CERTIFICATE OF ACCREDITATION

The ANSI National Accreditation Board

Hereby attests that

Coherent, Inc.
27650 SW 95th Avenue
Wilsonville, OR 97070
(with satellite locations and capabilities identified on the scope of accreditation)

Fulfills the requirements of

ISO/IEC 17025:2017

and

ANSI/NCSL Z540-1-1994 (R2002)

In the field of

CALIBRATION

This certificate is valid only when accompanied by a current scope of accreditation document.
The current scope of accreditation can be verified at www.anab.org.

Jason Stine, Vice President

Expiry Date: 15 May 2024

Certificate Number: AC-1630

This laboratory is accredited in accordance with the recognized International Standard ISO/IEC 17025:2017. This accreditation demonstrates technical competence for a defined scope and the operation of a laboratory quality management system (refer to joint ISO-ILAC-IAF Communiqué dated April 2017).

SCOPE OF ACCREDITATION TO ISO/IEC 17025:2017

AND

ANSI/NCSL Z540-1-1994 (R2002)

Coherent, Inc., Wilsonville

27650 SW 95th Avenue
Wilsonville, OR 97070
Philip Taylor 800-343-4912
Philip.Taylor@coherent.com

CALIBRATION

Valid to: **May 15, 2024** Certificate Number: **AC-1630**

Photometry and Radiometry

Parameter / Equipment	Range	Expanded Uncertainty of Measurement (+/-)	Reference Standard, Method and/or Equipment
Electrical Calibration of Laser Power Thermal Meters	100 µW to 5 000 W 1.831 µV to 2 V	0.8 % of reading	ARB, DMM, Attenuator
Electrical Calibration of Laser Power Optical Meters	10 nW to 30 mW 51 nA to 19.1 mA	0.8 % of reading	Current Source
Electrical Calibration of Laser Energy Meters	100 nJ to 3 J 40 µV to 5 V	0.8 % of reading	ARB, Attenuator
Laser Power Measuring Sensors at 514 nm -Measure	(0.18 to 1.2) W (0.000 2 to 7) V/W	1 % of reading 1 % of reading	Coherent Working Standard Sensor, DMM, Coherent Power Meter
Laser Power Measuring kW Sensors at 1070 (+/-10) nm - Measure	(360 to 440) W (0.000 004 5 to 0.000 4) V/W	2.5 % of reading 2.5 % of reading	Coherent Working Standard Sensor, DMM, Coherent Power Meter
Laser Power Measuring kW Sensors at 10 600 nm - Measure	200 W to 1.1 kW (0.000 06 to 0.000 4) V/W	3.7 % of reading 3.7 % of reading	
Energy Measuring Sensors at 193 nm - Measure	3 µJ to 2 mJ (24 to 80) V/J	2 % of reading 2 % of reading	Coherent Working Standard Sensor, Oscilloscope, Coherent Energy Meter
Energy Measuring Sensors at 248 nm - Measure	60 µJ to 7 mJ (6 to 32) V/J	2.1 % of reading 2.1 % of reading	
Energy Measuring Sensors at 1 064 nm - Measure	10 µJ to 160 mJ (2 to 21 700) V/J	2 % of reading 2 % of reading	

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Parameter / Equipment	Range	Expanded Uncertainty of Measurement (+/-)	Reference Standard, Method and/or Equipment
Laser Power Measuring Sensors at 810 (+/- 10) nm - Measure	(70 to 80) W (0.08 to 13) mV/W	1.7 % of reading	Coherent Working Standard Sensor, Coherent Power Meter
Laser Power Measuring Sensors at 10 600 nm - Measure	(0.5 to 150) W (0.001 4 to 0.226) V/W	2 % of reading 2 % of reading	Coherent Working Standard Sensor, Coherent Power Meter
Laser Power Measuring kW Sensors at 1070 (+/-10) nm - Measure	(250 to 2500) W (0.000 004 5 to 0.000 4) V/W	2.5 % of reading 2.5 % of reading	
Laser Power Measuring Sensors from 250 nm to 400 nm (UV-Range) - Measure	200 nW to 20 µW (0.05 to 0.2) A/W	3 % of reading 3 % of reading	Coherent Working Standard Sensor, DMM, Coherent Power Meter
Laser Power Measuring Sensors from 400 nm to 450 nm (VIS-Range) - Measure	3 µW to 20 µW (0.01 to 0.1) A/W	10 % of reading 10 % of reading	
Laser Power Measuring Sensors from 450 nm to 1100 nm (VIS-Range) - Measure	3 µW to 100 µW (0.01 to 1) A/W	4.8 % of reading 4.8 % of reading	
Laser Power Measuring Sensors from 800 nm to 1 700 nm (IR-Range) - Measure	300 nW to 60 µW (0.1 to 1.2) A/W	4 % of reading 4 % of reading	
Laser Power Measuring Sensors from 1 700 nm to 1 800 nm (IR-Range) - Measure	200 nW to 1 µW (0.08 to 1) A/W	8 % of reading 8 % of reading	

Services performed at satellite laboratory:
Coherent (Deutschland) GmbH

Dieselstrasse 5B
Dieburg, Germany D-64807
Philip Taylor 800-343-4912
Philip.Taylor@coherent.com

Photometry and Radiometry

Parameter / Equipment	Range	Expanded Uncertainty of Measurement (+/-)	Reference Standard, Method and/or Equipment
Electrical Calibration of Laser Power Thermal Meters	100 µW to 5 000 W 1.831 µV to 2 V	0.8 % of reading	ARB, DMM, Attenuator
Electrical Calibration of Laser Power Optical Meters	10 nW to 30 mW 51 nA to 19.1 mA	0.8 % of reading	Current Source
Electrical Calibration of Laser Energy Meters	100 nJ to 3 J 40 µV to 5 V	0.8 % of reading	ARB, Attenuator
Laser Power Measuring Sensors at 514 nm -Measure	(0.18 to 1.2) W (0.000 2 to 7) V/W	1 % of reading 1 % of reading	Coherent Working Standard Sensor, DMM, Coherent Power Meter
Laser Power Measuring Sensors at 10 600 nm - Measure	(0.5 to 150) W (0.001 4 to 0.226) V/W	2 % of reading 2 % of reading	Coherent Working Standard Sensor, Coherent Power Meter
Energy Measuring Sensors at 193 nm - Measure	3 µJ to 2 mJ (24 to 80) V/J	2 % of reading 2 % of reading	Coherent Working Standard Sensor, Oscilloscope, Coherent Energy Meter
Energy Measuring Sensors at 1 064 nm - Measure	10 µJ to 160 mJ (2 to 21 700) V/J	2 % of reading 2 % of reading	
Laser Power Measuring Sensors from 250 nm to 400 nm (UV- Range) - Measure	200 nW to 20 µW (0.05 to 0.2) A/W	3 % of reading 3 % of reading	Coherent Working Standard Sensor, DMM, Coherent Power Meter
Laser Power Measuring Sensors from 400 nm to 450 nm (VIS- Range) - Measure	3 µW to 20 µW (0.01 to 0.1) A/W	10 % of reading 10 % of reading	
Laser Power Measuring Sensors from 450 nm to 1100 nm (VIS- Range) - Measure	3 µW to 100 µW (0.01 to 1) A/W	4.8 % of reading 4.8 % of reading	
Laser Power Measuring Sensors from 800 nm to 1700 nm (IR- Range) - Measure	300 nW to 60 µW (0.1 to 1.2) A/W	4 % of reading 4 % of reading	Coherent Working Standard Sensor, DMM, Coherent Power Meter
Laser Power Measuring Sensors from 1700 nm to 1800 nm (IR- Range) - Measure	200 nW to 1 µW (0.08 to 1) A/W	8 % of reading 8 % of reading	Coherent Working Standard Sensor, DMM, Coherent Power Meter

Services performed at satellite laboratory:
Coherent Japan, Inc.

Business Office: 26F Shinjuku Maynds Tower
2-1-1 Yoyogi, Shibuya-ku Tokyo, Japan 151-0053
Service Location: Atsugi Tech Center
1042-4 Toda, Atsugi-shi, Kanagawa, Japan 243-0023
Philip.Taylor@coherent.com

Photometry and Radiometry

Parameter / Equipment	Range	Expanded Uncertainty of Measurement (+/-)	Reference Standard, Method and/or Equipment
Electrical Calibration of Laser Power Thermal Meters	100 µW to 5 000 W 1.831 µV to 2 V	0.8 % of reading	ARB, DMM, Attenuator
Electrical Calibration of Laser Power Optical Meters	10 nW to 30 mW 51 nA to 19.1 mA	0.8 % of reading	Current Source
Electrical Calibration of Laser Energy Meters	100 nJ to 3 J 40 µV to 5 V	0.8 % of reading	ARB, Attenuator
Laser Power Measuring Sensors at 514 nm -Measure	(0.18 to 1.2) W (0.000 2 to 7) V/W	1 % of reading 1 % of reading	Coherent Working Standard Sensor, DMM, Coherent Power Meter
Laser Power Measuring Sensors at 10 600 nm - Measure	(0.5 to 150) W (0.001 4 to 0.226) V/W	2 % of reading 2 % of reading	Coherent Working Standard Sensor, Coherent Power Meter
Laser Power Measuring Sensors from 250 nm to 400 nm (UV-Range) - Measure	200 nW to 20 µW (0.05 to 0.2) A/W	3 % of reading 3 % of reading	Coherent Working Standard Sensor, DMM, Coherent Power Meter
Laser Power Measuring Sensors from 400 nm to 450 nm (VIS-Range) - Measure	3 µW to 20 µW (0.01 to 0.1) A/W	10 % of reading 10 % of reading	
Laser Power Measuring Sensors from 450 nm to 1 100 nm (VIS-Range) - Measure	3 µW to 100 µW (0.01 to 1) A/W	4.8 % of reading 4.8 % of reading	
Laser Power Measuring Sensors from 800 nm to 1 700 nm (IR-Range) - Measure	300 nW to 60 µW (0.1 to 1.2) A/W	4 % of reading 4 % of reading	
Laser Power Measuring Sensors from 1 700 nm to 1 800 nm (IR-Range) - Measure	200 nW to 1 µW (0.08 to 1) A/W	8 % of reading 8 % of reading	Coherent Working Standard Sensor, DMM, Coherent Power Meter

Calibration and Measurement Capability (CMC) is expressed in terms of the measurement parameter, measurement range, expanded uncertainty of measurement and reference standard, method, and/or equipment. The expanded uncertainty of measurement is expressed as the standard uncertainty of the measurement multiplied by a coverage factor of 2 (k=2), corresponding to a confidence level of approximately 95%.

Notes:

1. This scope is formatted as part of a single document including Certificate of Accreditation No. AC-1630.

Jason Stine, Vice President