



# CERTIFICATE OF ACCREDITATION

## ANSI-ASQ National Accreditation Board

500 Montgomery Street, Suite 625, Alexandria, VA 22314, 877-344-3044

This is to certify that

### Coherent LSM

27650 SW 95<sup>th</sup> Avenue

Wilsonville OR 97070

(with satellite locations and capabilities identified on the scope of accreditation)

has been assessed by ANAB

and meets the requirements of international standard

## ISO/IEC 17025:2005

and national standard

## ANSI/NCSL Z540-1-1994 (R2002)

while demonstrating technical competence in the field of

## CALIBRATION

Refer to the accompanying Scope of Accreditation for information regarding the types of calibrations to which this accreditation applies.

AC-1630

Certificate Number

  
ANAB Approval

Certificate Valid: 02/13/2018-03/15/2020

Version No. 007 Issued: 02/13/2018



This laboratory is accredited in accordance with the recognized International Standard ISO/IEC 17025:2005. 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 17025:2005  
AND ANSI/NCSL Z540-1-1994 (R2002)**

**Coherent LSM**

27650 SW 95<sup>th</sup> Avenue  
Wilsonville, OR 97070  
Thorsten Thomas 800-343-4912  
Thorsten.Thomas@coherent.com

**CALIBRATION**

Valid to: **March 15, 2020**

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 $\mu$ W to 5 000 W 1.831 $\mu$ V 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 $\mu$ V 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 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	
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 $\mu$ J 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 $\mu$ J 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 $\mu$ J to 160 mJ (2 to 21 700) V/J	2 % of reading 2 % of reading	



Photometry and Radiometry

Parameter / Equipment	Range	Expanded Uncertainty of Measurement (+/-)	Reference Standard, Method and/or Equipment
Laser Power Measuring Sensors at 810 (+/- 10) nm - Measure	70 – 80 W (0.08 – 13) mV/W	1.7 % 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 $\mu$ W (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 $\mu$ W to 20 $\mu$ W (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 $\mu$ W to 100 $\mu$ W (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 $\mu$ W (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 $\mu$ W (0.08 to 1) A/W	8 % of reading 8 % of reading	



**Services performed at satellite laboratory:  
Coherent Shared Services B.V.**

Dieselstrasse 5B  
Dieburg, Germany D-64807  
Thorsten Thomas 49 6071 968 222  
Thorsten.Thomas@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 $\mu$ W to 5 000 W 1.831 $\mu$ V 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 $\mu$ V 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, DMM, Coherent Power Meter
Energy Measuring Sensors at 193 nm - Measure	3 $\mu$ J 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 $\mu$ J 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 $\mu$ W (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 $\mu$ W to 20 $\mu$ W (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 $\mu$ W to 100 $\mu$ W (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 $\mu$ W (0.1 to 1.2) A/W	4 % of reading 4 % of reading	Coherent Working Standard Sensor, DMM, Coherent Power Meter



**Photometry and Radiometry**

Parameter / Equipment	Range	Expanded Uncertainty of Measurement (+/-)	Reference Standard, Method and/or Equipment
Laser Power Measuring Sensors from 1700 nm to 1800 nm (IR- Range) - Measure	200 nW to 1 $\mu$ W (0.08 to 1) A/W	8 % of reading 8 % of reading	

**Services performed at satellite laboratory:**

**Coherent LSM**

Toyo MK Building 7-2-14 Toyo  
 Koto-ku Tokyo, Japan 135-0016  
 Thorsten Thomas 81 3 5635 8700  
 Thorsten.Thomas@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 $\mu$ W to 5 000 W 1.831 $\mu$ V 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 $\mu$ V 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	2 % of reading 2 % 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, DMM, Coherent Power Meter
Laser Power Measuring Sensors from 250 nm to 400 nm (UV-Range) - Measure	200 nW to 20 $\mu$ W (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 $\mu$ W to 20 $\mu$ W (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 $\mu$ W to 100 $\mu$ W (0.01 to 1) A/W	4.8 % of reading 4.8 % of reading	



Photometry and Radiometry

Parameter / Equipment	Range	Expanded Uncertainty of Measurement (+/-)	Reference Standard, Method and/or Equipment
Laser Power Measuring Sensors from 800 nm to 1 700 nm (IR-Range) - Measure	300 nW to 60 $\mu$ W (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 $\mu$ W (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. On-site calibration service is available for this parameter, since on-site conditions are typically more variable than those in the laboratory, larger measurement uncertainties are expected on-site than what is reported on the accredited scope
2. This scope is formatted as part of a single document including Certificate of Accreditation No. AC-1630.



Vice President

