

## **HT8800 Series**

**The New 1550nm EMT for Radio & Television  
Networks**

**Full C-band wavelength tunable (tuning  
range > 35nm)**

**Technical Specification**

# CONTENT

<b>1.0 PRODUCT DESCRIPTION.....</b>	<b>1</b>
<b>2.0 PRODUCT FEATURE.....</b>	<b>2</b>
<b>3.0 MAIN APPLICATION.....</b>	<b>3</b>
<b>4.0 TECHNICAL INDEX.....</b>	<b>4</b>
<b>5.0 CHASSIS LENGTH.....</b>	<b>6</b>
5.1 OPTICAL PORT ON FRONT PANEL.....	6
5.2 OPTICAL PORT ON BACK PANEL.....	6
<b>6.0 PRODUCT SERIES.....</b>	<b>7</b>
<b>7.0 MODEL EXPLANATION.....</b>	<b>7</b>
<b>APPENDIX1. APPLICATION PROSPECTS.....</b>	<b>8</b>
<b>APPENDIX2. ITU GRID C-BAND 50GHZ SPACING.....</b>	<b>10</b>

## **1.0 PRODUCT DESCRIPTION**

HT8800 all C band tunable CATV external modulation optical transmitter, is an industry-leading and pioneer product. The tunable range of wavelength: 1528.77~1563.86nm, the adjustable wavelength: >35nm. With the traditional ITU standard wavelength  $\pm 0.8\text{nm}$  ( $\pm 100\text{GHz}$ ) can tunable, is a completely new concept and application ranges.

A HT8800 including all C band's useable wavelength, Its database stores 89 ITU standard wavelength channels (C band 0.4nm gallery interval). Users can achieve the selection, switch and route etc wavelength management function quickly, accurately. High wavelength accuracy, high wavelength stability, fast tuning rate, perfectly adapt the NGB DWDM system. It's high wavelength flexibility and replaceability will become the development direction of next generation broadcast television network (NGB) external modulation optical transmitter.

The new generation fiber optical communication technology with DWDM nuclear technology should be the NGB's development direction. The DWDM technology can provide large-capacity backbone network and metropolitan area networks for NGB, while PON (passive optical network) should be the mainstream technology of NGB subscriber access network.

The DWDM technology can take full advantage of existing fiber optical resource, large-capacity, the network with high flexibility, economic and high reliability. The wavelength can be convertible and management is the DWDM system's core equipment of external modulation optical transmitter.

## 2.0 PRODUCT FEATURE

- Full C-Band tunable, tunable range >35nm
- 0.4nm interval, 89 ITU channels, database storage
- ITU cord, frequency, Wavelength,three tunable ways, flexible and convenient
- **Rapid** tunable speed (<20mS)
- High wavelength(frequency) lock precision( $\pm 0.02\text{nm}$ )
- High wavelength(frequency) stability ( $\pm 0.012\text{nm}$ )
- Excellent side mode suppression, high extinction ratio
- Low noise, narrow linewidth ( Typ.=0.3MHz )
- Excellent system CNR,CTB,CSO index
- SBS threshold 13 ~ 19dBm continuously adjustable
- The safety reliability & network management of the telecommunication level
- High level wavelength flexibility and replaceability
- 10/100M Ethernet interface, support SNMP, and WEB remote control and management
- 1+1 power backup, support hot plug-ing.
- Excellent cost performance

### **3.0 MAIN APPLICATION**

- Next Generation Broadcasting (NGB)
- FTTH、FTTx PON 、RFoG、 Triple-play
- Narrow plug data service as VOD, IP/QAM, etc
- Replacing traditional fixed wavelength 1550nm external modulation optical transmitter
- Providing highly wavelength flexible and replace ability.
- As an alternate machine of ITU fixed-wavelength optical transmitter, to reduce the amount of inventory reserves
- Fully use of existing fiber resources, achieving network upgrades and expansion
- The CATV network with super capacity backbone and metropolitan area networks
- Dynamic wavelength configuration, wavelength conversion, wavelength routing
- Optical path protection, DWDM line back up
- Dynamic optical add-drop multiplexing (OAOM)
- DWDM system test

## 4.0 Technical index

Performance			Index			Supplement
			Max.	Typ.	Min.	
Optic feature	Tuning Range	(nm)	35			C-Band
	Frequency tuning Range	(nm)	1528.77		1563.86	
	Wavelength tuning Range	(THz)	191.7		196.1	
	Number of ITU grid locking		89			50GHz spacing
	Channels Spacing	(nm)		0.4		50GHz spacing
	Locked wavelength Accuracy	(nm)	-0.02		+0.02	±2.5 GHz
	Wavelength stability	(nm)	-0.012		+0.012	±1.5 GHz
	Tuning Speed	(mS)			20	
	Number of Output port			2		
	Output Optical Power	(dBm)	4.5			HT8825
			5.5			HT8826
			6.5			HT8827
			7.5			HT8828
			8.5			HT8829
	Power ripple	(dB)	-0.25	±0.15	+0.25	Over tuning range
	Line width	(MHz)		0.35	1	FWHM ( $\Delta\lambda$ ) , ( -3dB full width )
	Side Mode Suppression ratio	(dB)	45	50		SMSR
Relative Intensity Noise (RIN)	(dB)			-160	RIN ( 20~1000MHz )	
Return loss	(dB)	50				
Optical connector		SC/APC			Optional FC/APC、 LC/APC	
RF Feature	Work bandwidth	(MHz)	47		862	
	Input level	(dBmV)	18		28	AGC
	Flatness	(dB)	-0.75		+0.75	
	Return loss	(dB)	16			
	Input impedance	( $\Omega$ )		75		
	RF connector		F-Female			

Link Feature	Transmit channel		PAL-D/60CH		PAL-D/99CH		
	CNR1	(dB)	≥54.0		≥52.5		Back to back
	CNR2	(dB)	≥52.5		≥50.5		65Km optical fiber, 0dBm receive
	CTB	(dB)	≤-65		≤-65		
	CSO	(dB)	≤-65		≤-65		
	SBS restrain	(dBm)	13		19	Adjustable	
General Information	10/100M Ethernet interface		RJ45				
	Net working protocol		SNMP				
	Communication interface		RS232				
	Power supply	(VAC)	90		265	50/60Hz	
		(VDC)	-72	-48	-36		
	Power Consume	(W)			50	Single power works	
	Operating temp.	(°C)	-5		65	Machine temp. control automatically	
	Storage temp.	(°C)	-40		85		
	Relative humidity	(%)	5		95		
Size (W)x(D)x(H)	(")	19×15.2×1.75					

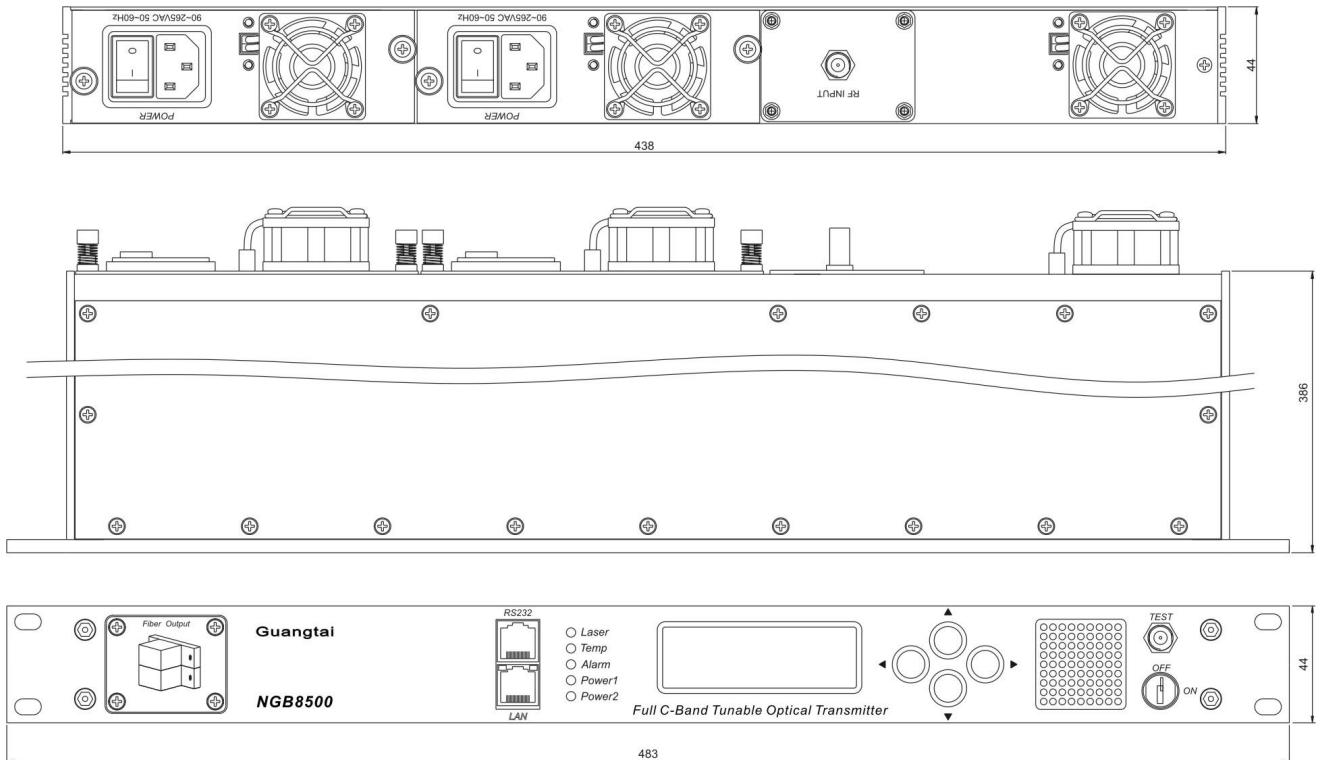
Test condition:

CNR1: Tx to Rx, 0dB receiving.

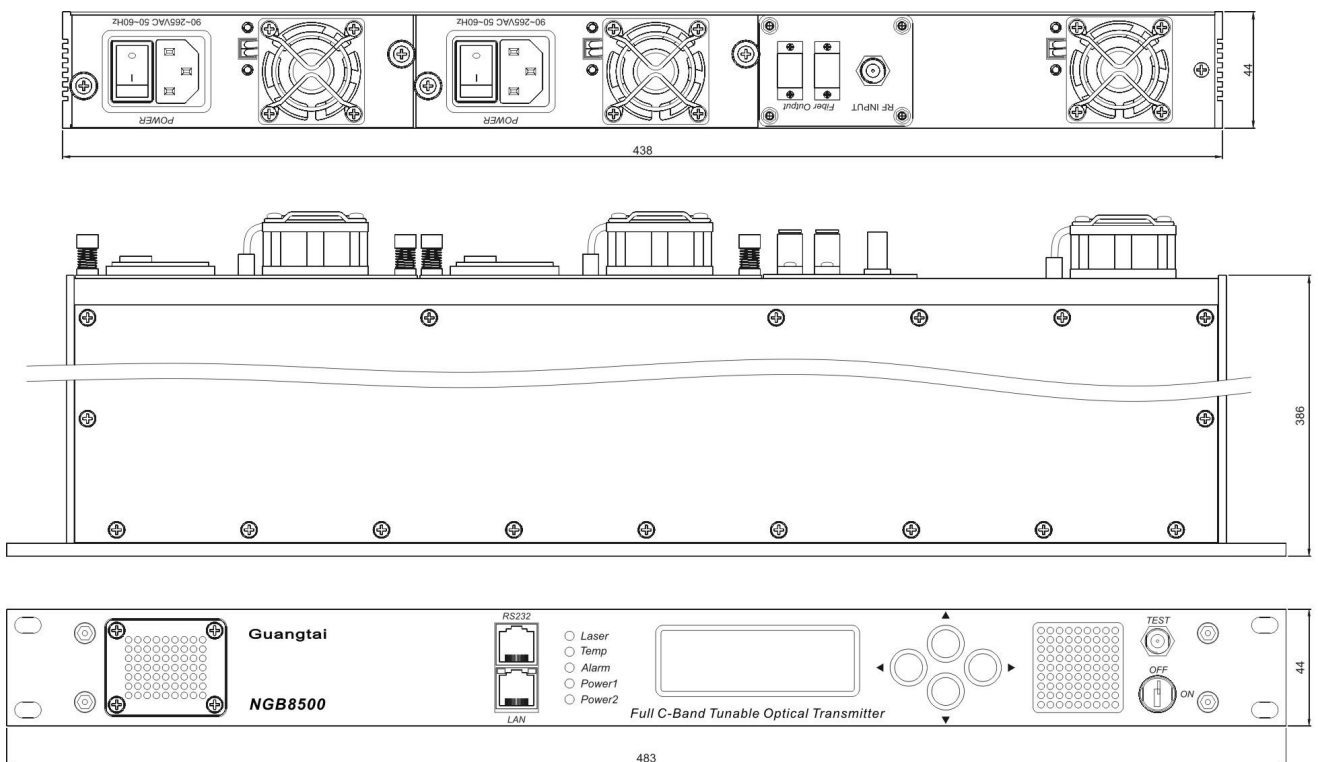
CNR2: 16dBm EDFA (NF4.5~5.5dB), 65km fiber, 0dBmreceiving.

## 5.0 CHASSIS LENGTH

### 5.1 Optical port on front panel



### 5.2 Optical port on back panel





## 6.0 Product series

Model	Number of output port	Output power of each port	Work wavelength	SBS Restrain	SNMP	System index (59 routes PAL-D)			
						CNR1	CNR2	CTB	CSO
HT8825	2	≥4.5	1528.77~1563.86 Full C-Band Tunable	13~19 dBm Adjustable	With	≥54	≥52.5	≤-65	≤-65
HT8826	2	≥5.5				≥54	≥52.5	≤-65	≤-65
HT8800	2	≥6.5				≥54	≥52.5	≤-65	≤-65
HT8828	2	≥7.5				≥54	≥52.5	≤-65	≤-65
HT8829	2	≥8.5				≥54	≥52.5	≤-65	≤-65

## 7.0 Model explanation

**HT88**   **2**   **7**   -   **□** / **□□** - **P** / **□□**

NGB (Next Generation Broadcasting) Full C-band tunable Externally Modulated Optical Transmitter	Number of output port		Output power		Optical port position		Connector		Number of power supply		Power supply	
	2	2 fiber output	5	≥4.5dBm	F	Front panel	FA	FC/APC	P	Dual PS, hot plug	22	220VAC
			6	≥5.5dBm	B	Back panel	SA	SC/APC				
			7	≥6.5dBm			LA	LC/APC			48	-48VDC
			8	≥7.5dBm							42	-48VDC & 220VAC
			9	≥8.5dBm								

## **8.0 Appendix1. Application Prospects**

With the commercial transition of the cable television network, this industry is positively changing from previous' single basic service situation (only rely on radio and television) to the development of the integrated service provider. Actively promoted the DTV, FTTx (FTTB, FTTP, FTTH), Triple-play and two-way network transformation. Carrying out all kind business, such as IPTV (IP / QAM), NVOD, VOD and time-shifted TV interactive etc. All these are shows that, this industry are being effort to actively develop a variety of value-added services. As the amount of cable TV transmission network information suddenly increases. And in order to provide more Interactive services capacity, the Next Generation Broadcasting (NGB) appeared.

The new generation of optical communications technology whose core is DWDM technology, should be the direction of NGB. DWDM technology can provide large-capacity of backbone network and metropolitan area networks to NGB. The PON (Passive Optical Network) should be the mainstream technology of NGB user access network.

DWDM technology can take full advantage of existing fiber resources, huge capacity, transparent transmission and all-optical switching; make the whole network with a high standard of flexibility, economy and reliability.

DWDM technology is mainly composed of narrow-band light source (optical transmitter), DWDM, EDFA, OADM, OXC, Receiver and other components that all met the ITU standard wavelength.

The optical transmitter 1550nm with high-performance of tunable and manageable wavelength is required in DWDM system; in order to running all kinds function such as wavelength conversion, wavelength management, wavelength routing, optical add-drop multiplexing etc.

The optical transmitter HT8800 with the full C-Band tunable, and covering all available wavelengths of the C-Band. It can fast and accurate tuning to the desired wavelength according to the needs of the network at any time. The High wavelength accuracy, high wavelength stability, and fast tuning speed, are

entirely appropriate NGB DWDM system.

With its high wavelength flexibility, replaceability and excellent cost performance, this device will be the direction of development of CATV 1550nm externally modulated optical transmitter. It will gradually replace the traditional fixed wavelength of 1550nm external modulation optical transmitter, become a mainstream product. No doubt this device will be the best choice for CATV system integrators and operators.

## 9.0 Appendix2. ITU Grid C-Band 50GHz spacing

Channel	f (GHz)	$\lambda$ (nm)	Channel	f (GHz)	$\lambda$ (nm)	Channel	f (GHz)	$\lambda$ (nm)
C17	191700	1563.86	C32	193200	1551.72	C47	194700	1539.77
H17	191750	1563.45	H32	193250	1551.32	H47	194750	1539.37
C18	191800	1563.05	C33	193300	1550.92	C48	194800	1538.98
H18	191850	1562.64	H33	193350	1550.52	H48	194850	1538.58
C19	191900	1562.23	C34	193400	1550.12	C49	194900	1538.19
H19	191950	1561.83	H34	193450	1549.72	H49	194950	1537.79
C20	192000	1561.42	C35	193500	1549.32	C50	195000	1537.40
H20	192050	1561.01	H35	193550	1548.91	H50	195050	1537.00
C21	192100	1560.61	C36	193600	1548.51	C51	195100	1536.61
H21	192150	1560.20	H36	193650	1548.11	H51	195150	1536.22
C22	192200	1559.79	C37	193700	1547.72	C52	195200	1535.82
H22	192250	1559.39	H37	193750	1547.32	H52	195250	1535.43
C23	192300	1558.98	C38	193800	1546.92	C53	195300	1535.04
H23	192350	1558.58	H38	193850	1546.52	H53	195350	1534.64
C24	192400	1558.17	C39	193900	1546.12	C54	195400	1534.25
H24	192450	1557.77	H39	193950	1545.72	H54	195450	1533.86
C25	192500	1557.36	C40	194000	1545.32	C55	195500	1533.47
H25	192550	1556.96	H40	194050	1544.92	H55	195550	1533.07
C26	192600	1556.55	C41	194100	1544.53	C56	195600	1532.68
H26	192650	1556.15	H41	194150	1544.13	H56	195650	1532.29
C27	192700	1555.75	C42	194200	1543.73	C57	195700	1531.90
H27	192750	1555.34	H42	194250	1543.33	H57	195750	1531.51
C28	192800	1554.94	C43	194300	1542.94	C58	195800	1531.12
H28	192850	1554.54	H43	194350	1542.54	H58	195850	1530.72
C29	192900	1554.13	C44	194400	1542.14	C59	195900	1530.33
H29	192950	1553.73	H44	194450	1541.75	H59	195950	1529.94
C30	193000	1553.33	C45	194500	1541.35	C60	196000	1529.55
H30	193050	1552.93	H45	194550	1540.95	H60	196050	1529.16
C31	193100	1552.52	C46	194600	1540.56	C61	196100	1528.77
H31	193150	1552.12	H46	194650	1540.16			