

Ultra Narrow Line Width Stable Laser

(1550 nm, PM, narrow line, 100mW)



DATASHEET

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Agiltron produce Ultra Narrow Line Width Stable Lasers. It features, single mode, single frequency, single longitudinal mode, polarization maintaining output, high optical power, excellent output stability over a wide temperature range and without mode hopping, high efficiency, low cost, and high reliability. The unit is made based on Er-doped fiber and distributed feedback Bragg grating seed technologies. It incorporates extra-cavity to achieve low phase and low relative intensity noise (RIN). The laser source is covered by a 1-year warranty.

The laser source can be configured as a module or a turn key unit with build-in controller for lab use. Agiltron also provide customers design. We provide output beam collimator, as well as attional wavelength stabilization choices.

Applications

- Coherent LiDAR
- Hydrophone
- Optical Sensing
- Laser Spectroscopy
- Atomic Physics
- Coherent Communication

Features

- Compact
- Ultra-Stable
- Low Cost
- High Reliability
- High Efficiency

Specifications

| Parameter | Min | Typical | Max | Unit |
|---------------------------------------|--|------------|------|----------------|
| Fixed Wavelength | 1530 | | 1572 | nm |
| Output Power | 5 | | 100 | mW |
| Output Mode | Linear Polarized CW, Single Frequency, Single Longitudinal | | | |
| Linewidth (FWHM) | | 150 | 1 | kHz |
| Polarization Extinction Ratio | 20 | 23 | | dB |
| Beam Quality | | 1.05 | 1.1 | M ² |
| Output Power Stability (30 m warm-up) | | 0.5 | 1 | % |
| Output Isolation | 10 | | 100 | % |
| RIN Peak Frequency | 300 | 400 | 500 | kHz |
| RIN Peak | | -105 | | dBc/Hz |
| Phaser Noise (1m OPD) | | 70@100Hz | | Urad/√Hz |
| | | 7@10kHz | | |
| | | 0.7@100kHz | | |
| SMSR (50pm resolution) | 60 | | 70 | dB |
| Wavelength Thermal Tuning | 0.6 | | 1 | nm |
| PZT Wavelength Tuning | | Optional | | |
| Output Isolation | 50 | | | dB |
| Modulation Frequency | DC | 10 | 20 | kHz |
| Modulation Wavelength Range | 8 | | 10 | GHz |
| Output Fiber Type | Panda | 1550 | | |
| Operating Temperature | Standard | 0 | 60 | °C |
| | Special version | -30 | 85 | |
| Storage Temperature | -40 | | 100 | °C |
| Weight | | | 0.5 | kg |
| Dimension | 145 x 100 x 25 | | | mm |

Rev 01/17/25

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Electrical Control

| Single Frequency Fiber Laser | Minimum | Typical | Maximum | Unit |
|------------------------------|---------|---------|---------|------|
| Control Interface | | RS485 | | |
| Digital Signal Level (TTL) | 0 | | 5 | V |
| DC Power Supply | | | 12 | V |
| Power Consumption | | | 50 | W |

1. Wavelength can be thermally tuned via software upon request;



Ordering Information

| Prefix | Package | Linewidth | Isolator | Collimator | Monitor Port | Wavelength Tuning | Intensity Modulation | Average Power | Connector |
|--------------------------|--|--------------------------|--------------------------|--------------------------|----------------------------------|----------------------------------|----------------------------------|---|---|
| <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| UNLL- | Turnkey = 1 Module = 2 Special = 0 | 150kHz = 1 300kHz = 3 | Yes = 1 No = 0 | No = 0 Yes = 1 | Yes = 1 No = 2 Special = 0 | No = 1 Yes = 2 Special = 0 | No = 1 Yes = 2 Special = 0 | 10 mW = 01 20 mW = 02 30 mW = 03 50 mW = 05 100 mW = 10 | FC/PC = 1 FC/APC = 2 LC/PC = 3 Special = 0 |

*Product dimensions may change without notice. This is sometimes required for non-standard specifications.

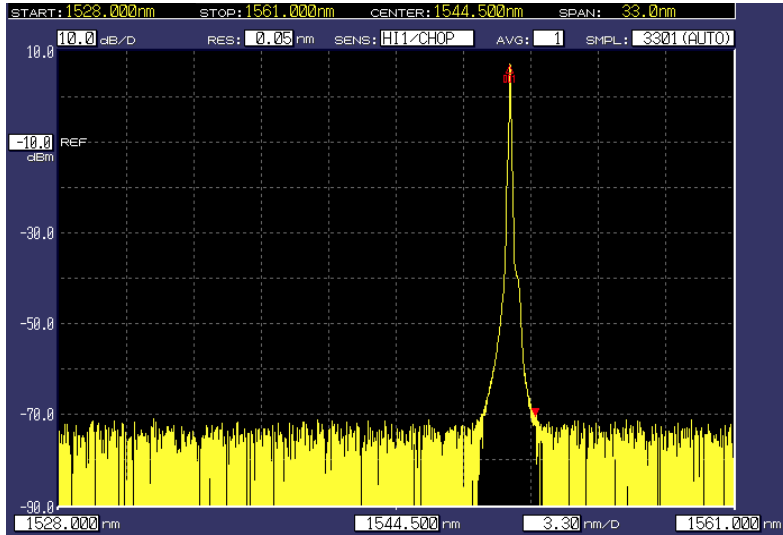
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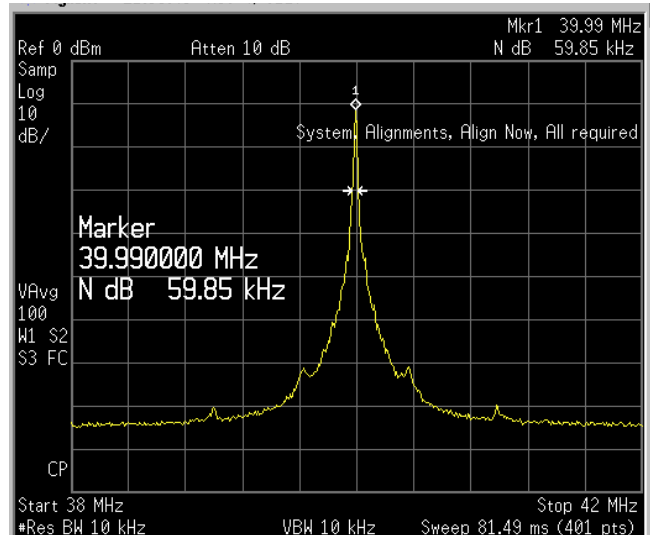


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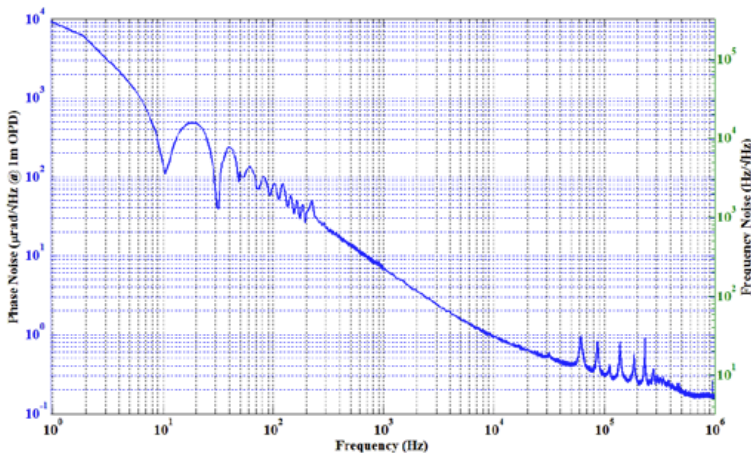
Typical Measured Spectrum



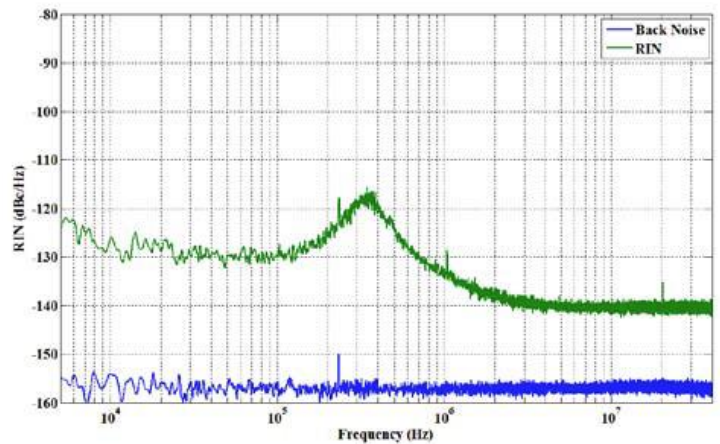
Typical Spectrum



Linewidth



Phase & Frequency Noise



Relative Intensity Noise (RIN)