

ACCESS SERVICE

13. Additional Engineering, Additional Labor and Miscellaneous Services

13.1 addresses Additional Engineering. 13.2 addresses Additional Labor (which is comprised of Overtime Installation, Overtime Repair, Stand by, Testing and Maintenance with Other Telephone Companies, and Other Labor). 13.3 addresses Miscellaneous Services (which are comprised of Testing Services, Maintenance of Service and Restoration Priority).

In this section, normally scheduled working hours are an employee's scheduled work period in any given calendar day (e.g., 8:00 a.m. to 5:00 p.m.) for the application of rates based on working hours.

A Miscellaneous Service Order charge as described in 5.4.2 preceding may be applicable to services ordered from this section.

13.1 Additional Engineering

Additional Engineering, including engineering reviews as set forth in 5.4.3 preceding, will be undertaken only after the Telephone Company has notified the customer that additional engineering charges apply as set forth in 17.4.2 and 18.4.2, following, and the customer agrees to such charges.

Additional Engineering will be provided by the Telephone Company at the request of the customer only when:

- 13.1.1 A customer requests additional technical information after the Telephone Company has already provided the technical information normally included on the Design Layout Report (DLR) as set forth in 6.1.5 and 7.1.6 preceding.
- 13.1.2 Additional engineering time is incurred by the Telephone Company to engineer a customer's request for a customized service as set forth in 7.1.2 preceding.
- 13.1.3 A customer requested Design Change requires the expenditure of additional engineering time. Such additional engineering time is incurred by the Telephone Company for the engineering review as set forth in 5.4.3 preceding. The charge for additional engineering time relating to the engineering review, which is undertaken to determine if a design change is indeed required, will apply whether or not the customer authorizes the Telephone Company to proceed with the Design Change. In this case the Design Change charge, as set forth in 17.4.1(C) following, does not apply unless the customer authorizes the Telephone Company to proceed with the Design Change.

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13.2 Additional Labor

Additional Labor is that labor requested by the customer on a given service and agreed to by the Telephone Company as set forth in 13.2.1 through 13.2.5 following. The Telephone Company will notify the customer that additional labor charges as set forth in 17.4.3 or 18.4.3 will apply before any additional labor is undertaken.

13.2.1 Overtime Installation

Overtime installation is that Telephone Company installation effort outside of normally scheduled working hours.

13.2.2 Overtime Repair

Overtime repair is that Telephone Company effort performed outside of normally scheduled working hours.

13.2.3 Stand by

Stand by includes all time in excess of one-half (1/2) hour during which Telephone Company personnel stand by to make installation acceptance tests or cooperative tests with a customer to verify facility repair on a given service.

13.2.4 Testing and Maintenance with Other Telephone Companies

Additional testing, maintenance or repair of facilities which connect other telephone companies is that which is in addition to the normal effort required to test, maintain or repair facilities provided solely by the Telephone Company.

13.2.5 Other Labor

Other labor is that additional labor not included in 13.2.1 through 13.2.4 preceding and labor incurred to accommodate a specific customer request that involves only labor which is not covered by any other section of this tariff.

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13.3 Miscellaneous Services

13.3.1 Testing Services

Testing Services offered under this section of the tariff are optional and subject to rates and charges as set forth in 17.4.4 and 18.4.4, following. Other testing services, as described in 6.2.4 and 7.1.7 preceding, are provided by the Telephone Company in association with Access Services and are furnished at no additional charge.

Testing services are normally provided by Telephone Company personnel at Telephone Company locations. However, provisions are made in (B)(2) following for a customer to request Telephone Company personnel to perform testing services at the customer designated premises.

The offering of Testing Services under this section of the tariff is made subject to the availability of the necessary qualified personnel and test equipment at the various test locations mentioned in (A) and (B) following.

(A) Switched Access Service

Testing Services for Switched Access are comprised of (a) tests which are performed during the installation of a Switched Access Service, i.e., Acceptance Tests, (b) tests which are performed after customer acceptance of such access services and which are without charge i.e., routine testing and (c) additional tests which are performed during or after customer acceptance of such access services and for which additional charges apply, i.e., Additional Cooperative Acceptance Tests and in-service tests.

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13.3 Miscellaneous Services (Cont'd)

13.3.1 Testing Services (Cont'd)

(A) Switched Access Service (Cont'd)

Routine tests are those tests performed by the Telephone Company on a regular basis, as set forth in 6.2.4(B) preceding which are required to maintain Switched Access Service. Additional in-service tests may be done on an automatic basis (no Telephone Company or customer technicians involved), on a manual basis [Telephone Company technician(s) involved at Telephone Company office(s) and Telephone Company or customer technician(s) involved at the customer designated premises].

Testing services are ordered to the Dial Tone Office for FGA, to the access tandem or end office for FGB (wherever the FGB service is ordered) and to the end office for FGC.

(1) Additional Cooperative Acceptance Testing

Additional Cooperative Acceptance Testing of Switched Access Service involves the Telephone Company provision of a technician at its office(s) and the customer provision of a technician at its premises, with suitable test equipment to perform the required tests.

Additional Cooperative Acceptance Tests may, for example, consist of the following tests:

- Impulse Noise
- Phase Jitter
- Signal to C-Notched Noise Ratio
- Intermodulation (Nonlinear) Distortion
- Frequency Shift (Offset)
- Envelope Delay Distortion
- Dial Pulse Percent Break

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13.3 Miscellaneous Services (Cont'd)

13.3.1 Testing Services (Cont'd)

(A) Switched Access Service (Cont'd)

(2) Additional Automatic Testing

Additional Automatic Testing (AAT) of Switched Access Services (Feature Groups B and C and D) is a service where the customer provides remote office test lines and 105 test lines with associated responders or their functional equivalent. The customer may order, at additional charges, gain-slope and C-notched noise testing and may order the routine tests (1004 Hz loss, C-Message Noise and Balance) on an as needed or more than routine schedule.

The Telephone Company will provide an AAT report that lists the test results for each trunk tested. Trunk test failures requiring customer participation for trouble resolution will be provided to the customer on an as-occurs basis.

The Additional Tests, (i.e., gain slope, C- notched noise, 1004 Hz loss, C-message noise and balance) may be ordered by the customer at additional charges, 60 days prior to the start of the customer prescribed schedule. The rates for Additional Automatic Tests are as set forth in 17.4.4(B) and 18.4.4(B) following.

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13.3 Miscellaneous Services (Cont'd)

13.3.1 Testing Services (Cont'd)

(A) Switched Access Service (Cont'd)

(3) Additional Manual Testing

Additional Manual Testing (AMT) of Switched Access Services (Feature Groups A, B and C and D) is a service where the Telephone Company provides a technician at its offices(s) and the Telephone Company or customer provides a technician at the customer designated premises, with suitable test equipment to perform the required tests. Such additional tests will normally consist of gain-slope and C-notched noise testing. However, the Telephone Company will conduct any additional tests which the IC may request. The Telephone Company will provide an AMT report listing the test results for each trunk tested. Trunk test failures requiring customer participation for trouble resolution will be provided to the customer on a per occurrence basis.

The Additional Manual Tests may be ordered by the customer at additional charges, 60 days prior to the start of the testing schedule as mutually agreed to by the customer and the Telephone Company.

The rates for Additional Manual Testing are as set forth in 17.4.4(C) and 18.4.4(C), following.

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13.3 Miscellaneous Services (Cont'd)

13.3.1 Testing Services (Cont'd)

(A) Switched Access Service (Cont'd)

(4) Obligations of the Customer

- (a) The customer shall provide the Remote Office Test Line priming data to the Telephone Company, as appropriate, to support routine testing as set forth in 6.2.4(B) preceding or AAT as set forth in 13.3.1(A)(2) preceding.
- (b) The customer shall make the facilities to be tested available to the Telephone Company at times mutually agreed upon.

(B) Special Access Service

The Telephone Company will provide assistance in performing specific tests requested by the customer.

(1) Additional Cooperative Acceptance Testing

When a customer provides a technician at its premises or at an end user's premises, with suitable test equipment to perform the requested tests, the Telephone Company will provide a technician at its office for the purpose of conducting Additional Cooperative Acceptance Testing on Voice Grade Services. At the customer's request, the Telephone Company will provide a technician at the customer's premises or at the end user premises. These tests may, for example, consist of the following:

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13.3 Miscellaneous Services (Cont'd)

13.3.1 Testing Services (Cont'd)

(B) Special Access Service (Cont'd)

(1) Additional Cooperative Acceptance Testing (Cont'd)

- Attenuation Distortion (i.e., frequency response)
- Intermodulation Distortion (i.e., harmonic distortion)
- Phase Jitter
- Impulse Noise
- Envelope Delay Distortion
- Echo Control
- Frequency Shift

(2) Additional Manual Testing

The Telephone Company will provide a technician at its premises, and the Telephone Company or customer will provide a technician at the designated premises with suitable test equipment to perform the requested tests.

(3) Obligation of the Customer

When the customer subscribes to Testing Service as set forth in this section, the customer shall make the facilities to be tested available to the Telephone Company at time mutually agreed upon.

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13.3 Miscellaneous Services (Cont'd)

13.3.2 Maintenance of Service

- (A) When a customer reports a trouble to the Telephone Company for clearance and no trouble is found in the Telephone Company's facilities, the customer shall be responsible for payment of a Maintenance of Service charge as set forth in 17.4.4(F) and 18.4.4(F), following for the period of time from when Telephone Company personnel are dispatched, at the request of the customer, to the customer designated premises to when the work is completed. Failure of Telephone Company personnel to find trouble in Telephone Company facilities will result in no charge if the trouble is actually in those facilities, but not discovered at the time.
- (B) The customer shall be responsible for payment of a Maintenance of Service charge when the Telephone Company dispatches personnel to the customer designated premises, and the trouble is in equipment or communications systems provided by other than the Telephone Company or in detariffed CPE provided by the Telephone Company.

In either (A) or (B) preceding, no credit allowance will be applicable for the interruption involved if the Maintenance of Service Charge applies.

13.3.3 Telecommunications Service Priority - TSP

- (A) Priority installation and/or restoration of National Security Emergency Preparedness (NSEP) telecommunications services shall be provided in accordance with Part 64.401, Appendix A, of the Federal Communications Commission's (FCC's) Rules and Regulations.

In addition, TSP System service shall be provided in accordance with the guidelines set forth in "Telecommunications Service Priority (TSP) System for National Security Emergency Preparedness (NSEP) Service Vendor Handbook" (NCSH 3-1-2) dated July 9, 1990, and "Telecommunications Service Priority System for National Security Emergency Preparedness Service User Manual" (NCSM 3-1-1) .

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13.3 Miscellaneous Services (Cont'd)

13.3.3 Telecommunications Service Priority - TSP (Cont'd)

(A) (Cont'd)

The TSP System is a service, developed to meet the requirements of the Federal Government, as specified in the Service Vendor's Handbook and Service User's Manual which provides the regulatory, administrative and operational framework for the priority installation and/or restoration of NSEP telecommunications services. These include both Switched and Special Access Services. The TSP System applies only to NSEP telecommunications services, and requires and authorizes priority action by the Telephone Company providing such services.

For Switched Access Service, the TSP System's applicability is limited to those services which the Telephone Company can discreetly identify for priority provisioning and/or restoration

(B) A Telecommunications Service Priority charge applies as set forth in 17.4.4 and 18.4.4 when a request to provide or change a Telecommunications Service Priority is received subsequent to the issuance of an Access Order to install the service.

Additionally, a Miscellaneous Service Order Charge as set forth in 17.4.1 and 18.4.1 will apply to Telecommunications Service Priority requests that are ordered subsequent to the initial installation of the associated access service

A Telecommunications Service Priority charge does not apply when a Telecommunications Service Priority is discontinued or when ordered coincident with an Access Order to install or change service.

In addition, Additional Labor rates as set forth in 17.4.3 and 18.4.3 may be applicable when provisioning or restoring Switched or Special Access Services with Telecommunications Service Priority.

When the customer requests an audit or a reconciliation of the Telephone Company's Telecommunications Service Priority records, a Miscellaneous Service Order Charge as set forth in 17.4.1 or 18.4.1 and Additional Labor rates as set forth in 17.4.3 and 18.4.3 are applicable

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13.3 Miscellaneous Services (Cont'd)

13.3.4 Billing Name and Address (BNA) Service

(A) General Description

- (1) Billing Name and Address (BNA) Service is the provision by the Telephone Company to an interstate service provider who is a customer of the Telephone Company of the complete billing name, street address, city or town, state and zip code for a telephone number assigned by the Telephone Company. An interstate service provider is defined as an interexchange carrier, an operator service provider, an enhanced service provider or any other provider of interstate telecommunications services.
- (2) BNA Service is provided only for the purposes of allowing customers to bill their end users for telephone services provided by the customer, order entry and customer service information, fraud prevention, identification of end users who have moved to a new address, any purpose associated with equal access requirements, and information associated with Local Exchange Carrier (LEC) calling card calls, collect calls and third party calls. BNA information may not be resold or used for any other purpose including, but not limited to, marketing or merchandising activities.
- (3) BNA information associated with listed/published telephone numbers will be provided. Requests for BNA information associated with non-published and unlisted telephone numbers will be provided, unless the subscriber to a non-published or unlisted telephone number has affirmatively requested that its BNA not be disclosed.

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13.3 Miscellaneous Services (Cont'd)

13.3.4 Billing Name and Address (BNA) Service (Cont'd)

(B) Undertaking of the Telephone Company

- (1) A standard format for the receipt of BNA requests and the provision of BNA information will be established by the Telephone Company.
- (2) Standard response to BNA requests will be by First Class Mail. Standard format will be on paper. Optional Magnetic Tape formatting will be offered where available.
- (3) Where facilities are available, the customer may request an optional specialized output format required to meet a specific customer need.
- (4) The Telephone Company will make every effort to provide accurate and complete BNA data. The Telephone Company makes no warranties, expressed or implied, as to the accuracy or completeness of this information.
- (5) The Telephone Company will not disclose BNA information to parties other than interstate service providers and their authorized billing agents as defined in 13.3.4(A), preceding. BNA disclosure is limited to those purposes as defined in 13.3.4(B), preceding.
- (6) The Telephone Company reserves the right to request from an interstate service provider who has placed an order for BNA service, the source data upon which the interstate service provider has based the order. This request is made to ensure that the BNA information is to be used only for purposes as described in 13.3.4(B), preceding. The Telephone Company will not process the order until such time as the interstate service provider supplies the requested data

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13.3 Miscellaneous Services (Cont'd)

13.3.4 Billing Name and Address (BNA) Service (Cont'd)

(C) Obligations of the Customer

- (1) The customer shall order BNA Service on a separate BNA Order. The order must identify both the customer's authorized representative and the address to which the information is to be sent.
- (2) The customer shall treat all BNA information as confidential. The customer shall insure that BNA information is used only for the purposes as described in 13.3.4(B), preceding.
- (3) The customer shall not publicize or represent to others that the Telephone Company jointly participates with the customer in the development of the customer's end user records it assembles through the use of BNA Service.
- (4) Upon requests, the customer will provide to the Telephone Company the source data upon which the customer has based an order from BNA service. The Telephone Company will not process the order until such time as the customer provides the requested data.

(D) Rate Regulations

- (1) For each order for BNA information received by the Telephone Company, a BNA Order Charge applies. In addition, a charge applies for each customer specific record provided. The BNA Order Charge and the Per Record Charge are specified in 17.4.4 and 18.4.4, following.
- (2) Where available, the customer may order the response formatted on Magnetic Tape. The Optional Magnetic Tape Charge is specified in 17.4.4 and 18.4.4, following and is in addition to the BNA Order Charge and the BNA Record Charge.

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13.3 Miscellaneous Services (Cont'd)

13.3.4 Billing Name and Address (BNA) Service (Cont'd)

(D) Rate Regulations (Cont'd)

- (3) Where available, the customer may order an output format other than a standard paper format in order to meet a customer's specific requirement. This option is subject to an hourly programming charge as specified in 17.4.4 and 18.4.4, following and is in addition to the BNA Order Charge and the BNA Record Charge.

13.3.5 Originating Line Screening (OLS) Service

The Telephone Company will provide OLS Service to end user customers who obtain local exchange service from the Telephone Company under its general or local exchange tariffs. OLS service enables customers to determine whether there are billing restrictions on lines from which a call is placed. OLS service delivers a code on operator assisted calls made from aggregator locations to identify privately owned payphones and other such codes as are necessary to identify other categories of aggregator locations, i.e., inmate, hotel/motel.

OLS Service is provided at no charge when ordered with the installation of new local exchange service. However, when OLS Service is added to existing exchange lines, an OLS Service charge is applied as set forth in 17.4.4(K) and 18.4.4(M). This charge is applied for each exchange line to which an OLS code is assigned. The customer must specify the number of lines and each individual telephone number equipped.

A Miscellaneous Service Order Charge as set forth in 17.4.1 and 18.4.1 will apply to orders adding OLS Service that are placed subsequent to the initial installation of the associated exchange line. This charge does not apply when the OLS code is removed from an exchange line at the same time that it is disconnected.

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13.3 Miscellaneous Services (Cont'd)

13.3.6 Pay Telephone Coin Supervision (PTCS) Service

The Telephone Company will provide PTCS Service to customers who obtain pay telephone exchange access line service from the Telephone Company under its general exchange tariffs. PTCS Service provides coin collect and coin refund functionality for pay telephones unable to provide these functions internally.

PTCS Service is provided at the charges shown in Section 17.4.4(L) and 18.4.4(N) when ordered with the installation of new pay telephone exchange access line service. This charge is applied for each exchange line to which PTCS is activated.

A Miscellaneous Service Order Charge as set forth in 17.4.1(D) and 18.4.1(D) will apply to orders adding PTCS Service that are placed subsequent to the initial installation of the pay telephone exchange access line.

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13.3 Miscellaneous Services

13.3.7 900 Blocking Service

- (A) The Telephone Company will provide 900 Blocking Service to customers who obtain local exchange service from the Telephone Company under its general or local exchange tariffs and to customers who obtain Feature Group A Switched Access service under this tariff. This service is only provided at appropriately equipped end offices. Those offices providing 900 Blocking Service are identified in NATIONAL EXCHANGE CARRIER ASSOCIATION, INC. TARIFF F.C.C. NO. 4.
- (B) On each line or trunk for which 900 Blocking Service is ordered, the Telephone Company will block all direct dialed calls placed to a 900 number. When capable, the Telephone Company will route the blocked calls to a recorded message.
- (C) A Blocking Service charge as set forth in 18.4.4(K), following is applicable when ordered by the end user customer with the following exception:

Blocking access to 900 Service is offered to all subscribers at no charge at the time telephone service is established at a new number and for 60 days thereafter.
- (D) The Blocking Service charge is applied for each line, trunk, or Feature Group A Switched Access service to which 900 Blocking Service is added or removed. Requests by subscribers to remove 900 Blocking Service must be in writing. This charge does not apply when blocking is removed from an exchange line or trunk or Feature Group A Switched Access line at the same time that it is disconnected .

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13.4 Presubscription

Pursuant to the Federal Communications Commission's Memorandum Opinion and Order, CC Docket No. 83-1145, Phase I, adopted May 31, 1985, and released June 12, 1985, the Allocation Plan, outlined in the Appendix B of this Order, will be available for inspection in the Public Reference Room of the Tariff Division at the Federal Communication Commission's Washington, D.C., location or may be obtained from the Commission's commercial contractor.

- (A) Presubscription is the process by which end user customers may select and designate to the Telephone Company an IC to access, without an access code, for the interLATA, interstate calls. This IC is referred to as the end user's presubscribed IC.
- (B) On the effective date of this tariff, all existing end users have access to interstate MTS/WATS. No later than 85 days prior to conversion to Feature Group D in a serving end office, the Telephone Company will notify end users of the availability of equal access in their particular area. The notification will include the names of all ICs wishing to participate in the presubscription process. This notification will be sent via U.S. Mail to each end user of record served by the end office to be converted.
- (C) End users may select one of the following options at no charge:
 - indicate a primary IC for all of its lines,
 - indicate a different IC for each of its lines.

Only one IC may be selected for each line or lines terminating in the same hunt group.

End users may designate that they do not want to presubscribe to any IC. The end user must arrange this designation by directly notifying the Telephone Company's business office. This choice will require the end user to dial an access code (1010XXX) for all interstate calls.

After the end user's initial selection of a presubscribed IC or the designation that they do not want to presubscribe to any IC, for any change in selection after conversion to Equal Access in the serving end office, a nonrecurring charge, as set forth in 17.4.4(I) and 18.4.4(I) following applies.

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13.4 Presubscription (Cont'd)

- (D) Except as noted in 13.5 following, end users not responding to the initial notification will be sent a second notification for the selection of a predesignated IC no earlier than 40 days prior to or no later than 90 days after the conversion to Equal Access in a serving end office. This second notification will indicate the primary IC that has been assigned to them if they fail to respond to the second notification.

After the allocation process has been completed, end users assigned to an IC via the allocation process may change their IC one time within six months after conversion to Equal Access in the serving end office at no charge.

Following the six month period after conversion to Equal Access for any change in selection, a nonrecurring charge as set forth in 17.4.4(I) AND 18.4.4(I) following, applies.

- (E) When an end user indicates more than one IC selection on the return notification or returns an illegible return notification, the Telephone Company will contact the end user for clarification. If the end user indicates an IC selection on the return notification that does not match with information provided by an IC and both notifications indicate the same authorization date, the end user's notification takes precedence and the Telephone Company will process the end user's selection. In the event that two or more ICs provide to the Telephone Company notifications with the same authorization date and neither notification has been processed, the Telephone Company will contact the end user for clarification. A list of these customers in conflict must be sent to the affected IC by the Telephone Company.

In the event that two or more ICs have provided to the Telephone Company notifications with the same authorization date(s), and one IC notification has already been processed by the Telephone Company, those IC notifications not yet processed would be returned to the ICs.

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13.4 Presubscription (Cont'd)

- (F) New end users who are served by end offices equipped with Feature Group D will be asked to presubscribe to an IC at the time they place an order with the Telephone Company for Telephone Exchange Service. They may select either of the following options. There will be no charge for this initial selection.

- designate a primary IC for all of its lines,
- designate a different IC for each of its lines.

Only one IC may be selected for each individual line, or lines terminating in the same hunt group. Subsequent to the installation of Telephone Exchange Service and after the end user's initial selection of a predesignated IC, for any change in selection, a nonrecurring charge, as set forth in 17.4.4(I) and 18.4.4(I) following, applies.

- (G) If the new end user fails to designate an IC as its predesignated IC prior to the date of installation of Telephone Exchange Service, the Telephone Company will (1) allocate the end user to an IC based upon current IC presubscription ratios, (2) require the end user to dial an access code (1010XXX) for all interstate calls, or (3) block the end user from interstate calling. The end user will be notified which option will be applied if they fail to presubscribe to an IC. An allocated or blocked end user may designate another, or initial, IC as its predesignated IC one time at no charge, if it is requested within six months after the installation of Telephone Exchange Service.

For any change in selection after 6 months from the installation of Telephone Exchange Service, a nonrecurring charge, as set forth in 17.4.4(I) and 18.4.4(I), following applies.

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13. Additional Engineering, Additional Labor and Miscellaneous Services (Cont'd)

13.4 Presubscription (Cont'd)

- (H) If an IC elects to discontinue its Feature Group D Service offering prior to or within 2 years of the conversion, the IC will notify the Telephone Company of the cancellation. The IC will also notify all end users which selected them that they are canceling their service and that they should contact the Telephone Company to select a new primary IC. The IC will also inform the end user that it will pay the presubscription change charge. The canceling IC will then be billed by the Telephone Company the appropriate charge for each end user for a period of two years from the discontinuance of Feature Group D service.

13.5 PIC Change

If an IC requests a PIC change on behalf of an end user, the IC must previously have:

- obtained the end user's written authorization; or
- obtained the end user's electronic authorization by use of an 800 number; or
- obtained the end user's oral authorization verified by an independent third party; or
- sent an information package, including a prepaid, returnable postcard, within three days of the end user's request for a change in long distance company, and wait 14 days before submitting the end user's order to the Telephone Company, to give the end user sufficient time to send back the postcard denying or canceling the change order.

13.6 Reserved for Future Use

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14. Exceptions to Access Service Offerings

The services offered under the provisions of this tariff are subject to availability as set forth in 2.1.4 preceding. In addition, the following exceptions apply:

(Paragraphs 14.1 through 14.5 following are reserved for future listings as a result of a subsequent survey. In the meantime, in planning an end-to-end service, the customer should contact the Telephone Company in each customer designated premises city to assure itself that all of the service or service components required for a given customer service are currently available.)

14.1 The following service(s) is (are) not offered in the operating territory of listed Issuing Carriers.

(Reserved for future use.)

14.2 The following offering(s) is (are) limited to existing locations. No inside moves, rearrangements or additions will be permitted.

(Reserved for future use.)

14.3 The following offering(s) is (are) limited to existing locations. Inside moves or rearrangements may be undertaken. However, no additions will be permitted.

(Reserved for future use.)

14.4 The following offering(s) is (are) limited to existing locations where additional units may be added for growth. Inside moves or rearrangements may be undertaken.

(Reserved for future use.)

14.5 The following offering(s) is (are) limited to existing locations where additional units may be added for growth. However, inside moves or rearrangements will not be permitted.

(Reserved for future use.)

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15. Access Service Interfaces and Transmission Specifications

15.1 Contains Switched Access Service Options (which are comprised of Interface Groups, Supervisory Signaling, Entry Switch Receive Level and Local Transport Termination) and Transmission Specifications. 15.2 describes Special Access Service Network Channel (NC) codes and Network Channel Interface (NCI) codes.

15.1 Switched Access Service

Three 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 15.1.1 following.

As a result of the customer's access order and the type of Telephone 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 Telephone Company equipment be placed at the customer designated premises. For example, if a voice frequency interface is ordered by the customer and the Telephone Company facilities serving the customer designated premises are digital, then Telephone Company channel bank equipment must be placed at the customer designated premises in order to provide the voice frequency interface ordered by the customer.

15.1.1 Local Transport Interface Groups

Interface Groups are combinations of technical parameters which describe the Telephone 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 (C) following.

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15. Access Service Interfaces and Transmission Specifications (Cont'd)

15.1 Switched Access Service (Cont'd)

15.1.1 Local Transport Interface Group (Cont'd)

Interface Group 1 is provided with Type C Transmission Specifications, as set forth in 15.1.2(C) following, and Interface Groups 2, 6, and 9 are provided with Type A or B Transmission Specifications, as set forth respectively in 15.1.2(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.

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

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15. Access Service Interfaces and Transmission Specifications (Cont'd)

15.1 Switched Access Service (Cont'd)

15.1.1 Local Transport Interface Groups (Cont'd)

(A) Interface Group 1 (Cont'd)

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, FGC 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 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 approximately 300 to 3000 Hz.

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15. Access Service Interfaces and Transmission Specifications (Cont'd)

15.1 Switched Access Service (Cont'd)

15.1.1 Local Transport Interface Groups (Cont'd)

(B) Interface Group 2 (Cont'd)

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, FGC or FGD, such signaling, except for two-way calling which is E&M signaling, will be reverse battery signaling.

(C) Interface Group 6 and 9

Interface Group 6 and 9 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 Telephone 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 Telephone Company will provide a DS1 signal(s) in D3 format.

The interface is provided with individual transmission path bit stream supervisory signaling.

<u>Interface Group Identification No.</u>	<u>Nominal Bit Rate (Mbps)</u>	<u>Digital Hierarchy Level</u>	<u>Max. No. of Channelized Voice Freq. Trans. Paths</u>
6	1.544	DS1	24
9	44.736	DS3	672

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15. Access Service Interfaces and Transmission Specifications (Cont'd)

15.1 Switched Access Service (Cont'd)

15.1.1 Local Transport Interface Groups (Cont'd)

(D) Local Transport Optional Features

Where transmission facilities permit, the Telephone Company will, at the option of the customer, provide the following features in association with Local Transport. An Access Order Charge as specified in 17.4.1(A) following is applicable on a per order basis when nonchargeable optional features are added subsequent to the installation of service.

- 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 described in Technical Reference TR-NPL-000334. This feature is available with Interface Groups 2 and 6 for Feature Groups A and B.

- Customer Specification of Local Transport Termination

Customer Specification of Local 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 Local Transport at the first point of switching in lieu of a Telephone 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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15. Access Service Interfaces and Transmission Specifications (Cont'd)

15.1 Switched Access Service (Cont'd)

15.1.1 Local Transport Interface Groups (Cont'd)

(D) Local Transport Optional Features (Cont'd)

- 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 (C) preceding, represent industry standard arrangements. Where transmission parameters permit, the customer may select the following optional signaling arrangements in place of the signaling arrangements standardly associated with the Interface Groups.

- For Interface Groups 1 and 2 associated with FGB, FGC or FGD

DX Supervisory Signalling,,
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, FGC or FGD and in addition to the preceding

SF Supervisory Signaling, or Tandem Supervisory Signaling

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15. Access Service Interfaces and Transmission Specifications (Cont'd)

15.1 Switched Access Service (Cont'd)

15.1.1 Local Transport Interface Groups (Cont'd)

(D) Local Transport Optional Features (Cont'd)

- For Interface Group 6

This Interface Group may, at the option of the customer, be provided with individual transmission path SF supervisory signaling where such signaling is available in Telephone 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 6.8.2(C)(2) preceding.

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

(E) 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 Telephone Company switch supervisory signaling and Feature Group. For explanations of these codes, see the Parameter Codes and Options as set forth in 15.2.2(A) following.

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15. Access Service Interfaces and Transmission Specifications (Cont'd)

15.1 Switched Access Service (Cont'd)

15.1.1 Local Transport Interface Groups (Cont'd)

(E) Available Premises Interface Codes (Cont'd)

<u>Interface Group</u>	<u>Telephone Company Switch Supervisory Signaling</u>	<u>Premises Interface Code</u>	<u>Feature Group</u>			
			<u>A</u>	<u>B</u>	<u>C</u>	<u>D</u>
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	X
	RV, EA, EB, EC	4EA3-E		X	X	X
	RV, EA, EB, EC	4EA3-M		X	X	X
	RV, EA, EB, EC	6EB3-E		X	X	X
	RV, EA, EB, EC	6EB3-M		X	X	X
	EA, EB, EC	6EC3			X	X
	RV	2RV3-0		X	X	X
	RV	2RV3-T		X	X	X
	SS7	2NO2			X	X
2	LO, GO	4SF2	X			
	LO, GO	4SF3	X			
	LO	4LS2	X			
	LO	4LS3	X			
	LO	6LS2	X			

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15. Access Service Interfaces and Transmission Specifications (Cont'd)

15.1 Switched Access Service (Cont'd)

15.1.1 Local Transport Interface Groups (Cont'd)

(E) Available Premises Interface Codes (Cont'd)

<u>Interface Group</u>	<u>Telephone Company Switch Supervisory Signaling</u>	<u>Premises Interface Code</u>	<u>Feature Group</u>			
			<u>A</u>	<u>B</u>	<u>C</u>	<u>D</u>
2 (Cont'd)	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	X
	RV, EA, EB, EC	4SF3		X		
	RV, EA, EB, EC	4DX2		X	X	X
	RV, EA, EB, EC	4DX3		X		
	RV, EA, EB, EC	6DX2			X	
	RV, EA, EB, EC	6EA2-E		X	X	X
	RV, EA, EB, EC	6EA2-M		X	X	X
	RV, EA, EB, EC	8EB2-E		X	X	X
	RV, EA, EB, EC	8EB2-M		X	X	X
	EA, EB, EC	8EC2-M			X	X
	RV	4RV2-O		X	X	X
	RV	4RV2-T		X	X	X
	RV	4RV3-0		X	X	
	RV	4RV3-T		X	X	
	SS7	4NO2				
6	LO, GO	4DS9-15	X			
	LO, GO	4DS9-15L	X			
	RV, EA, EB, EC	4DS9-15		X	X	X
	RV, EA, EB, EC	4DS9-15L		X	X	X
	SS7	4DS9-15			X	X

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15. Access Service Interfaces and Transmission Specifications (Cont'd)

15.1 Switched Access Service (Cont'd)

15.1.1 Local Transport Interface Groups (Cont'd)

(E) Available Premises Interface Codes (Cont'd)

<u>Interface Group</u>	<u>Telephone Company Switch Supervisory Signaling</u>	<u>Premises Interface Code</u>	<u>Feature Group</u>			
			<u>A</u>	<u>B</u>	<u>C</u>	<u>D</u>
9	LO, GO	4DS6-44	X			
	LO, GO	4DS6-44L	X			
	RV, EA, EB, EC	4DS6-44		X	X	X
	RV, EA, EB, EC	4DS6-44L		X	X	X
	SS7	4DS6-44			X	X

15.1.2 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 (C) following. Descriptions of each of these Standard Transmission Specifications and the two Data Transmission Parameters mentioned are set forth respectively in (D) through (F) and 15.1.3(A) 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 and 6. Type DB Data Transmission Parameters are provided with FGA to the first point of switching.

(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 Group 1 and Type B is provided with Interface Groups 2 and 6. Type DB Data Transmission Parameters are provided with FGB to the first point of switching.

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15. Access Service Interfaces and Transmission Specifications (Cont'd)

15.1 Switched Access Service (Cont'd)

15.1.2 Standard Transmission Specifications (Cont'd)

(C) Feature Group C

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

- When routed to the end office either Type B or C is provided.
- When routed to an access tandem only Type B is provided.
- Type B or Type C 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 B is provided with Interface Groups 2 and 6, whether routed directly to an end office or an access tandem.

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

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15. Access Service Interfaces and Transmission Specifications (Cont'd)

15.1 Switched Access Service (Cont'd)

15.1.2 Standard Transmission Specifications (Cont'd)

(D) 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 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 and 6.

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.

(E) 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.

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15. Access Service Interfaces and Transmission Specifications (Cont'd)

15.1 Switched Access Service (Cont'd)

15.1.2 Standard Transmission Specifications (Cont'd)

(E) Type A Transmission Specifications (Cont'd)

(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 dB to +3.0 dB.

(3) C-Message Noise

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

<u>Route Miles</u>	<u>C-Message Noise</u>
less than 50	32 dBmCO
51 to 100	34 dBmCO
101 to 200	37 dBmCO
201 to 400	40 dBmCO
401 to 1000	42 dBmCO

(4) C-Notch Noise

The maximum C-Notch Noise, utilizing a -16 dBmO holding tone, is less than or equal to 45 dBmCO.

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15. Access Service Interfaces and Transmission Specifications (Cont'd)

15.1 Switched Access Service (Cont'd)

15.1.2 Standard Transmission Specifications (Cont'd)

(E) Type A Transmission Specifications (Cont'd)

(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:

	<u>Echo Return Loss</u>	<u>Singing Return Loss</u>
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:

<u>Echo Return Loss</u>	<u>Singing Return Loss</u>
5 dB	2.5 dB

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15. Access Service Interfaces and Transmission Specifications (Cont'd)

15.1 Switched Access Service (Cont'd)

15.1.2 Standard Transmission Specifications (Cont'd)

(F) 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.

(3) C-Message Noise

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

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

*For Feature Group C and D only Type B2 will be provided. For Feature Groups A and B, Type B1 or B2 will be provided as set forth in Technical Reference TR-NPL-000334.

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15. Access Service Interfaces and Transmission Specifications (Cont'd)

15.1 Switched Access Service (Cont'd)

15.1.2 Standard Transmission Specifications (Cont'd)

(F) Type B Transmission Specifications (Cont'd)

(4) C-Notch Noise

The maximum C-Notch Noise, utilizing a -16 dBm0 holding tone is less than or equal to 47 dBmCO.

(5) Echo Control

Echo Control, identified as Impedance Balance for FGA and FGB and Equal Level Echo Path Loss for FGC and 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:

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15. Access Service Interfaces and Transmission Specifications (Cont'd)

15.1 Switched Access Service (Cont'd)

15.1.2 Standard Transmission Specifications (Cont'd)

(F) Type B Transmission Specifications (Cont'd)

(5) Echo Control (Cont'd)

	<u>Echo Return Loss</u>	<u>Singing Return Loss</u>
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
. For FGC access (Effective 4-Wire trans- mission path at end office)	16 dB	11 dB
. For FGC access (Effective 2-Wire trans- mission path at end office)	13 dB	6 dB

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15. Access Service Interfaces and Transmission Specifications (Cont'd)

15.1 Switched Access Service (Cont'd)

15.1.2 Standard Transmission Specifications (Cont'd)

(F) Type B Transmission Specifications (Cont'd)

(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:

<u>Echo Return Loss</u>	<u>Singing Return Loss</u>
-------------------------	----------------------------

5 dB	2.5 dB
------	--------

(G) 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.

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15. Access Service Interfaces and Transmission Specifications (Cont'd)

15.1 Switched Access Service (Cont'd)

15.1.2 Standard Transmission Specifications (Cont'd)

(G) Type C 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:

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

(4) C-Notch Noise

The maximum C-Notch Noise, utilizing a -16 dBm0 holding tone is less than or equal to 47 dBmCO.

*For Feature Group C and D only Type C2 will be provided. For Feature Groups A and B, Type C1 or C2 will be provided as set forth in Technical Reference TR-NPL-000334.

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15. Access Service Interfaces and Transmission Specifications (Cont'd)

15.1 Switched Access Service (Cont'd)

15.1.2 Standard Transmission Specifications (Cont'd)

(G) Type C Transmission Specifications (Cont'd)

(5) Echo Control

Echo Control, identified 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:

	<u>Echo Return Loss</u>	<u>Singing Return Loss</u>
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

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15. Access Service Interfaces and Transmission Specifications (Cont'd)

15.1 Switched Access Service (Cont'd)

15.1.3 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, B and C 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 bands 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
--	------------------

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15. Access Service Interfaces and Transmission Specifications (Cont'd)

15.1 Switched Access Service (Cont'd)

15.1.3 Data Transmission Parameters (Cont'd)

(A) Data Transmission Parameters Type DA (Cont'd)

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

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

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15. Access Service Interfaces and Transmission Specifications (Cont'd)

15.1 Switched Access Service (Cont'd)

15.1.3 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
--	------------------

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15. Access Service Interfaces and Transmission Specifications (Cont'd)

15.1 Switched Access Service (Cont'd)

15.1.3 Data Transmission Parameters (Cont'd)

(B) Data Transmission Parameters Type DB (Cont'd)

(3) Impulse Noise Counts

The Impulse Noise Counts exceeding a 67 dBmCO 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 7° peak-to-peak.

(6) Frequency Shift

The maximum Frequency Shift does not exceed -2 to +2 Hz.

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15. Access Service Interfaces and Transmission Specifications (Cont'd)

15.2 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, 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.

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 Telephone Company and the customer.

On the following 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. The SD and NC codes are displayed as components of the matrices designated as Technical Specifications Packages in (A) through (D) 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 15.2.2(A) following which contains information necessary to develop NCI codes.

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15. Access Service Interfaces and Transmission Specifications (Cont'd)

15.2 Special Access Service (Cont'd)

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 Telephone Company at this time.

Lastly, 15.2.2(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:

<u>NC</u>	<u>NCI</u>	<u>SECNCI</u>
LG-R	04DB2	04DA2-S

NC Code:

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

NCI Code:

04 = Number of physical wires at CDP
 DB = Data stream in VF frequency band at the customer designated main terminal location
 2 = 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.

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15. Access Service Interfaces and Transmission Specifications (Cont'd)

15.2 Special Access Service (Cont'd)

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:

<u>NC</u>	<u>NCI</u>	<u>SECNCI</u>
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:

<u>NC</u>	<u>NCI</u>	<u>SECNCI</u>
HC--	04DS9-15	04DS9-15

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.

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15. Access Service Interfaces and Transmission Specifications (Cont'd)

15.2 Special Access Service (Cont'd)

15.2.1 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 in (A) through (D) 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 15.2.2 following and the guidelines concerning specific parameters available for each service type as set forth in the specified Technical Publication.

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15. Access Service Interfaces and Transmission Specifications (Cont'd)

15.2 Special Access Service (Cont'd)

15.2.1 Network Channel (NC) Codes (Cont'd)

(A) Technical Specifications Packages Voice Grade Service

SD Code NC Code	Package VG-													W
	C*	1	2	3	4	5	6	7	8	9	10	11	12	
	LQ	LB	LC	LD	LE	LF	LG	LH	LJ	LK	LN	LP	LR	SE
<u>Parameter</u>														
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
Frequency Shift	X							X	X	X	X	X	X	X
Impulse Noise	X					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	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	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 PUB 41004, Table 4.

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

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15. Access Service Interfaces and Transmission Specifications (Cont'd)

15.2 Special Access Service (Cont'd)

15.2.1 Network Channel (NC) Codes (Cont'd)

(A) Technical Specifications Packages Voice Grade Service (Cont'd)

SD Code	C*	Package VG-												W
		1	2	3	4	5	6	7	8	9	10	11	12	
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	
------------	---	--	---	--	--	---	---	--	--	--	---	---	---	--

Central Office

Multiplexing	X						X							
--------------	---	--	--	--	--	--	---	--	--	--	--	--	--	--

Conditioning:

. C-Type	X					X	X	X	X	X	X			
----------	---	--	--	--	--	---	---	---	---	---	---	--	--	--

. Improved

Attenuation

Distortion	X					X	X	X	X	X	X			
------------	---	--	--	--	--	---	---	---	---	---	---	--	--	--

. Improved Envelope

Delay Distortion

	X					X	X	X	X	X	X			
--	---	--	--	--	--	---	---	---	---	---	---	--	--	--

. Data Capability	X						X	X			X			
-------------------	---	--	--	--	--	--	---	---	--	--	---	--	--	--

. Telephoto

Capability	X												X	
------------	---	--	--	--	--	--	--	--	--	--	--	--	---	--

Improved Return Loss

for Effective

Four-Wire

Transmission	X	X	X	X	X	X	X	X	X	X	X	X	X	X
--------------	---	---	---	---	---	---	---	---	---	---	---	---	---	---

For Effective

Two-Wire

Transmission	X		X	X				X						
--------------	---	--	---	---	--	--	--	---	--	--	--	--	--	--

Selective Signaling

Arrangement	X		X			X	X				X	X	X	
-------------	---	--	---	--	--	---	---	--	--	--	---	---	---	--

Signaling Capability

	X	X	X	X				X	X	X				
--	---	---	---	---	--	--	--	---	---	---	--	--	--	--

Transfer Arrangement

	X	X	X	X	X	X	X	X	X	X	X	X	X	X
--	---	---	---	---	---	---	---	---	---	---	---	---	---	---

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15. Access Service Interfaces and Transmission Specifications (Cont'd)

15.2 Special Access Service (Cont'd)

15.2.1 Network Channel (NC) Codes (Cont'd)

(B) Technical Specifications Packages Program Audio Service

SD Code NC Code	<u>Package</u>			
	APC*	AP1	AP2	AP3
	PQ	PE	PF	PJ
<u>Parameter</u>				
Actual Measured Loss	X	X	X	X
Amplitude Tracking	X			
Crosstalk	X	X	X	X
Distortion Tracking	X			
Gain/Frequency				
Distortion	X	X	X	X
Group Delay	X			
Noise	X	X	X	X
Phrase Tracking	X			
Short-Term Gain				
Stability	X			
Short-Term Loss	X			
Total Distortion	X	X	X	X

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

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

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15. Access Service Interfaces and Transmission Specifications (Cont'd)

15.2 Special Access Service (Cont'd)

15.2.1 Network Channel (NC) Codes (Cont'd)

(C) Technical Specifications Packages Digital Data Service

	<u>Package</u>			
SD Code	<u>D1</u>	<u>D2</u>	<u>D3</u>	<u>D4</u>
NC Code	<u>XA</u>	<u>XB</u>	<u>XG</u>	<u>XH</u>
<u>Parameter</u>				
Error-Free Seconds	X	X	X	X

The Telephone Company will provide a channel capable of meeting a monthly average performance equal to or greater than 99.875% 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, in Technical Reference PUC 62310.

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

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15. Access Service Interfaces and Transmission Specifications (Cont'd)

15.2 Special Access Service (Cont'd)

15.2.1 Network Channel (NC) Codes (Cont'd)

(D) Technical Specifications Packages High Capacity Service

	<u>Package</u>
SD Code	<u>HC1</u>
NC Code	<u>HC</u>
<u>Parameters</u>	
Error-Free Seconds	X
<u>Optional Features and Functions</u>	
Central Office Multiplexing:	
DS1 to Voice	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.

15.2.2 Network Channel Interface (NCI) Codes

The electrical interface with the Telephone 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 15.2 preceding.

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15. Access Service Interfaces and Transmission Specifications (Cont'd)

15.2 Special Access Service (Cont'd)

15.2.2 Network Channel Interface (NCI) Codes (Cont'd)

(A) Parameter Codes and Options

Parameter

<u>Code</u>	<u>Option</u>	<u>Definition</u>
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
DA	-	data stream in VF frequency band at customer's end user'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	Telephone Company energized alarm channel
DS	-	digital hierarchy interface
	- 15	1.544 Mbps (DS1) format per PUB 41451 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 PUB 41451
	- 15K	1.544 Mbps format per PUB 41451 plus extended framing format
	- 15L	1.544 Mbps (DS1) with SF signaling
	- 44	44.736 Mbps (DS3)
	- 44L	44.736 Mbps (DS3) with SF signaling
DU	-	digital access interface
	- 24	2.4 kbps
	- 48	4.8 kbps
	- 56	56.0 kbps
	- 96	9.6 kbps
	- A	1.544 Mbps format per PUB 41451
	- B	1.544 Mbps format per PUB 41451 plus D4
	- C	1.544 Mbps format per PUB 41451 plus extended farming format

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15. Access Service Interfaces and Transmission Specifications (Cont'd)

15.2 Special Access Service (Cont'd)

15.2.2 Network Channel Interface (NCI) Codes (Cont'd)

(A) Parameter Codes and Options (Cont'd)

Parameter (Cont'd)

<u>Code</u>	<u>Option</u>	<u>Definition</u>
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 Telephone Company provided PLAR

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15. Access Service Interfaces and Transmission Specifications (Cont'd)

15.2 Special Access Service (Cont'd)

15.2.2 Network Channel Interface (NCI) Codes (Cont'd)

(A) Parameter Codes and Options (Cont'd)

Parameter (Cont'd)

<u>Code</u>	<u>Option</u>	<u>Definition</u>
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
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
TF	-	telephotograph interface

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

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15. Access Service Interfaces and Transmission Specifications (Cont'd)

15.2 Special Access Service (Cont'd)

15.2.2 Network Channel Interface (NCI) Codes (Cont'd)

(B) Impedance

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

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

- + 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 F.C.C. Docket No. 20099 Settlement Agreement.

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15. Access Service Interfaces and Transmission Specifications (Cont'd)

15.2 Special Access Service (Cont'd)

15.2.2 Network Channel Interface (NCI) Codes (Cont'd)

(C) Compatible Network Channel Interfaces

(1) Voice Grade

<u>Compatible Cis</u>		<u>Compatible Cis</u>		<u>Compatible CIs</u>	
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	2G02	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	2L02	2LS2		
	8EC2		2LS3	2TF3	2TF2
	9DY2				
	9DY3	2L03	2LS2		
	9EA2		2LS3		
	9EA3				

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15. Access Service Interfaces and Transmission Specifications (Cont'd)

15.2 Special Access Service (Cont'd)

15.2.2 Network Channel Interface (NCI) Codes (Cont'd)

(C) Compatible Network Channel Interfaces (Cont'd)

(1) Voice Grade (Cont'd)

<u>Compatible CIs</u>	<u>Compatible CIs</u>	<u>Compatible CIs</u>
4AB2 2AC2 4AB2 4AC2 4SF2		
4AB3 2AC2 4AC2 4SF2		
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

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15. Access Service Interfaces and Transmission Specifications (Cont'd)

15.2 Special Access Service (Cont'd)

15.2.2 Network 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	
4DD3	2DE2		2NO2		6EB2-M
	4DE2		PR2		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		
	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			

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15.2 Special Access Service (Cont'd)

15.2.2 Network Channel Interface (NCI) Codes (Cont'd)

(C) Compatible Network Channel Interfaces (Cont'd)

(1) Voice Grade (Cont'd)

<u>Compatible Cis</u>		<u>Compatible Cis</u>		<u>Compatible CIs</u>	
	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	4G03	2GO2
	8EB2-E		6EB2-E		2GS2
	8EB2-M		6EB2-M		2GS3
	9DY2		8EB2-E		4GS2
	9DY3		8EB2-M		4SF2
			9DY2		6GS2
			9DY3		
4EA2-M	2DY2		9EA2		
	4DY2		9EA3	4GS	2GS
	4EA2-M				2LS
	4SF2				4GS
	6DY2				4LS
	6DY3				
	6EB2-E				
	6EB2-M				
	8EB2-E				
	8EB2-M				
	9DY2				
	9DY3				

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15.2 Special Access Service (Cont'd)

15.2.2 Network Channel Interface (NCI) Codes (Cont'd)

(C) Compatible Network Channel Interfaces (Cont'd)

(1) Voice Grade (Cont'd)

<u>Compatible Cis</u>		<u>Compatible Cis</u>		<u>Compatible CIs</u>	
4LO2	2LS2	4LS3	2LA2	4SF2	2LO3
	2LS3		2LB2		2LR2
	4LS2		2LC2		2LS2
	4SF2		2LO2		2LS3
	6LS2		2LO3		2RV2-T
4L03			4SF2		4AC2
	2LS2	4NO2			4DY2
	2LS3		2DA2		4LS2
	4LS2		2DE2		4RV2-T
	4SF2		2NO2		4SF2
	6LS2		4DA2		6DY2
4LR2			4DE2		6DY3
	2LR2		4NO2		6GS2
	4LR2		6DA2		9DY2
	4SF2				9DY3
4LR3		4RV2-0	2RV2-T	4SF3	2DY2
	2LR2		4RV2-T		2G03
	4LR2		4SF2		2GS2
	4SF2				2GS3
4LS		4SF2	2AC2		2LA2
	2GS		2DY2		2LB2
	4GS		2GS2		2LC2
	4LS		2GS3		2LO3
4LS2			2LA2		2LR2
	2LA2		2LB2		
	2LB2		2LC2		
	2LC2				
	2LO2				
	2LO3				

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15.2 Special Access Service (Cont'd)

15.2.2 Network Channel Interface (NCI) Codes (Cont'd)

(C) Compatible Network Channel Interfaces (Cont'd)

(1) Voice Grade (Cont'd)

<u>Compatible Cis</u>		<u>Compatible Cis</u>		<u>Compatible CIs</u>	
4SF3	2LS2	6DA	4DA2	6DY3	2DY2
	2LS3		6DA2		4DY2
	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
4TF2	2TF2	6DY2	2DY2		4SF3
			4DY2		6DY2
			6DY2		6DY3
					6EA2-E
					6EA2-M

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15.2 Special Access Service (Cont'd)

15.2.2 Network Channel Interface (NCI) Codes (Cont'd)

(C) Compatible Network Channel Interfaces (Cont'd)

(1) Voice Grade (Cont'd)

<u>Compatible Cis</u>		<u>Compatible Cis</u>		<u>Compatible CIs</u>	
6EA2-E	6EB2-E	6EA2-M	6DY2	6EB3-E	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
	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
	4LS2	6EB2-M	2DY2		4LS2
	4RV2-T		4DY2		4SF2
	4SF2		4SF2		6GS2
	4SF3		6DY2		6LS2
			6DY3		
			6EB2-M		
			9DY2		
			9DY3		

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15.2 Special Access Service (Cont'd)

15.2.2 Network Channel Interface (NCI) Codes (Cont'd)

(C) Compatible Network Channel Interfaces (Cont'd)

(1) Voice Grade (Cont'd)

	<u>Compatible Cis</u>	<u>Compatible Cis</u>	<u>Compatible CIs</u>
6EX2-B	2G03	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	6EB2-M
	4LS2	6LS2	6LS2
	4SF2	8EB2-E	8EB2-M
	6LS2	8EB2-M	9DY2
		9DY2	9DY3
6LS2	2LA2	9DY3	
	2LB2		
	2LC2		
	2LO2		
	2LO3		
	4SF2		

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15. Access Service Interfaces and Transmission Specifications (Cont'd)

15.2 Special Access Service (Cont'd)

15.2.2 Network Channel Interface (NCI) Codes (Cont'd)

(C) Compatible Network Channel Interfaces (Cont'd)

(1) Voice Grade (Cont'd)

<u>Compatible Cis</u>		<u>Compatible Cis</u>		<u>Compatible CIs</u>	
8EC2	2DY2	9DY2	2DY2	9EA3	2DY2
	4DY2		4DY2		4DY2
	4EA2-E		6DY2		4EA2-E
	4EA2-M		6DY3		4EA2-M
	4SF2		9DY2		6DY2
	6DY2	9DY3	2DY2		6DY3
	6DY3		4DY2		6EA2-E
	6EA2-E		6DY2		6EA2-M
	EA2-M		6DY3		6EB2-E
	EB2-E		9DY2		6EB2-M
	6EB2-M		9DY3		8EB2-E
	8EB2-E	9EA2	2DY2		8EB2-M
	8EB2-M		4DY2		9DY2
	9DY2		4EA2-E		9DY3
	9DY3		4EA2-M		9EA3
	9EA2		6DY2		
	9EA3		6DY3		
			6EA2-E		
			6EA2-M		
			6EB2-E		
			6EB2-M		
			8EB2-E		
			8EB2-M		
			9DY2		
			9DY3		
			9EA2		
			9EA3		

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15. Access Service Interfaces and Transmission Specifications (Cont'd)

15.2 Special Access Service (Cont'd)

15.2.2 Network Channel Interface (NCI) Codes (Cont'd)

(C) Compatible Network Channel Interfaces (Cont'd)

(2) Program Audio

<u>Compatible Cis</u>		<u>Compatible CIs</u>	
2PG2-1	2PG1-1 2PG2-1	4DS8-15E	2PG1-3 2PG2-3
2PG2-3	2PG1-3 2PG2-3	4DS8-15F	2PG1-5 2PG2-5
2PG2-5	2PG1-5 2PG2-5	4DS8-15G	2PG1-8 2PG2-8
2PG2-8	2PG1-8 2PG2-8	4DA8-15H	2PG1-1 2PG2-1

(3) Digital Data

<u>Compatible Cis</u>		<u>Compatible Cis</u>		<u>Compatible CIs</u>	
4DS8-15	4DS8-15+ 4DU5-24 4DU5-48 4DU5-56 4DU5-96 6DU5-24 6DU5-48 6DU5-96	4DU5-24	4DU5-24	6DU5-24	6DU5-24
		4DU5-48	4DU5-48	6DU5-48	6DU5-48
		4DU5-96	4DU5-96	6DU5-56	6DU5-56
		4DU8-56	4DU5-56	6DU5-96	6DU5-96

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

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15. Access Service Interfaces and Transmission Specifications (Cont'd)

15.2 Special Access Service (Cont'd)

15.2.2 Network Channel Interface (NCI) Codes (Cont'd)

(C) Compatible Network Channel Interfaces (Cont'd)

(4) High-Capacity

<u>Compatible Cis</u>		<u>Compatible Cis</u>	
4DS8-15	4DS8-15+ 4DU8-B 6DU8-8	4DU8-A,B or C	4DU8-A,B or C
4DS6-44	4DS6-44+ 4DU8-A, B or C 6DU8-A, B or C	4DS8-31	4DS8-31 4DU8-A, B or C 6DU8-A, B or C

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

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ACCESS SERVICE

16. Public Packet Data Network

16.1 Frame Relay Service

16.1.1 General

(A) General

Frame Relay Service (FRS) is a medium-speed, connection-oriented packet-switched data service that allows for the interconnection of Local Area Networks (LANs) or other compatible end user customer premises equipment. The terminal equipment accumulates the customer data and puts it into a frame relay format suitable for transmission over the FRS network.

FRS permits customers to share network bandwidth for data transmissions.

Rates and charges for FRS are set forth in Section 17.4.7(A) following. The application of rates for FRS is described in Section 16.1.2 following.

In addition to the regulations and charges specified in this section, the general regulations and charges specified in other sections of this tariff apply as appropriate.

(B) Service Description

FRS is a transport service that facilitates the exchange of variable length information units (frames) between customer connections. Frames travel a fixed path through the network with an address that specifies the permanent virtual connection. Addresses are read by the network processor, and the frames are relayed to the preassigned destination.

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16. Public Packet Data Network (Cont'd)

16.1 Frame Relay Service (Cont'd)

16.1.1 General (Cont'd)

(B) Service Description (Cont'd)

The service includes: the Access Point Link, the Frame Relay Service Port, the Virtual Link, which has associated Committed Information Rates (CIRs), and the Network Link. A special access facility (ordered out of Section 7.6 or 7.7 preceding) is used to connect to the frame relay service from a user's premise.

The Access Point Link (APL) is the physical entry point that connects a user's special access channel to the Frame Relay Service network. The APL utilizes speeds of 56/64 Kbps, 128 Kbps, 256 Kbps, 384 Kbps, 512 Kbps, or 768 Kbps, and must be ordered at a bit rate equal to the Frame Relay Service Port (except that no APL is required for a Frame Relay Service Port speed of 1.536 Mbps).

The Frame Relay Service Port (FRS PORT) connection permits FRS compatible customer premises equipment (CPE) to originate or terminate an interstate access service. Connections between customer premises equipment and the telephone company frame relay switch are available at speeds of 56 Kbps, 64 Kbps, 128 Kbps, 256 Kbps, 384 Kbps, 512 Kbps, 768 Kbps, and 1.536 Mbps. Each FRS Port connection requires the identification of a corresponding terminating port connection(s).

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16. Public Packet Data Network (Cont'd)

16.1 Frame Relay Service (Cont'd)

16.1.1 General (Cont'd)

(B) Service Description (Cont'd)

The Virtual Link (VL) is a permanent virtual circuit that connects one FRS Port to another. A VL is a software defined communications path between two port connections or a port and a network link within the FRS network. The VL must be ordered at a bit rate equal to or less than the lower bit rate of the two associated ports. The VL utilizes various speed categories of 56/64 Kbps, 128 Kbps, 256 Kbps, 384 Kbps, 512 Kbps, 768 Kbps, and 1.536 Mbps. The VL must be associated with two FRS Ports, or an FRS Port and NL, and must be ordered at a bit rate equal to the lower of the associated FRS Port or NL. One or a multiple of VL's can be associated with one FRS Port or NL.

Customers will be permitted to order multiple VLs on a given port subject to switch limitations, not to exceed 820 VL's on a given FRS port. Customers anticipating non-simultaneous transmission may order CIRs assigned to these multiple VL's, however the sum of the CIRs on those VL's may not exceed three times the bit rate of the FRS Port. This condition is referred to as oversubscription and when oversubscription occurs, there can be no guarantee that the bandwidth defined for any of those VLs will be available.

VL's are independent of FRS Ports and NLs and can have different customers as controllers. The Virtual Link is charged a nonrecurring and recurring rate for connection to the FRS Port or NL. At the time service is ordered the number of VLs will be identified along with their Committed Information Rates. Each VL is provisioned with a customer selected Committed Information Rate. The CIR is a transmission speed specified by the customer. If not specified, the bit rate of the CIR is equal to the bit rate of the VL. Otherwise, the bit rate of the CIR may range from 8 kbps up to the bit rate of the associated VL in increments of 8 kbps. The Company will provide switch capacity to permit the customer to transmit information with guaranteed delivery at the specified bit rate of the CIR.

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16. Public Packet Data Network (Cont'd)

16.1 Frame Relay Service (Cont'd)

16.1.1 General (Cont'd)

(B) Service Description (Cont'd)

The Company will permit customers to attempt to transmit at speeds up to twice the bit rate of the CIR or up to the bit rate of the FRS port, whichever is lower. Transmission above the CIR is referred to as the Excessive Information Rate (EIR) and there can be no guaranteed delivery of EIR traffic. CIRs are the bit rates at which the FRS network commits to transfer data. Committed Information Rates provide for frame relay switch throughput at designated speeds (See 16.1.2 (A) (3) following.) This information is required for network routing purposes.

The Network Link (NL) is the interexchange facility connecting a Frame Relay Service customer in one exchange of the Company to Frame Relay Service customer in another contiguous Company exchange. The NL utilizes the same speeds as the Virtual Link and must be ordered at a bit rate equal to or greater than the highest rate of the VL. The NL is non-mileage sensitive.

Connections between a user and the Frame Relay Service are provided via Channel Terminations (see Section 7.6 and 7.7, Special Access Digital Data and High Capacity Services preceding). All regulations, rates and charges as specified in Section 17.3.4 and Section 17.3.5 will apply in addition to the rates and charges associated with FRS.

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16. Public Packet Data Network (Cont'd)

16.1 Frame Relay Service (Cont'd)

16.1.1 General (Cont'd)

(C) Ordering Options and Conditions

Frame Relay Service is ordered under the Access Order provisions set forth in Section 5 preceding. Also included in that section are other charges which may be associated with ordering FRS (e.g., Service Data Change Charges, Cancellation Charges, etc.) Specific rates for these charges are set forth in Section 17.4 following. A minimum of two FRS Port connections are required for data to be transported between customer designated premises.

When placing an order for FRS the customer must specify:

- the number of Virtual Links (VLs) required. (not to exceed 820 VLs);
- the location of the ports for each VL;
- the Committed Information Rates (CIRs) that will be associated with each VL;
- that the traffic consists of more than ten percent interstate traffic.

The FRS Port connecting the special access facility to the Company frame relay switch must be ordered and provided at the same speed as the special access facility.

When connecting to the port of another customer, the ordering customer must obtain authorization from the other customer.

(D) Acceptance Testing

At no additional charge, the Company will, at the customer's request, cooperatively test at the time of installation.

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16. Public Packet Data Network (Cont'd)

16.1 Frame Relay Service (Cont'd)

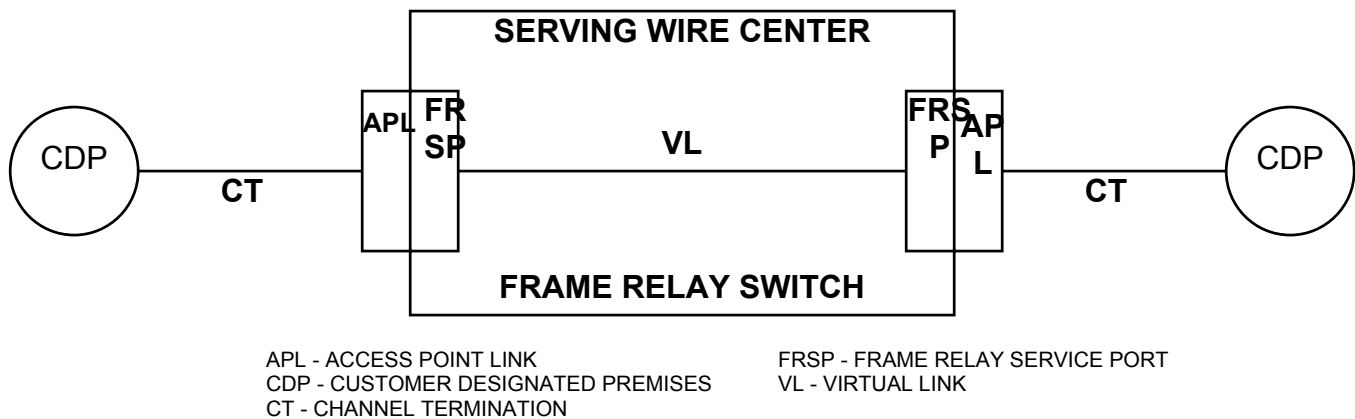
16.1.2 Rate Regulations

This section contains the specific regulations governing the rates and charges that apply for Frame Relay Service.

(A) Rate Categories

The following diagrams depict a generic view of the components of FRS and the manner in which the components are combined to provide Frame Relay Service and Interconnected Frame Relay Service.

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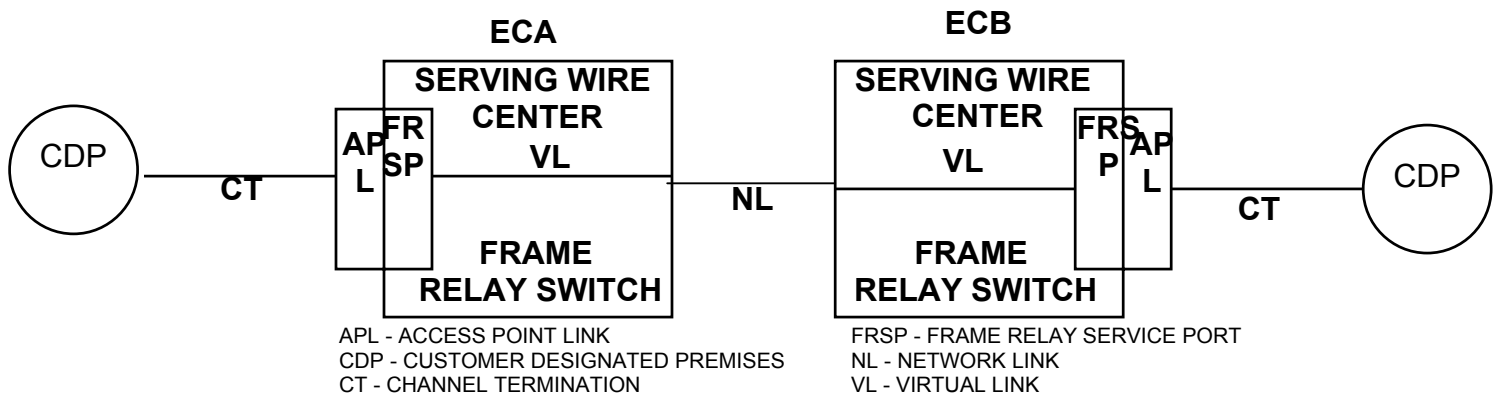
ACCESS SERVICE

16. Public Packet Data Network (Cont'd)

16.1 Frame Relay Service (Cont'd)

16.1.2 Rate Regulations (Cont'd)

(A) Rate Categories (Cont'd)

INTERCONNECTED
FRAME RELAY SERVICE

Frame Relay Service is available within all Company exchanges. It may be terminated to the frame relay services of another provider to the extent that technical compatibility and suitable service arrangements between the Company and the other provider are maintained.

(1) Access Point Link

The Access Point Link (APL) is the physical entry point that connects an end user's special access channel to the Frame Relay Service network. The APL utilizes speeds of 56/64 Kbps, 128 Kbps, 256 Kbps, 384 Kbps, 512 Kbps, or 768 Kbps, and must be ordered at a bit rate equal to the Frame Relay Service Port (except that no APL is required for a Frame Relay Service Port speed of 1.536 Mbps).

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16. Public Packet Data Network (Cont'd)

16.1 Frame Relay Service (Cont'd)

16.1.2 Rate Regulations (Cont'd)

(A) Rate Categories (Cont'd)

(2) FRS Port

The FRS Port is the physical location in the Company switching office where the special access facility of the customer connects to the FRS Network. While their cost is the same, FRS ports are designated as User Network Interface (UNI) Ports or Network to Network Interface (NNI) Ports. A UNI Port connects end user special access services and premise equipment to the FRS network. An NNI Port connects a customer's special access and compatible FRS network to the FRS network of the company. FRS Ports receive the data frame from the customer's Local Area Network or other compatible CPE device and verifies that the connection and the corresponding access customer connection is valid before relaying the frame to the destination end point.

The FRS Port consists of either a 56 Kbps, 64 Kbps, 128 Kbps, 256 Kbps, 384 Kbps, 512 Kbps, 768 Kbps or a 1.544 Mbps port interface connection. The port connecting the special access facility to the Company frame relay switch must be ordered and provided at the same speed as the special access facility.

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16. Public Packet Data Network (Cont'd)

16.1 Frame Relay Service (Cont'd)

16.1.2 Rate Regulations (Cont'd)

(A) Rate Categories (Cont'd)

(3) Virtual Link (VL)

A VL is a software defined communications path between two port connections or a port and a network link within the FRS network. The VL must be ordered at a bit rate equal to or less than the lower bit rate of the two associated ports.

Each VL is provisioned with a customer selected Committed Information Rate. The CIR is a transmission speed specified by the customer. If not specified, the bit rate of the CIR is equal to the bit rate of the VL. Otherwise, the bit rate of the CIR may range from 8 kbps up to the bit rate of the associated VL in increments of 8 kbps. The Company will provide switch capacity to permit the customer to transmit information with guaranteed delivery at the specified bit rate of the CIR. The Company will permit customers to attempt to transmit at speeds up to twice the bit rate of the CIR or up to the bit rate of the FRS port, whichever is lower. Transmission above the CIR is referred to as the Excessive Information Rate (EIR) and there can be no guaranteed delivery of EIR traffic.

Customers will be permitted to order multiple VLs on a given port subject to switch limitations, not to exceed 820 VL's on a given FRS port. Customers anticipating non-simultaneous transmission may order CIRs assigned to these multiple VL's, however the sum of the CIRs on those VL's may not exceed three times the bit rate of the FRS Port. This condition is referred to as oversubscription and when oversubscription occurs, there can be no guarantee that the bandwidth defined for any of those VLs will be available.

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16. Public Packet Data Network (Cont'd)

16.1 Frame Relay Service (Cont'd)

16.1.2 Rate Regulations (Cont'd)

(A) Rate Categories (Cont'd)

(4) Network Link (NL)

The Network Link (NL) is the interexchange facility connecting a customer in one company exchange to the frame relay service in another contiguous company exchange. The NL utilizes the same speeds as the Virtual Link and must be ordered at a bit rate equal to or greater than the highest rate of the VL. The NL is non-mileage sensitive and establishes an interexchange communications path between the FRS Port on the Company frame relay switch and the frame relay switch in another Company exchange.

(B) Types of Rates and Charges

There are two types of rates and charges. They are monthly rates and nonrecurring charges. The rates and charges are described as follows:

(1) Monthly Rates

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

(2) Nonrecurring Charges

Nonrecurring charges are one-time charges that apply for specific work activity (i.e., installation or change to an existing service). The types of nonrecurring charges that apply for FRS are: installation of service and service rearrangements. These charges are in addition to the Access Order Charge as specified in 17.4.1 following:

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16. Public Packet Data Network (Cont'd)

16.1 Frame Relay Service (Cont'd)

16.1.2 Rate Regulations (Cont'd)

(B) Types of Rates and Charges (Cont'd)

(2) Nonrecurring Charges (Cont'd)

(a) Installation of Service

Nonrecurring charges apply for the installation of VLs.

(b) Service Rearrangements

Service Rearrangements are changes to existing (installed) services.

A VL Rearrangement Charge will be applied whenever a change is made to the CIR of an existing VL after initial port installation and/or a change is made to the termination port destination of the VL. This change is equal to the VL installation charge.

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 or customer's end user contract name or telephone number, and
- Change of jurisdiction.

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16. Public Packet Data Network (Cont'd)

16.1 Frame Relay Service (Cont'd)

16.1.2 Rate Regulations (Cont'd)

(B) Types of Rates and Charges (Cont'd)

(2) Nonrecurring Charges (Cont'd)

(c) Minimum Period

The minimum period for FRS is one month and the full monthly rate will apply to the first month. Adjustments for quantities of services established or discontinued in any billing period beyond the minimum period are as set forth in Section 2.4.1 (F). The minimum period for the Frame Relay Service 1.536 Mbps port are as set forth in Section 2.4.2 and Section 5.5.1.

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16. Public Packet Data Network (Continued)

16.2 Digital Subscriber Line (DSL) Services

Contents of Section 16.2

16.2.1 ADSL SpeedLink Services

- (A) Service Description
- (B) Service Provisioning
- (C) Responsibility of the Telephone Company
- (D) Rights of the Telephone Company
- (E) Responsibility of the Customer
- (F) Technical Specifications
- (G) Rate Regulations
 - (1) Rate Elements
 - (2) Rate Application
 - (3) SpeedLink Term Pricing Plan (TPP)
 - (a) General Description
 - (b) Nonrecurring Charges
 - (c) Renegotiation
 - (d) Renewal
 - (e) Termination of Services
 - (f) Special Construction Charges

16.2.2 Telecommunications Service Provider Service Access (TSPSA)

- (A) Service Provisioning
- (B) Order Specifications and Provisions
- (C) Limitations
- (D) Rate Elements
 - (1) UNI
 - (2) NL
 - (3) VCC/VPC
 - (4) CBR
 - (5) IMA UNI
 - (6) IMA NL
- (E) Rate Application
 - (1) Monthly Rates
 - (2) Nonrecurring
- (F) Term Pricing
 - (1) General
 - (2) Service Available under TSPSA
 - (3) Terms and Conditions
 - (4) Pricing Plan Conversion
 - (5) Renewal
 - (6) Termination of a TPP

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16. Public Packet Data Network (Continued)

16.2 Digital Subscriber Line (DSL) Services (Cont'd)

General Description

This section contains the rules and regulations pertaining to the provision of TXU Digital Subscriber Line (DSL) Services. DSL services provide high-speed connections over existing copper or fiber facilities, which may also be used to provision customers' local exchange service. Current DSL offerings are limited to Asymmetrical Digital Subscriber Line Service (SpeedLink) and Telecommunications Service Provider Service Access (TSPSA). Service, provisioning, and rate information is detailed following. The regulations and rates specified herein are in addition to the applicable regulations and rates specified in other sections of this tariff.

16.2.1 ADSL Speedlink Services

(A) Service Description

Asymmetrical Digital Subscriber Line (ADSL) SpeedLink Service (SpeedLink) is an access data technology service offered in speed levels of: 1) 1.53 Mbps to 384 Kbps downstream/128 Kbps upstream and 2) 1.53 Mbps to 768 Kbps downstream/256 Kbps upstream. The Up speeds represent transmission speeds in kilobits per second (Kbps), from the point of demarcation at the customer designated premises to the Telephone Company's ADSL connection point; while the Down speeds represent transmission speeds in Kbps or megabits per second (Mbps), from the Telephone Company's ADSL connection point to the point of demarcation at the customer's designated premises. Actual speeds may be affected by loop distance and other factors. However, the Telephone Company will deliver the connection speeds between these ranges up to the point of demarcation at the customer premises.

SpeedLink service will require a splitter(s) at both the customer's designated premises and the telephone Company's serving wire center to split the traffic between data and voice. The customer is responsible for providing and maintaining the splitter(s) at the customer designated premises. The voice traffic will be routed to the serving wire center switching equipment while the data traffic will be directed through a multiplexer for connection to a Telecommunication Service Provider (TSP).

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16. Public Packet Data Network (Continued)

16.2 Digital Subscriber Line (DSL) Service (Continued)

16.2.1 ADSL SpeedLink Services (Continued)

(A) Service Description (Continued)

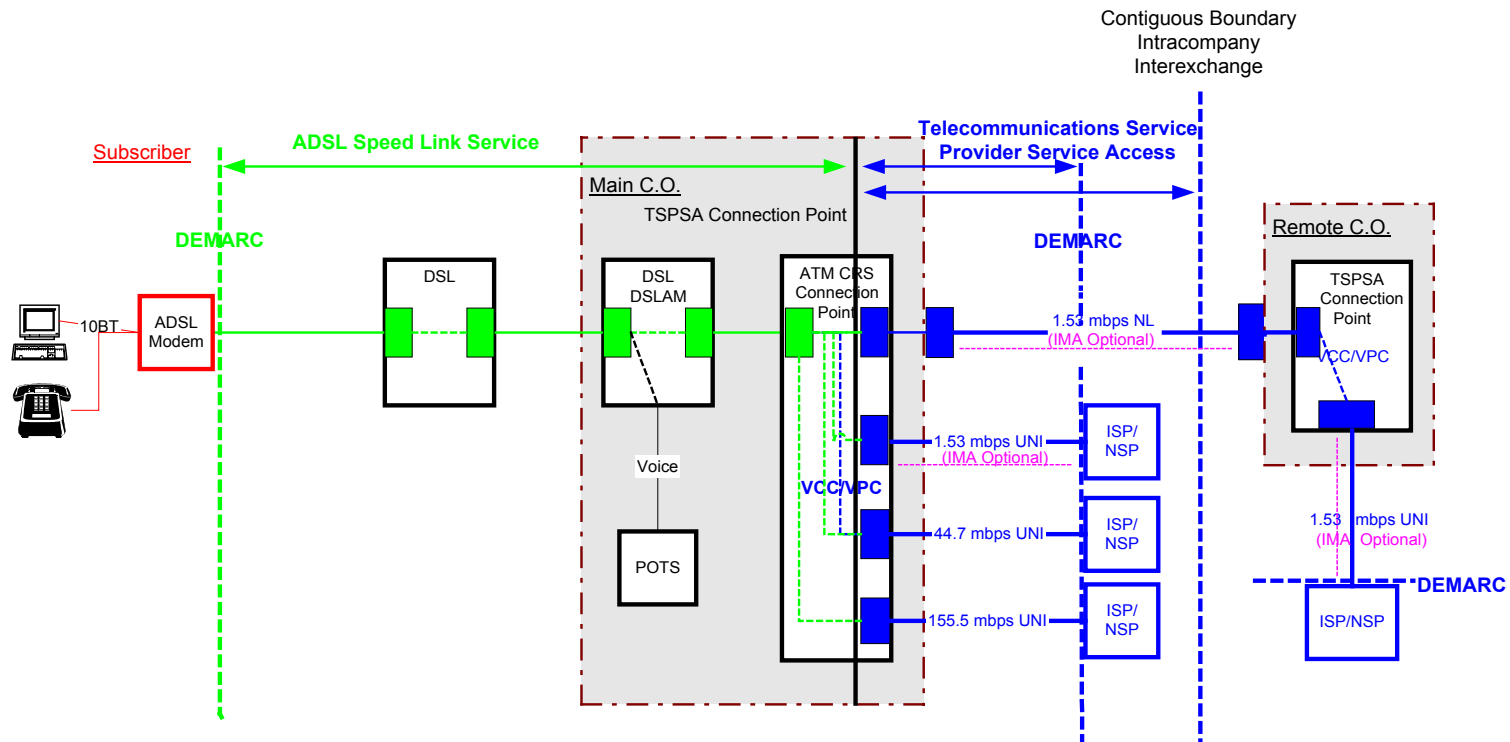


FIGURE 1

(B) Service Provisioning

The Telephone Company will qualify the local exchange service loop between the customer's designated premises and the serving wire center. The purpose of qualification is to determine the availability and suitability of existing Telephone Company facilities to provide the service. The Telephone Company will not provision this service on facilities which are not suitable for ADSL.

The Telephone Company does not undertake to originate data, but offers the use of its ADSL Technology, where available, to customers for the purpose of transporting data originated by the customer or a third party.

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16. Public Packet Data Network (Continued)

16.2 Digital Subscriber Line (DSL) Services (Continued)

16.2.1 ADSL SpeedLink Service (Continued)

(B) Service Provisioning (Continued)

Information pertaining to end offices equipped to provide ADSL SpeedLink service is set forth in the National Exchange Carrier Association, Inc. (NECA) Tariff F.C.C. No. 4. ADSL Service will be provided subject to the availability and limitations of the Telephone Company wire centers and outside plant facilities. ADSL SpeedLink service is only available where technical capabilities permit such facility distance and type of physical plant.

(C) Responsibility of the Telephone Company

The Telephone Company will provision and maintain SpeedLink Service for the customer up to the point of demarcation at the customer premise. The Telephone Company will advise the customer of any customer premises equipment (CPE) necessary to support the service that the customer will need to purchase.

(D) Rights of the Telephone Company

The Telephone Company will not provision SpeedLink service if the Telephone Company has reasonably determined that (a) it is not technically feasible over existing facilities or (b) it will cause interference problems within the Telephone Company's network or other facilities.

During the Telephone Company's network maintenance and software update period, it may be necessary to temporarily place the SpeedLink central office equipment out of service. The Telephone Company also reserves the right to temporarily interrupt SpeedLink service at other times in emergency situations.

(E) Responsibility of the Customer

The customer is responsible for providing compatible customer premises equipment (CPE) that is used for connection to SpeedLink service.

Any customer ordering SpeedLink service on behalf of another subscriber(s) must obtain a letter of agency.

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16. Public Packet Data Network (Continued)

16.2 Digital Subscriber Line (DSL) Services (Continued)

16.2.1 ADSL SpeedLink Service (Continued)

(E) Responsibility of the Customer (Continued)

The SpeedLink customer will be responsible for granting permission to the Telephone Company's agents or employees to enter the customer's designated premises at a mutually agreed upon time for the purpose of installing, inspecting, repairing, or upon termination of the service, removing the service components of the Telephone Company.

(F) Technical Specifications

Technical Specifications are listed in the Telephone Company's technical publication (TP) 76701.

(G) Rate Regulations

(1) Rate Elements

SpeedLink is available in two (2) options which are based on the downstream and upstream speed combinations chosen by the customer. These options are listed below:

	<u>Downstream Speed</u>	<u>Upstream Speed</u>
Basic (1)	1.53 Mbps - 384 Kbps	128 Kbps
Enhanced (2)	1.53 Mbps - 768 Kbps	256 Kbps

A monthly rate charge and a nonrecurring rate charge apply per SpeedLink arrangement as shown in Sect. 17.4.7(B)(1) and 18.4.7(B)(1) of this tariff. A standard service change charge as described in this tariff, will be applied per arrangement when the customer desires to select a different option in order to change bandwidth.

- (1) Customer's modem must synchronize at 128 Kbps to attain the minimum speed of 128 Kbps.
- (2) Customer's modem must synchronize at 256 Kbps to attain the minimum speed of 256 Kbps.

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16. Public Packet Data Network (Continued)

16.2 Digital Subscriber Line (DSL) Services (Continued)

16.2.1 ADSL SpeedLink Service (Continued)

(G) Rate Regulations (Continued)

(2) Rate Application

The regulations applicable to SpeedLink Service provided under Term Pricing Plan (TPP) arrangements are specified in 17.4.7(B)(1) and 18.4.7(B)(1), following.

SpeedLink service is offered for a minimum service period of 30 days. A move of SpeedLink service from one physical location to another, or a change from one speed option to another, will be handled and billed as a service disconnection and a new installation. A change from one Telecommunication Service Provider to another, with no change of service option, will be billed as a service order charge.

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16. Public Packet Data Network (Continued)

16.2 Digital Subscriber Line (DSL) Services (Continued)

16.2.1 ADSL SpeedLink Service (Continued)

(G) Rate Regulations (Continued)

(3) SpeedLink Term Pricing Plan (TPP)

(a) General Description

The SpeedLink Term Pricing Plan (TPP) provides a customer with rate stabilization and discounted tariff rates based upon a one-year term commitment selected by the customer.

Decreases in SpeedLink monthly recurring rates will be passed on to customers who participate in a TPP. Should the Telephone Company increase its rates during the TPP period, the customer will continue to pay the rates in effect at the time the customer elected to establish service under the TPP.

Terms of month-to-month and one year are available. Customers meeting the term commitment will be charged accordingly, as set forth in 17.4.7(B)(1) and 18.4.7(B)(1), following.

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16. Public Packet Data Network (Continued)

16.2 Digital Subscriber Line (DSL) Services (Continued)

16.2.1 ADSL SpeedLink Service (Continued)

(G) Rate Regulations (Continued)

(3) SpeedLink Term Pricing Plan (TPP) (Continued)

(b) Nonrecurring Charges

Nonrecurring charges as set forth in 17.4.7(B) following will apply for those arrangements ordered under a SpeedLink TPP.

(c) Renegotiation

The customer may choose to terminate an existing TPP prior to the end of the term period and negotiate a new TPP without termination liability provided the new plan meets the following requirements:

- the new TPP must represent a term commitment greater than or equal to the previous TPP,
- the new TPP must be based upon the rates that are currently in effect and available to all customers.

When the customer converts to a greater term commitment, actual time in service for the original TPP will be applied to the new TPP. However, no credits or refunds will apply for the billing of actual time in service for the previous TPP.

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16. Public Packet Data Network (Continued)

16.2 Digital Subscriber Line (DSL) Services (Continued)

16.2.1 ADSL SpeedLink Service (Continued)

(G) Rate Regulations (Continued)

(3) SpeedLink Term Pricing Plan (TPP)(Continued)

(d) Renewal

The customer must provide the Telephone Company notice of intent to renew a one-year TPP no later than 60 days prior to its expiration. The renewal rates will be the rates that are currently in effect and available to all customers. If the customer elects not to renew the TPP, or does not notify the Telephone Company of its intent to renew the TPP, the customer's service will automatically be billed under the tariffed month-to-month rates in effect at the time the TPP expires.

(e) Termination of Service

Customers requesting the termination of an TPP prior to the expiration date, excluding TPP terminated as a result of a renegotiation, will be charged the difference between the one year monthly rate and the month-to-month rate times the number of months they used the service.

For example, a customer with Basic SpeedLink and a one-year TPP disconnects after seven months.

The customer would pay a termination liability of: \$161.00
 \Rightarrow (Basic SpeedLink month-to-month rate (\$45.00) minus the one year TPP rate (\$22.00) = \$23 per month x 7 months)

(f) Special Construction Charges

Any special construction charges incurred for services billed under a TPP will be negotiated and billed on an individual case basis.

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16. Public Packet Data Network (Continued)

16.2 Digital Subscriber Line (DSL) Services (Continued)

16.2.2 Telecommunication Service Provider Service Access (TSPSA)

General Description

Telecommunication Service Provider Service Access (TSPSA) is a fast packet, cell based service technology which can support applications requiring high bandwidth, high performance transport and switching. TSPSA allow customers who have requirements for high speed, inter-premises connectivity to interconnect their multiple locations via a User-Network Interface (UNI) element from the customer's premises to the Telephone Company's serving wire center; or via a Network Link (NL) element with UNI for interconnection between contiguous exchanges within the Telephone Company's serving area.

TSPSA operates using standard cell relay signaling protocol. TSPSA provides high-speed, low-delay networking capabilities suited for bandwidth intensive data, voice or video business applications that require near-real-time communication support among multiple locations.

Customers may expand the capabilities of TSPSA by ordering Inverse Multiplexing for User Network Interface (IMA UNI). IMA UNI allows customers to send multiple streams of traffic requiring bandwidth greater than a 1.53 Mbps, but less than 44.7 Mbps to the ATM network. The customer must provide an access device capable of the IMA function. This CPE must be located at the customer's premises.

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16. Public Packet Data Network (Continued)

16.2 Digital Subscriber Line (DSL) Services (Continued)

16.2.2 Telecommunication Service Provider Service Access (TSPSA) (Continued)

(A) Service Provisioning

- (1) Provisioning of this service is subject to the availability and operational limitations of the Telephone Company's equipment and associated facilities. Provisioning of this service is limited to locations within the service area of the telephone company.
- (2) TSPSA requires the use of CPE that functions as a multiplexer, bridge or router. The CPE must be compatible with the Telephone Company's equipment and facilities and must conform to industry standards and specifications set forth in the Telephone Company's technical publications (TPs) 76625, 76839 and 76700.
- (3) The Telephone Company will provision TSPSA up to and including the network interface located on the customer's premises. The placement of the network interface shall be located in a manner consistent with federal and state regulatory requirements. This location will be at each customer's premises unless specified otherwise and agreed to by the Telephone Company.
- (4) When a customer requires the modification of standard service components not otherwise provided in this tariff, the modification may be furnished at the option of the Telephone Company as specified in Section 12, Specialized Service or Arrangements.

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16. Public Packet Data Network (Continued)

16.2 Digital Subscriber Line (DSL) Services (Continued)

16.2.2 Telecommunication Service Provider Service Access (TSPSA) (Continued)

(A) Service Provisioning (Continued)

- (5) The customer shall be responsible for obtaining permission for the Telephone Company's agents or employees to enter the customer's premises at a mutually agreed upon time for the purpose of installing, inspecting, repairing or, upon termination of the service, removing the equipment of the Telephone Company.
- (6) Network equipment installed by the Telephone Company on the customer's premises shall remain the property of the Telephone Company. The customer or user may not rearrange, disconnect, remove, attempt to repair, remote test or interface with any network equipment installed by the Telephone Company without the prior written consent of the Telephone Company.
- (7) When the TSPSA is used in connection with CPE, the operating characteristics of such CPE must not interfere with the Telephone Company's network. CPE must not:
 - (a) endanger the safety of the Telephone Company's employees or the public;
 - (b) damage, harm, require change in or alteration of the equipment or other services of the Telephone Company;
 - (c) or interfere with the proper operation of the Telephone Company's equipment.

Upon notice from the Telephone Company that the equipment provided by the customer or user is causing, or is likely to cause, such hazard or interference, the customer shall take such steps as shall be necessary to remove or prevent such hazard or interference.

- (8) The services provided under this tariff are provided over such routes and facilities as the Telephone Company may elect. Requests for special facilities or routing will be provided in accordance with Section 11, of this tariff.

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16. Public Packet Data Network (Continued)

16.2 Digital Subscriber Line (DSL) Services (Continued)

16.2.2 Telecommunication Service Provider Service Access (TSPSA) (Continued)

(B) Ordering Specifications and Provisions

- (1) The customer will access the TSPSA network, where facilities exist, via a minimum of one UNI or NL, for each customer premises or network end point as detailed below:

- (a) UNI – the point of interconnection between the Telephone Company's communications facilities and the CPE. The UNI is provided using standard cell relay User-Network Interface signaling protocol. The UNI includes the facility and port access into the Telephone Company's network.

The customer must select one of the following interfaces and applicable bandwidths for each UNI:

- 1.53 Mbps UNI is available in bandwidths to 1.5 Mbps;
- 44.7 Mbps UNI is available in bandwidths up to 40 Mbps; and
- 155.5 Mbps UNI is available in bandwidths up to 144 Mbps.

- (b) A Network Link (NL) is an optional element that may be purchased for an additional charge to establish a dedicated link between the telephone company facilities located in contiguous exchanges. NL service is available at 1.53 Mbps only and cannot be purchased without an associated UNI.

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16. Public Packet Data Network (Continued)

16.2 Digital Subscriber Line (DSL) Services (Continued)

16.2.2 Telecommunication Service Provider Service Access (TSPSA) (Continued)

(B) Ordering Specifications and Provisions

- (2) The Virtual Channel Connections (VCC), and Virtual Path Connections (VPC) define paths across the Telephone Company's TSPSA network. The customer must indicate the VCC/VPC bandwidth, designate the connection and select the preferred bit rate enforcement (CBR or UBR) when ordering.

- (a) Each VCC/VPC consumes a portion of a UNI interface bandwidth. The following VCC/VPC bandwidth selections are available for the TSPSA:

- 1.53 Mbps available in increments of 64 Kbps up to 1500 Kbps,
- 44.736 Mbps available in increments of 1 Mbps up to 40 Mbps, and
- 155.5 Mbps available in increments of 1 Mbps up to 148 Mbps.

VCC is a logical connection that exists between one TSPSA switch port and another TSPSA switch port. VPC is a group of logical connections that exists between one TSPSA switch port and another TSPSA switch port. A VPC connection typically is used to route multiple, customer-defined VCCs as a group. It is the customer's responsibility to configure and maintain the individual VCCs within a VPC connection.

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16. Public Packet Data Network (Continued)

16.2 Digital Subscriber Line (DSL) Services (Continued)

16.2.2 Telecommunication Service Provider Service Access (TSPSA) (Continued)

(B) Ordering Specifications and Provisions (Continued)

(2) (Continued)

(b) The Telephone Company will provision bit rate enforcement on each VCC/VPC as selected by the customer. A VCC/VPC may be designated as Constant Bit Rate (CBR) or Unspecified Bit Rate (UBR):

- CBR supports applications that are delay sensitive, such as voice and some types of video. CBR is offered as a premium service for an additional charge as set forth in 17.4.7(B) and 18.4.8(B), Monthly Rates and Nonrecurring Charges, following.
- UBR supports applications that generate bursty and time-varying traffic. UBR is included in the basic TSPSA, where facilities exist.

(3) Inverse Multiplexing for User Network Interface (IMA UNI)

The IMA UNI enables the aggregation of various speed, multiple traffic streams, conversion to ATM cells and distribution across multiple DS1s. IMA UNI must be provisioned over copper DS1s and includes the port access.

The customer must specify the speed for the IMA UNI. IMA UNI is available at the following speeds: 3 Mbps, 4.5 Mbps, 6 Mbps and 12 Mbps.

(4) Inverse Multiplexing for Network Link (IMA NL)

The IMA NL enables the aggregation of various speeds, multiple traffic streams, conversion to cell relay cells and distribution across multiple DSIs. IMA NL includes port access and is available at the following speeds: 3 Mbps, 4.5 Mbps, 6 Mbps, and 12 Mbps. The customer must specify the desired speed.

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16. Public Packet Data Network (Continued)

16.2 Digital Subscriber Line (DSL) Services (Continued)

16.2.2 Telecommunication Service Provider Service Access (TSPSA) (Continued)

(C) Limitations

- (1) The Telephone Company does not undertake to originate data, but offers the use of its service elements, where facilities exist, to customers for the purpose of transporting customer originated data.
- (2) The responsibility of the Telephone Company shall be limited to furnishing the TSPSA network. Subject to this responsibility, the Telephone Company shall not be responsible for the through transmission of signals generated by the CPE or for the quality of, or defects in, such transmission or the reception of signals by the CPE
- (3) The Telephone Company undertakes the responsibility to maintain and repair the service it furnishes.

The Telephone Company will provide the customer reasonable notification of service-affecting activities that may occur in the normal operation of its business. Such activities may include, but are not limited to, routine preventative maintenance and major switching machine change-outs, equipment additions and removals or rearrangements. The Telephone Company will work cooperatively with the customer to determine the notification requirements.

Maintenance of Service regulations and charges are set forth in 13.3.2, Maintenance of Service, for customer reported trouble.

The Telephone Company may request additional customer information as may be required to permit the Telephone Company to maintain the TSPSA network and to ensure that the service arrangement is in compliance with regulations contained in this section.

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16. Public Packet Data Network (Continued)

16.2 Digital Subscriber Line (DSL) Services (Continued)

16.2.2 Telecommunication Service Provider Service Access (TSPSA) (Continued)

(C) Limitations (Continued)

- (4) The Telephone Company shall not be responsible for error correction. TSPSA switches may discard frames with errors. The switches may also discard frames when the network supporting TSPSA is in a state of congestion.
- (5) The Telephone Company shall not be responsible for installation, operation, maintenance or adapting the TSPSA to the technological requirements of any specific CPE.
- (6) The Telephone Company shall not be responsible to the customer or user if changes in any of the equipment, operations or procedures of the Telephone Company used in the provision of TSPSA render any facilities provided by the customer or user obsolete or require modification or alteration of such equipment or system or otherwise affect its use or performance, provided the Telephone Company has met any applicable information disclosure requirements otherwise required by law.

(D) Rate Elements

The following describes the rate elements available for TSPSA. Specific rates and charges for these elements are set forth in 17.4.7 and 18.4.8 of this tariff.

(1) User-Network Interface (UNI)

The UNI rate element is a standard defined User-Network Interface which offers customer access to the TSPSA network. This element includes the facility from the customer premises, and the port access.

UNIs are offered, where Telephone Company's facilities exist, at the following rates: 1.53 Mbps with bandwidths up to 1.5 Mbps; 44.7 Mbps UNI with bandwidths up to 40 Mbps; 155.5 Mbps UNI with bandwidths up to 144 Mbps.

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16. Public Packet Data Network (Continued)

16.2 Digital Subscriber Line (DSL) Services (Continued)

16.2.2 Telecommunication Service Provider Service Access (TSPSA) (Continued)

(D) Rate Elements (Continued)

(1) UNI (Continued)

A monthly rate and nonrecurring charge applies for each UNI installed from the customer's network interface to the central office based TSPSA switch.

(2) Network Link (NL)

A Network Link (NL) is an optional element that may be purchased for an additional charge to establish a dedicated link between two central office based TSPSA switches. A NL cannot be purchased without an associated UNI and is available at 1.53 Mbps only.

(3) Virtual Channel Connection/Virtual Path Connection (VCC/VPC)

The VCC/VPC rate element provides virtual connections between a customer's UNIs.

A monthly rate and nonrecurring charge applies for each VCC or VPC element provisioned for a customer's UNI or NL.

(4) Constant Bit Rate (CBR)

The CBR rate element supports applications where variable delays in transmission would negatively impact the information content. VCC/VPCs provisioned with CBR are intended for applications requiring minimal delay variation and loss.

An additional monthly rate and nonrecurring charge applies for each VCC/VPC bandwidth increment provisioned with CBR.

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16. Public Packet Data Network (Continued)

16.2 Digital Subscriber Line (DSL) Services (Continued)

16.2.2 Telecommunication Service Provider Service Access (TSPSA) (Continued)

(D) Rate Elements (Continued)

(5) Inverse Multiplexing for User Network Interface (IMA UNI)

The IMA UNI enables the aggregation of various speed, multiple traffic streams, conversion to cell relay cells and distribution across multiple DS1s. IMA UNI must be provisioned over copper DS1s and includes the port access. The customer must specify the speed for the IMA UNI. IMA UNI is available at the following speeds: 3 Mbps, 4.5 Mbps, 6 Mbps and 12 Mbps.

(6) Inverse Multiplexing for Network Link (IMA NL)

The IMA NL enables the aggregation of various speeds, multiple traffic streams, conversion to cell relay cells and distribution across multiple DSIs. IMA NL includes port access and is available at the following speeds: 3 Mbps, 4.5 Mbps, 6 Mbps, and 12 Mbps. The customer must specify the desired speed.

(E) Rate Applications

There are two types of rates and charges that apply to the various rate elements for TSPSA. These are monthly recurring rates and nonrecurring charges.

(1) Monthly Rates

Monthly Rates are fixed recurring rates that apply each month, or fraction thereof, that a specific rate element is provided. For billing purposes each month is considered to have thirty (30) days.

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16. Public Packet Data Network (Continued)

16.2 Digital Subscriber Line (DSL) Services (Continued)

16.2.2 Telecommunication Service Provider Service Access (TSPSA) (Continued)

(E) Rate Applications (Continued)

(2) Minimum Period

TSPSA is provided for a minimum period of one year. When service is disconnected prior to the expiration of the one (1) year minimum period or the optional three (3) year term period, monthly charges are applicable for the balance of the period ordered by the customer.

If service is disconnected after the one or three year period ordered, monthly charges will be based on the actual number of days the service is furnished. In order to determine the charges for a fractional portion of a month, a month is considered to have 30 days.

Monthly recurring rates are applicable to TSPSA rate elements described in 16.2.2(D), preceding.

(3) Nonrecurring Charges

Nonrecurring charges are one-time charges applicable for the installation of each UNI, NL, VCC, VPC, IMA UNI, and IMA NL.

In addition to the installation of service charge, a nonrecurring order charge will apply as specified in Section 17.4.7(B) and 18.4.8(B), following.

A change that cannot be supported by the bandwidth of the existing service connection will require a new service connection.

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16. Public Packet Data Network (Continued)

16.2 Digital Subscriber Line (DSL) Services (Continued)

16.2.2 Telecommunication Service Provider Service Access (TSPSA) (Continued)

(F) Term Pricing Plan (TPP)

(1) General

TSPSA-Term Pricing Plan (TPP) provides the customer with rate stabilization and discounted tariff rates. The TSPSA-TPP provides for a one or three year service period for rate stabilization. Charges for the one and three year plans are specified in 17.4.7(B) and 18.4.8(B) following.

TSPSA TPP annual/or three year rates will be exempt from Telephone Company initiated rate increases throughout the selected service period. Should the Telephone Company increase its rates during the TSPSA-TPP service period, the customer will continue to pay the rates in effect at the time the customer elected to establish service under TSPSA-TPP.

(2) Service Available under TSPSA-TPP

A customer may elect to participate in an TSPSA-TPP for UNI, IMA UNI, NL and IMA NL rate elements. No term period is required or available for VCC, VPC, or CBR rate elements.

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16. Public Packet Data Network (Continued)

16.2 Digital Subscriber Line (DSL) Services (Continued)

16.2.2 Telecommunication Service Provider Service Access (TSPSA) (Continued)

(F) Term Pricing Plan (TPP) (Cont'd)

(3) Terms and Conditions

The customer must specify the length of the service period at the time the TSPSA-TPP is established.

(4) Pricing Plan Conversion

The customer may request an existing TSPSA provided on a one (1) year plan be converted to a three (3) TPP.

Prior to the expiration of the original service period, the customer may convert an existing TSPSA-TPP service period to a new service period without incurring termination charges provided the new service period is equal to or greater than the remaining portion of the original service period.

When the customer converts to a greater term commitment, actual time in service for the original TPP will be applied to the new TPP. However, no credits or refunds will apply for the billing of actual time in service for the previous TPP.

(5) Renewal

The customer must provide the Telephone Company notice of intent to renew a one-year TPP no later than 60 days prior to its expiration. The renewal rates will be the rates that are currently in effect and available to all customers. If the customer elects not to renew the TPP, or does not notify the Telephone Company of its intent to renew the TPP, the customer's service will automatically be billed under the tariffed month-to-month rates in effect at the time the ADSL-TPP expires.

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16. Public Packet Data Network (Continued)

16.2 Digital Subscriber Line (DSL) Services (Continued)

16.2.2 Telecommunication Service Provider Service Access (TSPSA) (Continued)

(F) Term Pricing Plan (TPP) (Cont'd)

(6) Termination of a TPP

Customers requiring the termination of a TPP prior to the expiration date, excluding any TPP terminated as a result of a pricing plan conversion will be charged in full for the remaining months of the term plan ordered. Customers terminating a three (3) year TPP prior to expiration will also be charged for any difference between one (1) year and three (3) year installation charges.

For example, a customer with 1 - 1.53 UNI port and a three (3) year TPP who disconnects after 24 months would pay a termination liability of \$7800.00.

(1.53 UNI port @ \$600.00/mo. X 12 mos. = \$7200.00
Difference between one (1) year and three (3) year installation = \$600.00).

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