

Certificate number: o60240521i292072-B-1



# Calibration Certificate

Customer  
SET Y GAD SAS  
CRA 48 NO 101A-69  
110111 BOGOTA  
CO

Laboratory  
Unfors RaySafe Inc.  
2 Science Road  
Glenwood, IL 60425-1586  
USA  
+1-833-296-9240  
customerservice.us@raysafe.com

## CUSTOMER INSTRUMENT

Product X2 R/F  
Serial number 292072  
Manufacturer RaySafe

## CALIBRATION INFORMATION

As found 6/5/2024  
As left 6/6/2024  
Adjustment done Yes  
Tested by Christina Arroyo

Approved by

\_\_\_\_\_  
Josefina Diaz  
Finalization technician

Certificate date 6/13/2024



## GENERAL INFORMATION

### LABORATORY CALIBRATION

All reference standards used for this calibration are valid for one year. Voltage, Time, Electrical current, Electrical charge, Illuminance and Luminance standards are traceable to RISE Research Institute of Sweden. All Air kerma and Air kerma rate standards are traceable to Physikalisch-Technische Bundesanstalt (PTB). HVL standards are traceable to RISE and PTB.

### CALIBRATION ENVIRONMENTAL CONDITIONS

Ambient temperature: 15 – 30 °C  
Relative humidity: < 80 %

### CALIBRATION UNCERTAINTY

All measurements are associated with some level of uncertainty. The measurement uncertainties in this certificate are stated in accordance with EA-4/02 (Expression of the Uncertainty of Measurement in Calibration) and JCGM 100:2008, Guide to the Expression of Uncertainty in Measurement (GUM).

The term *Expanded uncertainty* in this certificate, is defined as the standard uncertainty multiplied by a coverage factor  $k = 2$ . For a normal distribution, this gives approximately 95 % probability that the measurement result is within the stated uncertainty.

### SCOPE OF CERTIFICATE

The results in this calibration certificate only relate to the customer instrument specified on the first page of the certificate. Whether the device under test conforms to the requirements for its intended use or not, has to be decided by its user.

# CALIBRATION AS FOUND

## REFERENCE EQUIPMENT

INSTRUMENT	VALID UNTIL DATE
EMD Epsilon EPS 80RF Serial Number: 19-A0024	1/18/2025
Varian A196 Serial Number: 86795-2W	

## MEASUREMENTS

### HVL

Set voltage	Anode target	Nominal tube filtration	Added filtration	Air kerma rate $\mu\text{Gy/s}$	Instrument setting	Standard	Measured	Deviation from standard	Expanded uncertainty
150 kV	W	2.5 mm Al	0 mm Al	2661	—	6.056 mm Al	5.750 mm Al	-5.1 %	1.9 %
50 kV	W	2.5 mm Al	0 mm Al	4696	—	2.051 mm Al	1.980 mm Al	-3.5 %	3.3 %
70 kV	W	2.5 mm Al	0 mm Al	4033	—	2.846 mm Al	2.850 mm Al	0.1 %	2.9 %
100 kV	W	2.5 mm Al	0 mm Al	2033	—	4.052 mm Al	4.110 mm Al	1.4 %	2.4 %

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## CALIBRATION AS LEFT

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Varian A196 Serial Number: 86795-2W	

### MEASUREMENTS

#### HVL

Set voltage	Anode target	Nominal tube filtration	Added filtration	Air kerma rate $\mu\text{Gy/s}$	Instrument setting	Standard	Measured	Deviation from standard	Expanded uncertainty
150 kV	W	2.5 mm Al	0 mm Al	2662	—	6.056 mm Al	5.840 mm Al	-3.6 %	1.9 %
50 kV	W	2.5 mm Al	0 mm Al	4702	—	2.051 mm Al	2.010 mm Al	-2.0 %	3.3 %
70 kV	W	2.5 mm Al	0 mm Al	4041	—	2.846 mm Al	2.910 mm Al	2.2 %	2.9 %
100 kV	W	2.5 mm Al	0 mm Al	2037	—	4.052 mm Al	4.160 mm Al	2.7 %	2.4 %