



Designer and Manufacturer  
of  
Scientific and Industrial  
Instruments

# CERTIFICATE OF CALIBRATION

**LUDLUM MEASUREMENTS, INC.**

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325-235-5494

☐ 10744 Dutchtown Road  
865-392-4601

Sweetwater, TX 79556, U.S.A. Knoxville, TN 37932, U.S.A.

CUSTOMER CABRERA SERVICES INC.

ORDER NO. 20278428/428072

Mfg. Ludlum Measurements, Inc. Model 2221

Serial No. 216412

Mfg. Bicron Model G-1

Serial No. 6442E

Cal. Date 3-Nov-15 Cal Due Date 3-Nov-16 Cal. Interval 1 Year Meterface 202-159

Check mark ☒ applies to applicable instr. and/or detector IAW mfg. spec. T. 75 °F RH 37 % 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) 4.4 VDC

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

Instrument Volt Set 850 V Input Sens. 10 mV Det. Oper. 850 V at 10 mV Threshold Dial Ratio 100 = 10 mV

☒ HV Readout (2 points) Ref./Inst. 500 / 495 V Ref./Inst. 2000 / 1990 V

## COMMENTS:

Firmware: 261028 OL checked but not set.  
Calibrated with window in OUT position.

Calibrated with 50' cable.

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*
x1K	400kcpm	380	400
x1K	100kcpm	90	100
x100	40kcpm	380	400
x100	10kcpm	90	100
x10	4kcpm	380	400
x10	1kcpm	90	100
x1	400cpm	380	400
x1	100cpm	90	100

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

ALL Range(s) Calibrated Electronically

REFERENCE CAL. POINT	INSTRUMENT RECEIVED	INSTRUMENT METER READING*	REFERENCE CAL. POINT	INSTRUMENT RECEIVED	INSTRUMENT METER READING*
Digital Readout	400kcpm	40045 (0)	Log Scale	500kcpm	500K cpm
	40kcpm	4005		50kcpm	50   cpm
	4kcpm	40		5kcpm	5   cpm
	400cpm	40		500cpm	500
	40cpm	4		50cpm	50

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/NCCL 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

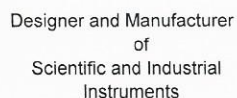
☒ m 500 S/N 289158 ☐ Oscilloscope S/N ☒ Multimeter S/N 93870637

Calibrated By: Jeremy Thompson

Date 3 Nov 15

Reviewed By: Donnie Mickos

Date 3 Nov 15



Knoxville, TN 37932, U.S.A.