



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

**ACCREDITED DOSIMETRY CALIBRATION LABORATORY**



**Attenuation/Transmission Measurements**

**SUBMITTED BY:** Artemis Shielding  
2107 Gault Avenue North  
Fort Payne, AL 35967

**MATERIAL:**      **Manufacturer:**      Artemis Shielding  
                         **Model:**                      Nanotek™ RSM  
                         **Serial Number:**      H-934066

**TEST NUMBER:**    182099

**REPORT NUMBER:** 182768

**REPORT DATE:**    21-Sep-18

The measurements contained in this report were obtained by direct ion chamber measurements with instruments calibrated by or directly traceable to the **National Institute of Standards and Technology (NIST)**. K&S Associates, Inc. is licensed by the State of Tennessee to perform measurements, and is recognized by the **American Association of Physicists in Medicine (AAPM)** as an **ACCREDITED DOSIMETRY CALIBRATION LABORATORY**. As part of the accreditation, K&S participates in a measurement assurance program conducted by AAPM and NIST. K&S also certifies that the calibration was performed using quality policies, methods, and procedures that meet or exceed the requirements of **ANSI/ISO/IEC 17025:2005**.

Additionally, this laboratory is accredited by the **American Association for Laboratory Accreditation (A2LA)** and the results shown in this report have been determined in accordance with the laboratory's terms of accreditation unless stated otherwise in this report.

The calibration result(s) state herein are valid under the conditions and parameters specified in this report. It is the responsibility of the end user to assure that the interpretation of the data in this report is consistent with that intended by K&S Associates, Inc.

**This report shall not be reproduced except in full without the written approval of K&S Associates, Inc.**



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



**Attenuation/Transmission Measurements**

21-Sep-18

**MATERIAL**

Manufacturer: Artemis Shielding  
Model: Nanotek™ RSM  
Serial Number: H-934066

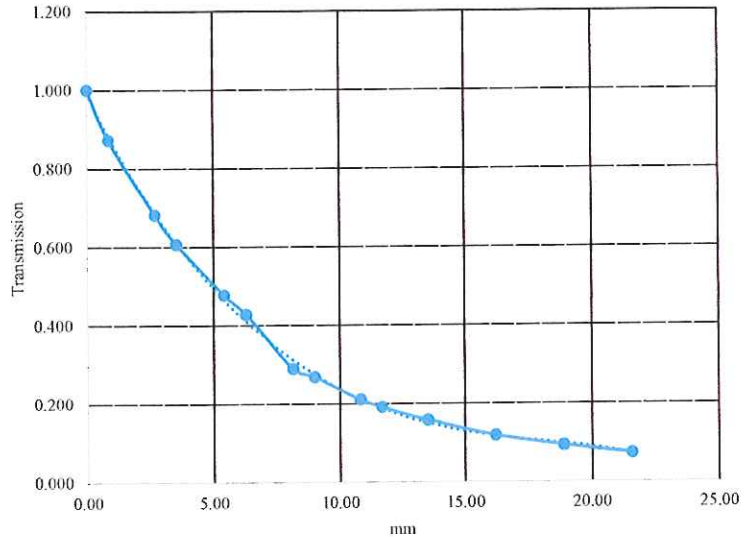
**SUBMITTED BY:**

Artemis Shielding  
2107 Gault Avenue North  
Fort Payne, AL 35967

Test Number: 182099  
Report Number: 182768

MEASUREMENT CONDITIONS		SOURCE DATA		ENVIRONMENTAL	
Standard Chamber:	Exradin A4	Beam:	Iodine-131	Activity (mCi)	Temperature: 23.3 °C
Serial Number:	232	Cal. Date:	9/20/2018 13:00	954.0	Pressure: 750.80 mm Hg
Bias Voltage:	-300	Measure Date:	9/20/2018 15:00	947.2	Corrected Pressure: 747.68 mm Hg
Leakage:	Negligible		9/21/2018 8:56	887.9	Relative Humidity: 65 %
Orientation:	White line towards source	Gamma (I <sup>131</sup> ):	0.22 mR/h/mCi @ 1m		ATMOSPHERIC COMM: Open
Notes:	Distance to center of volume	SCD:	60 cm		

Thickness (mm)	Reading (pC)	mR/min @ 60 cm	Corrected Thickness (mm)*	Decay Corrected Rdg (pC)	Transmission
0.00	155.90	9.63	0.00	157.26	1.000
0.86	135.87	9.63	0.86	137.14	0.872
2.70	105.70	9.59	2.69	107.08	0.681
3.56	94.33	9.62	3.55	95.30	0.606
5.45	74.05	9.60	5.42	74.97	0.477
6.31	66.50	9.61	6.27	67.23	0.427
8.17	42.33	9.05	8.12	45.48	0.289
9.03	41.65	9.04	8.97	42.14	0.268
10.90	30.72	9.03	10.82	33.07	0.210
11.76	27.81	9.02	11.67	29.95	0.190
13.61	22.97	9.02	13.51	24.76	0.157
16.30	17.16	8.99	16.19	18.55	0.118
19.02	13.42	8.95	18.89	14.58	0.093
21.73	10.41	8.97	21.59	11.27	0.072



**Polynomial Regression Data**

x5 = -326.892  
x4 = 1031.78  
x3 = -1241.95  
x2 = 716.348  
x1 = -212.73  
Intercept = 33.4323  
R2 = 0.9996

HVL =	5.18 mm
TVL =	18.18 mm

This laboratory is accredited by the American Association for Laboratory Accreditation (A2LA).

The ionization chamber used for the measurements is NIST traceable and has a well understood spectral response curve.

All sample materials were provided by the customer. Sample thicknesses listed in the table above are based upon the addition of the thicknesses of the material provided by the customer. All sample material thicknesses were measured with a calibrated micrometer. The open and sample measurements are recorded in pico-Coulombs (pC).

The overall uncertainty of the measurement is 3%. This uncertainty is the combined expanded uncertainty of the measurement with a coverage factor of 2 (95% confidence). The result(s) stated herein are valid under the conditions and parameters specified in this report.

\* The corrected thickness of the sample material was provided by the customer.

The polynomial regression data was obtained by regressing graphical data of corrected material thickness versus transmission.

Measured by: Juci Stabin  
Title: Health Physicist, Ph.D.  
Checked By: [Signature] Prepared By: KW

Reviewed by: [Signature]  
Title: Director  
Log Book: B-19

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