



MARYLAND DEPARTMENT OF THE ENVIRONMENT
1800 Washington Boulevard, Suite 750 • Baltimore Maryland 21230
(410) 537-3193 • 1-800-633-6101 • www.mde.maryland.gov

RADIOLOGICAL HEALTH PROGRAM

VETERINARY STATIONARY RADIATION MACHINE PREVENTIVE MAINTENANCE REPORT

FACILITY NAME:		FACILITY CONTACT NAME:		CONTACT TELEPHONE NO.:	
FACILITY REGISTRATION NO.: □□-□□□□		Service Provider Meter Manufacturer:		REGISTERED SERVICE PROVIDER NAME:	
MDE MACHINE NO. AND SUFFIX: □□□□□/□		Meter Used – Model:		Service Provider Registration Number:	
Component Use: □□		Model Number:		NAME OF SERVICE PROVIDER:	
Machine Manufacturer:		Calibration Date:		DATE OF SERVICE:	
Facility-Designated Room Number:		Note any corrective services provided:		Date Facility Owner Made Aware of Service Findings:	
Tube Serial Number:				Date Corrective Action Taken:	
Other information on tube serviced (optional)				<i>For any listed test not required by the machine manufacturer, indicate: N/A</i>	

As Found Settings			Preventive Maintenance Data		
KVP	Film Speed		PM Interval (Months)	6	12
mA			Next PM Due (Date)		
Time: _____ mSec	_____ Pulses		Notes:		
HVL					
Source to image distance (posted)					
Actual film size	Length	Width			

TESTING			Item	Measured
	KVP	Timer	X-ray field size	Length _____ in/cm Width _____ in/cm
Exp 1			Source to Image Distance	_____ inches
Exp 2				
Exp 3				
Avg				
% Diff				
Mfr. Spec				

X-ray Tube Voltage		Minimum HVL	
Designed Operating Range	Measured Operating Potential	Manuf. Before June 10, 2006	Manuf. After June 10, 2006
Below 51	30	0.3	0.3
	40	0.4	0.4
	50	0.5	0.5
51 to 70	51	1.2	1.3
	60	1.3	1.5
	70	1.5	1.8
	71	2.1	2.5
Above 70	80	2.3	2.9
	90	2.5	3.2
	100	2.7	3.6
	110	3.0	3.9
	120	3.2	4.3
	130	3.5	4.7
	140	3.8	5.0
	150	4.1	5.4

Linearity Test			
Station	mA	(mR/mAs)	(mR/mAs Station 1 – mR/mAs Station 2) / (mR/mAs Station 1 + mR/mAs Station 2)
1			> 0.1 Difference = Fail <input type="checkbox"/>
2			≤ 0.1 Difference = Pass <input type="checkbox"/>

By physically and/or electronically signing this report, I attest that this radiation machine is operating within the specifications and guidelines provided by the manufacturer's manual and that the registrant has received a copy of this report for their records.

Service Provider Initials [_____]

Printed Name	Registrant Signature	Date
Printed Name	Service Provider Signature	Date



RADIOLOGICAL HEALTH PROGRAM

Instructions for Veterinary Stationary Radiation Machine Preventative Maintenance Report

General Information

COMPLETE ONE FORM PER TUBE. Completely and legibly fill out the facility information, machine information and service provider information. Include facility room number or name as designated by the facility.

As Found Settings

Record the “as found” setting of the kVp, mA, time, half layer value, source to image distance and film size used.

Preventive Maintenance Data

Record the manufacturer’s recommended preventive maintenance schedule as indicated in the radiation machine manual. If no preventive maintenance schedule exists for the machine, a 12 month maintenance frequency should be used. Record the date of the next scheduled Preventive Maintenance.

Timer Accuracy

For Certified Machine Tolerance-	For Uncertified Machine Tolerance (+/- 10%)-
1. Average all exposures.	1. Average all exposures.
2. Use formula- ((Average time measured – “as found” time)/ “as found” time) X 100 = % of deviation [disregard the sign].	2. Multiply the time set by .10 to get the + or – 10% variable.
3. If the % deviation is within the manufacturer’s recommendation, the unit is in compliance.	3. Add the variable to the time set, and then subtract the variable from the time set. The two numbers establish the range.
4. Machine passes or fails with appropriate documentation.	4. If the average time measured falls between the two numbers, the machine is in compliance.

kVp Accuracy

For Certified Machine Tolerance-	For Uncertified Machine Tolerance (+/- 10 %)-
1. Average all exposures.	1. Average all exposures.
2. Use formula- ((Average kVp measured – “as found” kVp)/ “as found” kVp) X 100 = % of deviation [disregard the sign].	2. Multiply the kVp set by .10 to get the + or – 10% variable.
3. If the % deviation is within the manufacturer’s recommendation, the unit is in compliance.	3. Add the variable to the kVp set, and then subtract the variable from the kVp set. The two numbers establish the range.
4. Machine passes or fails with appropriate documentation.	4. If the Average kVp measured falls between the two numbers the machine is in compliance.

Other Recommended Maintenance

Consult machine manual and perform any recommended machine test not listed here. Enter results on reverse side.

Timer Reproducibility

For Certified Units:	For Uncertified Units:
Timer: $T > 5 (T_{max} - T_{min})$	Timer: $T > 5 (T_{max} - T_{min})$
1. Use the timer data from the reverse of this form (Measured and Average).	
2. Subtract the minimum time from the maximum time (Measured values).	
3. Multiply the result by the factor of 5 as shown above.	
4. Compare to the average of the measured values for time.	
5. If the average of the measured values is greater than or equal to the multiplied result, the timer is reproducible. (PASS)	

Field size – If x-ray beam exceeds any side of the image receptor by > 2% fail

SID – Measured to be within 2 inches of Indicated



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RADIOLOGICAL HEALTH PROGRAM
MENU

<p>05. CODE PROFESSION</p> <p>10 Hospital 11 Chiropractor 12 Dentist 13 Physician 14 Podiatrist 15 Radiologist 16 Industrial/Field Radiography 17 Veterinarian 18 State/Local Government 19 Education/Research 20 Portable/Mobile X-ray 21 Other</p> <p>09. COMPONENT USE</p> <p>CODE DENTAL</p> <p>CBCT Cone Beam Computed Tomography CD Cephalometric CP Cephalometric/Intra-oral Comb. CX Pan/Ceph Combination HH Hand-held ID Intra-oral XD Panorex TD TMJ Work OD Other Dental</p> <p>CODE VETERINARY</p> <p>VP Veterinary Portable VS Veterinary Stationary VD Veterinary Dental</p> <p>CODE MEDICAL</p> <p>AD Angiography/Digital AN Angiography BD Bone Densitometry CA CAT Scanner CE Ceiling Tube (Leg Studies) CH Chest, Dedicated CI Chiropractic DI Diathermy GP General Purpose HN Head and Neck MA Mammography MI Magnetic Imaging OT Other Medical PD Podiatry PH Portable Hand Carried PM Portable Mobile SR Stereotactic TO Tomography UR Urology US Ultrasound</p>	<p>CODE DARKROOM</p> <p>AP Automatic Processor DD Complete Digital Imaging IP Insta-fix only processing MP Manual Processing NP No processing on-site</p> <p>CODE MEDICAL THERAPY</p> <p>AT Accelerator CT Contact Therapy DT Deep X-ray ST Superficial</p> <p>CODE INDUS/EDUC/RESEARCH</p> <p>IA Accelerator IC Cabinet Radiography IE Electron Microscope IF Field Radiography IG Gauge IN Diffraction IO Other Indus./Educ./Research IR Room Radiography IS Spectrographic</p> <p>CODE MEDICAL FLUOROSCOPE</p> <p>AF Above Table Tube BF Below Table Tube CF C-Arm MF Mobile Fluoroscope UF Upright Fluoroscope OF Other Medical Fluoroscope</p> <p>10. CODE MANUFACTURER</p> <p>00 Imagie Works 01 AS and E 02 Accuray 06 Accudex 07 Acoma 03 Agfa 08 Air Techniques 14 All Pro 04 Andrex 05 Asoma 10 Astrophysics 12 Autoclear 16 Aztech 09 Belmont 11 Bennett X-ray 13 Bowie 18 Castle 15 Continental X-ray Corp. 17 Control Screening 19 Coromex 26 de Gotzen 29 Del Medical</p>	<p>10. (continued)</p> <p>22 Dentx 30 Dynavision 31 E.G. & G. 25 Elekta 20 Faxitron 21 Fischer Imaging Group 34 Fuji 23 Gendex 24 General Electric 35 Glenbrook 37 Global Marine 39 Golden 40 HCMl 41 Heimann 46 Heuft Systems Technik 27 Hewlett-Packard 28 Hitachi 38 Hologic 48 Hope 43 Instrumentarium 55 JEOL 32 J. Morita 33 Kodak 44 Konica 56 LG 47 Lorad 36 Lumix 49 Lunar 50 Midwest/Sybron 57 Min X-ray 61 Niton 42 OEC Disonics 66 PANalytical 59 Panoramic Corp. 45 Phillips 60 Planmeca 70 Progeny 72 Protec 74 Rapiscan 51 Raytheon 73 Rigaku 52 Ritter 53 S.S. White 54 Sanko 78 Sedecal 79 Seiko 58 Siemens 80 Sirona 64 Soredex 81 Spectro 68 Summit 62 Toshiba 63 Transworld 71 Trophy 65 Universal 67 Varian 82 Vet Ray, Inc. 69 Weber 83 XMA 84 X-Cel 76 Yoshida 77 Other</p>
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