

DBS/MMDS optical transmitter & receiver

- HDS26 Series

Technical Specification

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1.0 PRODUCT DESCRIPTION

HDS26 series is a set of broadband optical transmitter and receiver. Its frequency bandwidth covers 47~862MHz and 950~2200MHz and it is applicable for CATV and SAT-IF transmission.

HDS26 adopts 1U 19" standard chassis. The operating parameter is controlled by MPU, and the front panel LCD provides the select display and error diagnosis. It has standard RS232 communication interface and SNMP network management function.

HDS26 series optical transmitter adopts world famous cooling DFB laser that is featured with high linearity, with optical isolation and internal modulation mode. The whole unit is installed perfect laser APC, ATC control circuit to ensure the laser's long life span and high reliable working.

The SAT-IF adopts high linearity IF drive circuit with AGC function and the CATV adopts pre-distortion compensation RF AGC drive circuit, which improves the system CSO index and ensures the high quality of SAT-IF and CATV-RF signal transmission in one fiber.

The production and application of HDS26 series broadband optical transmitter and receiver offers an economical solution for CATV operators to add SAT live broadcast business to current network.

HDS26TX: CATV & SAT-IF broadband optical transmitter (1RU chassis).

HDS26-108-00RX: CATV & SAT-IF broadband optical receiver (1RU chassis).

HDS26-308-00RX: CATV & SAT-IF broadband optical receiver (Wall-mounted type).

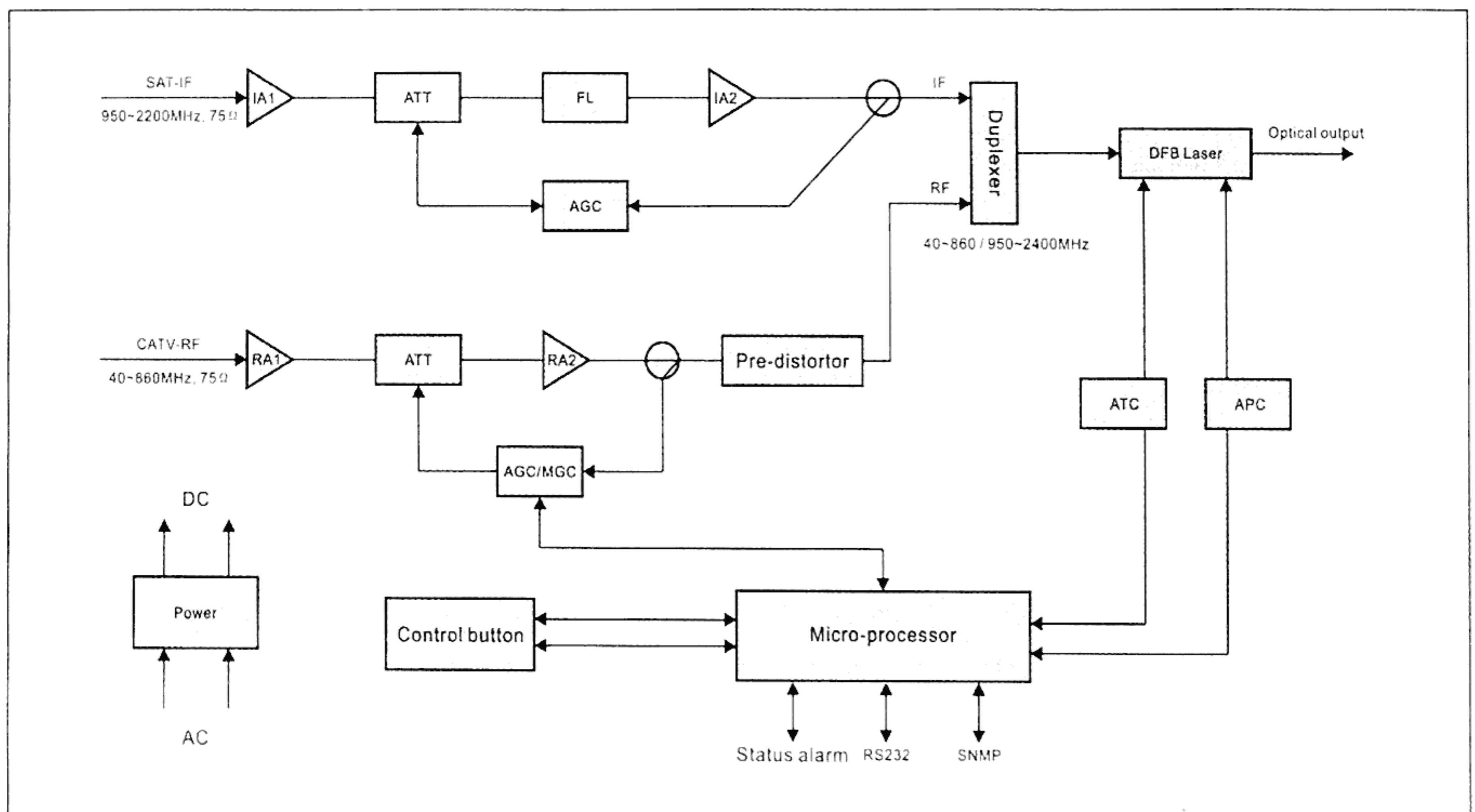
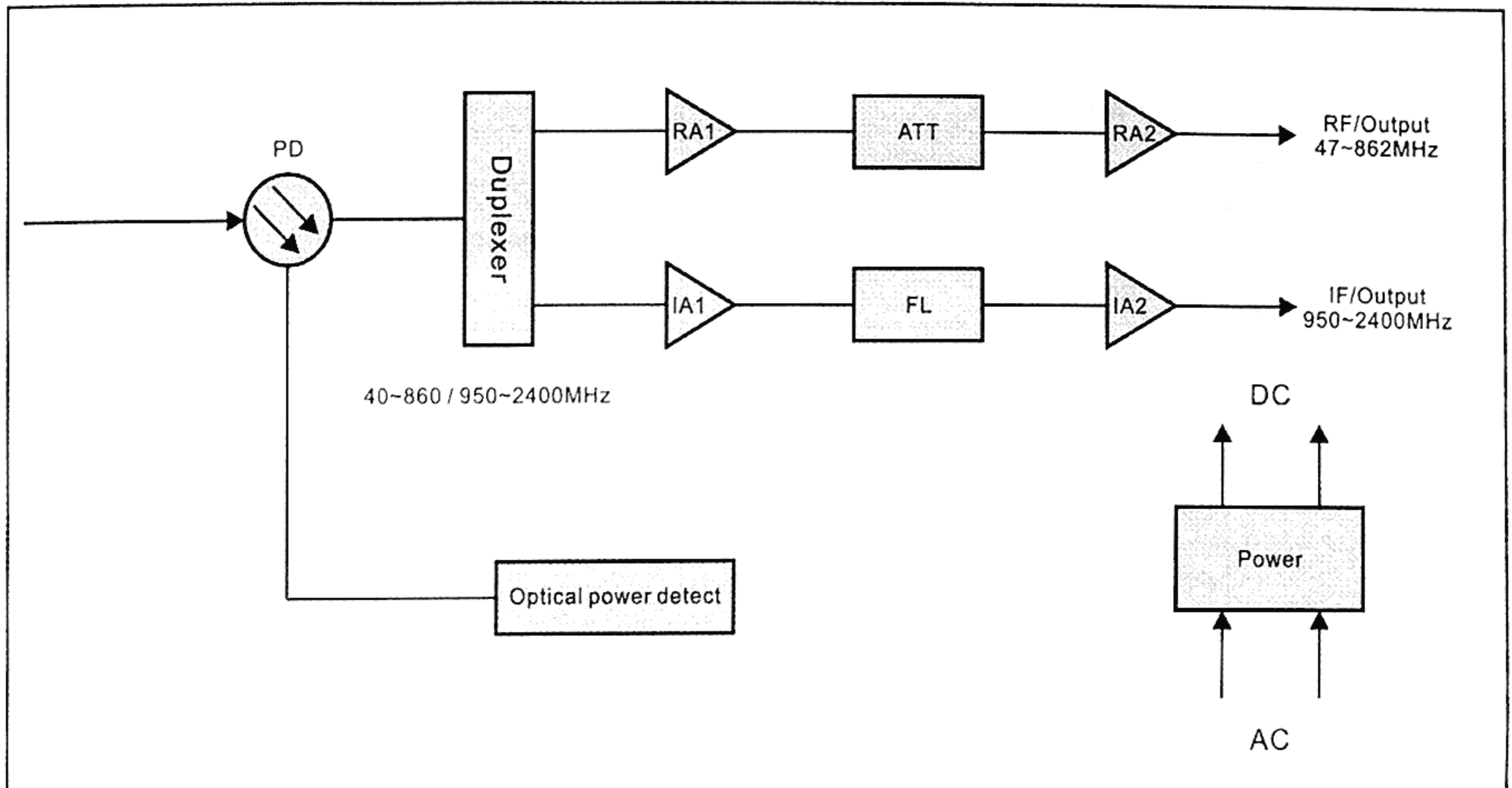
2.0 PRODUCT FEATURE

- Broadband type: 47~862MHz & 950~2200MHz.
- High output power: >24mW (1310nm) .
- High receiving sensitivity: \geq -8dBm.
- Wavelength optional for optical transmitter: 1310nm, 1550nm.
- Automatic gain control (AGC) in transmitter.
- Supply +12VDC or +18VDC to satellite tuner.

3.0 MAIN APPLICATION

- DVB-S, FTTH, FTTB.
- CATV network integrating DVB-S.
- Sharing SAT receiving antenna, Fiber optic system.

4.0 HDS26TX block diagram



5.0 Technical index

Performance			Index	Supplement
Optical feature	Laser wavelength	(nm)	1310±10	HDS26TA1310
			1550±10	HDS26TA1515
	Output power	(mW)	4~24	6~14dBm
	Input power	(dBm)	-8	HDS26-108RX
	Return Loss	(dB)	≥55	
	Optical connector		SC/APC	FC/APC, LC/APC
	Laser type		Cooling DFB	TX with ISO
	PD type		PIN	RX
RF feature	Work bandwidth	(MHz)	45~862	
	Input level	(dBm V)	15~25	AGC
	Flatness	(dB)	≤±1.0	45~862MHz
	Return Loss	(dB)	>16	47~750MHz
	Connector		F-Female	
	Input impedance	(Ω)	75	
	Test channel		PAL-D/60CH	NTSC/80CH
	CNR	(dB)	≥51(1310nm)	≥50(1550nm)
	CTB	(dB)	≤-65(1310nm)	≤-63(1550nm)
	CSO	(dB)	≤-60(1310nm)	≤-57(1550nm)
IF feature	Work bandwidth	(MHz)	950~2200	
	Input range	(dBm)	-25 ~ -14	TX with AGC
	Output range	(dBm)	-15 ~ -40	RX
	Flatness	(dB)	0.5	40MHz
			±1.0	950~2200MHz
	Input impedance	(Ω)	75	
	RF return loss	(dB)	12	
RF connector		F-female		

	C/IM3 ¹⁾	(dB)	≥55	
	CNRM ²⁾	(dB/H z)	>115	
	Link gain ³⁾	(dB)	25	
General feature	Serial interface		RS232	TX
	SNMP network management interface		RJ45	TX
	Power supply	(V)	95~260VAC	Optional -48VDC
	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)	(")	19×10×1.75	

Notes: 1) C/IM3 defined as the ratio of signal over the third distortion (IM3) by using a two-tone test (1.0GHz and 1.1GHz).

2) Tested by connecting the transmitter and receiver with a short fiber (Back to back operation).

3) Tested at -40dBm RF input.

6.0 HDS26-108-00 CATV OPTICAL RECEIVER TEST DATA

Pin(dBm)	+2	+1	0	-1	-2	-3	-4	-5	-6	-7	-8
Vo(dBμV)	90.7	88.7	86.7	84.7	82.7	80.7	78.7	76.7	74.7	72.7	70.7
CNR(dB)	56.1	55.6	54	53	51.7	50.3	49.1	48.2	46.8	45.5	43.7
CTB(dB)	63	65	65	65	65	67	68	67	65	65	65
CSO(dB)	62	63	64	65	65	65	65	65	63	63	63

Remark: 1. Test condition: PAL-D59CH, OMI=3.8%.

2. Test sample: HDS26-108RX.

7.0 HDS26-308-00 SAT-IF LINK PERFORMANCE

Optical input (dB)	Link loss (dB)	CNR (dB)	Link gain (dB)	RF Output level (dBm/Ch.)
-7	14	30.18	-2	-38
-6	13	32.18	0	-36
-5	12	34.13	2	-34
-4	11	38.59	6	-32
-3	9	40.11	8	-30
-2	8	42.18	10	-28
-1	7	44.24	12	-26
0	6	45.67	14	-24

8.0 PRODUCT SERIES

Mode	Wavelength (nm)	TX Output power	TX Optical input	RX Optical input	Transmission distance
HDS26-104TG-A-1310-SA	1310	4mW	6dBm		
HDS26-106TG-A-1310-SA	1310	6mW	8dBm		
HDS26-108TG-A-1310-SA	1310	8mW	9dBm		
HDS26-110TG-A-1310-SA	1310	10mW	10dBm		
HDS26-112TG-A-1310-SA	1310	12mW	11dBm		
HDS26-114TG-A-1310-SA	1310	14mW	11.5dBm		
HDS26-116TG-A-1310-SA	1310	16mW	12dBm		
HDS26-118TG-A-1310-SA	1310	18mW	12.5dBm	-	-
HDS26-120TG-A-1310-SA	1310	20mW	13dBm	-	-
HDS26-122TG-A-1310-SA	1310	22mW	13.5dBm	-	-
HDS26-124TG-A-1310-SA	1310	24mW	14dBm	-	-
HDS26-104TG-A-1505-SA	1550	4mW	6dBm	-	5Km
HDS26-106TG-A-1505-SA	1550	6mW	8dBm	-	5Km
HDS26-108TG-A-1505-SA	1550	8mW	9dBm	-	5Km
HDS26-110TG-A-1505-SA	1550	10mW	10dBm	-	5Km
HDS26-104TG-A-1510-SA	1550	4mW	6dBm	-	10Km
HDS26-106TG-A-1510-SA	1550	6mW	8dBm	-	10Km
HDS26-108TG-A-1510-SA	1550	8mW	9dBm	-	10Km
HDS26-110TG-A-1510-SA	1550	10mW	10dBm	-	10Km
HDS26-104TG-A-1515-SA	1550	4mW	4dBm	-	15Km
HDS26-106TG-A-1515-SA	1550	6mW	6dBm	-	15Km
HDS26-108TG-A-1515-SA	1550	8mW	8dBm	-	15Km
HDS26-110TG-A-1515-SA	1550	10mW	10dBm	-	15Km
HDS26-108-00	1200~1600	-	-	-8dBm	-
HDS26-308-00	1200~1600	-	-	-8dBm	-

Notes: TX optional CWDM wavelength.