



Designer and Manufacturer
of
Scientific and Industrial
Instruments

CERTIFICATE OF CALIBRATION

LUDLUM MEASUREMENTS, INC.

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CUSTOMER CABRERA SERVICES

ORDER NO. 20280903/429686

Mfg. Thermo Model MICRO REM Serial No. 1844

Mfg. _____ Model _____ Serial No. _____

Cal. Date 22-Dec-15 Cal Due Date 22-Dec-16 Cal. Interval 1 Year Meterface 0-200µrem/

Check mark ☒ Applies to applicable instr. and/or detector IAW mfg. spec. T. 74 °F RH 21 % Alt 704.0 mm Hg

☐ New Instrument ☐ Instrument Received ☒ Within Toler. $\pm 10\%$ ☐ 10-20% ☐ Out of Tol. ☐ Requiring Repair ☐ Other-See comments

☒ Mechanical ck. ☐ Meter Zeroed ☐ Background Subtract ☐ Input Sens. Linearity

☒ F/S Resp. ck. ☒ Reset ck. ☐ Window Operation ☐ Geotropism

☒ Audio ck. ☐ Alarm Setting ck. ☐ Batt. ck. (Min. Volt) _____ VDC

☐ Calibrated in accordance with LMI SOP 14.8 ☒ Calibrated in accordance with LMI SOP 14.9

Instrument Volt Set _____ V Input Sens. _____ mV Det. Oper. _____ V at _____ mV Threshold Dial Ratio _____ = _____ mV

☐ HV Readout (2 points) Ref./Inst. _____ / _____ V Ref./Inst. _____ / _____ V

COMMENTS:

Gamma Calibration: GM detectors positioned perpendicular to source except for M 44-9 in which the front of probe faces source.

RANGE/MULTIPLIER	REFERENCE CAL. POINT	INSTRUMENT REC'D "AS FOUND READING"	INSTRUMENT METER READING*
x 1000	150 mR/hr	<u>150</u>	<u>150</u>
x 1000	50 mR/hr	<u>50</u>	<u>50</u>
x 100	15 mR/hr	<u>150</u>	<u>150</u>
x 100	5 mR/hr	<u>50</u>	<u>50</u>
x 10	1500 µR/hr	<u>150</u>	<u>150</u>
x 10	500 µR/hr	<u>98</u>	<u>98</u>
x 1	150 µR/hr	<u>155</u>	<u>150</u>
x 1	100 µR/hr	<u>105</u>	<u>100</u>
x0.1	15 µR/hr	<u>150</u>	<u>150</u>
x0.1			

*Uncertainty within $\pm 10\%$ C.F. within $\pm 20\%$

Range(s) Calibrated Electronically

REFERENCE CAL. POINT	INSTRUMENT RECEIVED	INSTRUMENT METER READING*	REFERENCE CAL. POINT	INSTRUMENT RECEIVED	INSTRUMENT METER READING*
Digital Readout			Log Scale		

Ludlum Measurements, Inc. certifies that the above instrument has been calibrated by standards traceable to the National Institute of Standards and Technology, or to the calibration facilities of other International Standards Organization members, or have been derived from accepted values of natural physical constants or have been derived by the ratio type of calibration techniques.

The calibration system conforms to the requirements of ANSI/NCSL Z540-1-1994 and ANSI N323-1978

State of Texas Calibration License No. LO-1963

Reference Instruments and/or Sources: Cs-137 S/N: ☐ 059 ☐ 2171CP ☐ 2261CP ☐ 720 ☐ 734 ☐ 781 ☐ 1131 ☐ 1616 ☐ 1696 ☐ 1909 ☐ 1916CP ☐ 5105 ☐ 5717CO
☐ 5719CO ☐ 60646 ☐ 70897 ☐ 73410 ☐ E552 ☒ G112 ☒ M565 ☐ S-394 ☐ S-1054 ☐ T10081 ☐ T10082 Neutron Am-241 Be S/N: ☐ T-304 Ra-226 S/N: ☐ Y982

☐ Alpha S/N _____ ☐ Beta S/N _____ ☒ Other Cs-137 201uCi

☐ m 500 S/N _____ ☐ Oscilloscope S/N _____ ☐ Multimeter S/N _____

Calibrated By: [Signature] Date 22-Dec-15

Reviewed By: [Signature] Date 30-Dec-15