



Cascade Engineering Services, Inc.

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CERTIFICATE #: 00258162

# CERTIFICATE OF CALIBRATION

## STANDARD CALIBRATION

ELLENSBURG POLICE DEPARTMENT

100 N. PEARL STREET ELLENSBURG, WA 98926

This certifies that the instrument listed herein was calibrated by Cascade Engineering Services' Calibration Laboratory, which is fully accredited in accordance with the recognized International Standards ISO/IEC 17025:2017 General Requirements for the Competence of Testing and Calibration Laboratories. Cascade Engineering Services' Calibration Laboratory also meets the requirements of ANSI/NCSL Z540-1-1994 and any additional program requirements in the field of calibration. Standards used to perform this calibration are certified by or traceable to NIST, natural physical constants, consensus standards or derived by the ratio type of calibrations. All calibrations are performed to manufacturer's specifications unless otherwise noted. Standard Calibration, while still traceable, does not meet all requirements for an Accredited Calibration per ISO/IEC 17025:2017, that is "As Found" data for equipment in tolerance and Measurement Uncertainties are not recorded. This certificate shall not be reproduced, except in full, without prior written approval of the laboratory.

DESCRIPTION:	SPEED MEASURING DEVICE	
ASSET #:	LA005311	SERIAL NUMBER: LA005311
MANUFACTURER:	APPLIED CONCEPTS INC.	MODEL NUMBER: STALKER LIDAR RLR
DEPARTMENT:	N/A	LOCATION: N/A
ENVIRONMENT:	22.8 °C/36.3 %RH	BASIC ACCURACY: REFERENCE MFG SPECIFICATION
CAL INTERVAL:	12 MONTHS	DUE DATE: December 11, 2024

### EQUIPMENT CONDITION AS RECEIVED

Initial testing found this equipment to be "IN TOLERANCE", as defined by the basic accuracy stated above.

### EQUIPMENT CONDITION AS DELIVERED

At the completion of the calibration, measured values were "IN TOLERANCE", as defined by the basic accuracy stated above.

### LASER SYSTEM OUTPUTS

PULSE REFERENCE FREQUENCY 192.9299 Hz OPTICAL POWER OUTPUT: 383 μW

### STANDARD(S) USED FOR CERTIFICATION

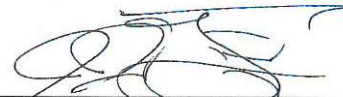
I.D.	MODEL	MANUFACTURER	DESCRIPTION	DUE DATE
MET1259	NOVA-DISPLAY	OPHIR	LASER POWER METER	04/03/2024
MET1260	PD300-SH	OPHIR	LASER POWER HEAD	04/12/2024
MET1335	7024707	LASER TECHNOLOGY INC	LASER SPEED MEASUREMENT SIMULATOR	03/14/2024
MET1336	7005320	LASER TECHNOLOGY INC	OPTICAL INTERFACE UNIT	

### PROCEDURE(S) USED FOR CERTIFICATION

DOCUMENT ID	DESCRIPTION	REV	REV DATE
CP-SMD-001	RADAR AND LIDAR CALIBRATION PROCEDURE	NEW	11/14/2019

### CERTIFICATION NOTES

I certify (or declare) under penalty of perjury under the laws of the State of Washington that the above information is true and correct

PERFORMED BY   
SR. METROLOGIST JOHN GRAY

LOCATION: Redmond, WA  
CALIBRATION DATE: Monday, December 11, 2023

THIS LABORATORY IS A2LA ACCREDITED TO ISO/IEC 17025:2017 (GENERAL REQUIREMENTS FOR THE COMPETENCE OF TESTING AND CALIBRATION LABORATORIES), CERTIFICATE #: 2560.01



**IRLJ RULE 6.6 EFFECTIVE 1/3/2006**

I, John R. Gray, do certify under penalty of perjury, under the laws of the state of Washington as follows:

I am employed with Cascade Engineering Services, Inc. (CES) Metrology and Electronics Repair Services, as a Senior Metrology Technician. I have been employed in such a capacity since 2008. Part of my duties include calibration, maintenance and repair of all electronic doppler radar and laser speed measuring devices (SMD's) used by ELLENSBURG POLICE DEPARTMENT.

All SMD's currently used by ELLENSBURG POLICE DEPARTMENT are listed in Exhibit "A".

I maintain the following qualifications with respect to SMD(s): More than 14 years of commercial experience in electronic test and measurement calibration and repair. I have successfully completed training courses in Doppler Radar & Lidar theory. I have over two years of experience in the repair and calibration of Doppler and Lidar SMD's. I am experienced and competent in the principles and fundamental requirements of test equipment calibration.

The CES laboratory maintains manuals for all of the SMD's listed in Exhibit "A". I am personally familiar with those manuals and how each of the SMD's are designed and operated. On the date indicated in Exhibit "A" testing of the SMD's was performed using CES procedures under the direction of an authorized SMD expert. The results were evaluated and certified to meet or exceed existing performance standards and entered into the CES certification management database. CES laboratory maintains a testing and certification program that requires each SMD to be tested and certified for accuracy at least once every two years.

The CES laboratory tests all Doppler SMD's used by ELLENSBURG POLICE DEPARTMENT, as recommended by the manufacturer, as follows: The Vocar HR, handheld Radar certification system is used to simulate speeds at 5 mph increments from 20 mph to 140 mph to verify accuracy in stationary and moving mode. Measurements are taken of the SMD transmit frequency, antenna/receiver sensitivity and any accompanying tuning forks are also tested for accuracy. All other operational functions of the SMD system are then tested for proper performance.

The Laser SMD's transmit a series of highly focused light wave pulses each time the trigger is pulled and utilizes two laws of physics; time and distance. Since the speed of light is a known fixed value, the range of the target is determined by calculating how long it takes for the light pulses to travel to the target and back. This series of measurements allows the SMD to calculate the speed of the target using an algorithm which processes the range calculations into speed measurements. The displayed speed is accurate to within plus (+) or minus (-) one (1) mile per hour.

The CES laboratory tests all Laser / Lidar SMD(s) used by ELLENSBURG POLICE DEPARTMENT, as recommended by the manufacturer, as follows: The Laser Speed Measurement Simulator (LSMS) is utilized to simulate a moving target. This is accomplished by detecting the optical output pulses of the laser device and generating artificial return pulses. Different speed values and ranges are simulated by varying the time delays between the input pulses and the return pulses. The LSMS consists of a Digital Delay Generator (DDG), and an optical interface unit. The DDG produces precise time delays. The optical interface unit converts the optical energy of the laser instrument into electrical signals which are supplied to the DDG. The optical interface unit also converts the electrical signals received from the DDG into optical energy which is then transmitted to the Lidar. The Lidar's output power is tested using an Ophir Nova Display, with a PD300-SH power head.

On the date indicated in Exhibit "A", each SMD was tested by myself or a trained technician listed therein and under my direction. All Technicians listed on Exhibit "A" received training in the proper use and operation of SMD test equipment and performance testing procedures used to test Laser and Doppler SMDs. After successfully completing training the technician is certified by myself and receives authorization allowing them to enter the results from the tests into the certificate management database. Individual Performance and Certification tests are entered into the certificate management database under the penalty of perjury by entering an authorized user id and password to authenticate it.

Exhibit "A"

This agency, ELLENSBURG POLICE DEPARTMENT currently utilizes the following Laser SMD(s):

APPLIED CONCEPTS INC. manufacturer's the following SMD(s):

I.D./Serial Number	Model Number	Antenna 1 S/N	Antenna 2 S/N	T.F. 1 S/N	T.F. 2 S/N	Cal. Date	Cal. Interval	Due Date	Technician
LD079874	BASIC	HANDHELD	N/A	24503	N/A	04/03/2023	12 MONTHS	04/03/2024	EDDIE VAHABNEJAD
LA005311	STALKER LIDAR RLN/A	N/A	N/A	N/A	N/A	12/11/2023	12 MONTHS	12/11/2024	JOHN R GRAY

MPH INDUSTRIES manufacturer's the following SMD(s):

I.D./Serial Number	Model Number	Antenna 1 S/N	Antenna 2 S/N	T.F. 1 S/N	T.F. 2 S/N	Cal. Date	Cal. Interval	Due Date	Technician
10236	880010	HANDHELD	N/A	24503	N/A	04/03/2023	12 MONTHS	04/03/2024	EDDIE VAHABNEJAD

This agency, ELLENSBURG POLICE DEPARTMENT currently utilizes the following Doppler SMD(s):

KUSTOM SIGNALS, INC. manufacturer's the following SMD(s):

I.D./Serial Number	Model Number	Antenna 1 S/N	Antenna 2 S/N	T.F. 1 S/N	T.F. 2 S/N	Cal. Date	Cal. Interval	Due Date	Technician
FF12396	FALCON	HANDHELD	N/A	24639	N/A	03/15/2023	12 MONTHS	03/15/2024	JOHN R GRAY
FF12385	FALCON	HANDHELD	N/A	748500	N/A	03/15/2023	12 MONTHS	03/15/2024	JOHN R GRAY

MPH manufacturer's the following SMD(s):

I.D./Serial Number	Model Number	Antenna 1 S/N	Antenna 2 S/N	T.F. 1 S/N	T.F. 2 S/N	Cal. Date	Cal. Interval	Due Date	Technician
PYT546005120	PYTHON II	PYT315013698	PYT315018527	857240	071109	03/15/2023	12 MONTHS	03/15/2024	JOHN R GRAY
PYT546004243	PYTHON II	PYT315012003	PYT315018529	307534	307560	03/15/2023	12 MONTHS	03/15/2024	JOHN R GRAY
PYT846003563	PYTHON III	PYT855004681	N/A	077371	077383	03/15/2023	12 MONTHS	03/15/2024	JOHN R GRAY
PYT546004242	PYTHON III	PYT315012002	N/A	978326	978335	03/15/2023	12 MONTHS	03/15/2024	JOHN R GRAY
PYT546004244	PYTHON III	PYT315012004	N/A	290101	290554	03/15/2023	12 MONTHS	03/15/2024	JOHN R GRAY
PYT846006198	PYTHON III	PYT315013697	N/A	2302	2196	03/15/2023	12 MONTHS	03/15/2024	JOHN R GRAY

Based upon my education, training, and experience and my knowledge of the SMD's listed above, it is my opinion that each of these electronic pieces of equipment is so designed and constructed as to accurately employ the Doppler effect in such a manner that it will give accurate measurements of the speed of motor vehicles when properly calibrated and operated by a trained operator or, in the case of the laser SMDs, each of these pieces of equipment is so designed and constructed as to accurately employ measurement techniques based on the velocity of light in such a manner that it will give accurate measurements of the speed of motor vehicles when properly calibrated and operated by a trained operator.

Exhibit "A" derives information from the certificate management database. See Exhibit "A" for details about individual SMD certifications.

**State of Washington**

**County of King**

Signed or attested before me on

Dec 18, 2023

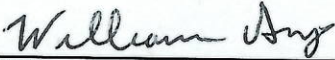
by John R. Gray

I have satisfactory evidence that the person described in this document:

- (a) is personally known to me; OR (b) is identified upon oath or affirmation of credible witness personally known to me; OR
- (c) is identified on the basis of identification documents.



Certified by: John R. Gray  
Place: Redmond, WA



William Quoc Ang

Notary Public in and for the State of Washington,  
Residing in Seattle, WA

My appointment expires January 29, 2026

