1. VOICE GRADE SERVICES

A. GENERAL

Additional terms and conditions applicable to Special Access Services may be found in Part 2, Section 2.

All rates and charges may be adjusted at a later date.

1. VOICE GRADE SERVICES (cont'd)

B. 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 Company Hub or between a customer designated premises or Company Hub and an EIS POT.

C. TECHNICAL SPECIFICATIONS PACKAGES

		Package VG-										
Parameter	C[/1/]	1	2	3	4	5	6	7	8	9	10	11	12
Attenuation Distortion	X	X	X	X	X	X	X	X	X	X	X	X	X
C-Message Noise	X	X	X	X	X	X	X	X	X	X	X	X	X
Echo Control	X	X	X	X		X		X	X			X	X
Envelope Delay Distortion	X						X	X	X	X	X	X	X
Frequency Shift	X						X	X	X	X	X	X	X
Impulse Noise	X					X	X	X	X	X	X	X	X
Intermodulation Distortion	X						X	X	X	X	X	X	
Loss Deviation	X	X	X	X	X	X	X	X	X	X	X	X	X
Phase Hits, Gain Hits, and Dropouts	X												
Phase Jitter	X						X	X	X	X	X	X	
Signal-to-C Message Noise					X								
Signal-to-C Notch Noise	X					X	X	X	X	X	X	X	X

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

1. VOICE GRADE SERVICES (cont'd)

C. TECHNICAL SPECIFICATIONS PACKAGES (cont'd)

The following matrix lists the parameters available on intraLATA Voice Grade Private Line Service as delineated in Technical Reference PUB TR-NWT-000965 and PUB L-780029-PB.

		Package VG-		
Parameter	C	32	33	36
Attenuation Distortion	X	X	X	X
C-Message Noise	X	X	X	X
Echo Control	X	X	X	X
Envelope Delay Distortion	X			X
Frequency Shift	X			X
Impulse Noise	X			X
Intermodulation Distortion	X			X
Loss Deviation	X	X	X	X
Phase Hits, Gain	X			
Hits, and Dropouts	X			
Phase Jitter	X			
Signal-to-C Message Noise	X			X
Signal-to-C Notch Noise	X			X

1. VOICE GRADE SERVICES (cont'd)

C. TECHNICAL SPECIFICATIONS PACKAGES (cont'd)

The technical specifications for these parameters (except for dropouts, gain hits, and phase hits) are delineated in Technical Reference PUB TR-NWT-000335, TR-NWT-000965 and PUB L-780029-PB. The technical specifications for dropouts, phase hits, and gain hits are delineated in Technical Reference PUB 41004.

D. NETWORK CHANNEL INTERFACES

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

The following network 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 network channel interfaces are set forth in the technical References listed in C., preceding.

E. OPTIONAL FEATURES AND FUNCTIONS

1. Central Office Bridging Capability

a. Voice Bridging (two-wire and four-wire)

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

c. Telephoto Bridging (two-wire and four-wire)

d. Telemetry and Alarm Bridging

i. Split Band, Active Bridging
ii. Passive Bridging
iii. Summation, Active Bridging

1. VOICE GRADE SERVICES (cont'd)

E. OPTIONAL FEATURES AND FUNCTIONS (cont'd)

2. Central Office Multiplexing

   Voice to Telegraph Grade: 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.

   In addition, a customer may desire that either the attenuation distortion or the envelope delay distortion, or both, be improved to more stringent specifications than those provided for C-Type conditioning. In such cases the customer has the option of ordering either Improved Attenuation Distortion or Improved Envelope Delay Distortion, or both, as desired.

   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.

1. VOICE GRADE SERVICES (cont'd)

E. OPTIONAL FEATURES AND FUNCTIONS (cont'd)

3. Conditioning (Cont'd)

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)
500-2800	-1.0 to +3.0
300-3000	-2.0 to +6.0

Envelope Delay Distortion

Frequency Range (Hz)	Variation (micro-seconds)
1004-2604	500
604-2604	1500
504-2804	3000

Technical specifications for IntraLATA Private Line Service C conditioning are delineated in Technical Reference TR-NWT-000965 and PUB L-780029-PB.

1. VOICE GRADE SERVICES (cont'd)

E. OPTIONAL FEATURES AND FUNCTIONS (cont'd)

3. Conditioning (Cont'd)

b. Improved Attenuation Distortion

Improved attenuation distortion is provided for additional control of attenuation distortion. The improved attenuation distortion specifications 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

c. Improved Envelope Delay Distortion

Improved envelope delay distortion is provided for additional control of envelope delay distortion. The improved envelope delay distortion specifications are:

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

d. 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 network channel interfaces.

1. VOICE GRADE SERVICES (cont'd)

E. OPTIONAL FEATURES AND FUNCTIONS (cont'd)

4. Customer Specified Premises Receive Level

This option allows the customer to specify the receive level at the Point of Termination. The level must be within a specific range on effective four-wire transmission. The ranges are delineated in Technical Reference PUB TR-NWT-000335.

5. Improved Return Loss

a. 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. 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 TR-NWT-000335.

b. 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 POT and two-wire at the other POT. Placement of 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 TR-NWT-000335.

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 up to and including the Company's local loop demarcation point are:

- Signal to C-Notched Noise Ratio is equal to or greater than 32dB
- Intermodulation distortion:
    - Signal to second order modulation products (R2) is equal to or greater than 38dB
    - Signal to third order modulation products (R3) is equal to or greater than 42dB

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

1. VOICE GRADE SERVICES (cont'd)

E. OPTIONAL FEATURES AND FUNCTIONS (cont'd)

7. Telephoto Capability

Telephoto Capability provides transmission characteristics suitable for telephotographic communications. Specifically, Telephoto Capability is provided for the control of attenuation distortion and envelope delay distortion on telephotographic services. The attenuation distortion and envelope delay distortion parameters up to and including the Company's local loop demarcation point for Telephoto Capability are:

Envelope Delay Distortion

Frequency Range (Hz)	Variation (mcs)
1000-2600	110
800-2800	180
(1004HZ Reference)	

Attenuation Distortion

Frequency Range (Hz)	Variation (dB)
500-3000	-0.5 to +1.5
300-3200	-1.0 to +2.5

1. VOICE GRADE SERVICES (cont'd)

E. OPTIONAL FEATURES AND FUNCTIONS (cont'd)

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 channels(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 channel, if required, is not included as part of the option.

1. VOICE GRADE SERVICES (cont'd)

E. OPTIONAL FEATURES AND FUNCTIONS (cont'd)

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

	Available with Technical Specifications Package VG-												
	C	1	2	3	4	5	6	7	8	9	10	11	12
-C-Type Conditioning	X					X	X	X	X	X	X		
-Central Office Bridging Capability	X		X			X	X				X	X	X
-Central Office Multiplexing		X					X						
-Customer Specified Premises Receive Level	X	X	X	X	X	X	X	X	X	X	X	X	
-Data Capability	X						X	X			X		
-Improved Return Loss For Effective Four-Wire Transmission	X	X	X	X	X	X	X	X	X	X	X	X	X
-For Effective Two-Wire Transmission	X		X	X				X					
-Sealing Current Conditioning	X					X	X						
-Selective Signaling Arrangement	X		X										
-Signaling Capability	X	X	X	X				X	X	X			
-Telephoto Capability	X											X	
-Transfer Arrangement	X	X	X	X	X	X	X	X	X	X	X	X	

1. VOICE GRADE SERVICES (cont'd)

E. OPTIONAL FEATURES AND FUNCTIONS (cont'd)

12. The following table shows the technical specifications packages with which the optional features and functions are available for IntraLATA Private Line Service.

	Available with Technical Specifications Package VG-				
	C	32	33	36	
-Conditioning					
C-Type					
C1	X	X	X	X	
C2	X	X	X	X	
C4	X	X	X	X	
C5	X	X	X	X	
Protective Relaying (C6)	X		X	X/1/	(C)
RTOC	X	X		X	
-Central Office Bridging Capability	X	X		X	
-Central Office Multiplexing	X				
-Customer Specified Premises Receive Level	X				
-Data Capability	X			X	
-Sealing Current Conditioning	X				
-Selective Signaling Arrangement	X				
-Signaling Capability	X	X	X		
-Switching Capability	X	X	X	X	
-Telephoto Capability	X				
-Transfer Arrangement	X				

/1/ Only available on a two-point VG36 furnished to the power industry. (N)

1. VOICE GRADE SERVICES (cont'd)

F. PRIVATE VIRTUAL NETWORK ACCESS LINE (PVNAL)

1. Description

A PVN Access Line provides a channel for voice frequency transmission capability. The service provides a connection between a customer's end user's premises and a PVN Access serving office. It is provided only for use with PVN Access Switched Access Service. PVNAL service is provided with either rotary dial or dual tone multifrequency address signaling and either loop start, ground start E&M, or reverse battery supervisory signaling. The choice of the type of signaling is at the option of the customer and subject to the limitations identified in the Technical PUB GR-334-C0RE for voice grade service. PVN Access Line Service is provided as an effective two- wire or an effective four-wire transmission path.

2. Compatible Channel Interfaces

The following interfaces available with PVNAL service:

LO
LS
GO
GS
RV
EA
EB
DS

3. Optional Features and Functions

a. Improved Two-Wire Transmission Specifications.

b. Signaling Capability

c. Voice Grade Bridging

1. VOICE GRADE SERVICES (cont'd)

G. LOCAL AREA DATA CHANNELS

A Local Area Data Channel connects two customer designated premises within the same serving wire center as specified in Technical Reference PUB MDP-326-986. It may be terminated two-wire or four-wire and is only available as a two-point service.

Limited Distance Modems (LDM) require transmission facilities with characteristics normally found in metallic wire facilities. Such services will be furnished only where metallic facilities are normally available between the service points.

1. VOICE GRADE SERVICES (cont'd)

H. RATES

1. CHANNEL TERMINATION

	USOC	Monthly Rates	Nonrecurring Charges 1st	Nonrecurring Charges Add'l
- Per Point of termination				
- at an End User location				
- Two-wire	T6E2X	$36.80	$655.00	$577.00
- Four-wire	T6E4X	46.64	655.00	577.00
- at an IC POT location				
- Two-Wire	T6P2X	26.97	655.00	577.00
- Four-Wire	T6P4X	36.70	655.00	577.00
- Per Point of termination With DC Continuity				
- at an End User location				
- Two-wire	T6E2D	36.80	655.00	577.00
- Four-wire	T6E4D	46.64	655.00	577.00
- at an IC POT location				
- Two-Wire	T6P2D	26.97	655.00	577.00
- Four-Wire	T6P4D	36.70	655.00	577.00
- Per Point of termination				
- at Company Central Office				
- Two-wire	T6EC2	36.80	655.00	577.00
- Four-wire	T6EC4	46.64	655.00	577.00

1. VOICE GRADE SERVICES (cont'd)

H. RATES (cont'd)

2. CHANNEL MILEAGE

Mileage Bands	USOC	Monthly Rates	Nonrecurring Charges	
			1st	Add'l.
		Monthly Rates		
		Fixed	Per Mile	
0	1L5XX	None	None	
Over 0	1L5XX	$25.00	$ 2.17	

3. OPTIONAL FEATURES AND FUNCTIONS

a. Bridging

		Monthly Rates	Nonrecurring Charges	
			Init.	Subseq.
i. Voice Bridging[/1/]				
Two-Wire / Four Wire				
- Per Port				
- Two-Wire	BCNV2	$5.02	$35.00	$81.00
- Four-Wire	BCNV4	5.02	$35.00	81.00

/1/ Applicable to Private Virtual Network Access Line Service.

1. VOICE GRADE SERVICES (cont'd)

H. RATES (cont'd)

3. OPTIONAL FEATURES AND FUNCTIONS (Cont'd)

	USOC	Monthly Rates	Nonrecurring Charges Init.	Nonrecurring Charges Subseq.
a. Bridging (Cont'd)				
ii.. Data Bridging				
Two-Wire/ Four-Wire				
- Per port				
- Two-Wire	BCND2	$ 5.02	$35.00	$81.00
- Four-Wire	BCND4	5.02	35.00	81.00
Bridging				
Two-Wire/ Four-Wire				
- Per port				
- Two-Wire	BCNF2	5.02	35.00	81.00
- Four-Wire	BCNF4	5.02	35.00	81.00

1. VOICE GRADE SERVICES (cont'd)

H. RATES (cont'd)

3. OPTIONAL FEATURES AND FUNCTIONS (cont'd)

	USOC	Monthly Rates	Nonrecurring Charges Init.	Nonrecurring Charges Subseq.
b. Conditioning				
- Per Point of Termination				
C - Type	X1CPT	33.10	130.75	310.00
C1	P2W	33.10	130.75	310.00
C2	P3H	33.10	130.75	310.00
C4	P4G	33.10	130.75	310.00
C5	UHD	33.10	130.75	310.00
Protective Relay(C6)/1/	U9Q	33.10	130.75	310.00
RT0C	GN3RR	33.10	130.75	310.00
Improved Attenuation Distortion	UHW	None	130.75	277.85
Improved Envelope Delay Distortion	UHY	23.15	310.54	433.11
Sealing Current	1HBPT	None	None	None

/1/ Two-point VG36 only furnished to the power industry. (C)