APPENDIX B

Specification

BNM-T3 Specification

Intershelf Link

T3 Line Interface Connector:	BNC connector Per ANSI T1.404
T3 Cable Recommended:	Coax, 75 ohm, 728A or Equiv.
T3 Line Signal	DSX-3 Specification Per ANSI T1.102 and ATT PUB 54014
T3 Line Rate:	44.736 Mbps ± 895 bps
T3 Framing:	Asynch. C-bit Parity per ANSI T1.107a
Input Jitter Tolerance:	Per ATT TR 54014, Category II Equipment
Output Jitter Generation:	Per ATT TR 54014, Table B1, “Equipment with DS3 Oscillator” Category
PMD Layer Alarms:	LOS, OOF, AIS, RAI
PMD Layer Performance Statistics:	LCV, LES,%EFS, LSES, SEFS, PCV, PES, PSES, SEFS, UAS
Trans. Convergence Protocol:	PLCP per TR-TSV-000773
TC Layer Alarms:	OOF, RAI
TC Layer Performance Statistics:	BIP8-CV, BIP8-ES, BIP8-SES, SEFS, UAS
ATM Layer Protocol:	Per CCITT I.361; The header check sum is XORed with the COSET function (0x55)
ATM Layer Counters:	No. of cells received good No. of cells received and discarded due to bad HEC
	No. of cells transmitted good No. of cells received from CellBus No. of cells transmitted to CellBus

Diagnostics:	Header of first cell received with invalid egress translation entries. No. of cells dropped due to invalid egress translation entries

Card General

Synchronization:	Derives 8KHz shelf synchronization clock from a variety of sources: • internal 8 kHz clock (10 ppm) • BNM-T3 PLCP • external T1/E1 clock port with a clock rate of 1.544 Mbps±50 bps (T1) or 2.048 Mbps±100 bps (E1)
External OFfice clock interface:	DB15 connector via LM-T3E3-D (T1 clock) BNC connector via LM-T3E3-B (E1 clock) Alarm interface: CO compatible alarm indicator and contr DB15 connector
Indicators:	Per Card: Active (Green), Failed (Red), Standby (Yellow) T3 Interface: Active & Okay (Green), Active & Local Alarm (Red), Active & Remote Alarm (Yellow) Minor DS-3 Statistical Alarm
Maintenance/Servicability Features:	Internal Isolation Loopbacks External remote loopback Hot-pluggable
Reliability:	> 65000 hours MTBF
Card Size:	BNM-T3: 7.25"x 16.25" LM-T3E3-D: 7.25” x 4.5” LM-T3E3-B: 7.25” x 4.5”
Power:	–48V DC, 25W

BNM-E3 Specification

Intershelf Link

E3 Line Interface Connector:	BNC connector Per ANSI T1.404
E3 Cable Recommended:	Coax, 75 ohm, 728A or Equiv.
E3 Line Signal	Per G.703
E3 Line Rate:	34.368 Mbps
E3 Framing:	G.832 and G.804
Input Jitter Tolerance:	Per G.703
Output Jitter Generation:	Per G.703
PMD Layer Alarms:	LOS, OOF, AIS, RAI
PMD Layer Performance Statistics:	LCV, LES, %EFS, LSES, SEFS, PCV, PES, PSES, SEFS, UAS
Trans. Convergence Protocol:	PLCP per TR-TSV-000773
TC Layer Alarms:	OOF, RAI
TC Layer Performance Statistics:	BIP8-CV, BIP8-ES, BIP8-SES, SEFS, UAS
ATM Layer Protocol:	Per CCITT I.361; The header check sum is XORed with the COSET function (0x55)
ATM Layer Counters	No. of cells received good
	No. of cells received and discarded due to bad HEC
	No. of cells transmitted good
	No. of cells received from CellBus
	No. of cells transmitted to CellBus
Diagnostics:	Header of first cell received with invalid egress translation entries
	No. of cells dropped due to invalid egress translation entries
	No. of unacknowledged cells transmitted to CellBus

Card General

Synchronization:	Derives 8KHz shelf synchronization clock from a variety of sources: • E3 physical interface • external T1/E1 clock port with a clock rate of 1.544 Mbps±50 bps (T1) or 2.048 Mbps±100 bps (E1)
External Office clock interface:	DB15 connector via LM-T3E3-D (T1 clock) BNC connector via LM-T3E3-B (E1 clock)
Alarm interface:	CO compatible alarm indicator and controlsDB15 connector
Indicators:	
Per Card:	Active (Green), Failed (Red), Standby (Yellow)
E3 Interface:	Active & Okay (Green), Active & Local Alarm (Red), Active & Remote Alarm (Yellow) Minor DS-3 Statistical Alarm
Shelf Voltage:	A voltage OK (Green) B voltage OK (Green)
Alarms:	Major (Red), Minor (Yellow) ACO (Yellow), History (Green)
Maintenance/Serviceability Features:	Internal Isolation Loopbacks External remote loopback Hot-pluggable
Card Size:	BNM-T3: 7.25" x 16.25" LM-T3E3-D: 7.25” x 4.5” LM-T3E3-B: 7.25” x 4.5”
Power:	–48V DC, 25W

ASC Specification

802.3 LAN Interface Connector:	AUI interface via DB-15 connector Control port: DB-25 RS232 connector; Asynch interface, 99200 baud, 1 start, 1 stop, No Parity
Trouble shooting interface:	Maintenance port: DB-25 RS232 connector; Asynch interface, 9600 baud, 1 start, 1 stop, No Parity
Indicators:	Per Card:Active (Green), Failed (Red), Standby (Yellow) LAN activityFlashing green
Maintenance/ Serviceability Features:	RS232 maintenance/debug port Internal Isolation Loopbacks Hot-pluggable
Reliability:	> 65000 hours MTBF
Card Size:	ASC: 7.25" x 16.25" LM_ASC: 7.0” x 4.5”
Power:	–48V DC, 25W

FRSM-4T1 Specification

Service Interface

Line Interface connector:	DB15—when used with LM-DB15-4T1 line module.
Line Rate:	1.544 Mbps ± 50 bps.
Line Framing:	ESF per ATT TR 54016.
Synchronization:	Transmitter may be either loop-timed to Receiver, or synchronized to shelf, (called normal mode)
Input Jitter Tolerance:	Per ATT TR 62411
Output Jitter Generation:	Per ATT TR 62411 using normal mode synchronization
Physical Layer Alarms:	LOS, OOF, AIS, RAI
Number of Frame Relay Ports:	1–Single frame relay stream occupying n consecutive time slots.
Frame Relay Interface Rates:	Either 56 Kbps or n*64 Kbps; n as defined above.
Frame Relay Interface:	Per ANSI T1.618, 2-octet header

Frame Relay Performance Counters (per Port; n x DS0):	Receive frames discarded due to Aborts Receive frames discarded due to illegal header (EA bit)(s) Receive frames discarded due to CRC errors (s) Receive frames discarded due to alignment errors (s) Receive frames discarded due to unknown DLCI (s) Receive frames discarded due to illegal frame length (s) Receive frames discarded due to DE threshold exceeded Receive frames with DE already set Receive frames with FECN already set Receive frames with BECN already set Receive frames tagged FECN Receive frames (s) Receive bytes (s) Transmit frames discarded due to underrun Transmit frames discarded due to Abort Transmit frames discarded due to egress Q-depth exceeded (s) Transmit bytes discarded due to egress Q-depth exceeded (s) Transmit frames discarded due to egress DE threshold exceeded Transmit frames (s) Transmit bytes(s) Transmit Frames with FECN set (s) Transmit Frames with BECN set (s) LMI receive status inquiry request count (s) LMI transmit status inquiry request count LMI invalid receive status count (s) LMI signaling protocol (keep alive time-out count) (s) LMI sequence number error count (s) LMI receive status transmit count (in response to request) LMI transmit status transmit count (in response to request) Transmit frames during LMI alarm (s) Transmit bytes during LMI alarm (s) LMI update status transmit count (in response to configuration changes)
Diagnostics (per port):	Last unknown DLCI received

System Interface

ATM Layer:	Per CCITT I.361 and ATM UNI v3.1
AAL Layer:	AAL5 per Draft CCITT I.363.
FR-Cell Interworking:	Per Draft CCITT I.555 and I.36x.1, as summarized in Frame Relay Forum, FR/ATM PVC Interworking Implementation Agreement FRF.5.

Virtual Circuits

Channels (Endpoints):	256 per card—may be allocated across any of the frame relay interfaces
Counters:	
Service Counters:	No. of frames received (s) No. of bytes received (s) No. of frames received with DE already set (s) No. of bytes received with DE already set (s) No. of frames received with unknown DLCI No. of frames received but discarded (s) No. of received bytes discarded (s) No. of received bytes discarded due to exceeded Q-depth (s) No. of frames received and discarded due to: intershelf alarm exceeded DE threshold (s) exceeded Q depth (s) No. of frames received with FECN set No. of frames received with BECN set No. of frames received tagged FECN No. of frames received tagged BECN No. of frames transmitted (s) No. of bytes transmitted (s) No. of frames transmitted with DE set (s) No. of frames discarded due to reassembly errors (s) No. of frames transmitted during LMI logical port alarm(s) No. of frames transmitted with FECN set (s) No. of frames transmitted with BECN set (s) No. of transmit frames discarded (s) No. of transmit bytes discarded No. of transmit frames discarded due to: CRC error (s) egress Q depth exceeded (s) egress DE threshold exceeded source abort physical link failure (T1) ATM cells: No. of cells transmitted to BNM No. of cells transmitted with CLP bit set No. of OAM AIS cells transmitted (s) No. of OAM FERF cells transmitted (s) No. of BCM cells transmitted No. of OAM end-end loopback cells transmitted (s) No. of OAM segment loopback cells transmitted No. of cells received from BNM No. of cells received with CLP bit set No. of OAM AIS cells received (s) No. of OAM FERF cells received (s) No. of BCM cells received No. of OAM end-end loopback cells received (s) No. of OAM segment loopback cells received No. of OAM cells discarded due to CRC-10 error (s)

Statistics:	All of the above counters followed by an (s) can be configured as statistics.
Diagnostics:	Last unknown LCN received Cells with unknown LCN count

Card General

Indicators:	
Per Card:	Active (Green), Standby (Yellow), Fail (Red)
Lines (one per):	Active & Okay (Green), Active & Local Alarm (Red), Active & Remote Alarm (Yellow)
Maintenance/Serviceability Features:	Internal Problem Isolation Loopbacks Hot-pluggable
Reliability:	> 65000 hours MTBF
Card Size:	FRSM-4T1: 7.25” x 16.25” LM-DB15-4T1: 7.0” x 4.5” Power: –48V DC, 30W (4 T1s)

FRSM-4E1 Specification

Service Interface

Line Interface connector:	DB15when used with LM-DB15-4E1 line module. BNC—when used with LM-BNC-4E1 line module.
Line Rate:	2.048 Mbps ± 100 bps.
Synchronization:	Transmitter may be either loop-timed to Receiver, or synchronized to shelf, (called normal mode)
Input Jitter Tolerance:	Per G.703
Output Jitter Generation:	Per G.703
Physical Layer Alarms:	LOS, OOF, AIS, RAI
Number of Frame Interfaces:	I to 31 occupying n where 1 < n < 31. Sum of all < 31 for CCS. 1–30 for CAS.
Frame Relay Interface Rates:	Either 56 Kbps or n*64 Kbps; n as defined above.
Frame Relay Interface:	Per ANSI T1.618, 2-octet header

Frame Relay Performance Counters (per Port; n x DS0):	Receive frames discarded due to Aborts Receive frames discarded due to illegal header (EA bit)(s) Receive frames discarded due to CRC errors (s) Receive frames discarded due to alignment errors (s) Receive frames discarded due to unknown DLCI (s) Receive frames discarded due to illegal frame length (s) Receive frames discarded due to DE threshold exceeded Receive frames with DE already set Receive frames with FECN already set Receive frames with BECN already set Receive frames tagged FECN Receive frames (s) Receive bytes (s) Transmit frames discarded due to underrun Transmit frames discarded due to Abort Transmit frames discarded due to egress Q-depth exceeded (s) Transmit bytes discarded due to egress Q-depth exceeded (s) Transmit frames discarded due to egress DE threshold exceededTransmit frames (s) Transmit bytes(s) Transmit Frames with FECN set (s) Transmit Frames with BECN set (s) LMI receive status inquiry request count (s) LMI transmit status inquiry request count LMI invalid receive status count (s) LMI signaling protocol (keep alive time-out count) (s) LMI sequence number error count (s) LMI receive status transmit count (in response to request) LMI transmit status transmit count (in response to request) Transmit frames during LMI alarm (s) Transmit bytes during LMI alarm (s) LMI update status transmit count (in response to configuration changes)
Diagnostics (per port):	Last unknown DLCI received

System Interface

ATM Layer:	Per CCITT I.361 and ATM UNI v3.1
AAL Layer:	AAL5 per Draft CCITT I.363.
FR-Cell Interworking:	Per Draft CCITT I.555 and I.36x.1, as summarized in "Frame Relay Forum, FR/ATM PVC Interworking Implementation Agreement FERF.5".

Virtual Circuits

Channels (Endpoints):	256 per card—may be allocated across any of the frame relay interfaces
Counters:	Service Counters: No. of frames received (s) No. of bytes received (s) No. of frames received with DE already set (s) No. of bytes received with DE already set (s) No. of frames received with unknown DLCI No. of frames received but discarded (s) No. of received bytes discarded (s) No. of received bytes discarded due to exceeded Q-Depth (s) No. of frames received and discarded due to: intershelf alarm exceeded DE threshold (s) exceeded Q depth (s) No. of frames received with FECN set No. of frames received with BECN set No. of frames received tagged FECN No. of frames received tagged BECN No. of frames transmitted (s) No. of bytes transmitted (s) No. of frames transmitted with DE set (s) No. of frames discarded due to reassembly errors (s) No. of frames transmitted during LMI logical port alarm(s) No. of frames transmitted with FECN set (s) No. of frames transmitted with BECN set (s) No. of transmit frames discarded (s) No. of transmit bytes discarded No. of transmit frames discarded due to: CRC error (s) egress Q depth exceeded (s) egress DE threshold exceeded source abort physical link failure (T1)

	ATM cells: No. of cells transmitted to BNM No. of cells transmitted with CLP bit set No. of OAM AIS cells transmitted (s) No. of OAM FERF cells transmitted (s) No. of BCM cells transmitted No. of OAM end-end loopback cells transmitted (s) No. of OAM segment loopback cells transmitted No. of cells received from BNM No. of cells received with CLP bit set No. of OAM AIS cells received (s) No. of OAM FERF cells received (s) No. of BCM cells received No. of OAM end-end loopback cells received (s) No. of OAM segment loopback cells received No. of OAM cells discarded due to CRC-10 error (s) Statistics: All of the above counters followed by an (s) can be configured as statistics. Diagnostics:8Last unknown LCN received Cells with unknown LCN count Card General
Indicators:	Per Card:Active (Green), Standby (Yellow), Fail (Red) Lines (one per):Active & Okay (Green), Active & Local Alarm (Red), Active & Remote Alarm (Yellow)
Maintenance/Serviceability Features:	Internal Problem Isolation Loopbacks Hot-pluggable
Card Size:	FRSM-4E1: 7.25” x 16.25” LM-DB15-4E1: 7.0” x 4.5” LM-BNC-4E1: 7.0” x 4.5”
Power:	–48V DC, 30W (4 E1s)
Ingress	8000 cell buffer shared between virtual channels/paths. Standard Usage Parameter Control (UPC). Selective Cell Discard Virtual Circuit Queuing EFCI setting per VC.
Egress	8000 cell storage capacity shared between four ports. Up to 12 user selectable Egress Queues per port. Selective Cell Discard. EFCI setting per Queue.

AUSM Specification

Service Interface (T1):

Line Interface Connector	Miniature 15 pin female DB-15 (100 Ω)—(Use LM-DB15-4T1)
Line Rate:	1.544 Mbps ± 50 bps (T1).
Synchronization:	Transmitter may be either loop-timed or Receiver, or synchronized to shelf, (called normal mode).
Line Code:	Bipolar 8 Zero Substitution (B8ZS) as specified in ANSI T1.408 (T1).
Line Framing:	Extended Superframe Format (ESF 24 frame multiframe) as ANSI T1.408
ESF Maintenance Functions:	Bit-oriented alarm and loopback messages of ESF Data Link as per ANSI T1.408.
Input Jitter Tolerance:	Per ATT TR 62411.
Output Jitter Tolerance:	Per ATT TR 62411 using normal mode synchronization.
Physical Layer Alarms:	LOS, OOF, AIS, RAI.
Physical Layer Performance Stats:	LCV, LES, LSES, CV, ES, SES, SEFS, AISS, UAS.

Service Interface (E1)

Line Interface Connector	Miniature 15 pin female DB-15 (120 Ω)—(Use LM-DB15-4E1), BNC (120 Ω)—(Use LM-BNC-4E1).
Line Rate:	2.048 Mbps ± 50 bps (E1).
Synchronization:	Transmitter may be either loop-timed or Receiver, or synchronized to shelf, (called normal mode).
Line Code:	HDB3 (E1).
Line Framing:	16 frame Multiframe as in G.704.
Input Jitter Tolerance:	As specified in ITU G.823 for 2.048 Mbit/s.
Output Jitter Tolerance:	As specified in ITU G.823 for 2.048 Mbit/s.
Physical Layer Alarms:	LOS, OOF, AIS, RAI.
Physical Layer Performance Stats:	LCV, LES, LSES, CV, ES, SES, SEFS, AISS, UAS.

ATM Interface:

	ATM UNI v3.1, ITU-T G.804, per CCITT I.361.
Channel Configuration:	256 per card. May be allocated across any of the T1 (E1) ports.
VPI/VCI:	VPI: 0–255. VCI: 0–4096.
Traffic Classes:	CBR, VBR, VBR+.
UPC Parameters:	PCR, SCR (VBR), CCDV (CBR).
Congestion Control Support:	ForeSight (towards Network for VBR+).
ForeSight Parameters:	MIR, PIR, Rate Up, Rate Down, QIR, QIR Timeout, IBS.

Virtual Circuits:

Counters:

Per Port:	Number of cells received from the interface. Number or cells received with unknown VPI/VCI. Last known VPI/VCI received from the port. Number of cells discarded due to error in Cell Header. Number of cells received with non zero GRC field. Number of cells transmitted to the interface. Number of cells transmitted for which EFCI was set. No. of egress cells discarded due to service interface physical alarm.

Endpoint (channel):

Ingress:	No. of cells received from port. Number of cells received from the port with CLP = 1. Number of cells received from the port with EFCI = 1. No, of cells from the port discarded due to queue exceeded QDepth. No. of cells (with CLP) set) discarded due to queue exceeded CLP threshold. Number of cells from the port for which CLP was set due to UPC violations.

ATMizer channel counters:

Ingress:	No. of cells transmitted to CellBus. Number of cells to CellBus for which EFCI was set. No. of cells to CellBus discarded due to shelf alarm.
Egress:	No. of cells received from the CellBus Number of cells discarded due to queue exceeded QDepth (per Egress Q) Number of cells discarded due to queue exceeded CLP threshold (per Egress Q) Number of cells received with CLP = 1.

Other Counters:	.
Ingress:	No. of OAM cells discarded. No. of AIS cells received from the port. No. of RDI (FERF) cells received from the port. No. SegmentLpBk cells received from the port. No. of SegmentLpBk cells transmitted to CellBus
Egress:	No. of OAM cells discarded. No. of AIS cells transmitted to the port. No. of SegmentLpBk cells transmitted to the port. No. of SegmentLpBk cells received from the port.
Diagnostic Stats:	Peak Queue Depth (Ingress: per channel).

Card General:

Indicators:	
Per Card:	Active (green), Standby (yellow), Fail (red).
Per Line:	One per line: Active & OK (green). Active and Local Alarm (red). Active and Remote Alarm (yellow).
Maintenance/Servicability	Facility loopback via Loop up/down per ANSI T1.408 & ATT TR 62411 (T1), CCITT G.7xx (E1). Facility Loopback via Management Console. Internal Problem Isolation Loopbacks. Hot pluggable
Card Size:	7.25” x 15”
Power:	–48VDC, 30 W
Safety:	EN 60950 2nd edition (including EN 41003) UL 1950 2nd edition
Compliance:	T1: Accunet 62411 E1: G.703, G.823
ESD:	IEC 1000-4-2.

CESM-4T1/E1 Specification

Note The CESM-4T1/E1 specification is the same as the FRSM-4T1/4E1 specification except as shown below.

Service Interface (T1/E1):

Synchronization:	Transmitter is synchronized to the shelf (Stratum traceable)
Line Framing:	None
Channel Configuration:	
Number of CBR Interfaces:	4
Cell Delay Variation (CDV)	Configurable by setting reassembly buffer depth to a maximum of 250 msec. CDV = 1/2 buffer depth

Virtual Circuits:

Channels (Endpoints)		One per physical por
Counters:		MIB Name
AAL1:		
	No. of lost SAR-PDUs	cesLostCells
	No. of buffer overflow events	cesBufOverflows
	No. of buffer underflow events	cesBufUnderflows
	No. of SAR-PDU's with header error	cesHdrErrs
	No. of SAR-PDU's received out of sequence	cesCellSeqMismatchCnt
	No. of cells played out to T1/E1 port	cesReassCells
	No. of cell generated from T1/E1 port	cesGenCells
	No. of bytes discarded due to shelf alarm,from port	cesIngrDiscardedBytes
	No. of all 1's cells inserted during buffer underflow	cesUflowInsCells
	No. of bytes discarded due to egress overflow	cesOflowDropBytes
Diagnostic:	Egress buffer depth (per port)	
Alarms:		MIB Name
T1/E1 Port:	Red, Loss of Signal (LOS)	LineAlarmState—bit 5 set
	Blue, Alarm Indication Signal (AIS)	LineAlarmState—bit 2, set and cesChanState = 3
	Line Code Violation (LVC)	LineStatisticalAlarmState
SAR Port:		

Transmit state	SendingAIS	cesXmtATMState = 3
	Sending FERF	cesXmtATMState = 4
Receiving state:		
	Receiving AIS	cesRcvATMstate = 3
	Receiving FERF	cesRcvATMstate = 4
	Cell Loss	cesCellLossStatus = 2

Note All service specific alarms, except RED, will be passed through transparently.

Loss of Signal (RED) at CBR interface will result in All Ones cells being transmitted.

Brief periods of cell loss “Starvation” will result in insertion of 47 octects of one’s.

Extended periods of cell loss will result in All Ones (Unframed AIS) being generated.

During periods of Cell Bus configuration SAR-PDUs will be discarded.

IMAIM Specification

Physical Interface (T3.T1) RJ48-T3T1-LM:

T1 Line Interface connector:	Miniature RJ-48C, 100 ohms balanced
T3 Line Interface connector:	BNC, 75 ohms unbalanced
Physical Interface (E3.E1) RJ48-E3E1-LM:	
E1 Line Interface connector:	Miniature RJ-48C, 100 ohms balanced
E3 Line Interface connector:	BNC, 75 ohms unbalanced
Physical Interface (E3.E1B) SMB-E3E1-LM:	
E1 Line Interface connector:	Miniature SMB, 75 ohms unbalanced
E3 Line Interface connector:	Miniature SMB, 75 ohms unbalanced

Physical Layer Interface T1:

Line rate:	1.544Mbps +/- 50 bps
IMATM Synchronization:	Digital PLL to synchronize all transmitters to a choice of one of the following: The T3 line, any of the T1 lines, the AXIS shelf 8KHz clock.

Line Code:	Bipolar 8 zero substitution (B8ZS) as specified in ANSI T1.408.
Line Framing:	Extended Superframe Format (ESF 24 frame multifrm) as in ANSI T1.408.
Input Jitter Tolerance:	Per ATT TR 62411.
Output Jitter Tolerance:	Per ATT TR 62411 using normal mode synchronization.
Physical Layer Alarms:	LOS, OOF, AIS, RDI.
Physical Layer Performance Parms:	LCV, LES, LSES, CV, ES, SES, SEFS, AISS, UAS.

Physical Layer Interface E1:

Line rate:	2.048Mbps +/- 50 bps
IMATM Synchronization:	Digital PLL to synchronize all transmitters to a choice of one of the following: The E3 line, any of the E1 lines, the AXIS shelf 8KHz clock.
Line Code:	HDB3 (E1).
Line Framing:	16 frame Multiframe as in G.704
ESF Maintenance Functions:	None.
Input Jitter Tolerance:	As specified in ITU G.823 for 2.048 Mbits/s.
Output Jitter Tolerance:	As specified in ITU G.823 for 2.048 Mbits/s.
Physical Layer Alarms:	LOS, OOF, AIS, RDI.
Physical Layer Performance Parms:	LCV, LES, LSES, CV, ES, SES, SEFS, AISS, UAS.

Physical Layer Interface T3:

Line Rate:	44.736 Mbps 200 ppm (T3)
Line Code:	B3ZS for DS3
Framing:	Physical Layer Conversion Procedure for DS3 to ANSI TA-TSY-000772 and TA-TSY-000773.
Input Compliance:	Per ATT 54014 and CCITT G.703

Physical Layer Interface E3:

Line Rate:	36.368 Mbps 200 ppm (T3)
Line Code:	HDB for E3
Framing:	Per ITU-T Recommendation G.804 and G.832.
Input Compliance:	Per CCITT G.824
ATM Interface:	
Cell support (type)	STI cells.
Congestion Control:	EFCI/FFCI setting on Egress (AIM)
EFCI setup:	Via programmable EFCI threshold
IMAIM Alarms:	IMAIM complies with DS3 and G.832 physical layer protocols: Supports FERF, LOS, LOF, OOF, AIS, yellow and red alarms.

AIM Groups and Links:

Counters:	
High Speed Port:	DS3/E3 physical layer line alarm indication and insertion. DS3/E3 SUNI-PDh number of cells:Tx and Rx. PLL clock recovery status.
AIM Group	Number of cells received from AIM interface Number of cell discarded due to error in Cell Header No. of cells from AIM interface discarded due to Queue Full on both Ingress and Egress directions. Number of ACP cells received Number of ACP cells received with errors Number of LCP cells received Number of LCP cells received with errors Number of cells served from Egress queue to AIM interface. Number of cell transmitted by trunk interface, two types: Date and Filler + Data Number of times a link went off the IMAIM group
ATMizer (Cellbus) counters:	
Ingress:	Number of cells transmitted. Number of cells discarded due to shelf alarm.
Egress:	Number of cells received Number of cells discarded due to queue depth exceeded QDepth.

Card General:

Indicators:	
Per Card:	Active (Green), Standby (Yellow), Fail (Red).
Lines (one per):	Active and OK (Green) Active and Local Alarm (Red) Active and Remote Alarm (Yellow).
Maintenance/Serviceability Features:	Internal Problem Isolation Loopbacks Hot-pluggable.
Card Size:	IMATM front card: 7.25” x 16.25” RJ48-T3T1-LM: 7.0” x 4.5” RJ48-E3E1-LM: 7.0” x 4.5” SMB-E3E1-LM: 7.0” x 4.5”
Power:	–48V DC