# Solid-state Laser Test Report

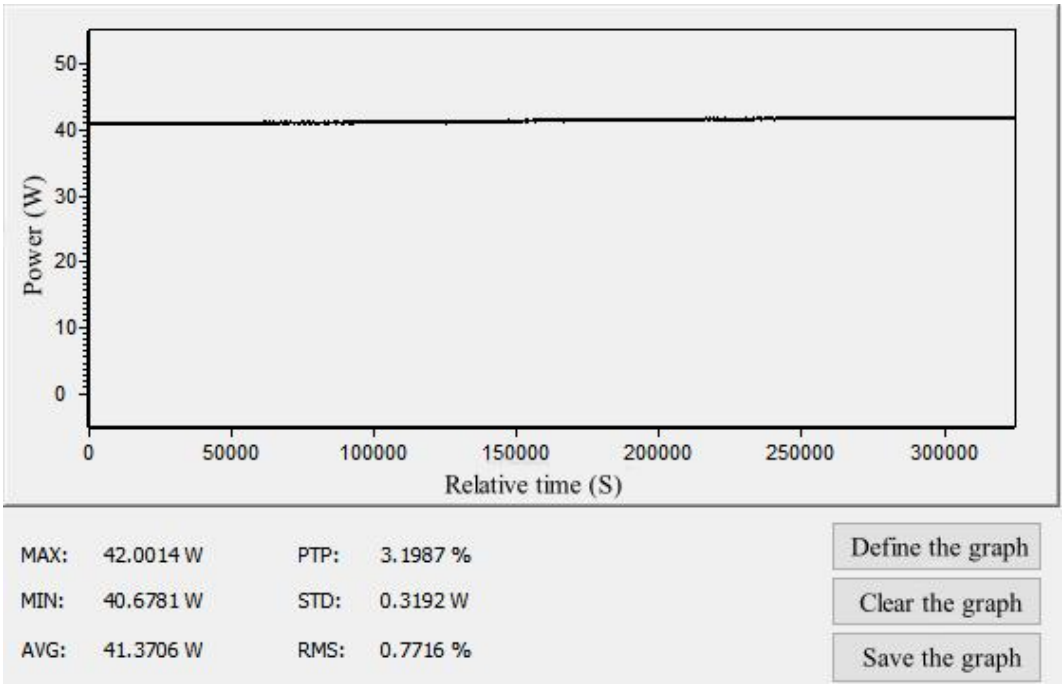
## GZ-WED-CSBG-25001

| | |
|---|---|
| Product name： | 30W Solid-state UV Laser |
| Model： | S-30-355-N1 |
| Product stage： | Mass production |
| Test start date： | 2025.05.05 |
| Test end date： | 2025.06.10 |
| Test organization： | R&D Center - Reliability Engineering Department |

Tester：YZH　　Reviewer：HL　　Approver：JSL

| No. | Test Item | Reference Standard | Test Result |
|---|---|---|---|
| 1 | Power Stability | GB/T 15175-2012 5.10.2 | ☑PASS ☐FAIL |
| 2 | Power Stability under Different Placement | GB/T 15175-2012 5.10.2 | ☑PASS ☐FAIL |
| 3 | Beam Quality | GB/T 15175-2012 5.9 | ☑PASS ☐FAIL |
| 4 | Single Pulse Waveform | GB/T 15175-2012 5.5 | ☑PASS ☐FAIL |

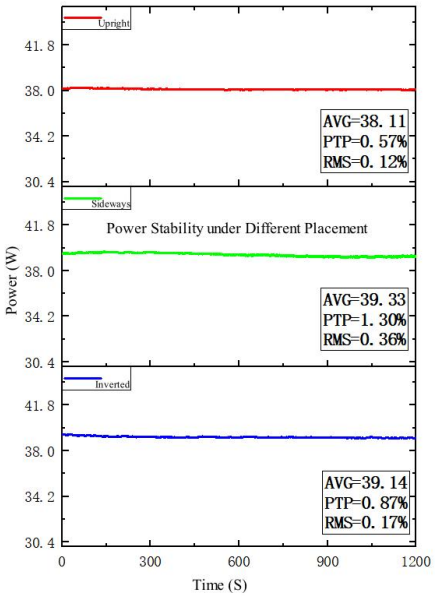
# Power Stability Test for 30W Solid-state Laser

| | | | | | |
|---|---|---|---|---|---|
| **Test Quantity** | 1 | **Sample SN** | S60N250200486 | **Test Equipment** | O50-MA-19U Power meter / CWUP-40AN Water cooler |
| **Test Department** | R&D Center - Reliability Engineering Department | | | | |
| **Test Method** | Aging the device for 4 days at room temperature, and continuously collecting power data using a power meter. | | | | |
| **Test Results** |  | | | | |

| Test Condition | PTP Test | PTP Standard | Conclusion | RMS Test | RMS Standard | Conclusion |
|---|---|---|---|---|---|---|
| **Room Temperature Aging** | 3.20% | < 10% | Qualified | 0.77% | < 3% | Qualified |
| **Test Conclusion** | Qualified | | | | | |

Tester: YZH Reviewer: HL Test Date: 2025.6.3

# Power Stability Test for 30W Solid-state Laser

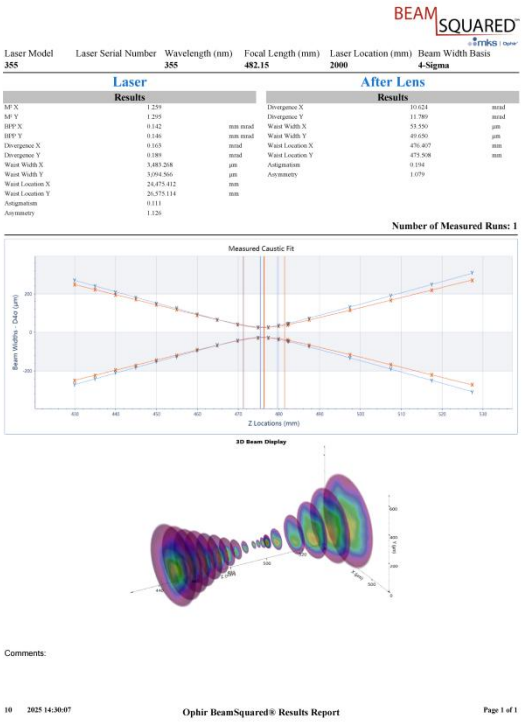
| | | | | | |
|---|---|---|---|---|---|
| **Test Quantity** | 1 | **Sample SN** | S60N250200486 | **Test Equipment** | O50-MA-19U Power meter / CWUP-40AN Water cooler |
| **Test Department** | R&D Center - Reliability Engineering Department | | | | |
| **Test Method** | Output laser at full power with a constant water temperature of 25℃, default pulse width, and default repetition rate. Collect power data for 20 minutes respectively under three placement modes: upright, sideways, and inverted. | | | | |
| **Test Results** |  | | | | |

| Test Condition | PTP Test | PTP Standard | Conclusion | RMS Test | RMS Standard | Conclusion |
|---|---|---|---|---|---|---|
| **Upright** | 0.57% | < 3% | Qualified | 0.12% | < 3% | Qualified |
| **Sideways** | 1.30% | < 3% | Qualified | 0.36% | < 3% | Qualified |
| **Inverted** | 0.87% | < 3% | Qualified | 0.17% | < 3% | Qualified |

| Test Condition | Power difference between sideways and upright placement | Standard | Conclusion | Power difference between inverted and upright placement | Standard | Conclusion |
|---|---|---|---|---|---|---|
| Room Temperature | 2.63% | < 5% | Qualified | 2.7% | < 15% | Qualified |
| Test Conclusion | Qualified | | | | | |

Tester: YZH Reviewer: HL Test Date: 2025.5.21

# Beam Quality Test for 30W Solid-state Laser

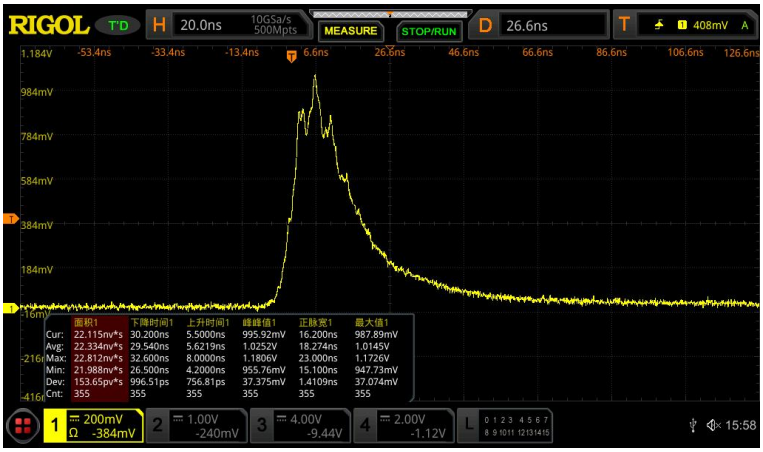
| | | | | | |
|---|---|---|---|---|---|
| **Test Quantity** | 1 | **Sample SN** | S60N250200486 | **Test Equipment** | BSQ-SP920 Beam quality analyzer |
| **Test Department** | R&D Center - Reliability Engineering Department | | | | |
| **Test Method** | Output laser at full power with default pulse width and repetition rate, and use a beam quality analyzer to test the beam quality. | | | | |
| **Test Results** |  | | | | |



| **Test Parameters** | **M² Test** | **M² Standard** | **Conclusion** | **Beam Diameter Test** | **Beam Diameter Standard** | **Conclusion** |
|---|---|---|---|---|---|---|
| **Test Results** | 1.28 | < 1.3 | Qualified | 4.79mm | 5.6 ± 1mm | Qualified |
| **Test Conclusion** | Qualified | | | | | |

Tester: YZH Reviewer: HL Test Date: 2025.6.10

# Single Pulse Waveform Test for 30W Solid-state Laser

| | | | | | |
|---|---|---|---|---|---|
| **Test Quantity** | 1 | **Sample SN** | S60N250200486 | **Test Equipment** | RIGOL MSO8204 Oscilloscope |
| **Testing Department** | R&D Center - Reliability Engineering Department | | | | |
| **Test Method** | Use an oscilloscope to test the waveform and pulse width at the power reduction frequency point corresponding to 50kHz. | | | | |
| **Test Parameters** | **Test Results** | | | | |
| **50kHz** |  | | | | |

Tester: YZH　　Reviewer: HL　　Test Date: 2025.5.21