ACCESS SERVICE

14. Access Service Interface and Transmission Specifications

14.1 contains Switched Access Service Options (which are comprised of Interface Groups, Supervisory Signaling, Entry Switch Receive level and Local Transport Termination) and Transmission Specifications. 14.2 describes Special Access Service Network Channel (NC) codes and network Channel Interface (NCI) codes. 14.3 contains Interface Group, Premises Interface Code and Standard Transmission Specifications applicable to Directory Access Service.

14.1 Switched Access Service

Ten Interface Groups are provided for terminating the Local Transport Entrance Facility at the customer's designated premises. Each Interface Group provides a specified premises interface (e.g., two-wire, four-wire, DS1, etc.). Where transmission facilities permit, and at the option of the customer, the Entrance Facility may be provided with optional features as set forth in 14.1.1 following.

As a result of the customer's access order and the type of Company transport facilities serving the customer designated premises, the need for signaling conversions or two-wire to four-wire conversions, or the need to terminate digital or high frequency facilities in channel bank equipment may require that Company equipment be placed at the customer designated premises. For example, if a voice frequency interface is ordered by the customer and the Company facilities serving the customer designated premises are digital, then Company channel bank equipment must be placed at the customer designated premises in order to provide the voice frequency interface ordered by the customer.

14.1.1 Local Transport Interface Groups

Interface Groups are combination of technical parameters which describe the Company handoff at the point of termination at the customer designated premises. The technical specifications concerning the available interface groups are set forth in (A) through (D) following.

Interface Group 1 is provided with Type C Transmission Specifications, as set forth in 14.1.2(C) following, and Interface Groups 2 through 10 are provided with Type A or B Transmission Specifications, as set forth respectively in 14.1.2(D) and (E) following, depending on the Feature Group and whether the Access Service is routed directly or through an access tandem. All Interface Groups are provided with Data Transmission Parameters.

Only certain premises interfaces are available at the customer designated premises. The premises interfaces associated with the Interface Groups may vary among Feature Groups.

By: Cynthia L Lynch
Tariffs and Licenses Manager
GCI Communication Corp.
2550 Denali Street, Suite 1000
Anchorage, Alaska 99503

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14. Access Service Interface and Transmission Specifications (Cont'd)
    14.1 Switched Access Service (Cont'd)
        14.1.1 Local Transport Interface Groups (Cont'd)

(A) Interface Group 1

Interface Group 1, except as set forth in the following, provides two-wire voice frequency transmission at the point of termination at the customer designated premises. The interface is capable of transmission of voice and associated telephone signals within the frequency bandwidth of approximately 300 to 3000 Hz.

Interface Group 1 is not provided in association with FGD when the first point of switching is an access tandem. In addition, Interface Group 1 is not provided in association with FGB or FGD when the first point of switching provides only four-wire terminations.

The transmission path between the point of termination at the customer designated premises and the customer's serving wire center may be comprised of any form or configuration of plant capable of and typically used in the telecommunications industry for the transmission of voice and associated telephone signals within the frequency bandwidth of 300 to 3000 Hz.

The interface is provided with loop supervisory signaling. When the interface is associated with FGA, such signaling will be loop start or ground start signaling. When the interface is associated with FGB or FGD, such signaling except for two-way calling which is E&M signaling, will be reverse battery signaling.

(B) Interface Group 2

Interface Group 2 provides four-wire voice frequency transmission at the point of termination at the customer designated premises. The interface is capable of transmission of voice and associated telephone signals within the frequency bandwidth of approximately 300 to 3000 Hz.

The transmission path between the point of termination at the customer designate premises and the customer's serving wire center may be comprised of any form or configuration of plant capable of and typically used in the telecommunications industry for the transmission of voice and associated telephone signals within the frequency bandwidth of approximately 300 to 3000 Hz.

The interface is provided with loop supervisory signaling. When the interface is associated with FGA, such signaling will be loop start or ground start signaling. When the interface is associated with FGB or FGD, such signaling, except for two-way calling which is E&M signaling, will be reverse battery signaling.

By: Cynthia L Lynch
Tariffs and Licenses Manager
GCI Communication Corp.
2550 Denali Street, Suite 1000
Anchorage, Alaska 99503

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14. Access Service Interface and Transmission Specifications (Cont'd)
    14.1 Switched Access Service (Cont'd)
        14.1.1 Local Transport Interface Groups (Cont'd)

(C) Interface Groups 3 through 5

Interface Groups 3 through 5 provide analog transmission at the point of termination at the customer designated premises. The various interfaces are capable of transmitting electrical signals at the frequencies illustrated following, with the capability to channelize voice frequency transmission paths.

Certain frequencies within the bandwidth of the Interface Groups are reserved for Company use, e.g., pilot and carrier group alarm tones. Before the first point of switching, the Company will provide multiplex equipment to derive the transmission paths of frequency bandwidth of approximately 300 to 3000 Hz.

The interfaces are provided with individual transmission path SF supervisory signaling.

Interface Group I.D. No.	Transmission Frequency Bandwidth	Analog Hierarchy Level	Maximum No. of Channelized Voice Freq. Trans. Paths
3	60-108 kHz	Group	12
4	312-552 kHz	Supergroup	60
5	564-3084 kHz	Mastergroup	600

(D) Interface Group 6 through 10

Interface Groups 6 through 10 provide digital transmission at the point of termination at the customer designated premises. The various interfaces are capable of transmitting electrical signals at the nominal bit rates illustrated following, with the capability to channelize voice frequency transmission paths.

Before the first point of switching, when analog switching utilizing analog terminations is provided, the Company will provide multiplex and channel bank equipment to derive transmission paths of a frequency bandwidth of approximately 300 to 3000 Hz. When digital switching or analog switching with digital carrier terminations is provided, the Company will provide a DS1 signal(s) in D3/D4 format.

By: Cynthia L Lynch
Tariffs and Licenses Manager
GCI Communication Corp.
2550 Denali Street, Suite 1000
Anchorage, Alaska 99503

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14. Access Service Interface and Transmission Specifications (Cont'd)
    14.1 Switched Access Service (Cont'd)
        14.1.1 Local Transport Interface Groups (Cont'd)
            (D) Interface Group 6 through 10 (Cont'd)

The interfaces are provided with individual transmission path bit stream supervisory signaling.

Interface Group I.D. No.	Nominal Bit Rate (Mbps)	Digital Hierarchy Level	Maximum No. of Channelized Voice Freq. Trans. Paths
6	1.544	DS1	24
7	3.152	DS1C	48
8	6.312	DS2	96
9	44.736	DS3	672
10	274.176	DS4	4032

(E) Local Transport Optional Features

Where transmission facilities permit, the Company will, at the option of the customer, provide the following features in association with Local Transport. An Access Order Charge as specified in the Rate Sections, beginning in Section 16, following is applicable on a per order basis when nonchargeable optional features are added subsequent to the installation of service. T

Customer Specified Entry Switch Receive Level: Customer Specified Entry Switch Receive Level allows the customer to specify the receive transmission level at the first point of switching. The range of transmission levels which may be specified is describe in Technical Reference TR-NPL-000334. This feature is available with Interface Groups 2 through 10 for Feature Groups A and B.

Customer Specification of Transport Termination: Customer Specification of Transport Termination allows the customer to specify, for Feature Group B routed directly to an end office or access tandem, a four-wire termination of the Transport at the first point of switching in lieu of a Company selected two-wire termination. This option is available only when the Feature Group B arrangement is provided with Type B Transmission Specifications.

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By: Cynthia L Lynch
Tariffs and Licenses Manager
GCI Communication Corp.
2550 Denali Street, Suite 1000
Anchorage, Alaska 99503

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14. Access Service Interface and Transmission Specifications (Cont'd)
    14.1 Switched Access Service (Cont'd)
        14.1.1 Local Transport Interface Groups (Cont'd)
            (E) Local Transport Optional Features (Cont'd)

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Supervisory Signaling: Supervisory Signaling allows the customer to order an optional supervisory signaling arrangement for each transmission path provided where the transmission parameters permit, and where signaling conversion is required by the customer to meet its signaling capability.

The Interface Groups, as described in (A) through (D) preceding, represent industry standard arrangements. Where transmission parameters permit, the customer may select the following optional signaling arrangements in place of signaling arrangements normally associated with the Interface Groups.

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By: Cynthia L Lynch
Tariffs and Licenses Manager
GCI Communication Corp.
2550 Denali Street, Suite 1000
Anchorage, Alaska 99503

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14. Access Service Interface and Transmission Specifications (Cont'd)
    14.1 Switched Access Service (Cont'd)
        14.1.1 Local Transport Interface Groups (Cont'd)
            (E) Local Transport Optional Features (Cont'd)

• For Interface Groups 1 and 2 associated with FGB or FGD

DX Supervisory Signaling
E&M Type I Supervisory Signaling,
E&M Type II Supervisory Signaling, or
E&M Type III Supervisory Signaling,

• For Interface Group 2 associated with FGB or FGD and in addition to the preceding.

SF Supervisory Signaling, or Tandem Supervisory Signaling

• For Interface Groups 3 through 5

Optional Supervisory Signaling Not Available

• For Interface Groups 6 through 10

These Interface Groups may, at the option of the customer, be provided with individual transmission path SF supervisory signaling where such signaling is available in Company central offices. Generally such signaling is available only where the first point of switching provides an analog (i.e., non digital) interface to the transport termination.

These optional Supervisory Signaling arrangements are not available in combination with the SS7 optional feature as described in 6.8.3 preceding.

Additionally, in (F) following, there is a matrix of available Premises Interface Codes as a function of Interface Group, Company Switch Supervisory Signaling and Feature Group.

(F) Available Premises Interface Codes

Following is a matrix showing premises interface codes which are available for each Interface Group. Their availability is a function of the Company switch supervisory signaling and Feature Group. For explanations of these codes, see the Parameter Codes and Options as set forth in 14.2.2(A) following.

By: Cynthia L Lynch
Tariffs and Licenses Manager
GCI Communication Corp.
2550 Denali Street, Suite 1000
Anchorage, Alaska 99503

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14. Access Service Interface and Transmission Specifications (Cont'd)
    14.1 Switched Access Service (Cont'd)
        14.1.1 Local Transport Interface Groups (Cont'd)
            (F) Available Premises Interface Codes (Cont'd)

Interface Group	Company Switch Supervising Signaling	Premises Interface Code	Feature Group A	B	D
1	LO	2LS2	X		
	LO	2LS3	X		
	GO	2GS2	X		
	GO	2GS3	X		
	LO, GO,	2DX3	X		
	LO, GO,	4EA3-E	X		
	LO, GO	4EA3-M	X		
	LO, GO,	6EB3-E	X		
	LO, GO	6EB3-M	X		
	RV,EA,EB,EC	2DX3		X	X
	RV,EA,EB,EC	4EA3-E		X	X
	RV,EA,EB,EC	4EA3-M		X	X
	RV,EA,EB,EC	6EB3-E		X	X
	RV,EA,EB,EC	6EB3-M		X	X
	EA,EB,EC	6EC3			X
	RV	2RV3-O		X	X
	RV	2RV3-T		X	X
	SS7	2NO2			X
2	LO, GO	4SF2	X		
	LO, GO	4SF3	X		
	LO	4LS2	X		
	LO	4LS3	X		
	LO	6LS2	X		
	GO	4GS2	X		
	GO	4GS3	X		
	GO	6GS2	X		
	LO, GO	4DX2	X		
	LO, GO,	4DX3	X		
	LO, GO,	6EA2-E	X		
	LO, GO	6EA2-M	X		
	LO, GO,	8EB2-E	X		
	LO, GO	8EB2-M	X		
	LO, GO	6EX2-B	X		
	RV, EA, EB, EC	4SF2		X	X
	RV, EA, EB, EC	4SF3		X	
	RV, EA, EB, EC	4DX2		X	X

By: Cynthia L Lynch
Tariffs and Licenses Manager
GCI Communication Corp.
2550 Denali Street, Suite 1000
Anchorage, Alaska 99503

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14. Access Service Interface and Transmission Specifications (Cont'd)
    14.1 Switched Access Service (Cont'd)
        14.1.1 Local Transport Interface Groups (Cont'd)
            (F) Available Premises Interface Codes (Cont'd)

Interface Group	Company Switch Supervising Signaling	Premises Interface Code	Feature Group A	B	D
2 (cont'd)	RV, EA, EB, EC	4DX3		X	
	RV, EA, EB, EC	6DX2			X
	RV, EA, EB, EC	6EA2-E		X	X
	RV, EA, EB, EC	6EA2-M		X	X
	RV, EA, EB, EC	8EB2-E		X	X
	RV, EA, EB, EC	8EB2-M		X	X
	EA, EB, EC	8EC2-M			X
	RV	4RV2-O		X	X
	RV	4RV2-T		X	X
	RV	4RV3-O		X	
	RV	4RV3-T		X	
	SS7	2NO2			X
3	LO, GO	4AH5-B	X		
	RV, EA, EB, EC	4AH5-B		X	X
	SS7	4AH5-B			X
4	LO, GO	4AH6-C	X		
	RV, EA, EB, EC	4AH6-C		X	X
SS7	4AH6-C			X	
5	LO, GO	4AH6-D	X		
	RV, EA, EB, EC	4AH6-D		X	X
	SS7	4AH6-D			X
6	LO, GO	4DS9-15		X	
	LO, GO	4DS9-15L		X	
	RV,EA,EB,EC	4DS9-15		X	X
	RV,EA,EB,EC	4DS9-15L		X	X
	SS7	4DS9-15			X
7	LO, GO	4DS9-31	X		
	LO, GO	4DS9-31L	X		
	RV, EA, EB, EC	4DS9-31		X	X
	RV, EA, EB, EC	4DS9-31L		X	X
	SS7	4DS9-31			X

By: Cynthia L Lynch
Tariffs and Licenses Manager
GCI Communication Corp.
2550 Denali Street, Suite 1000
Anchorage, Alaska 99503

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14. Access Service Interface and Transmission Specifications (Cont'd)
    14.1 Switched Access Service (Cont'd)
        14.1.1 Local Transport Interface Groups (Cont'd)
            (F) Available Premises Interface Codes (Cont'd)

Interface Group	Company Switch Supervising Signaling	Premises Interface Code	Feature Group A	B	D
8	LO, GO	4DS0-63	X		
	LO, GO	4DS0-63L	X		
	RV, EA, EB, EC	4DS0-63		X	X
	RV, EA, EB, EC	4DS0-63L		X	X
	SS7	4DS0-63			X
9	LO, GO	4DS6-44	X		
	LO, GO	4DS6-44L	X		
	RV, EA, EB, EC	4DS6-44		X	X
	RV, EA, EB, EC	4DS6-44L		X	X
	SS7	4DS6-44			X
10	LO, GO	4DS6-27	X		
	LO, GO	4DS6-27L	X		
	RV, EA, EB, EC	4DS6-27		X	X
	RV, EA, EB, EC	4DS6-27L		X	X
	SS7	4DS6-27			X

14.1.2 Standard Transmission Specifications

Descriptions of the transmission specifications available with each Feature Group as a function of the Interface Group selected by the customer, are set forth in (A) through (D) following. Descriptions of each of these Standard Transmission Specifications and the two Data Standard Transmission Parameters mentioned are set forth respectively in (E) through (G) and 14.1.3(A) and (B) following.

(A) Feature Group A

FGA is provided with either Type B or Type C Transmission Specifications. The specifications for the associated parameters are guaranteed to the first point of switching. Type C Transmission Specifications are provided with Interface Group 1 and Type B is provided with Interface Groups 2 through 10. Type DB Data Transmission Parameters are provided with FGA to the first point of switching.

By: Cynthia L Lynch
Tariffs and Licenses Manager
GCI Communication Corp.
2550 Denali Street, Suite 1000
Anchorage, Alaska 99503

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14. Access Service Interface and Transmission Specifications (Cont'd)
    14.1 Switched Access Service (Cont'd)
        14.1.2 Standard Transmission Specifications (Cont'd)

(B) Feature Group B

FGB is provided with either Type B or Type C Transmission Specifications. The specifications for the associated parameters are guaranteed to the end office when routed directly or to the first point of switching when routed via an access tandem. Type C Transmission Specifications are provided with Interface Groups 1 and Type B is provided with Interface Groups 2 through 10. Type DB Data Transmission Parameters are provided with FGB to the first point of switching.

(C) Feature Group D

FGD is provided with either Type A, Type B or Type C Transmission Specifications as follows:

- When routed to the end office of either Type B or C is provided.
- When routed to an access tandem only Type A is provided.
- Type A is provided on the transmission path from the access tandem to the end office.

Type C Transmission Specifications are provided with Interface Group 1. Type A and Type B Transmission Specifications are provided with interface Groups 2 through 10.

Type DB Data Transmission Parameters are provided with FGD for the transmission path between the customer designated premises and the end office when directly routed to the end office. Type DA Data Transmission Parameters are provided for the transmission path between the customer designated premises and the access tandem and between the access tandem and the end office when routed via an access tandem.

(D) Type A Transmission Specifications

Type A Transmission Specifications is provided with the following parameters:

(1) Loss Deviation: The maximum Loss Deviation of the 1004 Hz loss relative to the Expected Measured Loss (EML) is +/- 2.0 dB.

(2) Attenuation Distortion: The maximum Attenuation Distortion in the 404 to 2804 Hz frequency band relative to the loss at 1004 Hz is -1.0 B to +3 dB.

By: Cynthia L Lynch
Tariffs and Licenses Manager
GCI Communication Corp.
2550 Denali Street, Suite 1000
Anchorage, Alaska 99503

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14. Access Service Interface and Transmission Specifications (Cont'd)
    14.1 Switched Access Service (Cont'd)
        14.1.2 Standard Transmission Specifications (Cont'd)
            (D) Type A Transmission Specifications (Cont'd)

(3) C-Message Noise: The maximum C-Message Noise for the transmission path at the route miles listed is less than or equal to:

Route Miles	C-Message Noise
less than 50	32 dBrnCO
51 to 100	34 dBrnCO
101 to 200	37 dBrnCO
201 to 400	40 dBrnCO
401 to 1000	42 dBrnCO

(4) C-Notch Noise: The maximum C-Notch Noise, utilizing a -16 dBmO holding tone, is less than or equal to 45 dBrnCO.

(5) Echo Control: Echo Control, identified as Equal Level Echo Path Loss, and expressed as Echo Return Loss and Singing Return Loss, is dependent on the routing, i.e., whether the service is routed directly from the customer's point of termination (POT) to the end office or via an access tandem. It is equal to or greater than the following:

	Echo Return Loss	Singing Return Loss
POT to Access Tandem	21 dB	14 dB
POT to End Office		
- Direct	N/A	N/A
- Via Access Tandem	16 dB	11 dB

(6) Standard Return Loss: Standard Return Loss expressed as Echo Return Loss and Singing Return Loss on two-wire ports of a four-wire point of termination shall be equal to or greater than:

Echo Return Loss	Singing Return Loss
5 dB	2.5 dB

(E) Type B Transmission Specifications: Type B Transmission Specifications are provided with the following parameters:

(1) Loss Deviation: The maximum Loss deviation of the 1004 Hz loss relative to the Expected Measured Loss (EML) is +/- 2.5 dB.

(2) Attenuation Distortion: The maximum Attenuation Distortion in the 404 to 2804 Hz frequency band relative to loss at 1004 Hz is -2.0 dB to +4.0 dB.

By: Cynthia L Lynch
Tariffs and Licenses Manager
GCI Communication Corp.
2550 Denali Street, Suite 1000
Anchorage, Alaska 99503

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14. Access Service Interface and Transmission Specifications (Cont'd)
    14.1 Switched Access Service (Cont'd)
        14.1.2 Standard Transmission Specifications (Cont'd)
            (E) Type B Transmission Specifications (Cont'd)

(3) C-Message Noise: The maximum C-Message Noise for the transmission path at the route miles listed is less than or equal to:

	C-Message Noise*	
Route Miles	Type B1	Type B2
less than 50	32 dBrnCO	35 dBrnCO
51 to 100	33 dBrnCO	37 dBrnCO
101 to 200	35 dBrnCO	40 dBrnCO
201 to 400	37 dBrnCO	43 dBrnCO
401 to 1000	39 dBrnCO	45 dBrnCO

(4) C-Notch Noise: The maximum C-Notch Noise, utilizing a -16 dBmO holding tone is less than or equal to 47 dBrnCO.

(5) Echo Control: Echo Control, identified as Impedance Balance for FGA and FGB and Equal Level Echo Path Loss for FGD, and expressed as Echo Return Loss (ERL) and Singing Return Loss (SRL), is dependent on the routing, i.e., whether the service is routed directly from the customer's point of termination (POT) to the end office or via an access tandem. The ERL and SRL also differ by Feature Group, type of termination, and type of transmission path. They are greater than or equal to the following:

	Echo Return Loss	Singing Return Loss
POT to Access Tandem		
- Terminated in 4-Wire trunk	21 dB	14 dB
- Terminated in 2-Wire trunk	16 dB	11 dB
POT to End Office		
- Direct	16 dB	11 dB
- Via Access Tandem		
* For FGB access	8 dB	4 dB

(6) Standard Return Loss: Standard Return Loss, expressed as Echo Return Loss and Singing Return Loss, on two-wire ports of a four-wire point of termination shall be equal to or greater than:

Echo Return Loss	Singing Return Loss
5 dB	2.5 dB

By: Cynthia L Lynch
Tariffs and Licenses Manager
GCI Communication Corp.
2550 Denali Street, Suite 1000
Anchorage, Alaska 99503

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14. Access Service Interface and Transmission Specifications (Cont'd)
    14.1 Switched Access Service (Cont'd)
        14.1.2 Standard Transmission Specifications (Cont'd)

(F) Type C Transmission Specifications

Type C Transmission Specifications are provided with the following parameters:

(1) Loss Deviation: The maximum Loss Deviation of the 1004 Hz Loss relative to the Expected Measured Loss (EML) is +/- 3.0 dB.

(2) Attenuation Distortion: The maximum Attenuation Distortion in the 404 to 2804 Hz frequency band relative to loss at 1004 Hz is -2.0 dB to +5.5 dB.

(3) C-Message Noise: The maximum C-Message Noise for the transmission patch at the route miles listed is less than or equal to:

	C-Message Noise*	
Route Miles	Type C1	Type C2
less than 50	32 dBrnCO	38 dBrnCO
51 to 100	33 dBrnCO	39 dBrnCO
101 to 200	35 dBrnCO	41 dBrnCO
201 to 400	37 dBrnCO	43 dBrnCO
401 to 1000	39 dBrnCO	45 dBrnCO

(4) C-Notch Noise: The maximum C-Notch Noise, utilizing a -16 dBmO holding tone is less than or equal to 47 dBrnCO.

(5) Echo Control: Echo Control, identifies as Return Loss and expressed as Echo Return Loss and Singing Return Loss is dependent on the routing, i.e., whether the service is routed directly from the customer's point of termination (POT) to the end office or via an access tandem. It is equal to or greater than the following:

	Echo Return Loss	Singing Return Loss
POT to Access Tandem	13 dB	6 dB
POT to End Office		
- Direct	13 dB	6 dB
- Via Access Tandem (for FGB only)	8 dB	4 dB

By: Cynthia L Lynch
Tariffs and Licenses Manager
GCI Communication Corp.
2550 Denali Street, Suite 1000
Anchorage, Alaska 99503

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14. Access Service Interface and Transmission Specifications (Cont'd)
14.1 Switched Access Service (Cont'd)

14.1.3 Data Transmission Parameters

Two types of data Transmission Parameters, i.e., Type DA and Type DB, are provided for the Feature Group arrangements. Type DB is provided with Feature Groups A and B and also with Feature Group D when Feature Group D is directly routed to the end office. Type DA is only provided with Feature Group D and only when routed via an access tandem. Following are descriptions of each.

(A) Data Transmission Parameters Type DA

(1) Signal to C-Notched Noise Ratio: The Signal to C-Notched Noise Ratio is equal to or greater than 33 dB.

(2) Envelope Delay Distortion: The maximum Envelope Delay Distortion for the frequency banks and route miles specified is:

	604 to 2804 Hz
less than 50 route miles	500 microseconds
equal to or greater than 50 route miles	900 microseconds

	1004 to 2404 Hz
less than 50 route miles	200 microseconds
equal to or greater than 50 route miles	400 microseconds

(3) Impulse Noise Counts: The Impulse Noise Counts exceeding a 65 dBrnCO threshold in 15 minutes is no more than 15 counts.

(4) Intermodulation Distortion: The Second Order (R2) and Third Order (r3) Intermodulation Distortion products are equal to or greater than:

Second Order (R2)	33 dB
Third Order (R3)	37 dB

(5) Phase Jitter: The Phase Jitter over the 4-300 Hz frequency band is less than or equal to 5o peak-to-peak.

(6) Frequency Shift: The maximum Frequency Shift does not exceed -2 to +2 Hz.

By: Cynthia L Lynch
Tariffs and Licenses Manager
GCI Communication Corp.
2550 Denali Street, Suite 1000
Anchorage, Alaska 99503

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14. Access Service Interface and Transmission Specifications (Cont'd)
    14.1 Switched Access Service (Cont'd)
        14.1.3 Data Transmission Parameters (Cont'd)

(B) Data Transmission Parameters Type DB

(1) Signal to C-Notched Noise Ratio: The signal to C-Notched Noise Ratio is equal to or greater than 30 dB.

(2) Envelope Delay Distortion: The maximum Envelope Delay Distortion for the frequency bands and route miles specified is:

	604 to 2804 Hz
less than 50 route miles	800 microseconds
equal to or greater than 50 route miles	1000 microseconds

	1004 to 2404 Hz
less than 50 route miles	320 microseconds
equal to or greater than 50 route miles	500 microseconds

(3) Impulse Noise Counts: The Impulse Noise counts exceeding a 67 dBrnCO threshold in 15 minutes is no more than 15 counts.

(4) Intermodulation Distortion: The Second Order (R2) and Third Order (R3) Intermodulation Distortion products are equal to or greater than:

Second Order (R2)	31 dB
Third Order (R3)	34 dB

(5) Phase Jitter: The Phase Jitter over the 4-300 Hz frequency band is less than or equal to 7o peak-to-peak.

(6) Frequency Shift: The maximum Frequency Shift does not exceed -2 to +2 Hz.

14.2 Special Access Service

This section explains and lists the codes that the customer must specify when ordering Special Access Service, Switched Access, Entrance Facilities and Voice Grade and High Capacity Direct Trunked Transport. These codes provide a standardized means to relate the services being ordered to Special Access Service offerings contained in Section 7 preceding.

When ordering, the type of Special Access Service or Switched Access Entrance Facility or Direct Trunked Transport is described by two code sets, the Network Channel (NC) code and the Network Channel Interface (NCI) codes.

By: Cynthia L Lynch
Tariffs and Licenses Manager
GCI Communication Corp.
2550 Denali Street, Suite 1000
Anchorage, Alaska 99503

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14. Access Service Interface and Transmission Specifications (Cont'd)
14.2 Special Access Service (Cont'd)

The Network Channel (NC) code consists of two elements. Element one is a Channel Service Code (character positions 1 and 2) that describes the channel service type in an abbreviated form. Element two is an Optional Feature Code (character positions 3 and 4) that identifies option codes available for each channel service code, such as C-conditioning or Improved Return Loss.

The Network Channel Interface (NCI) is used to identify interface specifications associated with a particular channel. This code describes the total wires, protocol, impedance, protocol options and transmission level point(s) reflecting physical and electrical characteristics between the Company and the customer.

On the following three (3) pages are examples which explain the specific characters of the codes and which reference matrices and charts used in developing the codes. Included in the matrices are Service Designator (SD) codes which are used to identify variations of service within service types (e.g., TG1 = Telegraph). The SD and NC codes are displayed as components of the matrices designated as Technical Specifications packages in (A) through (E) following. Through the use of these matrices, SD codes may be converted to NC codes for service ordering purposes.

A chart is also provided in 14.2.2 following which contains information necessary to develop NCI codes.

Comprehensive lists of allowed Network Channel (NC) and Network Channel Interface (NCI) codes are contained in Special Report SR-ISD-000307. However, not all services contained in this Special Report may be offered by the Company at this time.

Lastly, 14.2.2(C) following provides a list of compatible Network Channel Interfaces inasmuch as the Network Channel Interfaces associated with a given service need not always be the same, but all must be compatible.

Example No. 1: If the customer wishes to order a 4-wire voice grade circuit with 600 Ohms impedance, capable of data transmission, and with improved return loss, the customer might specify the following:

NC		NCI	SECNCI
LG-R	04DB2	04DA2-S	

NC Code:
LG = Voice Grade Channel Service, VG6
-R = Improved Return Loss

By: Cynthia L Lynch
Tariffs and Licenses Manager
GCI Communication Corp.
2550 Denali Street, Suite 1000
Anchorage, Alaska 99503

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14. Access Service Interface and Transmission Specifications (Cont'd)
14.2 Special Access Service (Cont'd)

NCI Code:

04 =	Number of physical wires at CDP
DB =	Data stream in VF frequency band at the customer designated main terminal location 600 Ohms impedance

SECNCI (Secondary NCI Code):

04 =	Number of physical wires at CDP
DA =	Data stream in VG frequency at the customer designated secondary terminal location
2 =	600 Ohms impedance
S =	Sealing current option for 4-wire transmission

In the above example the NCI (Network Channel Interface) code is the interface requested at the customer's POT (Point of Termination) and the SECNCI (Secondary Network Channel Interface) code represents the interface at the end office serving the End User.

Example No. 2: If the customer wishes to order a FX circuit to a station, with 600 Ohms impedance, loop start signaling, which is 4-wire at the CDP and 2-wire at the end-user, the customer might specify:

NC	NCI	SECNCI
LC--	04LO2	02LS2

NC Code:

LC =	Voice Grade Channel Service, VG2
-- =	No Optional Features

NCI Code:

04 =	Number of physical wires at CDP
LO =	Loop start, loop signaling - open end
2 =	600 Ohms impedance

SECNCI (Secondary NCI Code):

02 =	Number of physical wires at CDP
LS =	Loop start signaling - closed end
2 =	600 Ohms impedance

Example No. 3: If the customer wishes to order a 1.544 Mbps Hi-cap facility with no channel options such as CO multiplexing, the customer might specify the following:

NC	NCI	SECNCI
HC--	04DS9-15	04DS9-15

By: Cynthia L Lynch
Tariffs and Licenses Manager
GCI Communication Corp.
2550 Denali Street, Suite 1000
Anchorage, Alaska 99503

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14. Access Service Interface and Transmission Specifications (Cont'd)
14.2 Special Access Service (Cont'd)

NC Code:
HC = High Capacity Channel Service, HC1
-- = No Optional Features
NCI, SECNCI Code:
04 = Number of physical wires at CDP
DS = Digital hierarchy interface
9 = 100 Ohms impedance
15 = 1.544 Mbps (DS1) format

The preceding three examples use information contained in Special Report SR-ISD-000307.

14.2.1 Network Channel (NC) Codes

In order to determine the NC code appropriate for the service to be ordered, the type of Special Access Service the customer wishes must be identified. This identification is accomplished by a Service Designator (SD) code. The broad categories of Service Designator codes (e.g., VG, etc.) are set forth in Section 7 preceding. Variations within service type (e.g., VG1, etc.) are described in the various Technical Publications cited following.

Having determined the specific service type to be ordered and its SD code, and having used the appropriate Technical Publication, the customer should match the SD code to the NC code using the following matrices. Once the NC code has been determined the Network Channel Interface (NCI) code may be developed using the information set forth in 14.2.2 following and the guidelines concerning specific parameters available for each service type as set forth in the specified Technical Publication.

(A) Technical Specifications Packages Voice Grade Service

	Package VG-													
SD Code	C*	1	2	3	4	5	6	7	8	9	10	11	12	W
NC Code	LQ	LB	LC	LD	LE	LF	LG	LH	LJ	LK	LN	LP	LR	SE
Parameter														
Attenuation Distortion	X	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	X
Echo Control	X	X	X	X		X		X	X			X	X	X
Envelope Delay Distortion	X						X	X	X	X	X	X	X	X
Frequency Shift	X						X	X	X	X	X	X	X	X
Impulse Noise	X					X	X	X	X	X	X	X	X	X

By: Cynthia L Lynch
Tariffs and Licenses Manager
GCI Communication Corp.
2550 Denali Street, Suite 1000
Anchorage, Alaska 99503

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14. Access Service Interface and Transmission Specifications (Cont'd)
    14.2 Special Access Service (Cont'd)
        14.2.1 Network Channel (NC) Codes (Cont'd)
            (A) Technical Specifications Packages Voice Grade Service (Cont'd)

	Package VG-													
SD Code	C*	1	2	3	4	5	6	7	8	9	10	11	12	W
NC Code	LQ	LB	LC	LD	LE	LF	LG	LH	LJ	LK	LN	LP	LR	SE
Parameter														
Intermodulation Distortion	X						X	X	X	X	X	X		X
Loss Deviation	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Phase Hits, Gain Hits & Dropouts	X													
Phase Jitter	X						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	X

The technical specifications for these parameters (except for dropouts, phase hits, and gain hits) are described in Technical References TR-NPL-000334 and TR-NPL-000335. The technical specifications for dropouts, phase hits, and gain hits are described in Technical Reference PUB41004 Table 4.

	Package VG-													
SD Code	C*	1	2	3	4	5	6	7	8	9	10	11	12	W
NC Code	LQ	LB	LC	LD	LE	LF	LG	LH	LJ	LK	LN	LP	LR	SE
Optional Features and Functions														
Central Office Bridging Capability	X		X			X	X				X	X	X	
Conditioning:														
C-Type	X					X	X	X	X	X	X			
Data Capability	X						X	X			X			
Improved Return Loss for Effective 4-Wire Transmission	X	X	X	X	X	X	X	X	X	X	X	X	X	
For Effective 2-Wire Transmission	X		X	X				X						
Improved 2-Wire Voice Transmission														X
Signaling Capability	X	X	X	X				X	X	X				

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

By: Cynthia L Lynch
Tariffs and Licenses Manager
GCI Communication Corp.
2550 Denali Street, Suite 1000
Anchorage, Alaska 99503

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14. Access Service Interface and Transmission Specifications (Cont'd)
    14.2 Special Access Service (Cont'd)
        14.2.1 Network Channel (NC) Codes (Cont'd)

(B) Technical Specifications Packages Program Audio Service

	Package					
SD Code	APC*		AP1	AP2	AP3	AP4
NC Code	PQ	PE	PF	PJ	PK	
Parameter						
Actual Measured Loss	X	X	X	X	X	
Amplitude Tracking		X				
Crosstalk	X	X	X	X	X	
Distortion Tracking	X					
Gain/Frequency Distortion	X	X	X	X	X	
Group Delay	X					
Noise	X	X	X	X	X	
Phrase Tracking	X					
Short-Term Gain Stability	X					
Short-Term Loss	X					
Total Distortion	X	X	X	X	X	
Optional Features and Functions						
Central Office Bridging Capability	X	X	X	X	X	

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

(C) Technical Specifications Packages Video Service

1. DS1 Video Teleconferencing - Duplex

This service provisions a full duplex (transmit and receive) video teleconferencing link over DS1/T1 facilities. The codec for this service operates at line rate of 64 Kbps to E1 (2.048 Mbps).

Customer premise site A - video and audio (transmit and receive) signal from a standard (H.261) video teleconferencing unit is couples via coax cable to multiple rate (nx64Kbps) video codec (line side) is coupled via coax to a DSU/CSU which terminates the T1 line provided on local central office facilities.

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

By: Cynthia L Lynch
Tariffs and Licenses Manager
GCI Communication Corp.
2550 Denali Street, Suite 1000
Anchorage, Alaska 99503

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14. Access Service Interface and Transmission Specifications (Cont'd)
    14.2 Special Access Service (Cont'd)
        14.2.1 Network Channel (NC) Codes (Cont'd)
            (C) Technical Specifications Packages Video Service (Cont'd)
                1. DS1 Video Teleconferencing - Duplex (Cont'd)

Central office facilities - Standard repeated or repeaterless T1 facilities are used between central offices and customer premises to provide video signal transport. Metallic or fiber optic span line equipment can be used to transport the video signal between central offices.

Customer premise site B - same equipment as site A.

2. Teleconferencing - Simplex

This service provisions a simplex (transmit only) video teleconferencing link over DS1/T1 facilities. The codec for this service operates at line rates of 64 Kbps to E1 (2.048 Mbps).

Customer premise site A - video and audio (transmit only) signal from a standard (H.261) video teleconferencing unit is coupled via coax cable to a multiple rate (nx64 Kbps) video codec unit (drop site). The video codec (line side) is coupled via coax to a DSU/CSU which terminates the T1 line provided on local central office facilities.

Central office facilities - Same equipment as Duplex facilities above.

Customer premise site B - video and audio (receive only) signal to a standard (H.261) video teleconferencing unit is couples via coax cable to a multiple rate (nx64 Kbps) video codec unit (drop side). The video codec (line side) is coupled via coax to DSU/CSU which terminates the line provided on local central office facilities.

3. DS1 Video Distribution - Simplex

This service provisions a simplex (transmit only) video distribution link (video jukebox, local hockey or basketball game, etc.) over DS1/T1 facilities. The codec for this service operates at a line rate of T1 (1.544 Mbps).

Customer premise site A - video and audio (transmit only) signal from a standard NTSC video source is coupled via coax cable to a 1.544 Mbps video codec unit (drop side). The video codec (line side) is coupled via coax to a DSU/CSU which terminates the T1 line provided on local central office facilities.

Central office facilities - Same as Duplex facilities above.

By: Cynthia L Lynch
Tariffs and Licenses Manager
GCI Communication Corp.
2550 Denali Street, Suite 1000
Anchorage, Alaska 99503

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14. Access Service Interface and Transmission Specifications (Cont'd)
    14.2 Special Access Service (Cont'd)
        14.2.1 Network Channel (NC) Codes (Cont'd)
            (C) Technical Specifications Packages Video Service (Cont'd)
                3. DS1 Video Distribution - Simplex (Cont'd)

Customer premise site B - video and audio (receive only) signal to a standard NTSC video receiving unit is coupled via coax cable to a 1.544 Mbps video codec unit (drop side). The video codec (line side) is coupled via coax to a DSU/CSU which terminates the T1 line provided on local central office facilities.

Rates and charges for Special Access Video Service are set forth in the Rate Sections, beginning in Section 16, following. T T

(D) Technical Specifications Packages Digital Data Service

	Package			
SD Code	D1	D2	D3	D4
NC Code	XA	XB	XG	XH
Parameter/Hubbed				
Error-Free Seconds	X	X	X	X
Optional Features and Functions/Hubbed				
Central Office Bridging Capability	X	X	X	X

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

Voltages which are compatible with Digital Data Service are delineated in Technical Reference TR-NPL-000341.

By: Cynthia L Lynch
Tariffs and Licenses Manager
GCI Communication Corp.
2550 Denali Street, Suite 1000
Anchorage, Alaska 99503

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14. Access Service Interface and Transmission Specifications (Cont'd)
14.2 Special Access Service (Cont'd)
14.2.1 Network Channel (NC) Codes (Cont'd)

(D) Technical Specifications Packages High Capacity Service

	Package					
SD Code	HC0	HC1	HC1C	HC2	HC3	HC4
NC Code	HS	HC	HD	HE	HF	HG
Parameter						
Error-Free Seconds		X				
Optional Features and Functions						
Automatic Loop Transfer		X				
Central Office Multiplexing:						
DS4 to DS1						X
DS3 to DS1					X	
DS2 to DS1				X		
DS1C to DS1			X			
DS1 to Voice		X				
DS1 to DS0		X				
DS0 to Subrate*	X					
Transfer Arrangement		X				

A channel with technical specifications package HC1 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 is designed, manufactured, and maintained to conform with the specifications contained in Technical Reference PUB 62411.

14.2.2 Network Channel Interface (NCI) Codes

The electrical interface with the Company for Special Access Services is defined by an interface code. There are interface codes for both the customer designated premises and the point of termination. Three examples of NCI codes are found in 14.2 preceding.

(A) Parameter Codes and Options

Parameter Code	Option	Definition
AB	-	accepts 20 Hz ringing signal at customer's point of termination
AC	-	accepts 20 Hz ringing signal at customer's end user's point of termination

* Available only on a channel of 1.544 Mbps facility to a Company hub.

By: Cynthia L Lynch
Tariffs and Licenses Manager
GCI Communication Corp.
2550 Denali Street, Suite 1000
Anchorage, Alaska 99503

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14. Access Service Interface and Transmission Specifications (Cont'd)
    14.2 Special Access Service (Cont'd)
        14.2.2 Network Channel Interface (NCI) Codes (Cont'd)
            (A) Parameter Codes and Options (Cont'd)

Parameter Code	Option	Definition
AH -		analog high capacity interface
	- B	60 kHz to 108 kHz (12 channels)
	- C	312 kHz to 552 kHz (60 channels)
	- D	564 kHz to 3084 kHz (600 channels)
CT -		Centrex Tie Trunk Termination
DA -		data stream in VF frequency band at customer's point of termination
DB -		data stream in VF frequency band at customer's point of termination
DC -		direct current or voltage
	- 1	monitoring interface with series RC combination (McCulloh format)
	- 2	Company energized alarm channel
DS -		digital hierarchy interface
	- 15	1.544 Mbps (DS1) format per Bellcore GR-54 plus D4
	- 15E	8-bit PCM encoded in one 64 kbps of the DS1 signal
	- 15F	8-bit PCM encoded in two 64 kbps of the DS1 signal
	- 15G	8-bit PCM encoded in three 64 kbps of the DS1 signal
	- 15H	14/11-bit PCM encoded in six 64 kbps of the DS1 signal
	- 15J	1.544 Mbps format per Bellcore GR-54
	- 15K	1.544 Mbps format per Bellcore GR-54 plus extended framing format
	- 15L	1.544 Mbps (DS1) with SF signaling
	- 27	274.176 Mbps (DS4)
	- 27L	274.176 Mbps (DS4) with SF signaling
	- 31	3.152 Mbps (DS1C)
	- 31L	3.152 Mbps (DS1C) with SF signaling
	- 44	44.736 Mbps (DS3)
	- 44L	44.736 Mbps (DS3) with SF signaling
	- 63	6.312 Mbps (DS2)
	- 63L	6.312 Mbps (DS2) with SF signaling
DU -		digital access interface
	- 24	2.4 kbps
	- 48	4.8 kbps
	- 19	19.2 kbps
	- 56	56.0 kbps
	- 96	9.6 kbps
DU	- A	1.544 Mbps format per Bellcore GR-54
	- B	1.544 Mbps format per Bellcore GR-54 plus D4
	- C	1.544 Mbps format per Bellcore GR-54 plus extended framing format

By: Cynthia L Lynch
Tariffs and Licenses Manager
GCI Communication Corp.
2550 Denali Street, Suite 1000
Anchorage, Alaska 99503

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14. Access Service Interface and Transmission Specifications (Cont'd)
    14.2 Special Access Service (Cont'd)
        14.2.2 Network Channel Interface (NCI) Codes (Cont'd)
            (A) Parameter Codes and Options (Cont'd)

Parameter Code	Option	Definition
DX -		duplex signaling interface at customer's point of termination
DY -		duplex signaling interface at customer's end user's point of termination
EA -	E	Type I E&M Lead Signaling. Customer at POT or customer's end user at POT originates on E Lead.
EA -	M	Type I E&M Lead Signaling. Customer at POT or customer's end user at POT originates on M Lead.
EB -	E	Type II E&M Lead Signaling. Customer at POT or customer's end user at POT originates on E Lead.
EB -	M	Type II E&M Lead Signaling. Customer at POT or customer's end user at POT originates on M Lead.
EC -		Type III E&M signaling at customer POT
EX -	A	tandem channel unit signaling for loop start or ground start and customer supplies open end (dial tone, etc.) functions.
EX -	B	tandem channel unit signaling for loop start or ground start and customer supplies closed end (dial pulsing, etc.) functions.
GO -		ground start loop signaling - open end function by customer or customer's end user.
GS -		ground start loop signaling - closed end function by customer or customer's end user.
IA -		E.I.A. (25 pin RS-232)
LA -		end user loop start loop signaling-Type A OPS registered port open end.
LB -		end user loop start loop signaling-Type B OPS registered port open end.
LC -		end user loop start loop signaling-Type C OPS registered port open end.
LO -		loop start loop signaling - open end function by customer or customer's end user
LR -		20 Hz automatic ringdown interface at customer with Company provided PLAR
LS -		loop start loop signaling - closed end function by customer or customer's end user
NO -		no signaling interface, transmission only
PG -		program transmission - no dc signaling
	- 1	nominal frequency from 50 to 15000 Hz
	- 3	nominal frequency from 200 to 3500 Hz
	- 5	nominal frequency from 100 to 5000 Hz
	- 8	nominal frequency from 50 to 8000 Hz

By: Cynthia L Lynch
Tariffs and Licenses Manager
GCI Communication Corp.
2550 Denali Street, Suite 1000
Anchorage, Alaska 99503

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14. Access Service Interface and Transmission Specifications (Cont'd)
14.2 Special Access Service (Cont'd)
14.2.2 Network Channel Interface (NCI) Codes (Cont'd)
(A) Parameter Codes and Options (Cont'd)

Parameter Code	Option	Definition
PR		protective relaying*
RV -	0	reverse battery signaling, one way operation, originate by customer
	- T	reverse battery signaling, one way operation, terminate function by customer or customer's end user
SF -		single frequency signaling with VF band at either customer POT or customer's end user POT
	- 2	20.0 milliamperes
	- 3	3.0 milliamperes
	- 6	62.5 milliamperes
TF -		telephotograph interface
TT -		telegraph/teletypewriter interface at either customer POT or customer's end user POT
	- 2	20.0 milliamperes
	- 3	3.0 milliamperes
	- 6	62.5 milliamperes

(B) Impedance: The nominal reference impedance with which the channel will be terminated for the purpose of evaluating transmission performance:

Value (ohms)	Code(s)
110	0
150	1
600	2
900	3+
135	5
75	6
124	7
Variable	8
100	9

*Available only for the transmission of audio tone protective relaying signals used in the protection of electric power systems during fault conditions.

+For those interface codes with a 4-wire transmission path at the customer designated POT, rather than a standard 900 ohm impedance the code (3) denotes a customer provided transmission equipment termination. Such terminations were provided to customers in accordance with the FCC Docket No. 20099 Settlement Agreement.

By: Cynthia L Lynch
Tariffs and Licenses Manager
GCI Communication Corp.
2550 Denali Street, Suite 1000
Anchorage, Alaska 99503

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14. Access Service Interface and Transmission Specifications (Cont'd)
    14.2 Special Access Service (Cont'd)
        14.2.2 Network Channel Interface (NCI) Codes (Cont'd)

(C) Compatible Network Channel Interfaces

(1) Voice Grade

Compatible CIs		Compatible CIs		Compatible CIs	
2AB2	2AC2	2DB2	2DA2	2LR2	2LR2
2AB3	2AC2	2DB3	2DA2	2LR3	2LR2
2CT3	2DY2	2DX3	2LA2	2LS	2GS
	4DS8		2LB2		2LS
	4DX2		2LC2		4GS
	4DX3		2LO3		4LS
	4DY2		2LS2		
	4EA2-E		2LS3	2LS2	2LA2
	4EA2-M				2LB2
	4SF2	2GO2	2GS2		2LC2
	4SF3		2GS3		
	6DX2			2LS3	2LA2
	6DY2	2GO3	2GS2		2LB2
	6DY3		2GS3		2LC2
	6EA2-E				
	6EA2-M	2GS	2GS	2NO2	2DA2
	6EB2-E		2LS		2NO2
	6EB2-M		4GS		
	6EB3-E		4LS	2NO3	2NO2
	8EB2-E				2PR2
	8EB2-M	2LO2	2LS2		
	8EC2		2LS3	2TF3	2TF2
	9DY2				
	9DY3	2LO3	2LS2		
	9EA2		2LS3		
	9EA3				
4AB2	2AC2				
	4AB2				
	4AC2				
	4SF2				
4AB3	2AC2				
	4AC2				
	4SF2				

By: Cynthia L Lynch
Tariffs and Licenses Manager
GCI Communication Corp.
2550 Denali Street, Suite 1000
Anchorage, Alaska 99503

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        14.2.2 Network Channel Interface (NCI) Codes (Cont'd)
            (C) Compatible Network Channel Interfaces (Cont'd)
                (1) Voice Grade (Cont'd)

Compatible CIs		Compatible CIs		Compatible CIs	
4AC2	2AC2				
	4AC2				
		4DS8-	2AC2	4DS8-	4DG2
			2DA2		4LR2
			2DY2		4LS2
			2GO2		4NO2
4DA2	4DA2		2GO3		4PR2
			2GS2		4RV2-T
4DB2	2DA2		2GS3		4SF2
	2NO2		2LA2		4SF3
	2PR2		2LB2		4TF2
	4DA2		2LC2		6DA2
	4DB2		2LO2		6DY2
	4NO2		2LO3		6DY3
	4PR2		2LR2		6EA2-E
	6DA2		2LS2		6EA2-M
			2LS3		6EB2-E
4DD3	2DE2		2NO2		6EB2-M
	4DE2		2PR2		6GS2
			2RV2-T		6LS2
			2TF2		8EB2-E
			4AC2		8EB2-M
			4DA2		9DY2
			4DE2		9DY3
			4DX2		9EA2
			4DX3		9EA3
			4DY2		
			4EA2-E		
			4EA2-M		
4DX2	2DY2	4DX2	8EB2-E	4DX3	6DY2
	2LA2		8EB2-M		6DY3
	2LB2		9DY2		6EA2-E
	2LC2		9DY3		6EA2-M
	2LO3		9EA2		6EB2-E
	2LS2		9EA3		6EB2-M
	2LS3				6LS2

By: Cynthia L Lynch
Tariffs and Licenses Manager
GCI Communication Corp.
2550 Denali Street, Suite 1000
Anchorage, Alaska 99503

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14. Access Service Interface and Transmission Specifications (Cont'd)
    14.2 Special Access Service (Cont'd)
        14.2.2 Network Channel Interface (NCI) Codes (Cont'd)
            (C) Compatible Network Channel Interfaces (Cont'd)
                (1) Voice Grade (Cont'd)

Compatible CIs		Compatible CIs		Compatible CIs	
	2RV2-T	4DX3	2DY2		8EB2-E
	4DX2		2LA2		8EB2-M
	4DY2		2LB2		9DY2
	4EA2-E		2LC2		9DY3
	4EA2-M		2LO3		9EA2
	4LS2		2LS2		9EA3
	4RV2-T		2LS3		
	4SF2		2RV2-T	4DY2	2DY2
	4SF3		4DX2		4DY2
	6DY2		4DX3		
	6DY3		4DY2		
	6EA2-E		4EA2-E		
	6EA2-M		4EA2-M		
	6EB2-E		4LS2		
	6EB2-M		4RV2-T		
	6LS2		4SF2		
			4SF3		
4EA2-E	2DY2	4EA3-E	2DY2	4GO2	2GO2
	4DY2		4DY2		2GO3
	4EA2-E		4EA2-E		2GS2
	4EA2-M		4EA2-M		2GS3
	4SF2		4SF2		4GS2
	6DY2		6DY2		4SF2
	6DY3		6DY3		6GS2
	6EB2-E		6EA2-E		
	6EB2-M		6EA2-M	4GO3	2GO2
	8EB2-E		6EB2-E		2GS2
	8EB2-M		6EB2-M		2GS3
	9DY2		8EB2-E		4GS2
	9DY3		8EB2-M		4SF2
			9DY2		6GS2
4EA2-M	2DY2		9DY3		
	4DY2		9EA2		
	4EA2-M		9EA3	4GS	2GS
	4SF2				2LS
	6DY2				4GS
	6DY3				4LS

By: Cynthia L Lynch
Tariffs and Licenses Manager
GCI Communication Corp.
2550 Denali Street, Suite 1000
Anchorage, Alaska 99503

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14. Access Service Interface and Transmission Specifications (Cont'd)
    14.2 Special Access Service (Cont'd)
        14.2.2 Network Channel Interface (NCI) Codes (Cont'd)
            (C) Compatible Network Channel Interfaces (Cont'd)
                (1) Voice Grade (Cont'd)

Compatible CIs		Compatible CIs		Compatible CIs	
4EA2-M	6EB2-E				
	6EB2-M				
	8EB2-E				
	8EB2-M				
	9DY2				
	9DY3				
4LO2	2LS2	4LS3	2LA2	4SF2	2LO3
	2LS3		2LB2		2LR2
	4LS2		2LC2		2LS2
	4SF2		2LO2		2LS3
	6LS2		2LO3		2RV2-T
			4SF2		4AC2
4LO3	2LS2				4DY2
	2LS3	4NO2	2DA2		4LS2
	4LS2		2DE2		4RV2-T
	4SF2		2NO2		4SF2
	6LS2		4DA2		6DY2
			4DE2		6DY3
4LR2	2LR2		4NO2		6GS2
	4LR2		6DA2		9DY2
	4SF2				9DY3
		4RV2-O	2RV2-T		
4LR3	2LR2		4RV2-T	4SF3	2DY2
	4LR2		4SF2		2GO3
	4SF2				2GS2
					2GS3
4LS	2GS	4SF2	2AC2		2LA2
	2LS		2DY2		2LB2
	4GS		2GS2		2LC2
	4LS		2GS3		2LO3
			2LA2		2LR2
4LS2	2LA2		2LB2		
	2LB2		2LC2		
	2LC2				
	2LO2				
	2LO3				
4SF3	2LS2	6DA	4DA2	6DY3	2DY2
	2LS3		6DA2		4DY2

By: Cynthia L Lynch
Tariffs and Licenses Manager
GCI Communication Corp.
2550 Denali Street, Suite 1000
Anchorage, Alaska 99503

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14. Access Service Interface and Transmission Specifications (Cont'd)
    14.2 Special Access Service (Cont'd)
        14.2.2 Network Channel Interface (NCI) Codes (Cont'd)
            (C) Compatible Network Channel Interfaces (Cont'd)
                (1) Voice Grade (Cont'd)

Compatible CIs		Compatible CIs		Compatible CIs	
	2RV2-T				6DY2
	4DY2	6DX2	2DY2		6DY3
	4EA2-E		4DY2		
	4EA2-M		4EA2-E	6EA2-E	2AC2
	4GS2				
	4LR2		4EA2-M		2DY2
	4LS2		4SF2		2LA2
	4RV2-T		6DY2		2LB2
	4SF2		6DY3		2LC2
	4SF3		6EA2-E		2LO3
	6DY2		6EA2-M		2LS2
	6DY3		6EB2-E		2LS3
	6EB2-E		6EB2-M		2RV2-T
	6EB2-M		8EB2-E		4AC2
	6GS2		8EB2-M		4DY2
	6LS2		9DY2		4EA2-E
	9DY2		9DY3		4EA2-M
	9DY3		9EA2		4LS2
	9EA2		9EA3		4RV2-T
	9EA3				4SF2
		6DY2	2DY2		4SF3
4TF2	2TF2		4DY2		6DY2
	4TF2		6DY2		6DY3
					6EA2-E
					6EA2-M
6EA2-E	6EB2-E	6EA2-M	6DY2	6EB-3E	2DY2
	6EB2-M		6DY3		4DY2
	6LS2		6EA2-M		4EA2-E
	8EB2-E		6EB2-E		4EA2-M
	8EB2-M		6EB2-M		4SF2
	9DY2		6LS2		6DY2
	9DY3		8EB2-E		6DY3
			8EB2-M		6EA2-E
6EA2-M	2AC2		9DY2		6EA2-M
	2DY2		9DY3		8EB2-E
	2LA2				8EB2-M
	2LB2	6EB2-E	2DY2		9DY2
	2LC2		4DY2		9DY3
	2LO3		4SF2		9EA2

By: Cynthia L Lynch
Tariffs and Licenses Manager
GCI Communication Corp.
2550 Denali Street, Suite 1000
Anchorage, Alaska 99503

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14. Access Service Interface and Transmission Specifications (Cont'd)
    14.2 Special Access Service (Cont'd)
        14.2.2 Network Channel Interface (NCI) Codes (Cont'd)
            (C) Compatible Network Channel Interfaces (Cont'd)
                (1) Voice Grade (Cont'd)

Compatible CIs		Compatible CIs		Compatible CIs	
	2LS2		6DY2		9EA3
	2LS3		6DY3		
	2RV2-T		6EB2-E	6EX2-A	2GS2
	4AC2		6EB2-M		2GS3
	4DY2		9DY2		2LS2
	4EA2-E		9DY3		2LS3
	4EA2-M				4GS2
	4RLS2	6EB2-M	SDY2		4LS2
	4RV2-T		4DY2		4SF2
	4SF2		4SF2		6GS2
	4SF3		6DY2		6LS2
			6DY3		
			6EB2-M		
			9DY2		
			9DY3		
6EX2-B	2GO3	8EB2-E	2AC2	8EB2-M	2AC2
	2LA2		2DY2		2DY2
	2LB2		2LA2		2LA2
	2LC2		2LB2		2LB2
	2LO2		2LC2		2LC2
	2LO3		2LO3		2LO3
	2LR2		2LS2		2LS2
	4LR2		2LS3		2LS3
	4SF2		2RV2-T		2RV2-T
			4AC2		4AC2
6GO2	2GO2		4DY2		4DY2
	2GS2		4LS2		4LS2
	2GS3		4RV2-T		4RV2-T
	4GS2		4SF2		4SF2
	4SF2		4SF3		4SF3
	6GS2		6DY2		6DY2
			6DY3		6DY3
6LO2	2LS2		6EB2-E		6EB2-E
	2LS3		6EB2-M		6BE2-M
	4LS2		6LS2		6LS2
	4SF2		8EB2-E		8EB2-M
	6LS2		8EB2-M		9DY2
			9DY2		9DY3

By: Cynthia L Lynch
Tariffs and Licenses Manager
GCI Communication Corp.
2550 Denali Street, Suite 1000
Anchorage, Alaska 99503

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14. Access Service Interface and Transmission Specifications (Cont'd)
    14.2 Special Access Service (Cont'd)
        14.2.2 Network Channel Interface (NCI) Codes (Cont'd)
            (C) Compatible Network Channel Interfaces (Cont'd)
                (1) Voice Grade (Cont'd)

Compatible CIs		Compatible CIs		Compatible CIs	
6LS2	2LA2		9DY3		
	2LB2				
	2LC2				
	2LO2				
	2LO3				
	4SF2				
8EC2	2DY2	9DY2	2DY2	9EA3	2DY2
	4DY2		4DY2		4DY2
	4EA2-E		6DY2		4EA2-E
	4EA2-M		6DY3		4EA2-M
	4SF2		9DY2		6DY2
	6DY2				6DY3
	6DY3	9DY3	2DY2		6EA2-E
	6EA2-E		4DY2		6EA2-M
	6EA2-M		6DY2		6EB2-E
	6EB2-E		6DY3		6EB2-M
	6EB2-M		9DY2		8EB2-E
	8EB2-E		9DY3		8EB2-M
	8EB2-M				9DY2
	9DY2	9EA2	2DY2		9DY3
	9DY3		4DY2		9EA3
	9EA2		4EA2-E		
	9EA3		4EA2-M		
			6DY2		
			6DY3		
			6EA2-E		
			6EA2-M		
			6EB2-E		
			6EB2-M		
			8EB2-E		
			8EB2-M		
			9DY2		
			9DY3		
			9EA2		
			9EA3		

By: Cynthia L Lynch
Tariffs and Licenses Manager
GCI Communication Corp.
2550 Denali Street, Suite 1000
Anchorage, Alaska 99503

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14. Access Service Interface and Transmission Specifications (Cont'd)
    14.2 Special Access Service (Cont'd)
        14.2.2 Network Channel Interface (NCI) Codes (Cont'd)
            (C) Compatible Network Channel Interfaces (Cont'd)

(2) Program Audio

Compatible CIs		Compatible CIs	
2PG2-1	2PG1-1	4DS8-15E	2PG1-3
	2PG2-1		2PG2-3
2PG2-3	2PG1-3	4DS8-15F	2PG1-5
	2PG2-3		2PG2-5
2PG2-5	2PG1-5	4DS8-15G	2PG1-8
	2PG2-5		2PG2-8
2PG2-8	2PG1-8	4DA8-15H	2PG1-1
	2PG2-8		2PG2-1

(3) Digital Data

Compatible CIs		Compatible CIs		Compatible Cis	
4DS8-15	4DS8-15+	4DU5-24	4DU5-24	6DU5-24	6DU5-24
	4DU5-24				
	4DU5-48	4DU5-48	4DU5-48	6DU5-48	6DU5-48
	4DU5-56				
	4DU5-96	4DU5-96	4DU5-96	6DU5-56	6DU5-56
	6DU5-24				
	6DU5-48				
	6DU5-96	4DU8-56	4DU5-56	6DU5-96	6DU5-96

+Available only as a cross connect of two digital channels at appropriate digital speeds at a Company hub.

(4) High Capacity

Compatible CIs		Compatible CIs	
4DSO-63	4DSO-63	4DS8-15J	4DU8-A
	4DU8-A, B or C		6DU8-A
	6DU8-A, B or C		
		4DS8-15K	4DU8-B
4DS6-27	4DS6-27		4DU8-C
	4DU8-A, B or C		6DU8-B
	6DU8-A, B or C		6DU8-C

By: Cynthia L Lynch
Tariffs and Licenses Manager
GCI Communication Corp.
2550 Denali Street, Suite 1000
Anchorage, Alaska 99503

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14. Access Service Interface and Transmission Specifications (Cont'd)
    14.2 Special Access Service (Cont'd)
        14.2.2 Network Channel Interface (NCI) Codes (Cont'd)
            (C) Compatible Network Channel Interfaces (Cont'd)
                4. High Capacity (Cont'd)

Compatible CIs		Compatible CIs	
4DS6-44	4DS6-44	4DS8-31	4DS8-31
	4DU8-A, B or C		4DU8-A, B or C
	6DU8-A, B or C		6DU8-A, B or C
4DS8-15	4DS8-15+	4DU8-A, B or C	
	4DU8-B		4DU8-A, B or C
	6DU8-8		

+Available only as a cross connect of two individual channels of 1.544 Mbps facilities at a Company hub.

(M)

(M)

(M) Matter relocated to 1st Revised Page 146 and Original Page 146.1

By: Cynthia L Lynch
Tariffs and Licenses Manager
GCI Communication Corp.
2550 Denali Street, Suite 1000
Anchorage, Alaska 99503

ACCESS SERVICE

14. Access Service Interface and Transmission Specifications (Cont'd)

(C)

14.3 Directory Access Service

(L)

14.3.1 Interface Group and Premise Interface Codes

When Directory Access Service is combined with Feature Group B or D Switched Access Service, the Premises Interface Code for the combination will be the available Premises interface Code provided for the Feature Group B or D Switched Access Service ordered by the customer. Premises Interface Codes are described in 14.1.1(F) preceding.

When Directory Access Service is provided as a separate trunk group (not in combination with Switched Access Service) Interface Groups 2 through 10 as set forth in 14.1.1 preceding are available. Only the following Premises Interface codes are available when Directory Access Service is provided as a separate trunk group:

4DS9-15	6EA2-E	4RV2-O
4DS9-31	6EA2-M	4AH5-B
4DSO-63	4SF3	4AH6-C
4DS6-44		4AH6-D
4DS6-27		

14.3.2 Standard Transmission Specifications

Following is a matrix illustrating the transmission specifications available with Directory Access Service. Descriptions of the standard Transmission Specifications, Type A and B, are set forth respectively in 14.1.2(E) and (F) preceding.

(L)

Directory Access Service Provided	Transmission Specifications	
Combination with Switched Access Service	Type A	Type B
- Feature Group B (Interface Groups 2 through 10)		X
- Feature Group D	X	
Directory Access Service Not Combined with Switched Access Service		
- Routed Direct to DA location (Interface Groups 2 through 10)		X
- Routed via an access tandem (Interface Groups 2 through 10	X	

(L) Matter relocated from 1st Revised Page 232

By: Cynthia L Lynch
Tariffs and Licenses Manager
GCI Communication Corp.
2550 Denali Street, Suite 1000
Anchorage, Alaska 99503