



HPNW
HEALTH PHYSICS NORTHWEST

April 8, 2021

Jarrold Parasmio
President
Protech Medical
1360 North Killian Drive, Suite 2
Lake Park, Florida 33403

Dear Jarrod:

Enclosed are the attenuation and lead equivalency results for the core materials that were submitted to Health Physics Northwest. At your request these tests were performed in accordance with ASTM test Method F2547-18. The documentation on the following pages contains all of the information regarding this testing.

If you have any questions, please contact our office.

Sincerely,

Matt Brien, BS
Medical Physicist

Encl.

ASTM test Method F2547-18 14.2.1 Test Information

Date of Testing	March 17, 2021
Place of Testing	Health Physics Northwest
Name of Individual Performing the Testing	Matt Brien, BS Health Physics Northwest
Manufacturer and Model of X-ray Generator	Trex TM50 (G-9750A)
Manufacturer / Model of X-ray Tube	Varex Imaging Corporation / A-192

	<i>Testing Parameters</i>	
Set kVp	80	100
Measured kVp	79.9	100.3
mAs	80	60
Half-Value Layer (mmAl)	4.01	5.22

All exposure and kVp measurements performed with an Unfors RaySafe X2 R/F sensor, Serial No.: 245885 calibrated August 24, 2020.

ASTM test Method F2547-18 14.2.3 Test Results

			Attenuation	
Product	Number of Layers	Reported LE (mm)	80 kVp	100 kVp
Bilayer (0.25 mm LE)	2	0.25	91.7%	85.3%
	4	0.50	98.0%	94.9%

			Lead Equivalency (mm Pb)	
Product	Number of Layers	Reported LE (mm)	80 kVp	100 kVp
Bilayer (0.25 mm LE)	2	0.25	0.26	0.26
	4	0.50	0.52	0.51

ASTM test Method F2547-18 14.2.3 Test Results

			Attenuation	
Product	Number of Layers	Reported LE (mm)	80 kVp	100 kVp
Premier (0.125 mm LE)	2	0.25	90.5%	84.6%
	3	0.375	95.6%	91.8%
	4	0.50	97.8%	95.3%

			Lead Equivalency (mm Pb)	
Product	Number of Layers	Reported LE (mm)	80 kVp	100 kVp
Premier (0.125 mm LE)	2	0.25	0.24	0.25
	3	0.375	0.37	0.38
	4	0.50	0.51	0.53

ASTM test Method F2547-18 14.2.3 Test Results

			Attenuation	
Product	Number of Layers	Reported LE (mm)	80 kVp	100 kVp
Premier (0.167 mm LE)	2	0.35	94.5%	90.3%
	3	0.525	98.0%	95.6%

			Lead Equivalency (mm Pb)	
Product	Number of Layers	Reported LE (mm)	80 kVp	100 kVp
Premier (0.167 mm LE)	2	0.35	0.33	0.34
	3	0.525	0.52	0.54

ASTM test Method F2547-18 14.2.3 Test Results

			Attenuation	
Product	Number of Layers	Reported LE (mm)	80 kVp	100 kVp
Prolite Lead-Free (0.125 mm LE)	1	0.125	77.3%	68.9%
	2	0.25	91.9%	85.6%
	3	0.375	96.4%	92.1%
	4	0.50	98.3%	95.4%

			Lead Equivalency (mm Pb)	
Product	Number of Layers	Reported LE (mm)	80 kVp	100 kVp
Prolite Lead-Free (0.125 mm LE)	1	0.125	0.12	0.12
	2	0.25	0.27	0.26
	3	0.375	0.40	0.39
	4	0.50	0.56	0.53

ASTM test Method F2547-18 14.2.3 Test Results

			Attenuation	
Product	Number of Layers	Reported LE (mm)	80 kVp	100 kVp
Prolite Lead-Free (0.167 mm LE)	2	0.35	95.4%	90.6%
	3	0.50	98.3%	95.4%

			Lead Equivalency (mm Pb)	
Product	Number of Layers	Reported LE (mm)	80 kVp	100 kVp
Prolite Lead-Free (0.167 mm LE)	2	0.35	0.36	0.35
	3	0.525	0.56	0.53

ASTM test Method F2547-18 14.2.3 Test Results

			Attenuation	
Product	Number of Layers	Reported LE (mm)	80 kVp	100 kVp
Ultralite (0.125 mm LE)	2	0.25	91.8%	85.6%
	3	0.375	96.3%	92.2%
	4	0.50	98.1%	95.4%

			Lead Equivalency (mm Pb)	
Product	Number of Layers	Reported LE (mm)	80 kVp	100 kVp
Ultralite (0.125 mm LE)	2	0.25	0.26	0.26
	3	0.375	0.40	0.39
	4	0.50	0.53	0.53

ASTM test Method F2547-18 14.2.3 Test Results

			Attenuation	
Product	Number of Layers	Reported LE (mm)	80 kVp	100 kVp
Ultralite (0.167 mm LE)	2	0.35	95.2%	90.3%
	3	0.525	98.1%	95.4%

			Lead Equivalency (mm Pb)	
Product	Number of Layers	Reported LE (mm)	80 kVp	100 kVp
Ultralite (0.167 mm LE)	2	0.35	0.35	0.35
	3	0.525	0.54	0.53

ASTM test Method F2547-18 14.2.3 Test Results

			Attenuation	
Product	Number of Layers	Reported LE (mm)	80 kVp	100 kVp
Light Lead (0.125 mm LE)	2	0.25	91.6%	85.4%
	3	0.35	95.9%	91.7%
	4	0.50	97.8%	95.0%

			Lead Equivalency (mm Pb)	
Product	Number of Layers	Reported LE (mm)	80 kVp	100 kVp
Light Lead (0.125 mm LE)	2	0.25	0.26	0.26
	3	0.35	0.38	0.38
	4	0.50	0.51	0.51

ASTM test Method F2547-18 14.2.3 Test Results

			Attenuation	
Product	Number of Layers	Reported LE (mm)	80 kVp	100 kVp
Standard Lead (0.25 mm LE)	1	0.25	90.8%	84.4%
	2	0.50	97.6%	94.7%

			Lead Equivalency (mm Pb)	
Product	Number of Layers	Reported LE (mm)	80 kVp	100 kVp
Standard Lead (0.25 mm LE)	1	0.25	0.24	0.25
	2	0.50	0.49	0.49