service is changed or reterminated such that the exemption is no longer applicable.
- (4) The Telephone Company will work cooperatively with the Customer to resolve any questions regarding the exemption certification. In addition, the Telephone Company may withhold exemption of the service until the questions are resolved.

(D) Rate Regulations

- (1) The surcharge will apply as set forth in Section 5.4.6 (B) (1) preceding, except that a surcharge will be assessed on a per voice grade equivalent basis for Special Access Services derived from High Capacity Special Access Services as illustrated in the following example:

<u>Special Access Service</u>	<u>Voice Grade Equivalent</u>	<u>Surcharge</u>	<u>Monthly Charge</u>
DS1	24 x	\$25.00	\$600.00

The preceding example illustrates the maximum number of surcharges applicable to a DS1. If the Customer claims exemption(s) as set forth in Section 5.4.6 (C) preceding or, is not utilizing all available voice grade equivalents and has spare capacity, the number of surcharges would be reduced accordingly.

In the case of multipoint Special Access Services, one Special Access Surcharge will apply for each termination of a Special Access Channel at an end user's premises.

- (2) The Telephone Company will bill the appropriate Special Access Surcharge to the ordering Customer for each interstate Special Access Service installed unless exemption certification is provided as set forth in Section 5.4.6 (C) preceding.

ACCESS SERVICE

5. Special Access Service (Cont'd)5.4 Rate Regulations (Cont'd)5.4.6 Special Access Surcharge (Cont'd)(D) Rate Regulations (Cont'd)

- (3) If a written certification is not received at the time the Special Access Service is obtained, the Surcharge will be applied. Exempt status will become effective on the certification date indicated by the Customer, subject to the regulations set forth in (4) following.

(4) Crediting the Surcharge

The Telephone Company will cease billing the Special Access Surcharge when certification, as set forth in Section 5.4.6 (C) preceding, is received. If the status of the Special Access Service was changed prior to receipt of the exemption certification, the Telephone Company will credit the Customer's account, not to exceed ninety (90) days, based on the effective date of the change as specified by the Customer in the letter of certification.

5.4.7 Facility Hubs

A Customer has the option of ordering Voice Grade service or High Capacity services to a facility hub for channelizing to individual services requiring lower capacity facilities (e.g., Telegraph, Voice, Program Audio, etc.).

Different locations may be designated as hubs for different facility capacities, e.g., multiplexing from digital to digital may occur at one location while multiplexing from digital to analog may occur at a different location. When placing an Access Order the Customer will specify the desired hub. Serving wire centers, and hub locations, and the type of multiplexing functions available are identified in EXCHANGE CARRIER ASSOCIATION F.C.C. No. 4. Some of the types of multiplexing available include the following:

- from higher to lower bit rate
- from higher to lower bandwidth
- from digital to voice frequency channels

ACCESS SERVICE

5. Special Access Service (Cont'd)5.4 Rate Regulations (Cont'd)5.4.7 Facility Hubs (Cont'd)

Point to point services may be provided on channels of these services to a hub. The transmission performance for the point to point service provided between Customer designated premises will be that of the lower capacity or bit rate. For example, when a 1.544 Mbps channel is multiplexed to voice frequency channels, the transmission performance of the channelized services will be Voice Grade, not High Capacity.

The Telephone Company will commence billing the monthly rate for the service to the hub on the date specified by the Customer on the Access Order. Individual channels utilizing these services may be installed coincident with the installation of the service to the hub or may be ordered and/or installed at a later date at the option of the Customer. The Customer will be billed for a Voice Grade or a High Capacity Channel Termination, Channel Mileage (when applicable), and the multiplexer at the time the service is installed. Individual service rates (by service type) will apply for a Channel Termination and additional Channel Mileage (as required) for each channelized service. These will be billed to the Customer as each individual service is installed.

Cascading multiplexing occurs when a High Capacity service is de-multiplexed to provide channels with lesser capacity and one of the lesser capacity channels is further de-multiplexed. For example, a 6.312 Mbps High Capacity service is de-multiplexed to four DS1 channels and then one of the DS1 channels is further de-multiplexed to 24 individual Voice Grade channels.

When cascading multiplexing is performed, whether in the same or a different hub, a charge for the additional multiplexing unit also applies. When cascading multiplexing is performed at different hubbing locations, Channel Mileage charges also apply between the hubs.

The Telephone Company will designate hubs for Video Services. Full-time or part-time service may be provided between Customer designated premises or between a Customer designated premises and a hub and billed accordingly at the rates set forth in Section 15 following for a Channel Termination, Channel Mileage and Optional Features and Functions, as applicable. When the service is ordered to a hub, the Customer may order a full-time or part-time Video service as needed between that hub and additional Customer designated premises. The rate elements required to provide the part-time service (i.e., Channel Termination, Channel Mileage and Optional Features and Functions as applicable) will be billed at daily rates for the duration of the service requested.

ACCESS SERVICE

5. Special Access Service (Cont'd)5.4 Rate Regulations (Cont'd)5.4.8 Term Discount Plans#

(T)

Term Discount Plans ("TDPs") offer reduced rates to customers who commit to purchase service for a specified period of time. The length of available TDPs may vary by type of service.

A customer with a service purchased under a month-to-month agreement may convert that service to a term discount plan. A customer may convert an existing TDP service to a longer period TDP service. Upon converting an existing plan to a longer term plan, the customer's existing applicable contract obligation will be deemed satisfied and a new term plan will be initiated. No service credit will apply towards the new plan; the new TDP service will be treated as a new service and subject to the full rate and contract obligations of the new TDP service, with the exception that nonrecurring charges do not apply.

(T)

A customer who discontinues a service purchased under a TDP prior to the end of the term may, without penalty, transfer the remaining months of the term commitment to a new like service which has been installed within 90 days prior to the disconnection of the service under the original TDP. The new service must connect the customer and the end user entirely over the Telephone Company's facilities.

(T)

Upon expiration of a TDP, the customer may choose to initiate a new TDP, convert to month to month service, or terminate service. If the customer fails to make a choice by the end of the term, the service will be converted to month to month. Initiation of a new TDP will require the customer to submit a change order. Conversion of existing service to month to month or initiation of a new TDP at expiration of the current TDP will be allowed without application of any on recurring charges.

(T)

Customers who choose to initiate a TDP following conversion to month to month may do so at any time without penalty or credit against the selected TDP.

Customers purchasing TDPs commit to keep a service for the duration of the chosen plan period. If a customer chooses to discontinue the service prior to the duration of a chosen plan period, that customer is liable for a termination charge. The amount of the termination charge is determined in two ways as set forth in (A) and (B) following.

Service Offer is limited. See footnote on page 5-37.

(N)

ACCESS SERVICE

5. Special Access Service (Cont'd)5.4 Rate Regulations (Cont'd)5.4.8 Term Discount Plans# (Cont'd)

(T)

(A) For term discount plans ordered after August 27, 2009, the termination liability equals the remaining monthly charges for the term commitment period applied at the rates in effect on the termination date.

(B) For term discount plans in effect or ordered before August 27, 2009, the termination liability is computed as follows: The amount of the termination charge is determined in two ways as set forth in (1) and (2) following. The method which provides the customer with the lowest termination liability will be applied.

(1) Method 1

The termination liability equals a one-time charge of 75% of the payments remaining under the chosen plan.

(2) Method 2

Where there exists a TDP period less than the actual time the service has been in effect, the termination charge will be the difference between the rate for the longest TDP period that could have been satisfied prior to discontinuation of service and the rate for the contracted plan period multiplied by the actual number of months the service has been in effect. For example, if a service under a 60 month TDP is discontinued after 40 months, the highest plan period that could have been satisfied is 36 months. The termination charge is the 36 month TDP rate less the 60 month TDP rate multiplied by 40.

Where the actual time the service was in effect is less than the shortest TDP period, the month-to-month rate will be used. For example, if a service under the 36 month TDP is discontinued after 10 months, which is less than the shortest TDP period of 18 months at present, the termination charge will be the month-to-month rate less the 36 month TDP rate multiplied by 10.

Service Offer is limited. See footnote on page 5-37.

(N)