

Product Test Sheet

Product Information

Product Name	Thulium-Doped Fiber Amplifier
Product Code	STTDFA-1920-BA-25-SM-B (LL-TDFA-BA-1920-25-SMF-B)
Serial Number	26012707
Test Date	2026/03/06
Test Result	Pass
Tester	CY

Optical Specifications

Parameter	Unit	Target Value	Test Value	Test Result	
Operating Wavelength	nm	1930~2010	1930~2010	☒ Pass	☐ Fail
Optical Input Power	dBm	-10~+10	-10~+10	☒ Pass	☐ Fail
Optical Output Power @0dBm input	dBm	≥25	> 25	☒ Pass	☐ Fail
Noise Figure	dB	≤5	≤5	☒ Pass	☐ Fail
Power Peak stability (P-P)	-	-	±0.54%@25dBm, 60min	☒ Pass	☐ Fail
Power stability (RMS)	-	-	0.44%@25dBm, 60min	☒ Pass	☐ Fail
In/Out Port Isolation	dB	-	35	☒ Pass	☐ Fail

Product Specifications

Operation Temperature Range	°C	-5~+50	
Operation Humidity Range	%	0~70	
Storage Temperature Range	°C	-40~+85	
Power Supply	-	AC 100~240V	UK Standard
Electrical Power Consumption	W	32	Ambient Temperature 25°C
Fiber Connector	-	FC/APC	
Input/Output Fiber Type	-	SMF1950nm, 1meter	
Optical Fiber Sleeve	-	3mm Loose tube, black color	
Dimensions	mm	376(W)×340(D)×112(H)	Bench-Top
Remote Control Port	-	RS232-DB9	
Software Version	-	EDFAController- 10W- V20240531	
Control Mode	-	ACC: Automatic Current Control	Current Tuning Range: 0~7.5A
		APC: Automatic Power Control	Power Tuning Range: 15~25dBm

*Note:

1.Under the same current, different wavelengths/Input Power of input light will result in different output powers. Please set a reasonable current value.

2.Power stability: ISO 11554-2017

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8 Evaluation

8.1 General

The standard deviation, s , from n readings m_i is calculated according to

$$s = \sqrt{\frac{\sum_{i=1}^n (m_i - \bar{m})^2}{n-1}} \tag{3}$$

Where the mean value is

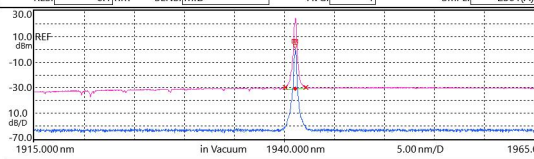
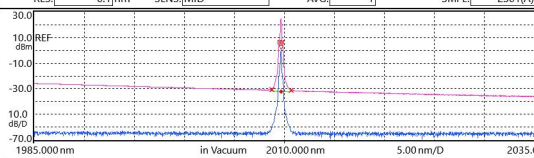
$$\bar{m} = \frac{\sum_{i=1}^n m_i}{n} \tag{4}$$

8.3 Power stability of cw lasers

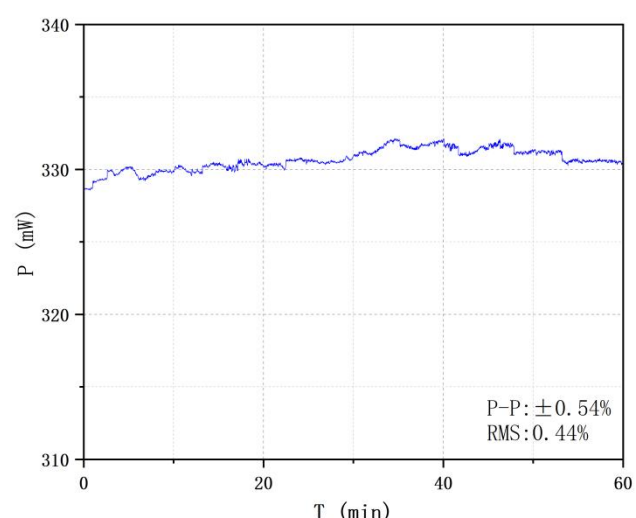
Calculate the mean value of the power, $\bar{P}$, and the respective standard deviation, s , for the appropriate stability time domain (short-term, medium-short-term, medium-term and long-term) according to the specifications given in 7.3.

Power stability is given as the relative power fluctuation, ΔP , in the corresponding stability time domain calculated from Formula (9):

$$\Delta P = \frac{2s}{\bar{P}} \tag{9}$$

Spectral test																																									
Test item	EDFA spectrum and NF value																																								
Test method	Access to the spectrometer for measurement																																								
Equipment	YOKOGAWA AQ6375E																																								
Test result	// AQ6375E OPTICAL SPECTRUM ANALYZER // 2026 Mar 06 18:15 TR A Δ 00001: 1941.1200nm -0.23dBm Δ-Δn: 00002: /DSP 00003: /E-WRITE /DSP 00004: /C-AUTORESET /BLK 00005: /D-FIX /BLK /E-FIX /BLK /F-FIX /BLK /G-FIX /BLK <Meas. Conditions> START: 1915.000nm STOP: 1965.000nm CENTER: 1940.000nm SPAN: 50.0nm RES: 0.1nm SENS: MID AVG: 1 SMPL: 2501(A)  1915.000 nm 1940.000 nm 1965.000 nm in Vacuum 5.00 nm/D <NF ANALYSIS> TH: 20.0dB MODE DIFF: 3.0dB OFST(IN): 0.00dB OFST(OUT): 0.00dB <table><tr><th>A. ALGO: AUTO-FIX</th><th>F. AREA: AUTO</th><th>M. AREA: ---</th><th>F. ALGO: LINEAR</th></tr><tr><th>NO.</th><th>WAVELENGTH (nm)</th><th>INPUT LVL (dBm)</th><th>OUTPUT LVL (dBm)</th><th>ASE LVL (dBm)</th><th>RESOLN (nm)</th><th>GAIN (dB)</th><th>NF (dB)</th></tr><tr><td>1</td><td>1941.1273</td><td>-0.225</td><td>24.717</td><td>-31.044</td><td>0.101</td><td>24.942</td><td>4.864</td></tr></table> LVL SHF WL SHF NOI MSK SRC ZOM SRC 1-2 AUT OFS AUT ANA AUT SRC AUT REF AUT CTR SWP 1-2 SMO OTH RPT SGL STP Optical Spectrum of Amplified 1941nm signal@0dBm input,5.8A // AQ6375E OPTICAL SPECTRUM ANALYZER // 2026 Mar 06 18:25 TR A Δ 00001: 2009.7000nm -0.26dBm Δ-Δn: 00002: /DSP 00003: /E-WRITE /DSP 00004: /C-AUTORESET /BLK 00005: /D-FIX /BLK /E-FIX /BLK /F-FIX /BLK /G-FIX /BLK <Meas. Conditions> START: 1985.000nm STOP: 2035.000nm CENTER: 2010.000nm SPAN: 50.0nm RES: 0.1nm SENS: MID AVG: 1 SMPL: 2501(A)  1985.000 nm 2010.000 nm 2035.000 nm in Vacuum 5.00 nm/D <NF ANALYSIS> TH: 20.0dB MODE DIFF: 3.0dB OFST(IN): 0.00dB OFST(OUT): 0.00dB <table><tr><th>A. ALGO: AUTO-FIX</th><th>F. AREA: AUTO</th><th>M. AREA: ---</th><th>F. ALGO: LINEAR</th></tr><tr><th>NO.</th><th>WAVELENGTH (nm)</th><th>INPUT LVL (dBm)</th><th>OUTPUT LVL (dBm)</th><th>ASE LVL (dBm)</th><th>RESOLN (nm)</th><th>GAIN (dB)</th><th>NF (dB)</th></tr><tr><td>1</td><td>2009.6902</td><td>-0.198</td><td>25.157</td><td>-32.151</td><td>0.099</td><td>25.355</td><td>3.886</td></tr></table> LVL SHF WL SHF NOI MSK SRC ZOM SRC 1-2 AUT OFS AUT ANA AUT SRC AUT REF AUT CTR SWP 1-2 SMO OTH RPT SGL STP Optical Spectrum of Amplified 2009nm signal@0dBm input,7.5A	A. ALGO: AUTO-FIX	F. AREA: AUTO	M. AREA: ---	F. ALGO: LINEAR	NO.	WAVELENGTH (nm)	INPUT LVL (dBm)	OUTPUT LVL (dBm)	ASE LVL (dBm)	RESOLN (nm)	GAIN (dB)	NF (dB)	1	1941.1273	-0.225	24.717	-31.044	0.101	24.942	4.864	A. ALGO: AUTO-FIX	F. AREA: AUTO	M. AREA: ---	F. ALGO: LINEAR	NO.	WAVELENGTH (nm)	INPUT LVL (dBm)	OUTPUT LVL (dBm)	ASE LVL (dBm)	RESOLN (nm)	GAIN (dB)	NF (dB)	1	2009.6902	-0.198	25.157	-32.151	0.099	25.355	3.886
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Pump current and output power relation curve																													
Test item	Pump current and output power relation curve																												
Test method	Measured by optical power meter																												
Equipment	Thorlabs PM100D/S148C																												
Test result	Output Power vs. Pump Current <table border="1"> <caption>Data for Output Power vs. Pump Current (0dBm Input@1941nm)</caption> <thead> <tr> <th>Pump Current (A)</th> <th>Output Power (mW)</th> </tr> </thead> <tbody> <tr><td>3.0</td><td>10</td></tr> <tr><td>4.0</td><td>60</td></tr> <tr><td>5.0</td><td>200</td></tr> <tr><td>6.0</td><td>390</td></tr> <tr><td>7.0</td><td>600</td></tr> <tr><td>7.5</td><td>710</td></tr> </tbody> </table> Output Power vs. Pump Current <table border="1"> <caption>Data for Output Power vs. Pump Current (0dBm Input@2009nm)</caption> <thead> <tr> <th>Pump Current (A)</th> <th>Output Power (mW)</th> </tr> </thead> <tbody> <tr><td>3.0</td><td>10</td></tr> <tr><td>4.0</td><td>35</td></tr> <tr><td>5.0</td><td>90</td></tr> <tr><td>6.0</td><td>170</td></tr> <tr><td>7.0</td><td>280</td></tr> <tr><td>7.5</td><td>340</td></tr> </tbody> </table>	Pump Current (A)	Output Power (mW)	3.0	10	4.0	60	5.0	200	6.0	390	7.0	600	7.5	710	Pump Current (A)	Output Power (mW)	3.0	10	4.0	35	5.0	90	6.0	170	7.0	280	7.5	340
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Power stability test	
Test item	Output power and power stability
Test method	Measured by optical power meter
Equipment	Thorlabs PM100D/S148C
Test result	 Power stability@25dBm, 0dBm input 1941nm, APC mode