

CMA 5000

Universal Transport Analysis Module (UTA) Asynchronous Transfer Mode (ATM) Option

Notes:

1: Rates only available with STM-1/4/16 & OC-3/12/48 option

All specifications are subject to change

Historically, SDH/SONET technology has been designed to carry voice traffic. But the changes in the telecommunications market for many years have brought new challenges for network operators and service providers. Data traffic becomes more and more important and today's networks are evolving to meet these new multimedia communications challenges.

Asynchronous Transfer Mode (ATM) is a networking technology capable of accommodating the inherently bursty nature of data applications and the fixed bit rates of the historical synchronous networks.

ATM, coupled with SDH/SONET for transport, provides a very flexible solution and makes multimedia calls as easy, reliable and as secure as voice calls are today.

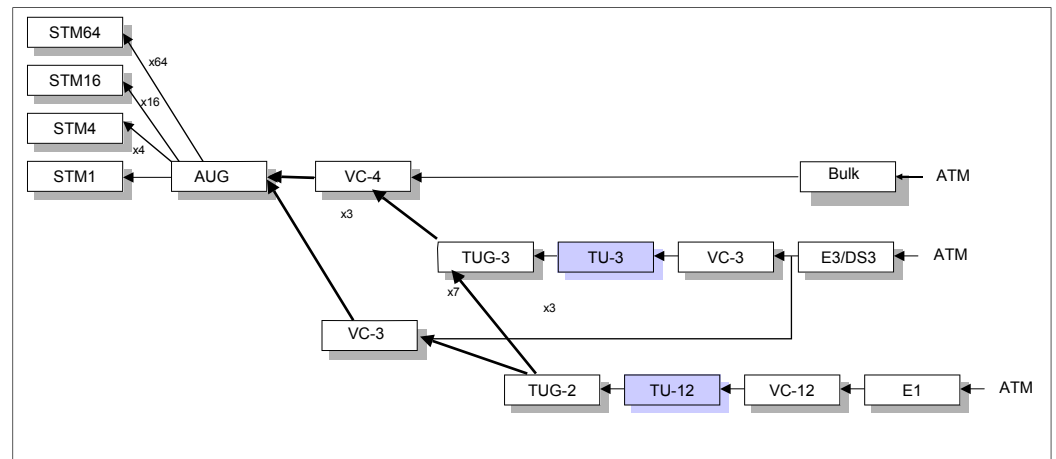
With the "ATM" option, the CMA 5000 UTA module provides all the functions needed to check the quality of ATM cell transport through the SDH/SONET networks.

The "ATM" option is a software option of the SDH/SONET application of the UTA.

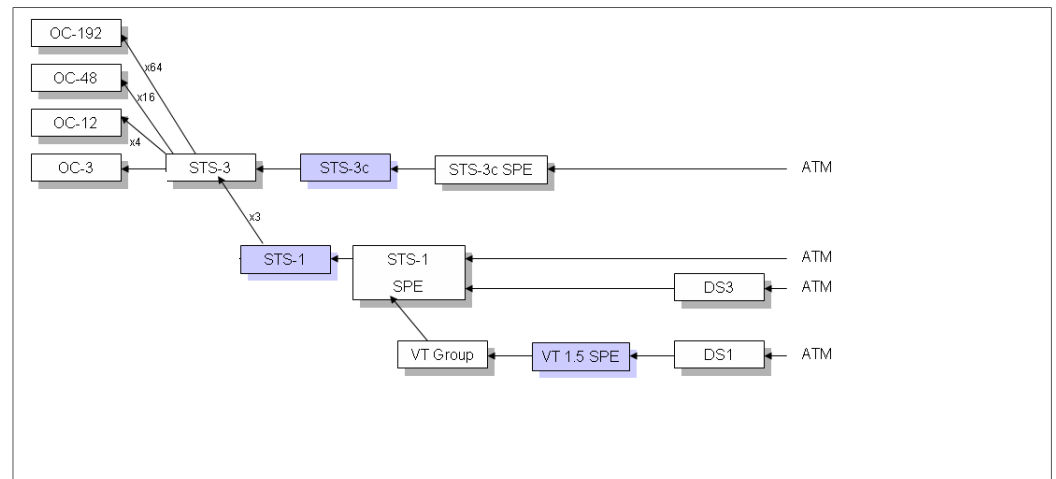
Physical Layer

SONET	SDH	Rate (Mb/s)	Interfaces
OC-192	STM64	9953.280	Optical (Depends on the XFP/SFP used)
OC-48 ⁽¹⁾	STM16 ⁽¹⁾	2488.320	
OC-12 ⁽¹⁾	STM4 ⁽¹⁾	622.080	
OC-3 ⁽¹⁾	STM1 ⁽¹⁾	155.520	

ATM Mapping



SDH Mappings



SONET Mappings

ATM Transmit Functions

Physical Adaptation Layer	
<ul style="list-style-type: none"> Scrambler and HEC calculation 	
ATM Layer	
Foreground Traffic	<ul style="list-style-type: none"> One VP/VC channel for which the header, the payload and the traffic are programmable Each field of the header is programmable: Type of interface (UNI or NNI), VPI, VCI, GFC, PTI, CLP The payload is filled with PRBS (AAL0) The average traffic level is user programmable
Background Traffic	<ul style="list-style-type: none"> The number of background channels is programmable up to a maximum of 1000. For each background channel, the header is fully programmable (manually or automatically): Type of interface (UNI or NNI), VPI, VCI, GFC, PTI, CLP The payload is filled with a 16 bit user programmable word (AAL0) For each background channel, the average traffic level is user programmable
Empty Cells	<ul style="list-style-type: none"> Empty cells can be defined as idle or unassigned

Stress Functions	
Physical Adaptation Layer Error Injection	Single HEC, Multiple HEC Programmable number
Payload Error Injection	BER generated on the Foreground channel payload Programmable number or rate
OAM Alarms	AIS, RDI, Loss of Continuity for F4 and F5 flows of the Foreground channel
Alarm Injection	On steady-state

ATM Analysis Functions²

Physical Adaptation Layer	
Errors	Single HEC, Multiple HEC
Alarm	LCD

ATM Layer Performance	
Errors	BERT on the test VP/VC channel payload
Alarm	AIS, RDI, Loss of Continuity measured on the test VP/VC

Traffic
• Instantaneous and average traffic level of the total traffic
• Instantaneous and average traffic level of the selected VP
• Instantaneous and average traffic level of the selected VC

ATM Scan
• Automatic detection of the open ATM channels on the link with indication for each of: <ul style="list-style-type: none"> - Channel number: VPI, VCI - Average traffic

Notes:

²All ATM parameters can also be displayed graphically

The screenshot displays the CMA5000 Communications Media Analyzer interface. At the top, it shows 'SDH' and the date 'Wednesday, February 22, 2006 4:42:52 PM'. The main window is divided into several sections:

- Physical Adaptation Layer:** Shows LCD (0), HEC Single (0), and HEC Multiple (0).
- VP Layer (# 25):** Shows VP-AIS (0), VP-LOC (0), ES (0), SES (0), UNAV (0), and VP-RDI (0).
- VC Layer (# 100):** Shows VC-AIS (0), VC-LOC (0), ES (0), SES (0), UNAV (0), and VC-RDI (0).
- Traffic:** Shows instantaneous and average traffic levels in KBits/s. Instantaneous: Total (1,316.328), VP (# 25) (1,316.520), VC (# 100) (1,316.520). Average: Total (1,315.904), VP (# 25) (1,315.884), VC (# 100) (1,315.884).
- PRBS31 (I):** Shows LSS (0), ERR (0), ES (0), SES (0), and UNAV (0).

On the right side, there are buttons for 'General Setup', 'Current Display [1 sec]', 'Count Display 999', and 'Stresses'. A 'Stop' button is also visible at the top right.

The Quality measurement screen provides all the alarms, errors and quality information at the ATM layer for fast measurement interpretation.

Ordering Information

Universal Transport Analysis (UTA) Module	
Order Number	Description
5610-000-UTA	UTA Base Module
5610-201-UTA	10G SDH/SONET Application
5610-216-UTA	"STM-1/4/16 & OC-3/12/48" option for 10G SDH/SONET application
5610-214-UTA	ATM option for SDH/SONET application

CMA5000 Communications Media Analyzer SDH Wednesday, February 22, 2006 4:46:42 PM

Laser ON Stresses : disable Rx OK 00:00:09

Tx (STM-16) Rx (STM-16) Summary Quality ATM Quality ATM Scan Correlation Graph Event Log Help **ATM**

Bulk Signal- ATM Rate Total Rate : 5,265.000 KBit/s

Foreground Rate Rate (Test VPVC)

Header : VPI 25 VCI 100 Payload : PRBS31(l) Rate : 1,316.250 KBit/s

GFC 0 PTI 0 CLP 0

Background Rate

VPI	VCI	GFC	PTI	CLP	Rate
86	17601	0	0	0	585.000 KBit/s
132	52951	0	0	0	2,340.000 KBit/s
94	29928	0	0	0	146.250 KBit/s
75	14637	0	0	0	877.500 KBit/s
Total Background Rate					3,948.750 KBit/s

Empty Cells Rate Type : Idle Rate : 144,495.000 KBit/s Background channel payload << FFFFh >>

Ok Cancel Apply

Start Select Measure General Setup Stresses Report

All the ATM traffic parameters are available in one single window.

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