



# Certificate of Calibration

## MSA Lapel Air Sampler Calibration Form

Environmental Restoration Group, Inc.  
8809 Washington St NE, Suite 150  
Albuquerque, NM 87113  
(505) 298-4224  
www.ERGoffice.com

Manufacturer:  Model Number:  Serial Number:

Mechanical Check

Flow Fault Check:

Barometric Pressure:  inches Hg

Temperature:  °F

Relative Humidity:  %

Digital Flow Run Number	Flow 1 (2000 cc/min)	Flow 2 (3000 cc/min)
1	2038	3212
2	2052	3192
3	2114	3120
4	1990	3076
5	2109	3051
6	2080	3192
Average: <input type="text" value="2063.8"/>		<input type="text" value="3140.5"/>
Adjustment Set: <input checked="" type="checkbox"/>		<input checked="" type="checkbox"/>

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Average: <input type="text" value="2063.8"/>		<input type="text" value="3140.5"/>
Adjustment Set: <input checked="" type="checkbox"/>		<input checked="" type="checkbox"/>

Note: Breathing zone sampler calibration consists of a single-point calibration at two different flow rates. The average flow rate for each flow rate tested is based on the test runs at each flow rate tested. The sampler flow rate is then adjusted to match this average.

Final Flow Setting:  LPM

Reference Calibrator:  MSA DIGICAL serial number: 020158  A.P. Buck mini-Buck serial number: 053058

Calibrated By: 

Calibration Date: 6-9-16

Reviewed By: 

Review Date: 6/9/16



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## Calibration and Voltage Plateau

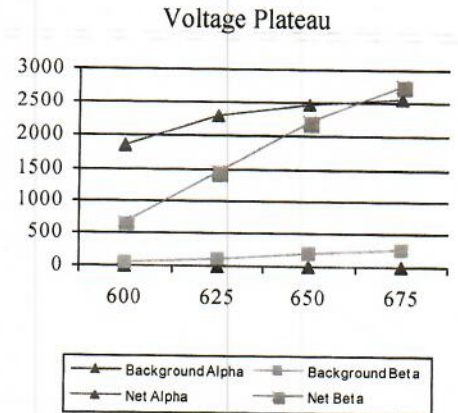
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Meter: Manufacturer: Ludlum Model Number: 2360 Serial Number: 184913  
 Detector: Manufacturer: Ludlum Model Number: 43-93 Serial Number: PR199839

- Mechanical Check       THR/WIN Operation      HV Check (+/- 2.5%):  500 V     1000 V     1500 V  
 F/S Response Check     Reset Check              Cable Length:  39-inch     72-inch     Other:  
 Geotropism               Audio Check  
 Meter Zeroed             Battery Check (Min 4.4 VDC)  
 Source Distance:  Contact     6 inches     Other:  
 Source Geometry:  Side     Below     Other:  
 Alpha Threshold: 120 mV    Barometric Pressure: 24.54 inches Hg  
 Beta Threshold: 4              Temperature: 76 °F  
 Beta Window: 30 mV          Relative Humidity: 20 %  
 Instrument found within tolerance:  Yes     No

Range/Multiplier	Reference Setting	"As Found Reading"	Meter Reading	Integrated 1-Min. Count	
				$\alpha$	$\beta$
x 1000	400 Kcpm	400	400	398886	398893
x 1000	100 Kcpm	100	100		
x 100	40 Kcpm	400	400	39862	39865
x 100	10 Kcpm	100	100		
x 10	4 Kcpm	400	400	3987	3988
x 10	1 Kcpm	100	100		
x 1	400 cpm	400	400	399	399
x 1	100 cpm	100	100		

High Voltage	Alpha Source		Beta Source		Background	
	$\alpha$	$\beta$	$\alpha$	$\beta$	$\alpha$	$\beta$
600	1853	308	9	749	1	57
625	2284	314	7	1579	4	131
650	2480	414	6	2387	2	201
675	2552	514	8	3017	6	269



Comments: HV Plateau Scaler Count Time = 1 min. Recommended HV = 650

### Reference Instruments and/or Sources:

- Ludlum pulser serial number:  97743     201932      Fluke multimeter serial number  87490128  
 Alpha Source: Th-230 (s/n 4098-03) 12,800 dpm on 1/4/12       Gamma Source Cs-137 @ 5.2 uCi (1/4/12) sn: 4097-03  
 Beta Source: ~~16-99~~ (sn: 4099-03) 17,700 dpm on 1/4/12       Other Source:

Calibrated By:

Reviewed By:

Calibration Date: 6-9-16      Calibration Due: 6-9-17  
 Date: 6/9/16

ERG Form ITC. 101.C

This calibration conforms to the requirements and acceptable calibration conditions of ANSI N323A - 1997