SECTION 4 INTERFACE SPECIFICATIONS

4.1 INTRODUCTION

This section contains the interface specifications for the DS1/DS3 ATM Interface. This information is listed in Tables 4-1 and 4-2.

Table 4-1. DS1 Specifications

Item		Specification
Framing Modes:		D4 or ESF
Operating Modes:		Normal (originate) Line loopback Self loopback
T1 Input:	Frequency:	1.544 MHz ±100 ppm
	Line Termination:	TERM = 100 Ω ± 5% DSX-MON = 100 Ω ± 5% BRIDGE = 1000 Ω minimum
	Recovery range:	TERM = +6 to -35 dBdsx cable loss DSX-MON = -10 to -30 dBdsx resistive loss
	Jitter Tolerance:	Complies with Bell Technical Reference PUB 62411-1985
	Line Codes:	AMI B8ZS
T1 Output:		
	Clock Sources:	Recovered (from receiver) External (via interface front panel BNC connector) Internal (1.544 MHz ± 5 ppm oscillator)
	LBO Options:	0, -7.5, -15, -22.5 dB ± 1 dB at 772 kHz
	Output Pulse:	per: AT&T PUB 41541
	Pulse Amplitude:	3.0V ± 5% into 100 Ω
Indicators:		
	FRM SYNC LED	DS1 frame synchronization achieved
	ALM1 LED	Yellow alarm received
	ALM2 LED	Alarm Indication Signal (AIS) received
	CODE LED	B8ZS line code detected
Error Insertion Types:		
	HEC-C (correctable)	Single or rate
	HEC-U (uncorrectable)	Single or rate
	PLCP BIP-8	Single or rate
Error Insertion Rate:		1E-3 to 1E-6

Table 4-1. DS1 Specifications (Continued)

Item	Specification
Alarm Criteria:	
Yellow Alarm	Detects in D4 framing: 0 in bit 2 of all channels for 256 or consecutive channels. Detects in ESF framing: a repeating pattern of 00h, FFh in the ESF Data Link.
Alarm Indication Signal (AIS)	Detects when two consecutive frames have less than 3 zeroes total (excluding framing bits) and DS1 framing is lost.

Table 4-2. DS3 Specifications

Item	Specification
Framing Modes:	M13 or C-bit Parity Framing on Receive C-Bit Parity on Transmit
Operating Modes:	Normal (originate) Line loopback Self loopback
T3 Input:	
Frequency:	44.736 MHz ± 100 ppm
Line Termination:	75 ohms
Input Modes:	Receives DSX HIGH level (e.g. 1.0 V DSX level (0.36V to 0.85V) conforming to pulse shape template defined by ANSI T1.102-1987 signals
Data Recovery range:	0 to 450 feet of 728A coaxial cable and 0 to 23 dB resistive attenuation
Line Codes:	B3ZS
T3 Output	
Clock Sources:	Recovered (from receivers) External (via front panel BNC connector) Internal (44.736 MHz ± 15 ppm oscillator)
LBO Options:	0 or simulated 450 feet of 728A coaxial cable
Output Pulse:	per: ANSI T1.102-1987 BELLCORE TR-TSY-000499
Pulse Amplitude:	HIGH = .0.95V ±5% peak, rectangular DSX = 0.77V ±5% peak, conforming to pulse template in T1.102-1987
Indicators:	
FRM SYNC LED	DS3 frame synchronization achieved
ALM1 LED	Yellow alarm received
ALM2 LED	Blue alarm received
CODE LED	Idle signal received

Table 4-2. DS3 Specifications (Continued)

Item	Specification
Error Insertion Types:	
HEC-C (correctable)	Single or rate
HEC-U (uncorrectable)	Single or rate
PLCP BIP-8	Single or rate
Error Insertion Rate:	1E-3 to 1E-6
Alarm Criteria:	
Yellow Alarm	Detects when any pair of received X-bits in a DS3 frame are set to zero
Blue Alarm (AIS)	Detects when a frame-aligned 1010 pattern is received with all C bits in the DS3 frame are equal to zero