

SFT8510

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 \leq -57dB in the bandwidth of 600MHz, while its price is very expensive. But CSO \leq -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.

SFT8510, 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 SFT8510 second-grade service area 1550nm Externally Modulated Optical Transmitter. SFT8510 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, SFT8510 Optical transmitter can reach excellent system index with flatness \leq 0.75dB in-band 47~862MHz, 13dBm SBS, point to point >50Km, (0dBm receiving) CSO \leq -65dB, CTB \leq -65dB, CNR \geq 52dB. The whole unit is equipped with perfect RS232 communication interface, SNMP network management, 1+1 backup power supply, and casing temperature auto-control. All the optical port for SFT8510 Optical transmitter can be installed in the front panel (The back panel is also available if needed).

SFT8510 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.

SFT8510C optical transmitter: single output, operation wavelength 1547~1564nm, laser linearity width 1MHz, SBS: 13dBm.

SFT8510U optical transmitter: single output, ITU standard wavelength adjustable. Through LCD menu and the button on the front panel, laser wavelength can be set and adjusted with \pm 0.05nm stepping in the range of \pm 200GHz (\pm 1.6nm). It is applied for upgrading and expansion of WDM networking.

Product features

- High performance: no laser chirp, low dispersion distortion, high extinction ratio, with excellent characteristic within 40~862MHz in-band.
- Narrow linearity width (Typ=1MHz), low noise, DFB continuous wave laser.
- The operating bandwidth for SFT8510 Optical transmitter is up to 47~1080MHz.
- High index: unique innovation technology, offers excellent CNR, CTB and CSO.
- SBS: 13dBm, point to point>50Km optical transmission.
- ITU standard wavelength, \pm 200GHz (\pm 1.6nm) adjustable.
- AGC/MGC mode is optional at spot. OMI can be optimized at spot.
- Optional RS232 communication interface and SNMP.
- Optional 1+1 power supply backup.
- Casing temperature auto-control.
- Excellent P/P ratio.

Main application

- SFT8510 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.

Model explanation

SFT851 [Output power] [Operating wavelength] - [Bandwidth] - [Network management] [Connector] - [Number of power supply] [Power Supply] [ITU Grid Ch. No.]

Product type	SFT	Analogue optical transmitter
Product series	85	1550 nm external modulation 47~862 MHz
Number of output ports	1	1 fiber output
Output power	3	≥3.0 dBm
	5	≥5.0 dBm
	6	≥6.0 dBm
	7	≥7.0 dBm
Operating wavelength	C	1548~1563 nm
	U	1528~1563 nm ITU wavelength adjustable
Bandwidth	086	47~860 MHz
	100	47~1000 MHz
	108	47~1080 MHz
Network management	0	No
	1	Built-in
Connector	FA	FA/APC
	SA	SA/APC
	LA	LA/APC
Number of power supply	S	Single PS
	D	Dual PS
Power supply	22	220 VAC
	11	110 VAC
	48	-48VDC
ITU Grid Ch. No.	23	1558.98 nm
	30	1553.33 nm
	37	1547.72 nm

Technical index

Performance		Index		Supplement
Optic feature	Operating wavelength (nm)	1548~1563		SFT8510C
		ITU-TG.692		SFT8510U
	Wavelength ADJ. range	(nm)	±1.6 (±200GHz)	
	Wavelength ADJ. mode		±0.05nm stepping	
	Linewidth	(MHz)	≤1	
	Side mode suppression ratio	(dB)	≥45	
	Equivalent noise intensity	(dB/Hz)	≤-160	
	Number of output port		1	
	Output power	(dBm)	1x5	
	Return loss	(dB)	≥55	
optical fiber connector		SC / APC		Optional LC / APC, FC / APC
RF feature	Work bandwidth	(MHz)	47-862	
	Input level	(dBmV)	18~28	
	Flatness	(dB)	≤±0.75	
			≤±1.5	
	Return loss	(dB)	>16	
	Input impedance	(Ω)	75	
RF port		F-Female		
Link feature	Transmit channel		PAL-D / 60CH	PAL-D / 99CH
	CNR1	(dB)	≥52.0	≥50.5
	CNR2	(dB)	≥50.5	≥49.0
	CTB	(dB)	≤-65	≤-65
	CSO	(dB)	≤-65	≤-65
	SBS restrain	(dBm)	13	
General feature	SNMP network management interface		RJ45	
	Communication interface		RS232	
	Power supply	(VAC)	90~265	
		(VDC)	-48	
	Power Consume	(W)	≤50	
	Work temp.	(°C)	-5~65	
	Storage temp.	(°C)	-40~85	
	Operating relative humidity	(%)	5~95	
Size (W)x(D)x(H)		19×14.5×1.75 (") 483×368×44 (mm)		

