

ADVANCED SERVICES TRANSPORT DWDM BROADCAST/NARROWCAST TRANSMITTER AST-TXD-DW



IPITEK's AST-TXD-DW, transmitter is a new generation design, utilizing a 1550 nm External Cavity Laser (ECL). The ECL laser exhibits the linear capability of a direct modulation laser with the spectral purity of an external modulation laser. The AST-TXD-DW transmitter is specifically engineered for optical transport of analog and digital QAM signals in traditional HFC networks. It also serves newer architectures such as FTTP deployments utilizing Active/Passive Optical Network (AON/PON). AST-TXD-DW can also be used as a driver for multiple EDFA amplifiers in systems with large scale distribution over short distances.

The transmitter design and 10 dBm output power allows it to be used for multiple applications, including headend to one or more nodes or as a driver for one or more EDFA amplifiers providing large scale distribution of broadband signals in short haul FTTP systems. It also provides a simple method for distributing multiple signals to segmented nodes.

AST-TXD-DW is provisioned with separate RF inputs for broadcast and Narrowcast signals. The unit's advanced design also provides for a combined broadcast/Narrowcast signal that can be applied to the broadcast input only without signal degradation.

With full bandwidth to 1 GHz, the transmitter is optimized for optical transport of analog and QAM signals directly from the headend to the node. The

- ### Features and Benefits
- **Low Cost Alternative to External Modulation for large system distribution**
 - **Conserves fiber in the forward path with choice of ITU Channels 21 to 59**
 - **Next Generation high efficiency External Cavity Laser (ECL)**
 - **Optimized forward bandwidth to 1 GHz**
 - **High isolation dual inputs**
 - **SBS advanced circuitry enables full loading with minimized distortions**

transmitter offers a choice of 41 DWDM wavelengths with 100 GHz spacing.

The transmitter includes an RF driver, integrated laser cooling circuitry, advanced dispersion compensation and predistortion circuits. It provides the linear capability of a standard laser combined with the spectral purity of an external modulation system.

An onboard micro-controller provides complete monitoring and control of the unit. Software design includes both function control and unit monitoring. The controller system also provides alarm processing and status monitoring functions. These signals are routed to the AST chassis Control and Management module (CMU) that provides unit management through a Local Craft Interface as well as remote management. The management system provides an HMS-SNMP compliant interface to a higher level element manager, such as the IPITEK Node Wizard system or to HP OpenView or Castle Rock SNMPc. Front panel indicators also provide immediate visual indication for Laser On and a summed Fault Alarm.

CONTROL FUNCTIONS

OMI/AGC/RF Level Adjust
AGC/Manual Gain Operation

SPECIFICATIONS

Optical

Output Power: 10 dBm
 Wavelength: ITU CH 21 (1550.6 nm)
 to CH 59 (1530.33 nm)

RF:

Bandwidth: 45 MHz - 1003 MHz
 Typical Operating Range: Analog: 49 - 675 MHz
 Digital: 675 -1003 MHz

Separate Inputs

Broadcast Input Level: +15, ±0.5 dBmV/ch 79
 NTSC/67 PAL Channels

Narrowcast Input Level: +15 dBmV ± 0.5 dBm
 75 QAM Channels

Combined Input:

79 NTSC/67 PAL Channels
 +15, ±0.5 dBmV/ch
 channel with 5 dB
 equalizer range, + 320
 MHz Digital @ -6 dBc

Response Flatness: P to V 1.0 dB typical; 2.0 dB max
 Input Impedance: 75 ohms
 Return loss: >16 dB
 Port to port isolation: >50 dB

Performance:

(79 NTSC/67 PAL unmodulated carriers + 320 MHz
 Digital @ specified link budget, +2 dBm input nominal)

Link without EDFA: (8 Km)

CNR > 53 dB
 CSO >-62 dBc
 CTB >-63 dBc
 X Mod 65 dBc

Link with EDFA (100 Km):

CNR > 51 dB
 CSO >-61 dB
 CTB >-62 dBc
 X Mod 65 dBc

Mechanical/Electrical:

RF Connectors: Quick Disconnect
 Optical Connector: SC/APC; E-2000/
 APC Optional
 RF Input Test Points: -20, ±0.5 dB

Environmental:

Operating Temperature: 0°C to 50°C
 Humidity: to 95%, non-
 condensing.
 Storage Temperature: -40°C to +85°C,
 24 hours

ORDERING INFORMATION

AST-TXD-DW	-	PXX	-	XX	-	XX	-	X	-	X	-	XX
AST DWDM ECL optical Transmitter		Optical Power in dBm		DWDM Wavelength by ITU #		Channel Plan		Pilot Tone		AGC		Connector
		10 dBm		Ch 20 - 59		NT = NTSC BG = PAL B/G DK = PAL D/K PI = Pal I		1= Pilot Tone 2= No Pilot Tone		1= AGC 2= No AGC		E2 = E2000/APC SC = SC/APC

