# 2um Single Frequency Polarization Maintaining Thulium Doped Fiber Amplifier (TDFA) 1950-2050nm


## Product Description

KIdealphotonics Thulium-doped Benchtop Single-frequency Single-mode Fiber Amplifier is a power amplifier specially designed for ultra-narrow linewidth, single-frequency signal light (such as fiber lasers based on DFB and DBR principles). This amplifier can amplify low-power optical signals in the kHz range to an output power of up to 50W, and can well maintain the spectral characteristics of the input signal light. Our amplifier uses a high-power, high-performance multi-mode pump source and double-clad

fiber amplification technology, and the output power is continuously adjustable. The benchtop fiber amplifier is a complete Turn-Key system with internal microprocessor control. The front panel is equipped with a laser start switch and a power status LCD display, as well as an output power adjustment knob. Benchtop single-mode fiber amplifier (TDFA) can be widely used in scientific research, coherent synthesis, coherent detection sensor systems, etc.

## Product features

High output power、 Low noise figure、 Turn-Key system、 ACC/ALC mode operation

## Part Number

MP-TDFA-2000-1W-PM

## Application area

Optical communication、 Test and measurement、 Scientific applications

## Core parameters

| Wavelength | Output Power | Connector |
|---|---|---|
| 1950-2050nm | 1W | FC/APC |

## General Parameters

**Parameter**

| | |
|---|---|
| PN# | MP-TDFA-2000-1W-SM |
| | 2um fiber amplifier (TDFA) |
| Application | Pre-amplified optical amplifier |
| Signal wavelength range | 1900-2050nm |
| Maximum output power*1 | >+30dBm />1W |
| Gain*2 | >20dB |
| Noise factor*2 | <6dB |
| Amplification control | ACC / ALC |
| Monitoring items | Input power, output power, LD current, LD temperature, ambient temperature |
| Safety functions | Remote shutdown interlock |
| Remote control interface | RS232C/IEEE488.2(GP-IB) |
| Input/output optical fiber | PMF(Nufern PM1950) |
| Optical fiber connector | FC/APC |
| Minimum extinction ratio | 20dB |
| Input signal line width | Down to 0.1KHZ |
| Operating temperature | 0 ~ 40 °C |

| | |
|---|---|
| Storage temperature | -10 ~ 60 °C |
| Dimensions*3 (mm) | 88 x 430 x 450 |
| Weight | 5 Kg |
| Power consumption | <30W |
| Power supply | AC 100 ~ 240V (50/60Hz) |

**Notes:**

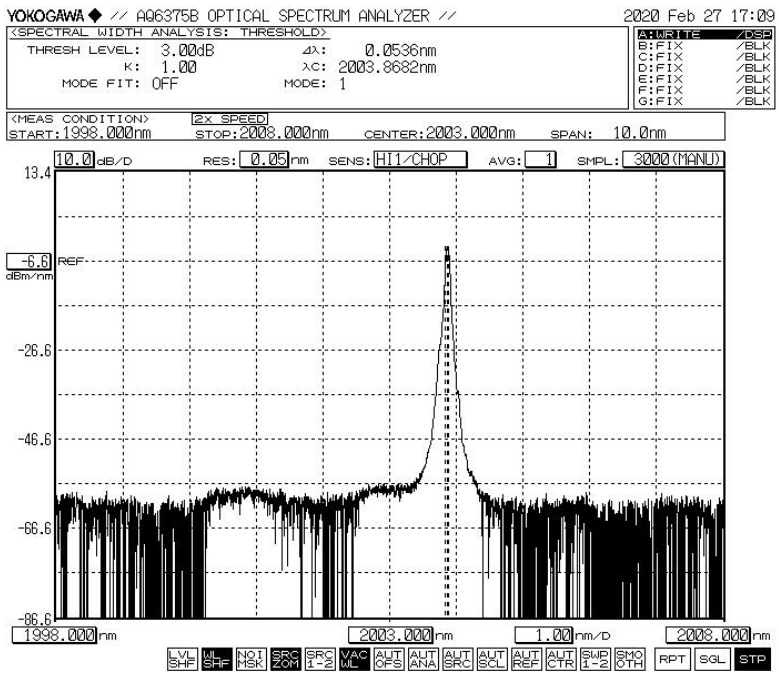
*** 1 Input power 1-10dBm@1950**

*** 2 Under the premise of ensuring beam quality M2＜1.05, single mode, TEM00 mode**

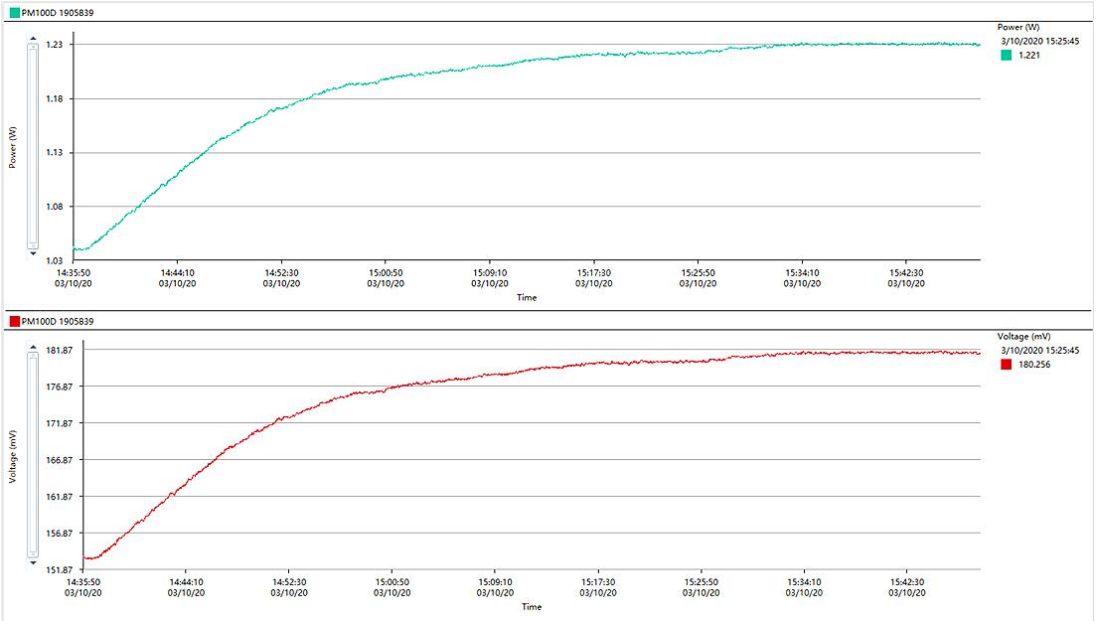
*** 3 Excluding protruding parts**

*** MP-TDFA-2000-1W-SM is designed for 1950～2050nm, total power 0dBm input signal to achieve the best gain stability.**

# Spectrum



# Power stability curve and modulation linearity test curve



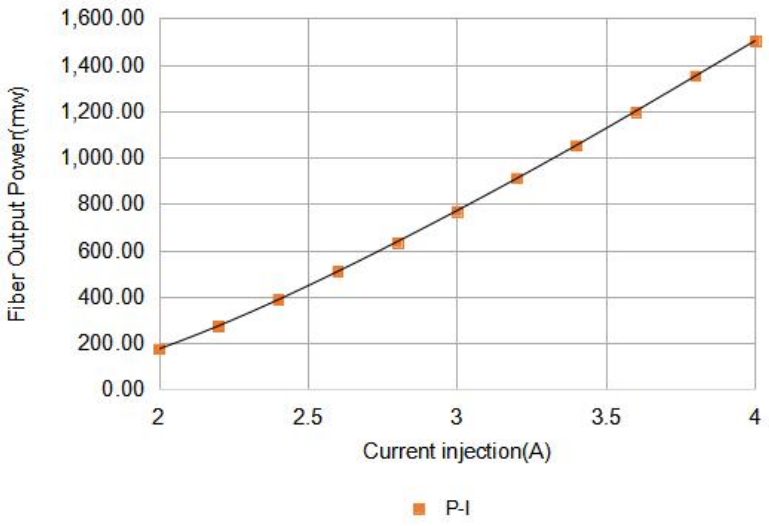

| The following was filled out by AOL Labs staff: | | | |
|---|---|---|---|
| Test date | 2021.11.9 | Test engineer | Dai Jiahao |
| Test product | 2um continuous fiber amplifier TDFA (XZ2010T264) | Reviewer | Wang Xiuxiang |
| Purpose of the experiment | Power stability test, spectrum diagram | | |
| Experimental instruments | Dynamometer, spectrometer | | |

# —：2000 nm

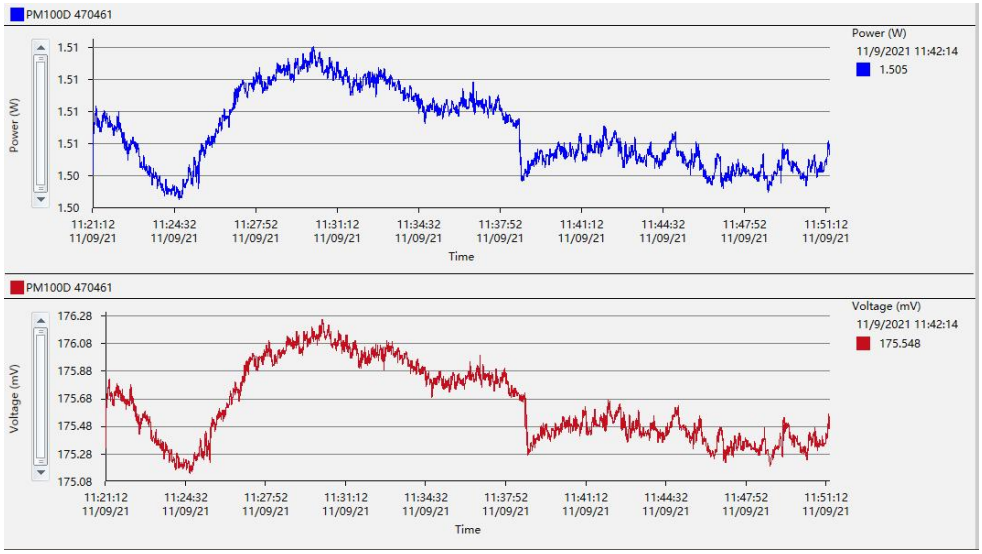
**1. Enlarge the noise test chart**


**In the above figure, Trace A (yellow) is the seed light spectrum, and Trace B (purple) is the spectrum after amplification (after passing through a 2um attenuator), and the same below. The amplified noise measured at 2000nm is 11.343dB.**

**2. Curve of power**



## 3. Power stability

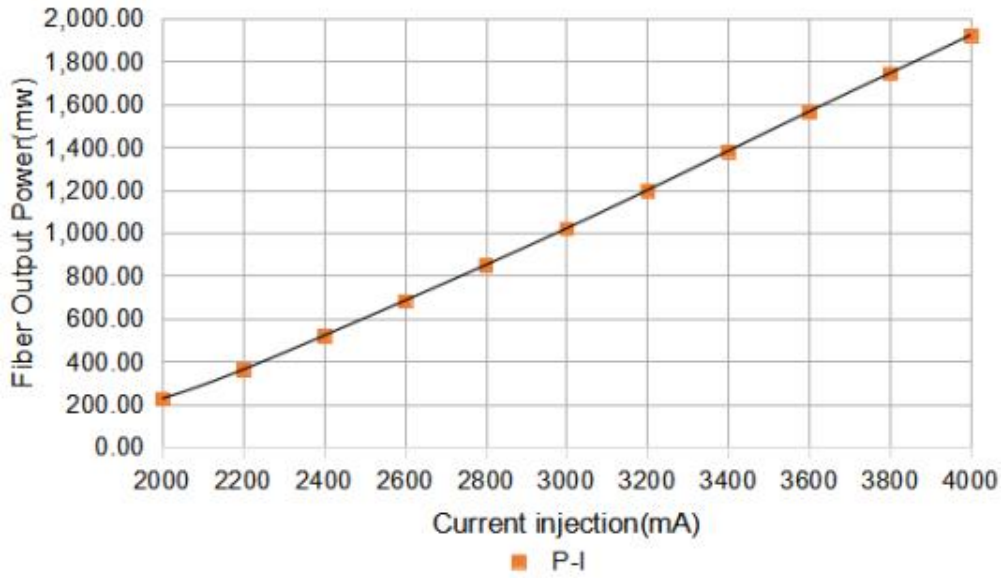



**1950 nm**

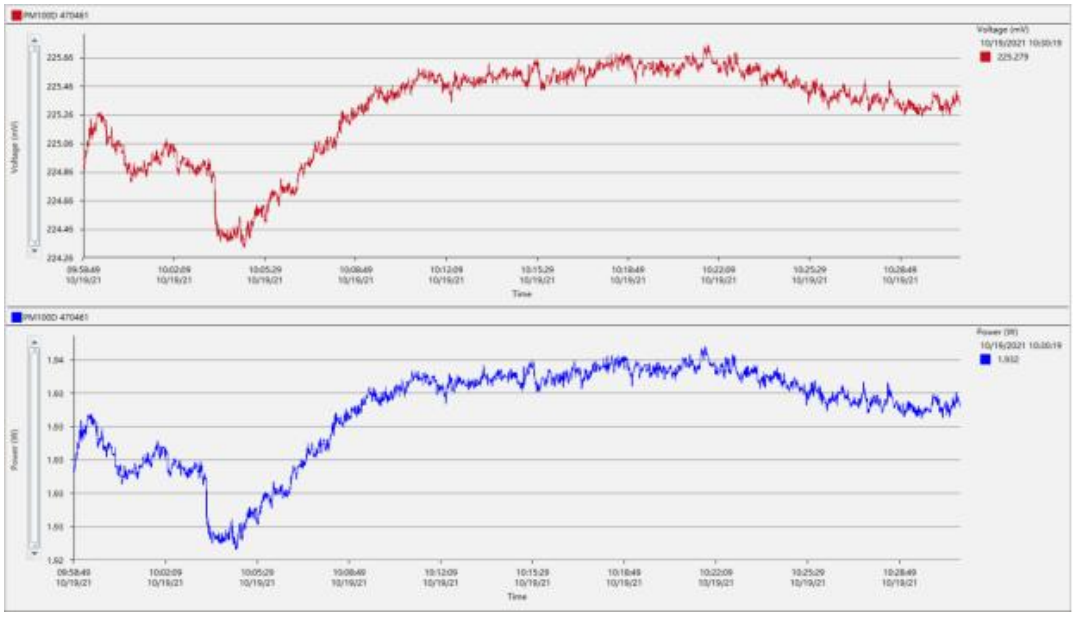
## 1. Amplify the noise test chart


**The amplified noise measured at 1950nm is 13.705dB.**

## 2. Curve of power




## 3. Power stability

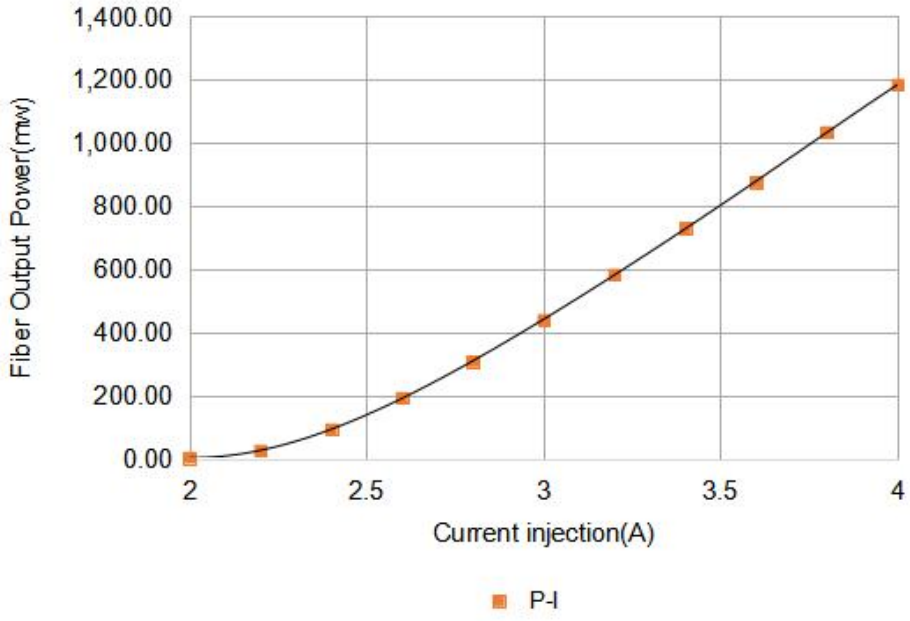


# 二：1910 nm

**1. Amplify the noise test chart**


**The amplified noise measured at 1910nm is 13.262dB.**

**2. Curve of power**



## 3. Power stability