LOCAL EXCHANGE SERVICE
INTEGRATED SERVICES DIGITAL NETWORK

A. OVERVIEW

Today's communications network involves many special networks, physical transmission facilities, and controllers of various types, including computer. ISDN provides integrated access to circuit-switched networks in which all the various needs of the independent networks can be accommodated by a single transport network that handles both voice and data traffic. This single transport network is designed to provide a single communication interface for the customer so that terminal equipment can be plugged into an outlet as easily as a plain old telephone service (POTS) telephone is plugged in. (D)

There is one interface that defines the connectivity between switching equipment and customer equipment: (T)

Primary Rate Interface (PRI) (D)

B. DEFINITIONS

B (Bearer) Channel

An ISDN B-Channel is a bi-directional synchronous channel capable of supporting digitized circuit-switched voice (CSV) communications at speeds up to 64 Kbps, between the customer's premises and the Company's central office. (T)

B-Channel Circuit-Switched Data

Circuit-switched data provides the capability of placing data calls over the public switched network. Information is transmitted in the same manner as digitized voice. Like a voice call, a circuit-switched data call ties up network/system resources for the duration of the call. Calling Line Identification functionality is provided on circuit-switched data calls.

B-Channel Alternate Circuit-Switched Voice/Data

Allows the user to originate and receive either voice calls or data calls over a single circuit-switched B Channel, but not simultaneously. (D)

Channel

The electrical path provided by the Company between two or more points for the transmission of voice or data communications.

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B. DEFINITIONS (Cont'd)

Clear Channel Capability
The capability to transport 64 Kbps over a channel with no constraint on the quality or on the sequence of bits. When a clear channel call is switched through non-ISDN offices, the call may be subrated to 56 Kb digital or analog service.

D (Delta) Channel
The Packet-switched channel on a PRI at 64 Kbps that carries signaling messages and packet-switched user data. (T)

(D)

D Channel Packet Switched Data
Multiple data calls can be active simultaneously on a single D-Channel. (T)

(D)

DSL – Digital Subscriber Line (See PRI Description) (T)

Integrated Services Digital Network (ISDN)
ISDN provides end-to-end digital communications and gives the ability to transmit voice and data over the same telephone line simultaneously. A customer can send information from a computer and talk to the person on the other end of the line at the same time. This functionality is provided by channelized transport facilities.

(D)

PRI-Primary Rate Interface
The ISDN PRI combines 23 B-channel and one 64 Kbps D-Channel on a single line. Also called the extended Digital Subscriber Line.

(D)

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C. SERVICE DESCRIPTION

ISDN is offered via a channel structure known as "Primary Rate Interface (PRI)." PRI uses channels called "B" or Bearer channels and "D" or Delta channels. The B channel provides a transmission path for user information, such as voice and data, while the D channel carries signaling information and packet data. (T)(D)

Each B channel is a 64 kilobit per second (Kbps) clear channel connection. The D channel is a 16 Kbps packet channel that is used to send and receive call set-up and signaling messages to the terminal equipment (customer premises equipment), and carry limited packet data.

(D)

1. PRI – Primary Rate Interface
The basic PRI includes twenty three B channels and one D channel (23B+D). However, it can be configured to include multiple D channels, and up to a maximum of 479 B channels. The PRI supports for the following:

PRI – Primary Rate Interface (M)

- Non-Facility Associated signalizing (NFAS) – allows multiple DSI facilities to be controlled by a single PRI D channel.
- PRI D-Channel Backup (DCBU) – this capability can only be assigned to a NFAS group and allows a customer access to the network even if the "active" D-channel were to fail. This is accomplished by transferring signalizing information to the "standby" D-channel.
- Fractional DSI Switching (N x DS0) Via PRI – allows a multi-bearer service capability by switching multiple rates of 64 Kbps (i.e., N x DS0 – where N is greater than 2 and less than or equal to 24).
- Dedicated – the entire trunk group is dedicated to a specific service (data, 800 service, DID, etc.)
- Call-by-call – different types of service can be included in the same trunk group (IXC access, OUTWATS, DOD, etc.). Any call can be used for any service as long as there are available facilities (both B channels and service type) for the call.

B-channel

- 64 Kbps per channel
- Voice or data
- Circuit-switched
- Up to 479 channels per PRI (using multiple physical connections) defined as required for customer usage where facilities permit.

D-channel

- 1 is required, 2 if optional back-up selected and more than one physical link is used.
- 64 Kbps per channel
- Control and signaling messages

PRI ISDN is usually provisioned using one or more T-1 facilities.

RESERVED FOR FUTURE USE

(D)

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D. TERMS AND CONDITIONS

1. General

a. The customer or customer's authorized agent will be responsible for the procurement of associated customer designated premises equipment and will ensure compatibility with the ISDN digital switch serving the customer.

b. Reserved for Future use

c. The Company shall terminate ISDN Service at the Company network interface (NT-1).

d. Should any change in CPE or inside wiring not owned by the Company require the Company to redesign ISDN service, the customer shall reimburse the Company for all costs incurred by the Company in making such a change. Should ISDN service fail due to CPE, inside wiring (including riser cable) not owned by the Company, or power failure the responsibility for failure shall be solely that of the customer and the Company shall have no liability of any kind.

e. The customer is responsible for placement, installation, operation, maintenance, repair and replacement of all CPE and inside not owned by the Company that the customer uses in connection with this service. CPE and premises wiring must be compatible with the Company's provision of ISDN Service. The customer is responsible for programming all features and functions into the ISDN CPE. The Company will perform this service on a Time and Charges Basis at the customer's request.

f. If an ISDN service interruption, disconnection, error, performance failure, or out-of-service condition occurs, and lasts for more than 24 consecutive hours after the customer notifies the Company of the condition, an out-of-service credit will be applied to the customer's bill. Should the condition be caused by actions of the customer, CPE, inside wiring and/or interface no credit will be applied. This service will be based on a 30 day month and shall be calculated by dividing the monthly rate for the service affected by 30 days and then multiplying that daily rate by the number of days, or major fraction thereof, that the service was interrupted. This will be the customer's sole remedy. (D)