



Steilacoom

MUNICIPAL COURT

CERTIFICATION CONCERNING DESIGN AND CONSTRUCTION OF ELECTRONIC SPEED MEASURING DEVICES

APR 10 2014

FILED

I, Jorge Marciano, do certify under penalty of perjury, under the laws of the State of Washington, in the County of Pierce, that the following is true and correct:

I am employed with Pierce County as a Communications Systems Technician, Speed Measuring Device (SMD) Specialist, and assigned as the custodian of the SMD records. I have been employed in this capacity since Sep 10, 2007. Part of my duties include the maintenance and repair of all types of electronic radar and laser speed measuring devices (SMD's) used by the Steilacoom Police Department.

The Steilacoom Police Department currently uses the following SMD's:

SMD TYPE:	MODEL:	MANUFACTURE:	SERIAL NUMBER:	TUNING FORKS:
Radar	Genesis VPD	Decatur Electronics	03971	147346 33MPH / 147430 77MPH
Radar	Genesis VPD	Decatur Electronics	04025	147326 33MPH / 147436 77MPH
Radar	Genesis II Directional	Decatur Electronics	G2S-22097	201412 35MPH / 201492 65MPH
Radar	Genesis II Directional	Decatur Electronics	G2S-22432	204702 35MPH / 024778 65MPH
Radar	Genesis II Select	Decatur Electronics	G2S-26208	222754 35MPH / 223309 65MPH
Radar	Python	MPH Industries	PYT380000562	226946 35MPH / 237221 65MPH
Radar	Python	MPH Industries	PYT546000274	20669 35MPH / 19905 65MPH
Radar	Python	MPH Industries	PYT546004626	292667 35MPH / 293093 65MPH
Radar	Python	MPH Industries	PYT546004627	55988 35MPH / 36347 65MPH
Radar	Python	MPH Industries	PYT546004781	294073 35MPH / 294581 65MPH
Radar	Python	MPH Industries	PYT546006652	308554 35MPH / 308340 65MPH
Radar	Python	MPH Industries	PYT546006653	416764 35MPH / 416738 65MPH
Radar	Python	MPH Industries	PYT546007663	308539 35MPH / 308039 65MPH
Laser	SpeedLaser	Laser Atlanta	500312	NA

I have the following qualifications with respect to the above stated SMD's:

I have seven years military experience as a communications specialist in the maintenance and repair of electronics equipment and six years with Pierce County repairing, maintaining, and certifying SMD's for cities and counties throughout the state. I received training from the following manufacturers as well as from the Pierce County Engineer. On Dec 13, 2007, I successfully completed the Decatur Electronics course in repair and service of Doppler traffic radar and on Mar 13, 2008, I successfully completed the MPH Industries course in repair and service of Doppler traffic radar. Further, on Jan 14, 2009, I successfully completed the requirements for Kustom Signals certification in operation and maintenance of Doppler traffic radar and traffic laser and on Sep 3, 2009, I successfully completed the requirements for Applied Concepts certification in operation and maintenance of Doppler traffic radar and traffic laser.

The Pierce County Radio Communications Division maintains manuals for all of the above listed SMD's. I am personally familiar with those manuals and know how each of the SMD's are designed and operated. From Mar 27, 2008 to Mar 20, 2014, I performed all of the SMD testing. The units are evaluated and certified to meet or exceed existing performance standards.

The Pierce County Radio Communications Division maintains a testing and certification program. This program entails:



Radar SMD's utilize the Doppler effect to measure speed. Testing consists of using a precision signal generator to inject a signal into the SMD to simulate speeds of 35mph and 65mph for the stationary/moving radars. It also includes injection of a signal to simulate 35mph for stationary radar only. The signal must cause the SMD to display the exact speed,  $\pm 1$  mile per hour, in order to be certified for accuracy. I then measure the frequency of the tuning forks assigned to each SMD to insure that they are within  $\pm 5$ Hz tolerance. I issue a calibration certificate for each SMD and a certificate of accuracy for each tuning fork. The original certificates are issued to the Steilacoom Police Department who in turn issues a copy to the court. I also retain a copy for my records along with the maintenance and service records for each SMD serviced.

Laser SMD's measure speed based on the velocity of light and a precision time base reference. Testing consists of four accuracy certification checks (1) Internal Self Test (2) Pulse Check to include; pulse width, power output, pulse repetition rate, and double pulse (3) Fixed Distance Check to include; sight alignment, vertical, and horizontal beam width  $\geq 200$  feet (4) and Internal Oscillator Check. The checks insure that the SMD is within tolerance and functioning properly. I then issue a certificate of accuracy for each SMD. The original certificates are issued to the Steilacoom Police Department who in turn issues a copy to the Court. I also retain a copy for my records along with the maintenance and service records for each SMD serviced.

All radar SMD's operated by the Steilacoom Police Department directly measure by digital message from the Doppler signal. They do not reconstitute the Doppler signal in any way, including the use of devices such as a phase lock loop (PLL), before the speed is measured.

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.

I certify under the penalty of perjury, under the laws of the State of Washington, that the foregoing is true and correct.

*Jorge Marciano*

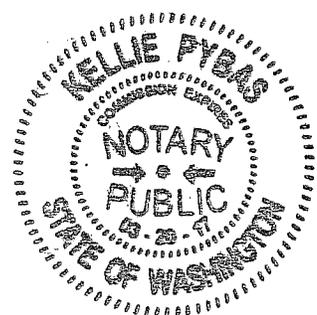
Jorge Marciano  
Communications Systems Technician/  
Speed Measuring Device Specialist

Signed and dated at Tacoma, Washington Mar 26, 2014

SUBSCRIBED AND SWORN TO BEFORE ME THIS 26th DAY OF March, 2014.

*Kellie Pybas*  
Notary Public in and for the State of Washington, County of Pierce.

Commission expires 03-20-2017





## Steilacoom Police Department Speed Measuring Device (SMD) Inventory

	MODEL:	SERIAL #:	CERTIFICATION DATE:	UNIT ASSIGNED:	SMD TYPE:	
1	Genesis VPD	03971	19-Mar-14	Unit #1 Handheld	Radar	
2	Genesis VPD	04025	19-Mar-14	Unit #2 Handheld	Radar	
3	SpeedLaser	500312	20-Mar-14	Handheld	Laser	
4	Genesis II Directional	G2S-22097	19-Mar-14	P1239	Radar	
5	Genesis II Directional	G2S-22432	19-Mar-14	P1241	Radar	
6	Genesis II Select	G2S-26208	19-Mar-14	P1242	Radar	
7	MPH Python	PYT380000562	19-Mar-14	P1237	Radar	
8	MPH Python	PYT546000274	19-Mar-14	P1236	Radar	
9	MPH Python	PYT546004626	19-Mar-14	P1240	Radar	
10	MPH Python	PYT546004627	19-Mar-14	P1228	Radar	
11	MPH Python	PYT546004781	19-Mar-14	P1232	Radar	
12	MPH Python	PYT546006652	19-Mar-14	P1229	Radar	
13	MPH Python	PYT546006653	19-Mar-14	P1238	Radar	
14	MPH Python	PYT546007663	19-Mar-14	P1230	Radar	



Pierce County  
Radio Communications

1422 112<sup>th</sup> Street East  
Tacoma, Washington 98445  
(253) 798-7147

**CERTIFICATE OF CALIBRATION & ACCURACY**

I, Jorge Marciano, do certify under the penalty of perjury, under the laws of the State of Washington, in the County of Pierce, that all applicable tests and measurements were made on the following Doppler Traffic Radar equipment:

Manufacturer:	<u>Decatur Electronics</u>	Date Certified:	<u>03/19/2014</u>
Model:	<u>Genesis VPD</u>	Agency:	<u>Steilacoom PD</u>
Serial Number:	<u>03971</u>		
Operating Frequency Band:	<u>K</u>		

The aforesaid radar meets and exceeds all manufacturer's specifications.

**TUNING FORK**

I, Jorge Marciano, do certify under the penalty of perjury, under the laws of the State of Washington, in the County of Pierce, that all applicable tests and measurements were made on the following Doppler Radar Tuning Forks:

Tuning Fork Serial No.:	<u>147346</u>	Date Certified:	<u>03/19/2014</u>
Oscillation (Cycles per Second):	<u>2391</u>	Agency:	<u>Steilacoom PD</u>
Operating Frequency Band:	<u>K</u>		
MPH:	<u>33</u>		

When operated between the temperature of -22F to +140F no correction is required.

**TUNING FORK**

I, Jorge Marciano, do certify under the penalty of perjury, under the laws of the State of Washington, in the County of Pierce, that all applicable tests and measurements were made on the following Doppler Radar Tuning Forks:

Tuning Fork Serial No.:	<u>147430</u>	Date Certified:	<u>03/19/2014</u>
Oscillation (Cycles per Second):	<u>5589</u>	Agency:	<u>Steilacoom PD</u>
Operating Frequency Band::	<u>K</u>		
MPH:	<u>77</u>		

When operated between the temperature of -22F to +140F no correction is required.

I certify under penalty of perjury, under the laws of the State of Washington, that the above statements are true and correct.

Dated and Signed at Tacoma, Washington

3/19/14  
DATED

J. G. T.  
SIGNED



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**CERTIFICATE OF CALIBRATION & ACCURACY**

I, Jorge Marciano, do certify under the penalty of perjury, under the laws of the State of Washington, in the County of Pierce, that all applicable tests and measurements were made on the following Doppler Traffic Radar equipment:

Manufacturer:	<u>Decatur Electronics</u>	Date Certified:	<u>03/19/2014</u>
Model:	<u>Genesis VPD</u>	Agency:	<u>Steilacoom PD</u>
Serial Number:	<u>04025</u>		
Operating Frequency Band:	<u>K</u>		

The aforesaid radar meets and exceeds all manufacturer's specifications.

**TUNING FORK**

I, Jorge Marciano, do certify under the penalty of perjury, under the laws of the State of Washington, in the County of Pierce, that all applicable tests and measurements were made on the following Doppler Radar Tuning Forks:

Tuning Fork Serial No.:	<u>147326</u>	Date Certified:	<u>03/19/2014</u>
Oscillation (Cycles per Second):	<u>2391</u>	Agency:	<u>Steilacoom PD</u>
Operating Frequency Band:	<u>K</u>		
MPH:	<u>33</u>		

When operated between the temperature of -22F to +140F no correction is required.

**TUNING FORK**

I, Jorge Marciano, do certify under the penalty of perjury, under the laws of the State of Washington, in the County of Pierce, that all applicable tests and measurements were made on the following Doppler Radar Tuning Forks:

Tuning Fork Serial No.:	<u>147436</u>	Date Certified:	<u>03/19/2014</u>
Oscillation (Cycles per Second):	<u>5589</u>	Agency:	<u>Steilacoom PD</u>
Operating Frequency Band::	<u>K</u>		
MPH:	<u>77</u>		

When operated between the temperature of -22F to +140F no correction is required.

I certify under penalty of perjury, under the laws of the State of Washington, that the above statements are true and correct.

Dated and Signed at Tacoma, Washington

3/19/14  
DATED

[Signature]  
SIGNED



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CERTIFICATE OF CALIBRATION & ACCURACY

I, Jorge Marciano, do certify under the penalty of perjury, under the laws of the State of Washington, in the County of Pierce, that all applicable tests and measurements were made on the following Doppler Traffic Radar equipment:

Manufacturer:	<u>Decatur Electronics</u>	Date Certified:	<u>03/19/2014</u>
Model:	<u>Genesis II Directional</u>	Agency:	<u>Steilacoom PD</u>
Serial Number:	<u>G2S-22097</u>		
Operating Frequency Band:	<u>K</u>		

The aforesaid radar meets and exceeds all manufacturer's specifications.

TUNING FORK

I, Jorge Marciano, do certify under the penalty of perjury, under the laws of the State of Washington, in the County of Pierce, that all applicable tests and measurements were made on the following Doppler Radar Tuning Forks:

Tuning Fork Serial No.:	<u>201412</u>	Date Certified:	<u>03/19/2014</u>
Oscillation (Cycles per Second):	<u>2536</u>	Agency:	<u>Steilacoom PD</u>
Operating Frequency Band:	<u>K</u>		
MPH:	<u>35</u>		

When operated between the temperature of -22F to +140F no correction is required.

TUNING FORK

I, Jorge Marciano, do certify under the penalty of perjury, under the laws of the State of Washington, in the County of Pierce, that all applicable tests and measurements were made on the following Doppler Radar Tuning Forks:

Tuning Fork Serial No.:	<u>201492</u>	Date Certified:	<u>03/19/2014</u>
Oscillation (Cycles per Second):	<u>4726</u>	Agency:	<u>Steilacoom PD</u>
Operating Frequency Band::	<u>K</u>		
MPH:	<u>65</u>		

When operated between the temperature of -22F to +140F no correction is required.

I certify under penalty of perjury, under the laws of the State of Washington, that the above statements are true and correct.

Dated and Signed at Tacoma, Washington

3/19/14  
DATED

[Signature]  
SIGNED



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Manufacturer:	<u>Decatur Electronics</u>	Date Certified:	<u>03/19/2014</u>
Model:	<u>Genesis II Directional</u>	Agency:	<u>Steilacoom PD</u>
Serial Number:	<u>G2S-22432</u>		
Operating Frequency Band:	<u>K</u>		

The aforesaid radar meets and exceeds all manufacturer's specifications.

**TUNING FORK**

I, Jorge Marciano, do certify under the penalty of perjury, under the laws of the State of Washington, in the County of Pierce, that all applicable tests and measurements were made on the following Doppler Radar Tuning Forks:

Tuning Fork Serial No.:	<u>204702</u>	Date Certified:	<u>03/19/2014</u>
Oscillation (Cycles per Second):	<u>2536</u>	Agency:	<u>Steilacoom PD</u>
Operating Frequency Band:	<u>K</u>		
MPH:	<u>35</u>		

When operated between the temperature of -22F to +140F no correction is required.

**TUNING FORK**

I, Jorge Marciano, do certify under the penalty of perjury, under the laws of the State of Washington, in the County of Pierce, that all applicable tests and measurements were made on the following Doppler Radar Tuning Forks:

Tuning Fork Serial No.:	<u>204778</u>	Date Certified:	<u>03/19/2014</u>
Oscillation (Cycles per Second):	<u>4726</u>	Agency:	<u>Steilacoom PD</u>
Operating Frequency Band::	<u>K</u>		
MPH:	<u>65</u>		

When operated between the temperature of -22F to +140F no correction is required.

I certify under penalty of perjury, under the laws of the State of Washington, that the above statements are true and correct.

Dated and Signed at Tacoma, Washington

3/19/14  
DATED

[Signature]  
SIGNED



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I, Jorge Marciano, do certify under the penalty of perjury, under the laws of the State of Washington, in the County of Pierce, that all applicable tests and measurements were made on the following Doppler Traffic Radar equipment:

Manufacturer:	<u>Decatur Electronics</u>	Date Certified:	<u>03/19/2014</u>
Model:	<u>Genesis II Select</u>	Agency:	<u>Steilacoom PD</u>
Serial Number:	<u>G2S-26208</u>		
Operating Frequency Band:	<u>K</u>		

The aforesaid radar meets and exceeds all manufacturer's specifications.

**TUNING FORK**

I, Jorge Marciano, do certify under the penalty of perjury, under the laws of the State of Washington, in the County of Pierce, that all applicable tests and measurements were made on the following Doppler Radar Tuning Forks:

Tuning Fork Serial No.:	<u>222754</u>	Date Certified:	<u>03/19/2014</u>
Oscillation (Cycles per Second):	<u>2536</u>	Agency:	<u>Steilacoom PD</u>
Operating Frequency Band:	<u>K</u>		
MPH:	<u>35</u>		

When operated between the temperature of -22F to +140F no correction is required.

**TUNING FORK**

I, Jorge Marciano, do certify under the penalty of perjury, under the laws of the State of Washington, in the County of Pierce, that all applicable tests and measurements were made on the following Doppler Radar Tuning Forks:

Tuning Fork Serial No.:	<u>223309</u>	Date Certified:	<u>03/19/2014</u>
Oscillation (Cycles per Second):	<u>4726</u>	Agency:	<u>Steilacoom PD</u>
Operating Frequency Band::	<u>K</u>		
MPH:	<u>65</u>		

When operated between the temperature of -22F to +140F no correction is required.

I certify under penalty of perjury, under the laws of the State of Washington, that the above statements are true and correct.

Dated and Signed at Tacoma, Washington

3/19/14  
DATED

J. G. Z.  
SIGNED



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CERTIFICATE OF CALIBRATION & ACCURACY

I, Jorge Marciano, do certify under the penalty of perjury, under the laws of the State of Washington, in the County of Pierce, that all applicable tests and measurements were made on the following Doppler Traffic Radar equipment:

Manufacturer:	<u>MPH Industries</u>	Date Certified:	<u>03/19/2014</u>
Model:	<u>MPH Python</u>	Agency:	<u>Steilacoom PD</u>
Serial Number:	<u>PYT380000562</u>		
Operating Frequency Band:	<u>K</u>		

The aforesaid radar meets and exceeds all manufacturer's specifications.

TUNING FORK

I, Jorge Marciano, do certify under the penalty of perjury, under the laws of the State of Washington, in the County of Pierce, that all applicable tests and measurements were made on the following Doppler Radar Tuning Forks:

Tuning Fork Serial No.:	<u>226946</u>	Date Certified:	<u>03/19/2014</u>
Oscillation (Cycles per Second):	<u>2520</u>	Agency:	<u>Steilacoom PD</u>
Operating Frequency Band:	<u>K</u>		
MPH:	<u>35</u>		

When operated between the temperature of -22F to +140F no correction is required.

TUNING FORK

I, Jorge Marciano, do certify under the penalty of perjury, under the laws of the State of Washington, in the County of Pierce, that all applicable tests and measurements were made on the following Doppler Radar Tuning Forks:

Tuning Fork Serial No.:	<u>237221</u>	Date Certified:	<u>03/19/2014</u>
Oscillation (Cycles per Second):	<u>4690</u>	Agency:	<u>Steilacoom PD</u>
Operating Frequency Band::	<u>K</u>		
MPH:	<u>65</u>		

When operated between the temperature of -22F to +140F no correction is required.

I certify under penalty of perjury, under the laws of the State of Washington, that the above statements are true and correct.

Dated and Signed at Tacoma, Washington

3/19/14  
DATED

[Signature]  
SIGNED



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I, Jorge Marciano, do certify under the penalty of perjury, under the laws of the State of Washington, in the County of Pierce, that all applicable tests and measurements were made on the following Doppler Traffic Radar equipment:

Manufacturer:	<u>MPH Industries</u>	Date Certified:	<u>03/19/2014</u>
Model:	<u>MPH Python</u>	Agency:	<u>Steilacoom PD</u>
Serial Number:	<u>PYT546000274</u>		
Operating Frequency Band:	<u>K</u>		

The aforesaid radar meets and exceeds all manufacturer's specifications.

**TUNING FORK**

I, Jorge Marciano, do certify under the penalty of perjury, under the laws of the State of Washington, in the County of Pierce, that all applicable tests and measurements were made on the following Doppler Radar Tuning Forks:

Tuning Fork Serial No.:	<u>20669</u>	Date Certified:	<u>03/19/2014</u>
Oscillation (Cycles per Second):	<u>2545</u>	Agency:	<u>Steilacoom PD</u>
Operating Frequency Band:	<u>K</u>		
MPH:	<u>35</u>		

When operated between the temperature of -22F to +140F no correction is required.

**TUNING FORK**

I, Jorge Marciano, do certify under the penalty of perjury, under the laws of the State of Washington, in the County of Pierce, that all applicable tests and measurements were made on the following Doppler Radar Tuning Forks:

Tuning Fork Serial No.:	<u>19905</u>	Date Certified:	<u>03/19/2014</u>
Oscillation (Cycles per Second):	<u>4794</u>	Agency:	<u>Steilacoom PD</u>
Operating Frequency Band::	<u>K</u>		
MPH:	<u>65</u>		

When operated between the temperature of -22F to +140F no correction is required.

I certify under penalty of perjury, under the laws of the State of Washington, that the above statements are true and correct.

Dated and Signed at Tacoma, Washington

3/19/14  
DATED

Jorge Marciano  
SIGNED



Pierce County  
Radio Communications

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**CERTIFICATE OF CALIBRATION & ACCURACY**

I, Jorge Marciano, do certify under the penalty of perjury, under the laws of the State of Washington, in the County of Pierce, that all applicable tests and measurements were made on the following Doppler Traffic Radar equipment:

Manufacturer:	<u>MPH Industries</u>	Date Certified:	<u>03/19/2014</u>
Model:	<u>MPH Python</u>	Agency:	<u>Steilacoom PD</u>
Serial Number:	<u>PYT546004626</u>		
Operating Frequency Band:	<u>K</u>		

The aforesaid radar meets and exceeds all manufacturer's specifications.

**TUNING FORK**

I, Jorge Marciano, do certify under the penalty of perjury, under the laws of the State of Washington, in the County of Pierce, that all applicable tests and measurements were made on the following Doppler Radar Tuning Forks:

Tuning Fork Serial No.:	<u>292667</u>	Date Certified:	<u>03/19/2014</u>
Oscillation (Cycles per Second):	<u>2521</u>	Agency:	<u>Steilacoom PD</u>
Operating Frequency Band:	<u>K</u>		
MPH:	<u>35</u>		

When operated between the temperature of -22F to +140F no correction is required.

**TUNING FORK**

I, Jorge Marciano, do certify under the penalty of perjury, under the laws of the State of Washington, in the County of Pierce, that all applicable tests and measurements were made on the following Doppler Radar Tuning Forks:

Tuning Fork Serial No.:	<u>293093</u>	Date Certified:	<u>03/19/2014</u>
Oscillation (Cycles per Second):	<u>4680</u>	Agency:	<u>Steilacoom PD</u>
Operating Frequency Band::	<u>K</u>		
MPH:	<u>65</u>		

When operated between the temperature of -22F to +140F no correction is required.

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Dated and Signed at Tacoma, Washington

3/19/14  
DATED

[Signature]  
SIGNED



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**CERTIFICATE OF CALIBRATION & ACCURACY**

I, Jorge Marciano, do certify under the penalty of perjury, under the laws of the State of Washington, in the County of Pierce, that all applicable tests and measurements were made on the following Doppler Traffic Radar equipment:

Manufacturer:	<u>MPH Industries</u>	Date Certified:	<u>03/19/2014</u>
Model:	<u>MPH Python</u>	Agency:	<u>Steilacoom PD</u>
Serial Number:	<u>PYT546004627</u>		
Operating Frequency Band:	<u>K</u>		

The aforesaid radar meets and exceeds all manufacturer's specifications.

**TUNING FORK**

I, Jorge Marciano, do certify under the penalty of perjury, under the laws of the State of Washington, in the County of Pierce, that all applicable tests and measurements were made on the following Doppler Radar Tuning Forks:

Tuning Fork Serial No.:	<u>55988</u>	Date Certified:	<u>03/19/2014</u>
Oscillation (Cycles per Second):	<u>2546</u>	Agency:	<u>Steilacoom PD</u>
Operating Frequency Band:	<u>K</u>		
MPH:	<u>35</u>		

When operated between the temperature of -22F to +140F no correction is required.

**TUNING FORK**

I, Jorge Marciano, do certify under the penalty of perjury, under the laws of the State of Washington, in the County of Pierce, that all applicable tests and measurements were made on the following Doppler Radar Tuning Forks:

Tuning Fork Serial No.:	<u>36347</u>	Date Certified:	<u>03/19/2014</u>
Oscillation (Cycles per Second):	<u>4736</u>	Agency:	<u>Steilacoom PD</u>
Operating Frequency Band::	<u>K</u>		
MPH:	<u>65</u>		

When operated between the temperature of -22F to +140F no correction is required.

I certify under penalty of perjury, under the laws of the State of Washington, that the above statements are true and correct.

Dated and Signed at Tacoma, Washington

3/19/14  
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Jorge Marciano  
SIGNED



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Manufacturer:	<u>MPH Industries</u>	Date Certified:	<u>03/19/2014</u>
Model:	<u>MPH Python</u>	Agency:	<u>Steilacoom PD</u>
Serial Number:	<u>PYT546004781</u>		
Operating Frequency Band:	<u>K</u>		

The aforesaid radar meets and exceeds all manufacturer's specifications.

**TUNING FORK**

I, Jorge Marciano, do certify under the penalty of perjury, under the laws of the State of Washington, in the County of Pierce, that all applicable tests and measurements were made on the following Doppler Radar Tuning Forks:

Tuning Fork Serial No.:	<u>294073</u>	Date Certified:	<u>03/19/2014</u>
Oscillation (Cycles per Second):	<u>2520</u>	Agency:	<u>Steilacoom PD</u>
Operating Frequency Band:	<u>K</u>		
MPH:	<u>35</u>		

When operated between the temperature of -22F to +140F no correction is required.

**TUNING FORK**

I, Jorge Marciano, do certify under the penalty of perjury, under the laws of the State of Washington, in the County of Pierce, that all applicable tests and measurements were made on the following Doppler Radar Tuning Forks:

Tuning Fork Serial No.:	<u>294581</u>	Date Certified:	<u>03/19/2014</u>
Oscillation (Cycles per Second):	<u>4685</u>	Agency:	<u>Steilacoom PD</u>
Operating Frequency Band::	<u>K</u>		
MPH:	<u>65</u>		

When operated between the temperature of -22F to +140F no correction is required.

I certify under penalty of perjury, under the laws of the State of Washington, that the above statements are true and correct.

Dated and Signed at Tacoma, Washington

3/19/14  
DATED

[Signature]  
SIGNED



Pierce County  
Radio Communications

1422 112<sup>th</sup> Street East  
Tacoma, Washington 98445  
(253) 798-7147

**CERTIFICATE OF CALIBRATION & ACCURACY**

I, Jorge Marciano, do certify under the penalty of perjury, under the laws of the State of Washington, in the County of Pierce, that all applicable tests and measurements were made on the following Doppler Traffic Radar equipment:

Manufacturer:	<u>MPH Industries</u>	Date Certified:	<u>03/19/2014</u>
Model:	<u>MPH Python</u>	Agency:	<u>Steilacoom PD</u>
Serial Number:	<u>PYT546006652</u>		
Operating Frequency Band:	<u>K</u>		

The aforesaid radar meets and exceeds all manufacturer's specifications.

**TUNING FORK**

I, Jorge Marciano, do certify under the penalty of perjury, under the laws of the State of Washington, in the County of Pierce, that all applicable tests and measurements were made on the following Doppler Radar Tuning Forks:

Tuning Fork Serial No.:	<u>308554</u>	Date Certified:	<u>03/19/2014</u>
Oscillation (Cycles per Second):	<u>2521</u>	Agency:	<u>Steilacoom PD</u>
Operating Frequency Band:	<u>K</u>		
MPH:	<u>35</u>		

When operated between the temperature of -22F to +140F no correction is required.

**TUNING FORK**

I, Jorge Marciano, do certify under the penalty of perjury, under the laws of the State of Washington, in the County of Pierce, that all applicable tests and measurements were made on the following Doppler Radar Tuning Forks:

Tuning Fork Serial No.:	<u>308340</u>	Date Certified:	<u>03/19/2014</u>
Oscillation (Cycles per Second):	<u>4681</u>	Agency:	<u>Steilacoom PD</u>
Operating Frequency Band::	<u>K</u>		
MPH:	<u>65</u>		

When operated between the temperature of -22F to +140F no correction is required.

I certify under penalty of perjury, under the laws of the State of Washington, that the above statements are true and correct.

Dated and Signed at Tacoma, Washington 3/19/14 J. G. Z.  
DATED SIGNED



Pierce County  
Radio Communications

1422 112<sup>th</sup> Street East  
Tacoma, Washington 98445  
(253) 798-7147

**CERTIFICATE OF CALIBRATION & ACCURACY**

I, Jorge Marciano, do certify under the penalty of perjury, under the laws of the State of Washington, in the County of Pierce, that all applicable tests and measurements were made on the following Doppler Traffic Radar equipment:

Manufacturer:	<u>MPH Industries</u>	Date Certified:	<u>03/19/2014</u>
Model:	<u>MPH Python</u>	Agency:	<u>Steilacoom PD</u>
Serial Number:	<u>PYT546006653</u>		
Operating Frequency Band:	<u>K</u>		

The aforesaid radar meets and exceeds all manufacturer's specifications.

**TUNING FORK**

I, Jorge Marciano, do certify under the penalty of perjury, under the laws of the State of Washington, in the County of Pierce, that all applicable tests and measurements were made on the following Doppler Radar Tuning Forks:

Tuning Fork Serial No.:	<u>416764</u>	Date Certified:	<u>03/19/2014</u>
Oscillation (Cycles per Second):	<u>2523</u>	Agency:	<u>Steilacoom PD</u>
Operating Frequency Band:	<u>K</u>		
MPH:	<u>35</u>		

When operated between the temperature of -22F to +140F no correction is required.

**TUNING FORK**

I, Jorge Marciano, do certify under the penalty of perjury, under the laws of the State of Washington, in the County of Pierce, that all applicable tests and measurements were made on the following Doppler Radar Tuning Forks:

Tuning Fork Serial No.:	<u>416738</u>	Date Certified:	<u>03/19/2014</u>
Oscillation (Cycles per Second):	<u>4681</u>	Agency:	<u>Steilacoom PD</u>
Operating Frequency Band::	<u>K</u>		
MPH:	<u>65</u>		

When operated between the temperature of -22F to +140F no correction is required.

I certify under penalty of perjury, under the laws of the State of Washington, that the above statements are true and correct.

Dated and Signed at Tacoma, Washington

3/19/14  
DATED

Jorge Marciano  
SIGNED



Pierce County  
Radio Communications

1422 112<sup>th</sup> Street East  
Tacoma, Washington 98445  
(253) 798-7147

**CERTIFICATE OF CALIBRATION & ACCURACY**

I, Jorge Marciano, do certify under the penalty of perjury, under the laws of the State of Washington, in the County of Pierce, that all applicable tests and measurements were made on the following Doppler Traffic Radar equipment:

Manufacturer:	<u>MPH Industries</u>	Date Certified:	<u>03/19/2014</u>
Model:	<u>MPH Python</u>	Agency:	<u>Steilacoom PD</u>
Serial Number:	<u>PYT546007663</u>		
Operating Frequency Band:	<u>K</u>		

The aforesaid radar meets and exceeds all manufacturer's specifications.

**TUNING FORK**

I, Jorge Marciano, do certify under the penalty of perjury, under the laws of the State of Washington, in the County of Pierce, that all applicable tests and measurements were made on the following Doppler Radar Tuning Forks:

Tuning Fork Serial No.:	<u>308539</u>	Date Certified:	<u>03/19/2014</u>
Oscillation (Cycles per Second):	<u>2521</u>	Agency:	<u>Steilacoom PD</u>
Operating Frequency Band:	<u>K</u>		
MPH:	<u>35</u>		

When operated between the temperature of -22F to +140F no correction is required.

**TUNING FORK**

I, Jorge Marciano, do certify under the penalty of perjury, under the laws of the State of Washington, in the County of Pierce, that all applicable tests and measurements were made on the following Doppler Radar Tuning Forks:

Tuning Fork Serial No.:	<u>308039</u>	Date Certified:	<u>03/19/2014</u>
Oscillation (Cycles per Second):	<u>4685</u>	Agency:	<u>Steilacoom PD</u>
Operating Frequency Band::	<u>K</u>		
MPH:	<u>65</u>		

When operated between the temperature of -22F to +140F no correction is required.

I certify under penalty of perjury, under the laws of the State of Washington, that the above statements are true and correct.

Dated and Signed at Tacoma, Washington 3/19/14 \_\_\_\_\_  
DATED SIGNED



**Pierce County  
Radio Communications**

1422 112<sup>th</sup> Street East  
Tacoma, Washington 98445

(253) 789-7147

**CERTIFICATE OF ACCURACY**

I, Jorge Marciano, do certify under the penalty of perjury, under the laws of the State of Washington, in the County of Pierce, that all applicable tests and measurements were made on the laser Speed Measuring Device (SMD) listed below. The SMD was found to meet or exceed all manufacturer's specifications.

**Laser SMD Information and Certification Summary**

Manufacturer:	<u>Laser Atlanta, LLC</u>	Date Certified:	<u>20-Mar-14</u>
Model:	<u>SpeedLaser S</u>	Agency:	<u>Stellacoom PD</u>
Serial Number:	<u>500312</u>		

**Distance Tests**

Long Range . . . . .	Expected: 205.0 ft	Tested: 204.5 ft	<input type="checkbox"/> N/A	<input checked="" type="checkbox"/> Pass	<input type="checkbox"/> Fail
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**Operational Tests**

Controls Operational . . . . .	<input type="checkbox"/> N/A	<input checked="" type="checkbox"/> Pass	<input type="checkbox"/> Fail
RFI Indicator . . . . .	<input type="checkbox"/> N/A	<input checked="" type="checkbox"/> Pass	<input type="checkbox"/> Fail

**Pulse Characteristics Tests**

Pulse Frequency (Rep Rate) . . . . .	Expected: 227 to 240 Hz	Tested: 238.42 Hz	<input type="checkbox"/> N/A	<input checked="" type="checkbox"/> Pass	<input type="checkbox"/> Fail
Pulse Width . . . . .	Expected: <=30 nS	Tested: 25.94 nS	<input type="checkbox"/> N/A	<input checked="" type="checkbox"/> Pass	<input type="checkbox"/> Fail
Double Pulse . . . . .			<input type="checkbox"/> N/A	<input checked="" type="checkbox"/> Pass	<input type="checkbox"/> Fail

**Beam Characteristics Tests**

Optical Power . . . . .	Expected: <=300 mW	Tested: 164.40 uW	<input type="checkbox"/> N/A	<input checked="" type="checkbox"/> Pass	<input type="checkbox"/> Fail
Wavelength . . . . .	Expected: NA	Tested: ND	<input checked="" type="checkbox"/> N/A	<input type="checkbox"/> Pass	<input type="checkbox"/> Fail
Horizontal Beam Width . . . . .			<input type="checkbox"/> N/A	<input checked="" type="checkbox"/> Pass	<input type="checkbox"/> Fail
Vertical Beam Width . . . . .			<input type="checkbox"/> N/A	<input checked="" type="checkbox"/> Pass	<input type="checkbox"/> Fail
Sight Alignment . . . . .			<input type="checkbox"/> N/A	<input checked="" type="checkbox"/> Pass	<input type="checkbox"/> Fail

I certify under penalty of perjury, under the laws of the State of Washington, that the foregoing is true and correct.

Dated and Signed at Tacoma, Washington

3/20/14      [Signature]  
DATE                      SIGNED