



AM-TR-TMO-000106

Service Description and Interface Requirements For Ameritech FT-1 Digital Service

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1. INTRODUCTION

1.1. *General*

This document describes the Frictional T-1 (FT-1) Access Service offered by Ameritech. This service provides the customer with 128, 256 or 384 kilobits per second (Kbps) of usable bandwidth.

1.2. *Purpose*

The purpose of this document is to provide customers, service providers, and equipment manufacturers with a description of the service, and operational characteristics and interface requirements for Ameritech FT-1 Service.

1.3. *Reason for Reissue*

This document is reissued to change the name of this service and to include two additional speeds, correct minor typographical and grammatical errors, and to include a section on the application of Channel Idle Code signals.

1.4. *Usable Bandwidth*

This section provides the customer with 128 Kbps, 256 Kbps or 384 Kbps of usable bandwidth presented in a 1.544 Megabits per second (Mbps) envelope at the Network Interface (NI). The 1.544 Mbps envelope is a standard DS-1 signal, described in TR-NPL-000054, Issue 1, April 1989, "High Capacity Digital Service (1.544 Mb/s) Interface Generic Requirements for End Users," and TR-INS-000342, Issue 1, "High Capacity Digital Special Access Service Transmission Parameter Limits and Interface Combinations," February 1991. Available interface options and combinations are shown in AM-TR-TMO-000080, Issue 1, February 1992, "NC/NCI Compatibility Overview."

2. SERVICE DESCRIPTION

2.1. *Overview*

Ameritech FT-1 Access Service provides a channel for four-wire duplex transmission of synchronous serial data at 128, 256 or 384 Kbps. The channel provides a synchronous service; in certain situations timing must be provided by Ameritech. Ameritech FT-1 service will be provided between two customer designated premises, or between a customer designated premises and an Ameritech Serving Wire Center (SWC) where multiplexing or crossconnection functions are performed. Ameritech FT-1 is available with the DS-1 Superframe Format (SF), Pre-American National Standards Institute (Pre-ANSI) Extended Superframe Format (ESF) or

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the ANSI ESF framing formats. DS-1 Clear Channel Capability (CCC) using the Bipolar with 8 Zero Substitution (B8ZS) line code protocol is required.

2.2. Architecture

Individual customer signals to and from customer owned Channel Service Units/Data Service Units (CSU/DSU) are connected to the four-wire local loop at the Network Interface (NI). These signals are transported over the local loop to the SWC where they may be connected to the interoffice (I/O) network for further transport. Alternatively, they may be connected to other customer designated services, e.g., Ameritech DS-3 service equipped with DS-3 to DS-1 multiplexing.

2.3. Service Performance Parameters

Ameritech FT-1 Minimum Performance Expectations:

Percent Error Free Seconds (EFS):	99.75%
Errored Seconds (ES) per day:	216
Availability (12 months):	99.925%

2.3.1. Service Performance Parameters

This TR is written with a focus on access services application. In order to apply the performance parameter objectives listed herein to IntraLATA Private Line Services, the end-to-end objectives may be calculated using a connection model which allocates 50% to each of the two end link segments to develop the overall objective.

3. NETWORK CAPABILITY

3.1. General

The following sections of this document outline the NI for Ameritech FT-1. Additional details and information may be found in TR-NPL-000054 and TR-INS-000342.

3.2. Customer Premises (End User) Interface

The End User (EU) NI will be four-wire (non-loaded, if copper) DS-1 electrical interface. The line signals will conform to the DS-1 signals with B8ZS option detailed in TR-NPL-000054. Line Power is not supported.

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3.3. Access Interface

The Access NI will be a four-wire DS-1 electrical interface. The line signals will conform to the DS-1 signals with B8ZS option detailed in TR-INS-000342.

3.4. Time Slot Assignment

The Ameritech FT-1 signal will always be located in time slots 1 through 6, starting with time slot 1, of the DS-1 signal at Network Interface.

3.5. Idle Code

The unassigned time slots of the DS-1 signal (7-24) must contain an all one's (1's) Idle Code.

4. NETWORK CHANNEL AND NETWORK CHANNEL INTERFACE CODES

4.1. General

Network Channel (NC) codes describe, in standard format, the characteristics of the service channel. Network Channel Interface (NCI) codes describe the physical and electrical characteristics of the NI. These coding schemes are fully described in Bellcore Special Report SR-STIS-000307, Industry Support Interface (ISI): NC/NCI Code Dictionary. This section contains the codes currently available for Ameritech FT-1 service.

4.2. NC Codes

The NC codes currently available for Ameritech FT-1 service are shown in Table A.

Table 1.
TABLE A: NC CODES

NC CODE	OPTION CODE CHAR 3	OPTION CODE CHAR 4
HX	Z (B8ZS)	B (128)
		D (256)
		F (384)

4.3. NCI Code

NCI codes describe the NI. Table B shows the currently available NCI codes for Ameritech FT-1 service.

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Table 2.
TABLE B: NCI CODES

NC CODE	DESCRIPTION
04DS9.15B	SF and B8ZD (CCC)
04DS9.15S	Pre-ANSI ESF and B8ZS (CCC)
04DS9.1S	ANSI ESF and B8ZS (CCC)
04DU9.DN	SF and B8ZS (CCC) without line power
04DU9.SN	ANSI ESF and B8ZS (CCC) without line power
04DU9.1SN	

NOTE: The codes selected for each NI must be compatible. Compatible DS-3 interface codes may be used at one NI, when the service is connected to a channel of a DS-3 service.

4.4. Access Interface (Network Interface Codes 04DS9, 15B, 15S, 1S)

APPLICATION: 128, 256 OR 384 Kbps Service at IC-POT

PHYSICAL DESCRIPTION: DSX-1 frame or equivalent

ELECTRICAL FEATURES:

 IMPEDANCE: 100 ohms

 LEVELS: See Bellcore PUB TR-INS-000342

 DATA RATE: 1.544 Mbps (DS1).

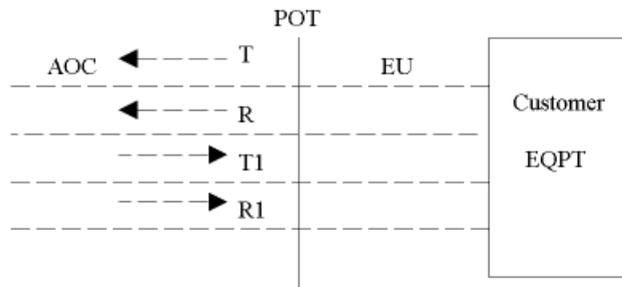
OPERATING MODE: SF, Pre-ANSI ESF, ANSI ESF, Plus B8ZS

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Figure 1. ACCESS INTERFACE

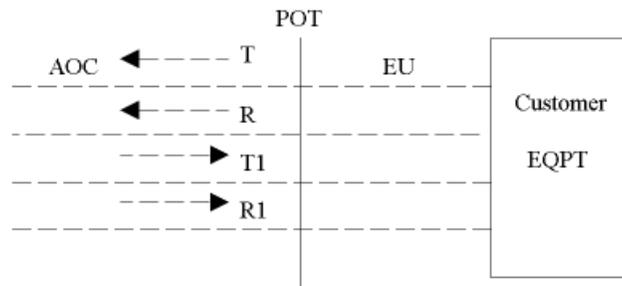


4.5. End User Interface (Network Interface Codes 04DU9.DN, SN, 1SN)

APPLICATION:	128, 256 OR 384 Kbps Service at EU-POT
PHYSICAL DESCRIPTION:	Four-Wire (T, R, T1, R1) RJ48C Jack
ELECTRICAL FEATURES:	
IMPEDANCE:	100 ohms
LEVELS:	See Bellcore PUB TR-INS-000054
DATA RATE:	1.544 Mbps (DS1).
OPERATING MODE:	SF, Pre-ANSI ESF, ANSI ESF, Plus B8ZS
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Figure 2. END USER INTERFACE**5. REFERENCES**

1. Telcordia (formerly Bellcore) Pub TR-NPL-000054, Issue 1, April 1989.
High Capacity Digital Service (1.544 Mb/s) Interface Generic Requirements for End Users.
2. Telcordia (formerly Bellcore) Pub TR-INS-000342, Issue 1, February 1991.
High Capacity Digital Special Access Service Transmission Parameter Limits and Interface Combinations.
3. Telcordia (formerly Bellcore) Special Report SR-STC-000307, Issue 2, December 1990. Industry Support Interface (IS): NC/NCI code Dictionary.
4. Ameritech Pub AM-TR-TMO-000080, Issue 1, February 1992. NC/NCI Compatibility Overview.

6. ORDERING INFORMATION

Readers are advised to check current status availability of all documents.

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7. ACRONYMS

ANSI	American National Standards Institute
B8ZS	Bipolar with 8 Zero Substitution
CCC	Clear Channel Capability
CSU	Channel Service Unit
DSU	Data Service Unit
ESF	Extended Superframe Format
I/O	Interoffice
ISI	Industry Support Interface
Kbps	Kilobits per second
Mbps	Megabits per second
NC	Network Channel
NCI	Network Channel Interface
NI	Network Interface
SF	Superframe (d-4) Format
SWC	Serving Wire Center

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