



# Chromadigm-HS

## Multi-Wavelength CHS Full Band Transmitters

### Applications

- DWDM node splitting, up to 16 wavelengths on a single fiber
- Fiber deep networks with minimal fibers
- RFoG/FTTx applications with extended reach
- RF video overlay for GPON applications
- Long haul super-trunking for headend quality at the hub

### Features

- Up to four wavelengths with optional integrated Mux & EDFA
- Total output power levels of +4 to +18 dBm
- Error-free QAM transport with very high OMI
- Superior CNR, CSO & CTB
- Optional integrated express port for wavelength expansion
- Universal AC powering option
- Redundant load-sharing -48 DC power supplies option
- Space-efficient 19" 1RU

ATX's Chromadigm transmitter is a revolutionary new product that allows transmission of 16 ITU-T wavelengths on a single fiber in the 1550nm (C-Band) window.

Each wavelength can carry a full band 1 GHz spectrum (50-550 MHz of analog or QAM common to all the wavelengths, plus 75 channels of narrowcast 256 QAM from 550-1002 MHz). In addition, each wavelength is capable of carrying a unique QAM loading.

Deployments can be four, eight or 16 downstream wavelengths, along with four, eight or 16 upstream wavelengths on a single fiber. With its attractive price point & scalability, the Chromadigm transmitter obsoletes the single wavelength transport to the node, allowing the recovery of a large number of dark fibers for business & other services, enabling optimum utilization of the existing network.

Excellent CNR, CSO & CTB with unmatched immunity to wavelength drift & filter ripple make Chromadigm unique & significantly superior to other approaches.

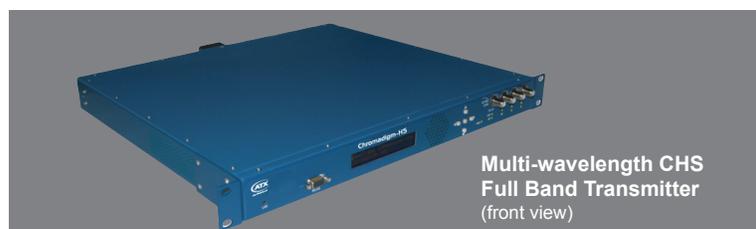
Patented  
U.S.# 7,936,997



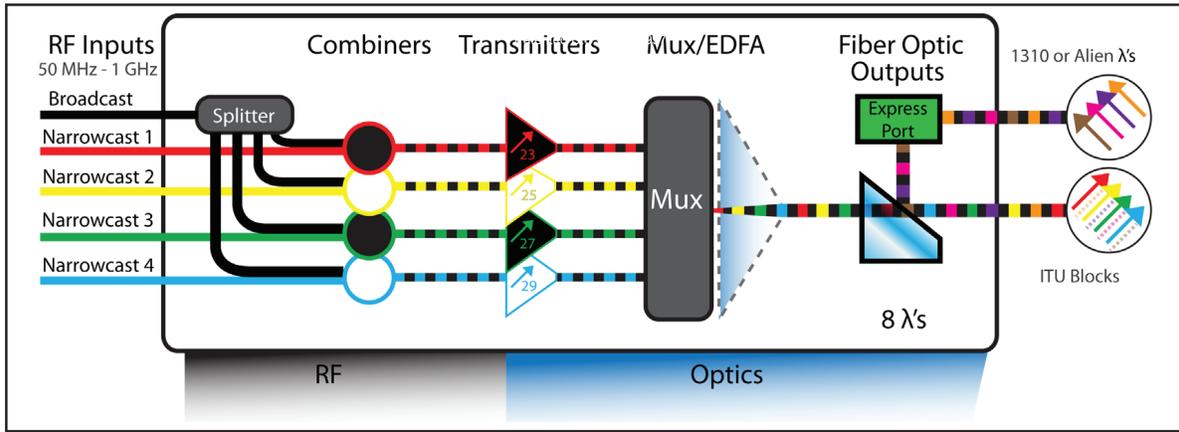
CHS Full Band TX  
(front view)

### Key Benefits

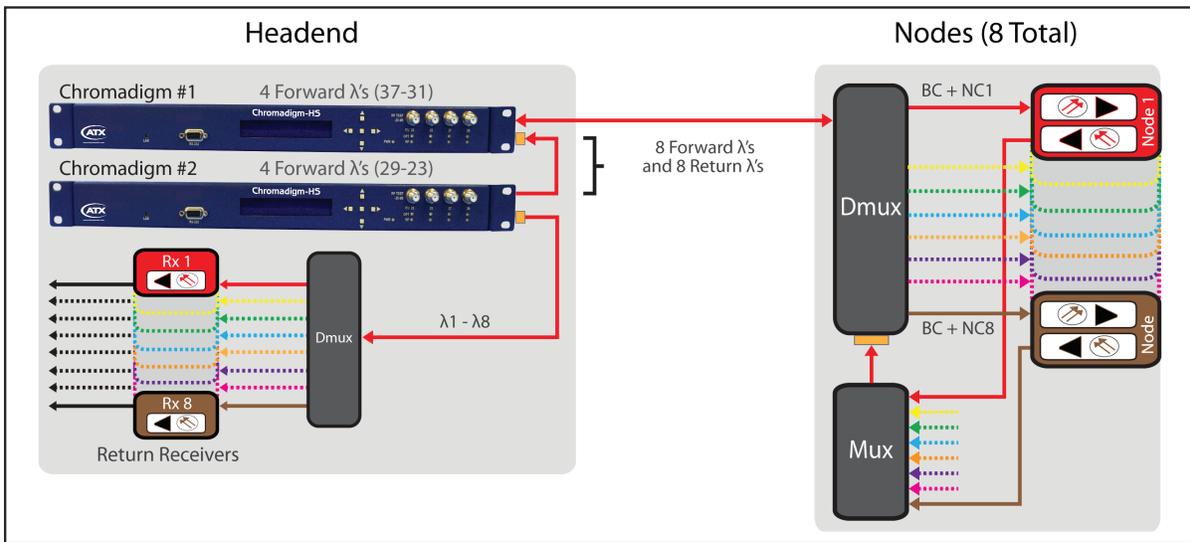
- Patented technology facilitates fiber deep architectures with unprecedented performance, cost & flexibility
  - 1550nm chirp-free, multi-wavelength transmitter replaces expensive external modulation transmitters
  - Proprietary clipping mitigating circuitry for low pre-FEC BER of 1E-9
  - High Optical Modulation Index (OMI) of 5% enables superior CNR, longer EDFA cascades & higher receiver RF output
- Transmission of up to 16 wavelengths on a single fiber with a full band 1 GHz spectrum of analog plus QAM
- Chirp-free transmission allows error-free transmission through cascaded passive components unlike O-Band transport
- Distance independent transport that provides high CSO unlike other 1550 direct modulation transmitters
- Up to + 18 dBm SBS threshold available



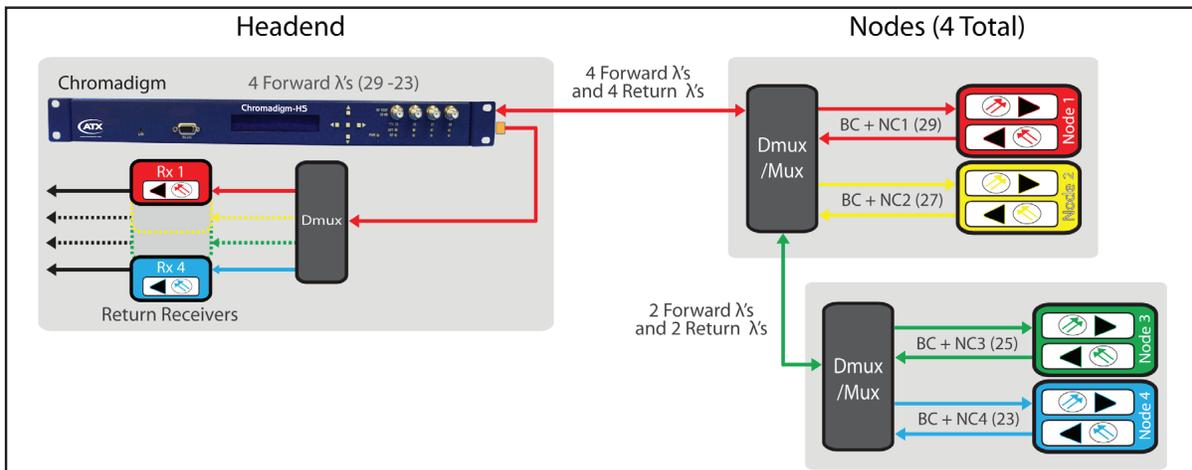
Multi-wavelength CHS  
Full Band Transmitter  
(front view)



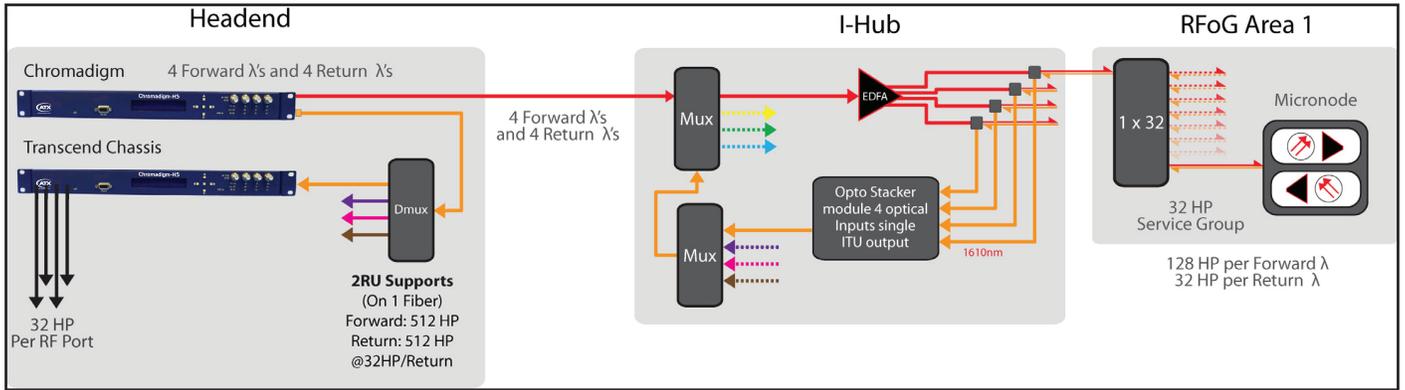
Chromadigm-HS Block Diagram



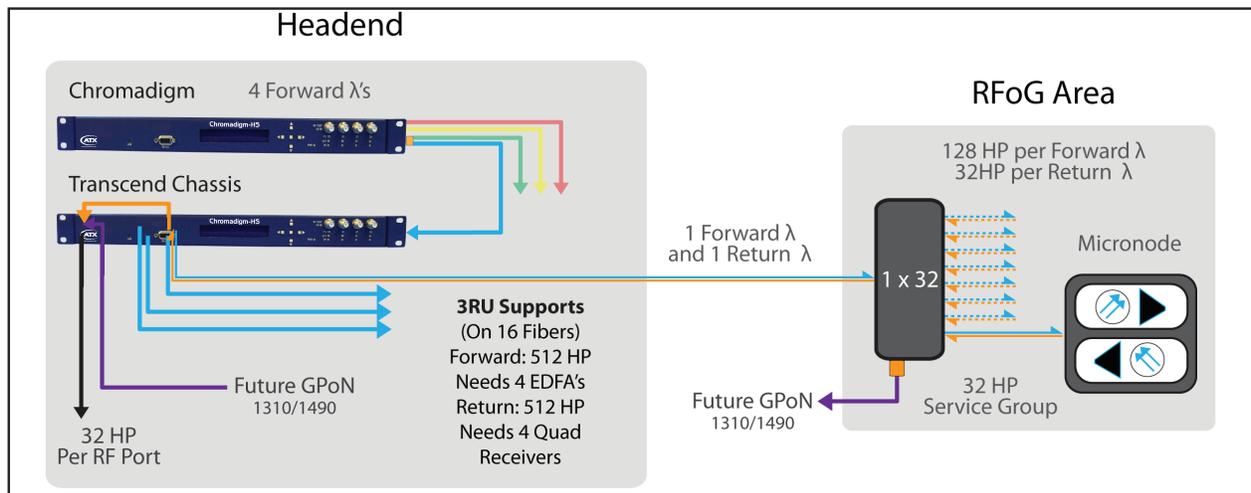
Node Plus



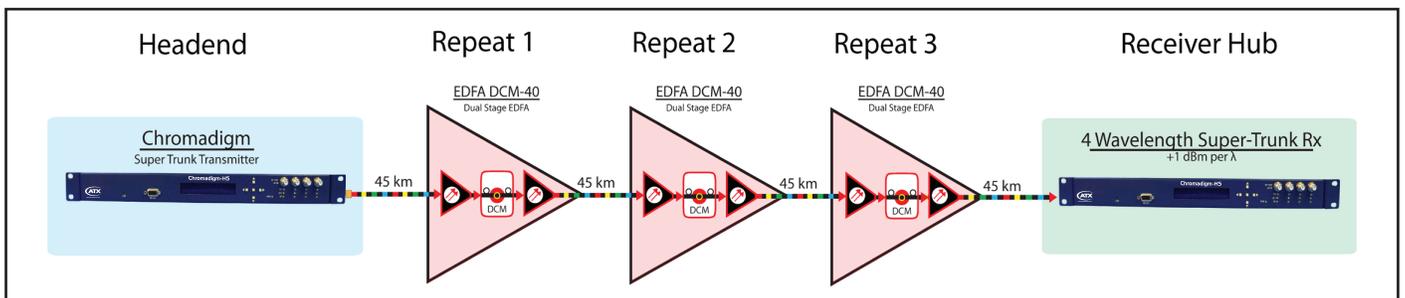
Node Split



RFoG Field EDFA Repeat



RFoG Centralized



Headend to Hub Super-Trunk

## Specifications

TRANSMITTER PERFORMANCE <sup>(1)(2)(3)</sup>	
CARRIER-TO-NOISE (CNR)	> 51 dB
COMPOSITE TRIPLE BEAT (CTB)	> 70 dB
COMPOSITE SECOND ORDER (CSO)	> 63 dB
PRE-FEC BER	1E-9
OPTICAL OUTPUTS	
WAVELENGTH	ITU CHs 23-53, 200 GHz Spacing
NUMBER OF WAVELENGTHS	1-4
OUTPUT POWER PER WAVELENGTH	4-18 dBm
RF INPUT	
BANDWIDTH	50-1002 MHz
AGC MODE	BROADCAST PORT 15-21 dBmV
NARROWCAST PORT	6 dB below Broadcast
RECOMMENDED BC INPUT	18 dBmV
RECOMMENDED NC INPUT	12 dBmV
MGC MODE	BROADCAST PORT MGC 15 dBmV
	NARROWCAST PORT MGC 9 dBmV
POWER	
POWER CONSUMPTION	30-80W
AC VOLTAGE SUPPLY RANGE	85-240 VAC
DC VOLTAGE SUPPLY RANGE	-42 to -56 VDC
ENVIRONMENTAL	
OPERATING TEMPERATURE	0°C to +50°C (+32°F to +122°F)
STORAGE TEMPERATURE	-40°C to +85°C (-40°F to +185°F)
HUMIDITY	Max. 85% Non-condensing
PHYSICAL	
DIMENSIONS	1.75"H x 19.0"W x 21.0"D (4.45H x 48.26W x 53.34D cm)
WEIGHT	18.0 lbs (8.2 kg)
RF CONNECTORS OPTICAL	F-Type
CONNECTOR TYPE	SC/APC
NETWORK MANAGEMENT	SNMP V4
USER INTERFACE	
FRONT PANEL	
DISPLAY	LCD with Menu Switch Keys
RF TEST POINT	RF TEST POINT LEVEL UNDER AGC -3 to -1 dBmV
	TEST POINT FLATNESS WITH RESPECT TO INPUT ± 0.8 to ± 1.0 dB
CRAFT INTERFACE	RS-232
REAR PANEL	
RF INPUT & OPTICAL OUTPUT CONNECTORS	
LAN PORT	
HOT-SWAPPABLE FAN	
DB-9 CONNECTOR FOR ALARM CONTACTS	

### NOTES:

- (1) Measured with a reference receiver using a network analyzer with appropriate levels from 50-1002 MHz.
- (2) With 77 NTSC channels, up to 40 km of fiber (version dependent), 0 dBm received power into an analog receiver with noise current density < 7 pA/sqrt (Hz); with field DMux optical isolation > 30 dB.
- (3) Specified over temperature & lifetime.

## Available Configurations

Number of Wavelengths & Output Power	Typical ITU Wavelength at 200 GHz Spacing
Single Output, Four Wavelengths, up to 12 dBm/Wavelength	ITU 23-53
Single Output, Two Wavelengths, up to 16 dBm/Wavelength	ITU 23-37
Single Output, One Wavelength, up to 18 dBm/Wavelength	ITU 31-37

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