HT8500A Second-grade service area Externally Modulated Optical Transmitter

PRODUCT DESCRIPTION

With the development of DTV, VOD, Triple-play and FTTx, the information volume of CATV network is increasing rapidly , and bandwidth of 47~862MHz in central station will not be able to satisfy the requirement of single subscriber. In order to provide more interactive service capacity for subscribers, the second-grade service area has to be built in sub-station (second-grade network). In sub-station, the optical signal down-loaded from the central station will be converted into RF signal, then FDM (frequency division multiplexing) with marginal server of the sub-station, it will serve the subscribers in second-grade area through 1550nm Optical transmitter, EDFA and optical splitters. Radius of the area are generally 20km~40km.

How to select 1550nm optical transmitter for second-grade service area is always a difficulty. Take technical feature and long-term development of the network into consideration, we should select 1550nm Externally Modulated optical transmitter, however, such transmitter with reasonable price which can be suitable for Second-grade service area is unavailable in the current market. Considering the traditional cost, 1550nm Internal Modulated optical transmitter will be selected to have a test.

Internal Modulated will generate serious laser chip effect (bias current of the laser will be modulated by signal, optical spectrum will shift and shake). Chip effect will interact with dispersion of standard single fiber 1550nm window, which causes serious distortion (CNR deterioration). The distortion will be more serious with the increasing of transmission distance, bandwidth and number of channels. For many years, we have developed a lot of research and experiments in chip compensation of Internal Modulated, but do not have any breakthrough yet. The most advanced 1550nm Internally Modulated optical transmitter in the world can only transmit the signal for 15Km with CSO ≤ -57dB in the bandwidth of 600MHz, while its price is very expensive. But CSO ≤ -57dB is the lowest threshold for end subscribers. Therefore, the current 1550nm Internal Modulated optical transmitter cannot meet the technical requirements of the developing networking of second-grade service area.

HT8500A, a kind of low cost 1550nm Externally Modulated Optical transmitter, is specially designed for networking application of second-grade service area. It is named as HT8500A second-grade service area 1550nm Externally Modulated Optical Transmitter. HT8500A series Externally Modulated CATV transmitter adopts low noise, narrow bandwidth, and continuous wave laser DFB laser as its light source and adopts low cost single-output LiNbO3 external modulator that is specially designed by JDS-U to modulate signal , which reduce the cost of the transmitter largely. Based on a series of characterized optimization and technical innovation, HT8500A Optical transmitter can reach excellent system index with flatness ≤ 0.75dB in-band 47~862MHz, 13dBm SBS, point to point >50Km, (0dBm receiving) CSO ≤ -65dB, CTB ≤ -65dB, CNR ≥ 52dB. The whole unit is equipped with perfect RS232 communication interface, SNMP network management, 1+1 back-up power supply, and casing temperature auto-control. All the optical port for HT8500A Optical transmitter can be installed in the front panel (The back panel is also available if needed).

HT8500A second-grade service area 1550nm Externally Modulated Optical Transmitter, with its high index, high reliability and outstanding P/P ratio, is an ideal choice for second-grade service area.

HT8510AC: Single fiber output CATV work wavelength, 1MHz laser line width ,SBS 13dBm, SNMP network management optional

HT8520AC: Dual fiber output CATV work wavelength, 1MHz laser line width ,SBS 13dBm, SNMP network management optional

HT8510AC: Single fiber Output CATV operating wavelength, 1MHz laser linewidth, SBS 13dBm, SNMP optional.

HT8520AC: Dual fiber Output CATV operating wavelength, 1MHz laser linewidth, SBS 13dBm, SNMP optional.

HT8510AU: Single fiber Output ITU wavelength adjustable, 1MHz laser linewidth, SBS 13dBm, SNMP optional.

HT8520AU: Dual fiber Output ITU wavelength adjustable, 1MHz laser linewidth, SBS 13dBm, SNMP optional.

PRODUCT FEATURE

- High performance: no laser chirp, low dispersion distortion, high extinction ratio, with excellent characteristic within 47~862MHz in-band
- Narrow linearity width (Typ≤1MHz), low noise, DFB continuous wave laser
- The operating bandwidth is up to 47~1000MHz .
- High index: unique innovation technology, offers excellent CNR, CTB and CSO
- SBS: 13dBm, point to point>50Km optical transmission
- ITU standard wavelength, ±200GHz (±1.6nm) adjustable
- AGC/MGC mode is optional at spot. OMI can be optimized at spot
- Optional RS232 communication interface and SNMP
- Optional 1+1power supply backup
- Casing temperature auto-control
- Excellent P/P ratio

Main application

- HT8500a Optical transmitter used in second-grade service area of sub-station. With excellent P/P ratio, provide second-grade users with high quality and high reliability value added service such as RFTV, IPTV, VOD and so on. It can avoid the limitation on transmission bandwidth and distance as well as system CSO deterioration caused by laser chirp for adopting 1550nm direction modulated optical transmitter

TECHNIQUE INDEX

Performance			Index		Supplement
Optic feature	Operating wavelength	(nm)	1548~1563		HT8500AC
			ITU-TG.692		HT8500AU
	Wavelength adjustable	(nm)	±1.6 (±200GHz)		HT8500AU
	Wavelength adjustable		±0.05nm stepping		HT8500AU
	Linewidth	(MHz)	≤1.0		FWHM(△λ)
	Side mode suppression	(dB)	≥45		SMSR
	Equivalent noise intensity	(dB/Hz)	≤-160		RIN (20~1000MHz)
	Output power	(dBm)	3, 4.5, 6, 7, 8.5		
	Return loss	(dB)	≥55		
	Optical fiber connector		FC/APC		Optional SC/APC、LC/APC
RF feature	Work bandwidth	(MHz)	47~862		Optional 47~1000MHz
	Input level	(dBmV)	18~28		AGC
	Flatness	(dB)	≤±0.75		47~862MHz
			≤±1.5		862~1000MHz(optional)
	Return loss	(dB)	>16		47~750MHz
	Input impedance	(Ω)	75		862~1000MHz
	RF port		F-Female		
Link feature	Transmit channel		PAL-D/60CH	PAL-D/99CH	
	CNR1	(dB)	≥52.0	≥50.5	Back to back
	CNR2	(dB)	≥50.5	≥49.0	50Km optical fiber, 0dBm receive
	CTB	(dB)	≤-65	≤-65	
	CSO	(dB)	≤-65	≤-65	
	SBS restrain	(dBm)	13		

General feature	SNMP network		RJ45	
	Communication interface		RS232	
	Power supply	(VAC)	90~265	50/60Hz
		(VDC)	-48	30~72
	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	(")	19×14.5×1.75	(W)×(D)×(H)

Remark: 1.SBS=18dBm, EDFA 18dbm output fiber, port to port <40km

PRODUCT SERIES

Model	Number of output port	Output power(dBm)	Operating wavelength(nm)	SBS Restrain (dBm)	System index(59 routes PAL-D)			
					CNR1	CNR2	CTB	CSO
HT8513AC	1	≥3.0	1548~1563	13	≥52	≥50	≤-65	≤-65
HT8515AC	1	≥4.5			≥52	≥50.5	≤-65	≤-65
HT8516AC	1	≥6.0			≥52	≥51	≤-65	≤-65
HT8517AC	1	≥7.0			≥52	≥51	≤-65	≤-65
HT8519AC	1	≥8.5			≥52	≥51	≤-65	≤-65
HT8523AC	2	≥3.0			≥52	≥51	≤-65	≤-65
HT8525AC	2	≥4.5			≥52	≥51	≤-65	≤-65
HT8526AC	2	≥6.0			≥52	≥51	≤-65	≤-65
HT8527AC	2	≥7.0			≥52	≥51	≤-65	≤-65
HT8529AC	2	≥8.5			≥52	≥51	≤-65	≤-65
HT8513AU	1	≥3.0	1528~1563nm ITU wavelength		≥52	≥50	≤-65	≤-65
HT8515AU	1	≥4.5			≥52	≥50.5	≤-65	≤-65
HT8516AU	1	≥6.0			≥52	≥51	≤-65	≤-65

HT8517AU	1	≥7.0			≥52	≥51	≤-65	≤-65
HT8519AU	1	≥8.5			≥52	≥51	≤-65	≤-65
HT8523AU	2	≥3.0			≥52	≥51	≤-65	≤-65
HT8525AU	2	≥4.5			≥52	≥51	≤-65	≤-65
HT8526AU	2	≥6.0			≥52	≥51	≤-65	≤-65
HT8527AU	2	≥7.0			≥52	≥51	≤-65	≤-65
HT8529AU	2	≥8.5			≥52	≥51	≤-65	≤-65

MODEL EXPLANATION

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Product type		Product series		Number of output port		Output power		Quality		Operating wavelength		Wavelength		Network management		Connector		Number of power supply		Power supply		ITU Grid Ch. No.	
HT	Analogue optical transmitter	85	1550nm external modulation	1	Single fiber output	3	3dBm	A	Economical type	C	1548~1563nm	086	47~862MHz	O	No	FA	FC/APC	S	Single PS	22	220VAC	23	1558.98nm
				2	Dual fiber output	5	4.5dBm			U	1528~1563nm ITU wavelength	100	47~1000MHz	N	Built-in	SA	SC/APC	D	Dual PS	11	110VAC	30	1553.33nm
						6	6dBm									LA	LC/APC			48	-48VDC	37	1547.72nm
						7	7dBm																
						9	8.5dBm																