K&S Associates, Inc.

Nashville, TN 37210-3718

ACCREDITED
CALIBRATION CERT #1866.01

Certificate of Calibration
Mammographic

Submitted by: Physics Associates
Address: 5346 Peters Creek Road
Roanoke, VA 24019

Test #:	*261538*
Report #:	*263282*
Account #:	*3176*
Dates	
Received:	13-Aug-26
Calibration:	**19-Aug-26**
Report Issued:	19-Aug-26
Due (if requested):	
Environmental Conditions	
Temperature (°C):	22.7
Corr. Pres (mm Hg):	750.6
Relative Humidity %:	44.0

Instrument Manufacturer	Model #	Serial #	Description
unfors RaySafe	8251010-6	271619	X2 Base Unit
unfors RaySafe	8252020-6	268053	X2 MAM Sensor

kV Conditions: Returned as received
Exposure Condition: Returned as received

kVp: Was Not Adjusted
Dose & Rate: Was Not Adjusted

	kVp				Dose Calibration			Rate Calibration			HVL Evaluation		
	Mfrs kV spec: ± 2.0 % or ± 0.5 kV				Mfrs Exp spec.: ± 5.0 %			Mfrs Exp Rate spec.: ± 5.0 %					
					mR	mR		R/min	R/min				
Det/Filter Pack SN	Set kVp	Actual kVp	Rdg	kVp Error	% Error	True Dose	Dose Rdg	Dose CF	True Rate	Rate Rdg	Rate CF	Actual HVL	RDG	Diff
X2 MAM	25	25.00	24.7	-0.30	**-1.2**	165.1	162.5	**1.02**	60.83	59.88	**1.02**	0.296	0.300	**0.004**
X2 MAM	28	27.90	27.5	-0.40	**-1.4**	238.1	231.6	**1.03**	87.70	85.32	**1.03**	0.331	0.334	**0.003**
X2 MAM	35	35.30	34.0	-1.30	**-3.7**	444.4	436.3	**1.02**	130.70	128.30	**1.02**	0.393	0.377	**-0.016**

Procedure:	kVptime8
Log:	XT57

Comments:
Mo/Mo no paddle. kVp did not meet manufacturer's specification of ±2% or ±0.5 kV at 35kV.

Calibrated By: Ethan Jakes, B.S.
Title: Laboratory Supervisor

Authorized By: Juci Stabin
Title: Health Physicist, Ph.D.

This report may not be reproduced except in full without the written permission of K&S Associates, Inc.

General Statement:

The calibration result(s) stated herein are valid under the conditions and parameters specified in this report.

K&S further certifies that the calibration laboratory policies and procedures meet or exceed the requirements of ISO/IEC 17025:2017.

All calibration services were performed at the K&S lab located at 1926 Elm Tree Drive, Nashville, TN 37210.

If the chamber under calibration is open to the atmosphere, the calibration coefficient is corrected to 22 °C and 760 mm Hg.

As Found = As left, unless stated otherwise in the comments of this report.

Uncertainty Statement:

The combined expanded uncertainty with a coverage factor of 2 (95% confidence) including the NIST uncertainty of the calibrations are as follows:
kVp Calibrations: 1.5%
Exposure Calibrations: 3.0%
Time Calibrations: 0.6 - 1.3%
Voltage Calibrations: 0.06%
Charge Calibrations: 0.13%

Traceability Statement:

The Standards of the K&S Associates, Inc. laboratory are traceable to the International System of Units (SI) through the National Institute of Standards and Technology, and are part of a comprehensive measurement assurance program for ensuring continued accuracy and measurement traceability within the level of uncertainty reported by this laboratory. The unique laboratory calibration report number identified above shall be used in referencing metrological traceability for artifacts identified only in this certificate.

Conformity Assessment and Decision Rule:

When the customer requests a statement of conformity to a specification or standard for the test or calibration (e.g. pass/fail, in-tolerance/out-of-tolerance), the specification or standard and the decision rule shall be clearly defined. Unless inherent in the requested specification or standard, the decision rule selected shall be communicated to, and agreed with, the customer. As a general statement, if the measurement uncertainty is less than or equal to the specification, the conformance statement may be made.

This report may not be reproduced except in full without the written permission of K&S Associates, Inc.

K&S Associates, Inc.
Nashville, TN 37210-3718

ACCREDITED
CALIBRATION CERT #1866.01

Certificate of Calibration
M100-300 - Dosimeter System

Submitted by: Physics Associates
Address: 5346 Peters Creek Road
Roanoke, VA 24019

Test #:	*261538*
Report #:	*263400*
Account #:	*3176*
Dates	
Received:	13-Aug-26
Calibration:	**26-Aug-26**
Report Issued:	26-Aug-26
Due (if requested):	
Environmental Conditions	
Temperature (°C):	22.2
Corr. Pres (mm Hg):	748.2
Relative Humidity %:	51.3
Procedure:	AAPM43
Log:	PA35

Instrument Manufacturer	Model #	Serial #	Description
unfors RaySafe	8251010-6	271619	Base Unit
unfors RaySafe	8252060-1	281798	Detector

Beam Quality				SCD (cm)	Exposure Rate	Uncertainty
Beam	kVp	HVL (mm Al)	H.C.			
W/Al	100	5.00	0.71	300	26.91 mR/min	3.0%

Calibration Coefficient

Nx = **1.035E+00** ***mR/"mR" Rdg***

Probe Orientation: Window towards source. Distance to center of volume.

Bias Potential (V):

Leakage(A): Negligible

Comments:

Calibrated By: _____
Ethan Jakes, B.S.
Title: Laboratory Supervisor

Authorized By: _____
Jucí Stabin
Title: Health Physicist, Ph.D.

This report may not be reproduced except in full without the written permission of K&S Associates, Inc.

General Statement:

The calibration result(s) stated herein are valid under the conditions and parameters specified in this report.

K&S further certifies that the calibration laboratory policies and procedures meet or exceed the requirements of ISO/IEC 17025:2017.

All calibration services were performed at the K&S lab located at 1926 Elm Tree Drive, Nashville, TN 37210.

If the chamber under calibration is open to the atmosphere, the calibration coefficient is corrected to 22 °C and 760 mm Hg.

As Found = As left, unless stated otherwise in the comments of this report.

Uncertainty Statement:

The combined expanded uncertainty with a coverage factor of 2 (95% confidence) including the NIST uncertainty of the calibrations are either 3% or 5% depending upon the equipment under calibration and the x-ray system used for calibration. The uncertainty will be explicitly stated on the report.

Traceability Statement:

The Standards of the K&S Associates, Inc. laboratory are traceable to the International System of Units (SI) through the National Institute of Standards and Technology, and are part of a comprehensive measurement assurance program for ensuring continued accuracy and measurement traceability within the level of uncertainty reported by this laboratory. The unique laboratory calibration report number identified above shall be used in referencing metrological traceability for artifacts identified only in this certificate.

Conformity Assessment and Decision Rule:

When the customer requests a statement of conformity to a specification or standard for the test or calibration (e.g. pass/fail, in-tolerance/out-of-tolerance), the specification or standard and the decision rule shall be clearly defined. Unless inherent in the requested specification or standard, the decision rule selected shall be communicated to, and agreed with, the customer. As a general statement, if the measurement uncertainty is less than or equal to the specification, the conformance statement may be made.

This report may not be reproduced except in full without the written permission of K&S Associates, Inc.

K&S Associates, Inc.
Nashville, TN 37210-3718

ACCREDITED
CALIBRATION CERT #1866.01

Certificate of Calibration
Radiographic

Submitted by: Physics Associates
Address: 5346 Peters Creek Road
Roanoke, VA 24019

Test #:	*261538*
Report #:	*263269*
Account #:	*3176*
Dates	
Received:	13-Aug-26
Calibration:	**19-Aug-26**
Report Issued:	19-Aug-26
Due (if requested):	
Environmental Conditions	
Temperature (°C):	22.8
Corr. Pres (mm Hg):	749.8
Relative Humidity %:	44.2

Instrument Manufacturer	Model #	Serial #	Description
unfors RaySafe	8251010-6	271619	X2 Base Unit
unfors RaySafe	8252010-6	267472	X2 RF Sensor

kV Conditions: Returned as received
Exposure Condition: Returned as received

kVp: Was Not Adjusted
Dose & Rate: Was Not Adjusted

	kVp				Dose Calibration			Rate Calibration			HVL Evaluation		
	Mfrs kV spec: ± 2.0 %				Mfrs Exp spec.: ± 5.0 %			Mfrs Exp Rate spec.: ± 5.0 %					
					mR	mR		R/min	R/min				
Det/Filter Pack SN	Set kVp	Actual kVp	Rdg	kVp Error	% Error	True Dose	Dose Rdg	Dose CF	True Rate	Rate Rdg	Rate CF	Actual HVL	RDG	Diff
X2 RF	60	60.68	61.5	0.82	**1.4**	399.8	393.2	**1.02**	95.9	94.4	**1.02**	2.15	2.23	**0.08**
X2 RF	90	90.46	90.4	-0.06	**-0.1**	917.8	925.9	**0.99**	219.7	222.1	**0.99**	3.23	3.36	**0.13**
X2 RF	120	120.50	118.9	-1.60	**-1.3**	1,572.1	1,599.0	**0.98**	376.4	383.5	**0.98**	4.28	4.45	**0.17**

Time Function Calibration

Mfrs Time spec: ± 0.5 %

Time (ms)	True (ms)	Timer Rdg	Timer Error	% Error
50	50.2	50.1	-0.1	**-0.3**
100	100.2	100.2	0.0	**0.0**
250	250.2	250.1	-0.1	**0.0**
500	500.1	500.1	0.0	**0.0**
1000	1000.0	999.9	-0.1	**0.0**

Procedure:	kVptime8
Log:	XT57

Calibrated By: Ethan Jakes, B.S.
Title: Laboratory Supervisor

Authorized By: Juci Stabin
Title: Health Physicist, Ph.D.

This report may not be reproduced except in full without the written permission of K&S Associates, Inc.

General Statement:

The calibration result(s) stated herein are valid under the conditions and parameters specified in this report.

K&S further certifies that the calibration laboratory policies and procedures meet or exceed the requirements of ISO/IEC 17025:2017.

All calibration services were performed at the K&S lab located at 1926 Elm Tree Drive, Nashville, TN 37210.

If the chamber under calibration is open to the atmosphere, the calibration coefficient is corrected to 22 °C and 760 mm Hg.

As Found = As left, unless stated otherwise in the comments of this report.

Uncertainty Statement:

The combined expanded uncertainty with a coverage factor of 2 (95% confidence) including the NIST uncertainty of the calibrations are as follows:
kVp Calibrations: 1.5%
Exposure Calibrations: 3.0%
Time Calibrations: 0.6 - 1.3%
Voltage Calibrations: 0.06%
Charge Calibrations: 0.13%

Traceability Statement:

The Standards of the K&S Associates, Inc. laboratory are traceable to the International System of Units (SI) through the National Institute of Standards and Technology, and are part of a comprehensive measurement assurance program for ensuring continued accuracy and measurement traceability within the level of uncertainty reported by this laboratory. The unique laboratory calibration report number identified above shall be used in referencing metrological traceability for artifacts identified only in this certificate.

Conformity Assessment and Decision Rule:

When the customer requests a statement of conformity to a specification or standard for the test or calibration (e.g. pass/fail, in-tolerance/out-of-tolerance), the specification or standard and the decision rule shall be clearly defined. Unless inherent in the requested specification or standard, the decision rule selected shall be communicated to, and agreed with, the customer. As a general statement, if the measurement uncertainty is less than or equal to the specification, the conformance statement may be made.

This report may not be reproduced except in full without the written permission of K&S Associates, Inc.

K&S Associates, Inc.
Nashville, TN 37210-3718

ACCREDITED
CALIBRATION CERT #1866.01

Certificate of Calibration
Fluoroscopic

Submitted by: Physics Associates
Address: 5346 Peters Creek Road
Roanoke, VA 24019

Test #:	*261538*
Report #:	*263275*
Account #:	*3176*
Dates	
Received:	13-Aug-26
Calibration:	**19-Aug-26**
Report Issued:	19-Aug-26
Due (if requested):	
Environmental Conditions	
Temperature (°C):	22.4
Corr. Pres (mm Hg):	750.5
Relative Humidity %:	43.7

Instrument Manufacturer	Model #	Serial #	Description
unfors RaySafe	8251010-6	271619	X2 Base Unit
unfors RaySafe	8252010-6	267472	X2 RF Sensor

kV Conditions: Returned as received
Exposure Condition: Returned as received

kVp: Was Not Adjusted
Dose & Rate: Was Not Adjusted

	kVp				Dose Calibration			Rate Calibration			HVL Evaluation		
	Mfrs kV spec: ± 2.0 %				Mfrs Exp spec.: ± 5.0 %			Mfrs Exp Rate spec.: ± 5.0 %					
					R	R		R/min	R/min				
Det/Filter Pack SN	Set kVp	Actual kVp	Rdg	kVp Error	% Error	True Dose	Dose Rdg	Dose CF	True Rate	Rate Rdg	Rate CF	Actual HVL	RDG	Diff
X2 RF	60	60.34	61.5	1.16	**1.9**	0.585	0.573	**1.02**	1.746	1.745	**1.00**	2.15	2.23	**0.08**
X2 RF	90	90.37	90.4	0.03	**0.0**	1.265	1.266	**1.00**	3.937	4.001	**0.98**	3.23	3.37	**0.14**
X2 RF	120	120.30	118.8	-1.50	**-1.2**	2.193	2.211	**0.99**	6.525	6.726	**0.97**	4.28	4.47	**0.19**

Procedure:	kVptime8
Log:	XT57

Calibrated By: _____
Ethan Jakes, B.S.
Title: Laboratory Supervisor

Authorized By: _____
Juci Stabin
Title: Health Physicist, Ph.D.

This report may not be reproduced except in full without the written permission of K&S Associates, Inc.

General Statement:

The calibration result(s) stated herein are valid under the conditions and parameters specified in this report.

K&S further certifies that the calibration laboratory policies and procedures meet or exceed the requirements of ISO/IEC 17025:2017.

All calibration services were performed at the K&S lab located at 1926 Elm Tree Drive, Nashville, TN 37210.

If the chamber under calibration is open to the atmosphere, the calibration coefficient is corrected to 22 °C and 760 mm Hg.

As Found = As left, unless stated otherwise in the comments of this report.

Uncertainty Statement:

The combined expanded uncertainty with a coverage factor of 2 (95% confidence) including the NIST uncertainty of the calibrations are as follows:
kVp Calibrations: 1.5%
Exposure Calibrations: 3.0%
Time Calibrations: 0.6 - 1.3%
Voltage Calibrations: 0.06%
Charge Calibrations: 0.13%

Traceability Statement:

The Standards of the K&S Associates, Inc. laboratory are traceable to the International System of Units (SI) through the National Institute of Standards and Technology, and are part of a comprehensive measurement assurance program for ensuring continued accuracy and measurement traceability within the level of uncertainty reported by this laboratory. The unique laboratory calibration report number identified above shall be used in referencing metrological traceability for artifacts identified only in this certificate.

Conformity Assessment and Decision Rule:

When the customer requests a statement of conformity to a specification or standard for the test or calibration (e.g. pass/fail, in-tolerance/out-of-tolerance), the specification or standard and the decision rule shall be clearly defined. Unless inherent in the requested specification or standard, the decision rule selected shall be communicated to, and agreed with, the customer. As a general statement, if the measurement uncertainty is less than or equal to the specification, the conformance statement may be made.

This report may not be reproduced except in full without the written permission of K&S Associates, Inc.

K&S Associates, Inc.
Nashville, TN 37210-3718

ACCREDITED
CALIBRATION CERT #1866.01

Certificate of Calibration
CT-100 - Dosimeter System

Submitted by: Physics Associates
Address: 5346 Peters Creek Road
Roanoke, VA 24019

Test #:	*261538*
Report #:	*263278*
Account #:	*3176*

Dates

Received:	13-Aug-26
Calibration:	**19-Aug-26**
Report Issued:	19-Aug-26
Due (if requested):	

Environmental Conditions

Temperature (°C):	22.5
Corr. Pres (mm Hg):	750.8
Relative Humidity %:	44.4

Procedure:	AAPM42
Log:	XT57

Instrument Manufacturer	Model #	Serial #	Description
unfors RaySafe	8251010-6	271619	X2 Base Unit
unfors RaySafe	8252030-3	269845	X2 CT Probe

Beam Quality				SCD (cm)	Exposure Rate	Uncertainty
Beam	kVp	HVL (mm Al)	H.C.			
W/Al	120	8.38	0.87	100	0.62 R/s	5.0%

Calibration Coefficient

Nx = **1.028E+00** ***mR/"mR" Rdg***

Probe Orientation: "CT" towards the source, center beam/center white line, distance to volume center.

Bias Potential (V):

Leakage(A): Negligible

Comments:

Calibrated By: _____
Ethan Jakes, B.S.
Title: Laboratory Supervisor

Authorized By: _____
Jucí Stabin
Title: Health Physicist, Ph.D.

This report may not be reproduced except in full without the written permission of K&S Associates, Inc.

General Statement:

The calibration result(s) stated herein are valid under the conditions and parameters specified in this report.

K&S further certifies that the calibration laboratory policies and procedures meet or exceed the requirements of ISO/IEC 17025:2017.

All calibration services were performed at the K&S lab located at 1926 Elm Tree Drive, Nashville, TN 37210.

If the chamber under calibration is open to the atmosphere, the calibration coefficient is corrected to 22 °C and 760 mm Hg.

As Found = As left, unless stated otherwise in the comments of this report.

Uncertainty Statement:

The combined expanded uncertainty with a coverage factor of 2 (95% confidence) including the NIST uncertainty of the calibrations are either 3% or 5% depending upon the equipment under calibration and the x-ray system used for calibration. The uncertainty will be explicitly stated on the report.

Traceability Statement:

The Standards of the K&S Associates, Inc. laboratory are traceable to the International System of Units (SI) through the National Institute of Standards and Technology, and are part of a comprehensive measurement assurance program for ensuring continued accuracy and measurement traceability within the level of uncertainty reported by this laboratory. The unique laboratory calibration report number identified above shall be used in referencing metrological traceability for artifacts identified only in this certificate.

Conformity Assessment and Decision Rule:

When the customer requests a statement of conformity to a specification or standard for the test or calibration (e.g. pass/fail, in-tolerance/out-of-tolerance), the specification or standard and the decision rule shall be clearly defined. Unless inherent in the requested specification or standard, the decision rule selected shall be communicated to, and agreed with, the customer. As a general statement, if the measurement uncertainty is less than or equal to the specification, the conformance statement may be made.

This report may not be reproduced except in full without the written permission of K&S Associates, Inc.

K&S Associates, Inc.
Nashville, TN 37210-3718

ACCREDITED
CALIBRATION CERT #1866.01

Certificate of Calibration
Light Meter

Submitted by:	Physics Associates
Address:	5346 Peters Creek Road Roanoke, VA 24019

Test #:	*261538*
Report #:	*263233*
Account #:	*3176*
Dates	
Received:	13-Aug-26
Calibration:	**17-Aug-26 11:45 AM**
Report Issued:	17-Aug-26
Due (if requested):	
Environmental Conditions	
Temperature (°C):	23.0
Pressure (mm Hg):	749.5
Relative Humidity %:	46
Procedure:	GL 15
Log:	OP57

Instrument Manufacturer	Model #	Serial #	Sensor
unfors RaySafe	8251010-6	271619	
unfors RaySafe	8252040-4	259789	

Calibration Standards	Vendor	Model	Serial	Due Date
	NIST	Opal Glass	KS04	12-Feb-28
	Gossen	Mavolux 5032C	1B14500	11-Feb-28
	Minolta	Minolta CL-200	80121009	12-Feb-28

Function/Test:	CIE A Illuminance	AS FOUND			AS LEFT		
Units:	Lux	TRUE	UUT	Calibration	TRUE	UUT	Calibration
Test Range:	243.0 to 4928.1	Lux	Lux	Factor	Lux	Lux	Factor
Mfr Tolerance:	3%	4928.1	5040.0	0.978	4928.1	5040.0	0.978
		3903.6	3970.0	0.983	3903.6	3970.0	0.983
		1983.7	2000.0	0.992	1983.7	2000.0	0.992
		972.0	966.0	1.006	972.0	966.0	1.006
		432.0	426.0	1.014	432.0	426.0	1.014
		243.0	238.0	1.021	243.0	238.0	1.021

Function/Test:	CIE A Luminance	AS FOUND			AS LEFT		
Units:	cd/m2	TRUE	UUT	Calibration	TRUE	UUT	Calibration
Test Range	42.1 to 853.1	cd/m2	cd/m2	Factor	cd/m2	cd/m2	Factor
		853.1	878.0	0.972	853.1	878.0	0.972
		675.7	695.0	0.972	675.7	695.0	0.972
		343.4	351.0	0.978	343.4	351.0	0.978
		168.3	170.0	0.990	168.3	170.0	0.990
		74.8	75.1	0.996	74.8	75.1	0.996
		42.1	42.1	0.999	42.1	42.1	0.999

Comments:

Calibrated By: Greg Glasscock
Calibration Technician

Authorized By: Juci Stabin
Health Physicist, Ph.D.

This report may not be reproduced except in full without the written permission of K&S Associates, Inc.

General Statement:

The calibration result(s) stated herein are valid under the conditions and parameters specified in this report.

K&S further certifies that the calibration laboratory policies and procedures meet or exceed the requirements of ISO/IEC 17025:2017.

All calibration services were performed at the K&S lab located at 1926 Elm Tree Drive, Nashville, TN 37210.

Responsibility of the Instrument User: to perform appropriate constancy tests prior to shipment and after return from calibration; and to assure that the interpretation of the information in this report is consistent with that intended by K&S Associates, Inc.

As Found = As left, unless stated otherwise in the comments of this report.

Uncertainty Statement:

The combined expanded uncertainty with a coverage factor of 2 (95% confidence) including NIST uncertainty of the calibration are as follows:

1.9% for Illuminance (units of LUX or foot-candela (fc)
2.0% for Luminance (units of footlamberts (fL) or cd/m^2)

The uncertainty will be explicitly stated on the report.

Traceability Statement:

Illuminance Calibration (lux or fc)

K&S certifies that the instrument was calibrated for candela (cd) with a CIE Illuminant A source using a quartz halogen lamp calibrated with a photometer calibrated by NIST. The color temperature of the working lamp was adjusted to nominal 2856 K with a Minolta CL-200 meter calibrated with the NIST standard. The reference point for inverse square calculations was the front face of the cosine filter.

Luminance Calibration (units of cd/m^2 or fL)

K&S certifies that the instrument was calibrated to CIE Illuminant A using a quartz halogen lamp and a opal glass filter calibrated by comparison to a filter calibrated by NIST. The reference point for inverse square calculations is the frosted face of the opal glass.

Units Conversions:

Illuminance: To convert from units of lux to units of footcandles (fc) divide by 10.764.

Luminance: To convert from units of candela per square meter (cd/m^2) to units of footlamberts (fL), divide by 3.4263.

Conformity Assessment and Decision Rule:

When the customer requests a statement of conformity to a specification or standard for the test or calibration (e.g. pass/fail, in-tolerance/out-of-tolerance), the specification or standard and the decision rule shall be clearly defined. Unless inherent in the requested specification or standard, the decision rule selected shall be communicated to, and agreed with, the customer. As a general statement, if the measurement uncertainty is less than or equal to the specification, the conformance statement may be made.

Reference:

1. CIE 69-1987, "Methods of characterizing Illuminance meters and luminance meters", International Commission on Illumination, 1987, Vienna, Austria.
2. NIST Special Publication 250-37, "Photometry Calibrations", 1997, Superintendent of Documents, Washington, DC.

This report may not be reproduced except in full without the written permission of K&S Associates, Inc.

K&S Associates, Inc.
Nashville, TN 37210-3718

ACCREDITED
CALIBRATION CERT #1866.01

Certificate of Calibration
Radiographic

Submitted by:	Physics Associates
Address:	5346 Peters Creek Road Roanoke, VA 24019

Test #:	*260423*
Report #:	*260960*
Account #:	*3176*
Dates	
Received:	5-Mar-26
Calibration:	**16-Mar-26**
Report Issued:	16-Mar-26
Due (if requested):	
Environmental Conditions	
Temperature (°C):	22.1
Corr. Pres (mm Hg):	747.1
Relative Humidity %:	37.0

Instrument Manufacturer	Model #	Serial #	Description
unfors RaySafe	8251010-6	283472	Base Unit
unfors RaySafe	8252010-6	290087	Detector

kV Conditions:	Returned as received
Exposure Condition:	Returned as received
kVp:	Was Not Adjusted
Dose & Rate:	Was Not Adjusted

	kVp				Dose Calibration			Rate Calibration			HVL Evaluation		
	Mfrs kV spec: ± 2.0 %				Mfrs Exp spec.: ± 5.0 %			Mfrs Exp Rate spec.: ± 5.0 %					
					mR	mR		R/min	R/min				
Det/Filter Pack SN	Set kVp	Actual kVp	Rdg	kVp Error	% Error	True Dose	Dose Rdg	Dose CF	True Rate	Rate Rdg	Rate CF	Actual HVL	RDG	Diff
X2 R/F	80	80.37	80.6	0.23	0.3	717.2	729.1	0.98	172.1	175.0	0.98	2.9	2.8	-0.10

Time Function Calibration

Mfrs Time spec: ± 2.0 %

Time (ms)	True (ms)	Timer Rdg	Timer Error	% Error
50	50.2	50.1	-0.1	-0.3
100	100.2	100.1	-0.1	-0.1
250	250.1	250.1	0.0	0.0
500	500.1	500.0	-0.1	0.0
1000	1000.0	999.9	-0.1	0.0

Procedure:	kVptime8
Log:	XT55

Calibrated By: _____
Ethan Jakes, BS
Title: Laboratory Physicist

Authorized By: Juci Stabin
Title: Health Physicist, Ph.D.

This report may not be reproduced except in full without the written permission of K&S Associates, Inc.

K&S Associates, Inc.
Nashville, TN 37210-3718

ACCREDITED
CALIBRATION CERT #1866.01

Certificate of Calibration
Mammographic

Submitted by:	Physics Associates
Address:	5346 Peters Creek Road Roanoke, VA 24019

Test #:	*260423*
Report #:	*260844*
Account #:	*3176*
Dates	
Received:	5-Mar-26
Calibration:	**10-Mar-26**
Report Issued:	10-Mar-26
Due (if requested):	
Environmental Conditions	
Temperature (°C):	22.2
Corr. Pres (mm Hg):	751.7
Relative Humidity %:	50.0

Instrument Manufacturer	Model #	Serial #	Description
unfors RaySafe	8251010-6	283472	Base Unit
unfors RaySafe	8252020-6	286640	Detector

kV Conditions:	Returned as received
Exposure Condition:	Returned as received
kVp:	Was Not Adjusted
Dose & Rate:	Was Not Adjusted

	kVp				Dose Calibration			Rate Calibration			HVL Evaluation		
	Mfrs kV spec: ± 2.0 %				Mfrs Exp spec.: ± 5.0 %			Mfrs Exp Rate spec.: ± 5.0 %					
					mR	mR		R/min	R/min				
Det/Filter Pack SN	Set kVp	Actual kVp	Rdg	kVp Error	% Error	True Dose	Dose Rdg	Dose CF	True Rate	Rate Rdg	Rate CF	Actual HVL	RDG	Diff
X2 MAM	25	25.00	24.70	-0.30	-1.2	162.9	163.2	1.00	60.04	60.1	1.00	0.296	0.297	0.00
X2 MAM	28	27.90	27.70	-0.20	-0.7	233.8	232.0	1.01	86.12	85.5	1.01	0.331	0.334	0.00
X2 MAM	32	32.20	31.50	-0.70	-2.2	348.3	343.8	1.01	127.42	125.8	1.01	0.371	0.364	-0.01

Procedure:	kVptime8
Log:	XT55

Comments:
Mo/Mo no paddle. kVp did not meet the manufacturer's specification of ±2% at 32 kV.

Calibrated By: Ethan Jakes, BS
Title: Laboratory Physicist

Authorized By: Juci Stabile
Title: Health Physicist, Ph.D.

This report may not be reproduced except in full without the written permission of K&S Associates, Inc.

K&S Associates, Inc.
Nashville, TN 37210-3718

ACCREDITED
CALIBRATION CERT #1866.01

Certificate of Calibration
Fluoroscopic

Submitted by: Physics Associates
Address: 5346 Peters Creek Road
Roanoke, VA 24019

Test #:	*260423*
Report #:	*260961*
Account #:	*3176*

Dates

Received:	5-Mar-26
Calibration:	**16-Mar-26**
Report Issued:	16-Mar-26
Due (if requested):	

Environmental Conditions

Temperature (°C):	22.1
Corr. Pres (mm Hg):	747.1
Relative Humidity %:	37.0

Instrument Manufacturer	Model #	Serial #	Description
unfors RaySafe	8251010-6	283472	Base Unit
unfors RaySafe	8252010-6	290087	Detector

kV Conditions: Returned as received
Exposure Condition: Returned as received

kVp: Was Not Adjusted
Dose & Rate: Was Not Adjusted

	kVp				Dose Calibration			Rate Calibration			HVL Evaluation		
	Mfrs kV spec: ± 2.0 %				Mfrs Exp spec.: ± 5.0 %			Mfrs Exp Rate spec.: ± 5.0 %					
					R	R		R/min	R/min				
Det/Filter Pack SN	Set kVp	Actual kVp	Rdg	kVp Error	% Error	True Dose	Dose Rdg	Dose CF	True Rate	Rate Rdg	Rate CF	Actual HVL	RDG	Diff
Xi R/F	80	80.28	80.60	0.32	0.4	1.105	1.111	0.99	3.385	3.408	0.99	2.89	2.99	0.10

Procedure: kVptime8
Log: XT55

Calibrated By: Ethan Jakes, BS
Title: Laboratory Physicist

Authorized By: Juci Stavro
Title: Health Physicist, Ph.D.

This report may not be reproduced except in full without the written permission of K&S Associates, Inc.

K&S Associates, Inc.
Nashville, TN 37210-3718

ACCREDITED
CALIBRATION CERT #1866.01

Certificate of Calibration
Light Meter

Submitted by:	Physics Associates
Address:	5346 Peters Creek Road Roanoke, VA 24019

Test #:	*260423*
Report #:	*260827*
Account #:	*3176*
Dates	
Received:	5-Mar-26
Calibration:	**9-Mar-26 11:45 AM**
Report Issued:	9-Mar-26
Due (if requested):	
Environmental Conditions	
Temperature (°C):	22.2
Pressure (mm Hg):	752.0
Relative Humidity %:	42
Procedure:	GL 15
Log:	OP56

Instrument Manufacturer	Model #	Serial #	Sensor
unfors RaySafe	8252040-4	289108	
unfors RaySafe	8251010-6	283472	

Calibration Standards	Vendor	Model	Serial	Due Date
	NIST	Opal Glass	KS04	12-Feb-28
	Gossen	Mavolux 5032C	1B14500	11-Feb-28
	Minolta	Minolta CL-200	80121009	12-Feb-28

Function/Test:	CIE A Illuminance	AS FOUND			AS LEFT		
Units:	Lux	TRUE	UUT	Calibration	TRUE	UUT	Calibration
Test Range:	237.3 to 4921.5	Lux	Lux	Factor	Lux	Lux	Factor
Mfr Tolerance:	3%	4921.5	5070.0	0.971	4921.5	5070.0	0.971
		3811.2	3910.0	0.975	3811.2	3910.0	0.975
		1936.7	1985.0	0.976	1936.7	1985.0	0.976
		949.0	969.0	0.979	949.0	969.0	0.979
		421.8	428.0	0.985	421.8	428.0	0.985
		237.3	240.0	0.989	237.3	240.0	0.989

Function/Test:	CIE A Luminance	AS FOUND			AS LEFT		
Units:	cd/m2	TRUE	UUT	Calibration	TRUE	UUT	Calibration
Test Range	41.1 to 851.9	cd/m2	cd/m2	Factor	cd/m2	cd/m2	Factor
		851.9	857.0	0.994	851.9	857.0	0.994
		659.7	656.0	1.006	659.7	656.0	1.006
		335.2	331.0	1.013	335.2	331.0	1.013
		164.3	161.1	1.020	164.3	161.1	1.020
		73.0	71.5	1.021	73.0	71.5	1.021
		41.1	40.0	1.027	41.1	40.0	1.027

Comments:

Calibrated By: Greg Glasscock
Calibration Technician

Authorized By: _____
Lucilene Stabin, Ph.D.
Laboratory Director

This report may not be reproduced except in full without the written permission of K&S Associates, Inc.

K&S Associates, Inc.
Nashville, TN 37210-3718

ACCREDITED
CALIBRATION CERT #1856.01

Certificate of Calibration
M100-300 - Dosimeter System

Submitted by:	Physics Associates
Address:	5346 Peters Creek Road Roanoke, VA 24019

Test #:	*260423*
Report #:	*260917*
Account #:	*3176*
Dates	
Received:	5-Mar-26
Calibration:	**12-Mar-26**
Report Issued:	12-Mar-26
Due (if requested):	
Environmental Conditions	
Temperature (°C):	22.4
Corr. Pres (mm Hg):	756.9
Relative Humidity %:	40.0

Instrument Manufacturer	Model #	Serial #	Description
unfors RaySafe	8251010-6	283472	Base Unit
unfors RaySafe	8252060-1	281493	Detector

Procedure:	AAPM42
Log:	PA34

Beam Quality				SCD (cm)	Exposure Rate	Uncertainty
Beam	kVp	HVL (mm Al)	H.C.			
W/Al	100	5.00	0.71	300	28.54 mR/min	3.0%

Calibration Coefficient

$Nx =$ **1.035E+00** ***mR/"mR" Rdg***

Probe Orientation: Window toward source. Distance to the crosshair.

Bias Potential (V): ---

Leakage(A): Negligible.

Comments:

Calibrated By: _____
Ethan Jakes, BS
Title: Laboratory Physicist

Authorized By: _____
Juci Stabin
Title: Health Physicist, Ph.D.

This report may not be reproduced except in full without the written permission of K&S Associates, Inc.