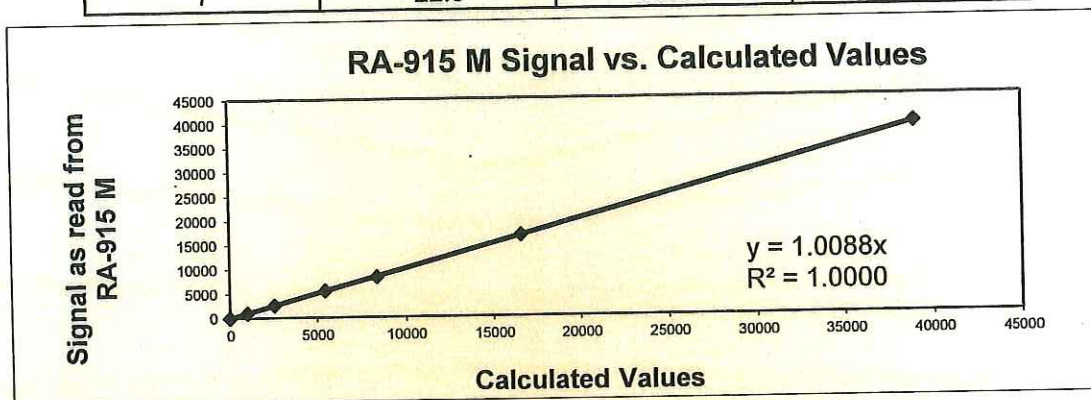




Spectrometer Calibration Certificate

RA-915 M #1705

Standard #	Temp °C	Calculated Value	Signal (10m cell)
1	22.5	0	0
2	22.5	999	1002
3	22.5	2557	2539
4	22.5	5486	5553
5	22.5	8415	8333
6	22.5	16610	16798
7	22.5	38976	39334



Calibration Gas certified value: 4.7µg/m³
Calibration Parameter A: 52000

Reading observed: 4.7µg/m³
Calibration Parameter B: 29600

CALIBRATION DATE: 05/03/2018 NEXT CALIBRATION DUE: 05/04/2019

ON THE DATE CALIBRATED, THIS UNIT OPERATED WITHIN SPECIFIED TOLERANCES

Digital Barometer:

Cert. #1081-8782151, Cal. Due.: 09/01/2019

Digital Thermometer:

Cert. #1081-8782151, Cal. Due.: 09/01/2019

Gas NIST Traceable Standard

Themo Hg Calibrator Serial #0712322224

Concentration: 4.7µg/m³, Analytical Accuracy, +/- 10%. Recertification Date: 06/29/2018

Service Technician: *V. SIK*

QA/QC Manager: _____

Technical Director: _____

RECOMMENDATION NOTE: INSTRUMENT SHOULD BE RECALIBRATED EVERY 12 MONTHS OR SOONER, IF EXPOSED TO EXTREME CONDITIONS OR DAMAGE IS SUSPECTED

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1.888.876.2611

Thermo Scientific Model 81i Calibrator Certification Report

Certification Date: 6/29/2016

Location:	<u>Candidate</u> Franklin, MA	ID:	<u>Reference</u> NISTA
Device:	<u>81i-Ohio Lmuex</u>	S/N:	<u>0712322224</u>
S/N:	<u>1021143493</u>		
Chiller S/N 548	Chiller Temp 6 DEG C	RA 57492	

As Found Data:

As Left Data:

Candidate User Information		Candidate User Generator Certification					Reference Generator
Setpoint	Value	Setpoint	Certified	1 σ	2 σ	Relative	Expanded
$\mu\text{g}/\text{scm}$	$\mu\text{g}/\text{scm}$	$\mu\text{g}/\text{scm}$	$\mu\text{g}/\text{scm}$	$\mu\text{g}/\text{scm}$	$\mu\text{g}/\text{scm}$	2 σ %	2 σ %
1.2	1.05	1.2	1.18	0.0140	0.0280	2.38%	1.13%
2.7	2.41	2.7	2.72	0.0179	0.0358	1.32%	0.98%
4.7	4.23	4.7	4.73	0.0299	0.0598	1.26%	1.03%

At each concentration level, the results of the bracketing certification procedure are acceptable if the expanded uncertainty of the elemental mercury generator concentration, calculated in accordance with Section 6.3 in the Interim EPA Traceability Protocol for Qualification and Certification of Elemental Mercury Gas Generators, does not exceed 5.0 percent of the certified value, or is not more than 2.0 percent above the Vendor Prime uncertainty at the closest set point, whichever is less restrictive. (Source Interim EPA Traceability Protocol for Qualification and Certification of Elemental Mercury Gas Generators: Section 6.4)

Protocol applies only to Hg monitoring system span values greater than or equal to 5.0 micrograms per cubic meter
 (Source Interim EPA Traceability Protocol for Qualification and Certification of Elemental Mercury Gas Generators: Section 1.0)

This document certifies that the above instrument has been calibrated and tested in accordance with Thermo Fisher Scientific procedure conducted under the conditions noted with standards, which are certified traceable to the National Institute of Standards and Technology (NIST). This Calibration Certificate may not be reproduced except in full, without written permissions from Thermo Fisher Scientific. The results of this report relate only to the instrument tested and calibrated as identified on this certificate.

Calibration

Certification