



MARYLAND DEPARTMENT OF THE ENVIRONMENT
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RADIOLOGICAL HEALTH PROGRAM

GENERAL PURPOSE RADIATION MACHINE PREVENTIVE MAINTENANCE REPORT

Facility Name _____	
Facility Registration No. <input type="text"/> <input type="text"/> - <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/>	
Machine MDE Number and Suffix <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> / <input type="text"/>	Component Use <input type="checkbox"/> <input type="checkbox"/>
Machine Model _____	Machine Manufacturer _____
DOM _____	Tube Serial Number _____
Facility Room Number _____	

Registered Service Provider Name _____
Provider Number _____
Name of Tech _____
DATE OF SERVICE <input type="text"/> <input type="text"/> / <input type="text"/> <input type="text"/> / <input type="text"/> <input type="text"/>
Meter Manufacturer _____
Meter Model _____
Meter Calibration Date _____
Notes:

As Found Settings			Test Settings	
KVP			KVP	
mA			mA	
Timer	mSec	Pulses	Timer	
HVL				
X-ray Field Size	Length _____ in/cm	Width _____ in/cm		
SID	_____ in/cm (posted)			

Preventive Maintenance Data	
PM Interval:	<input type="text"/> <input type="text"/> Months
Next PM Due:	<input type="text"/> <input type="text"/> / <input type="text"/> <input type="text"/> / <input type="text"/> <input type="text"/>

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
Above 70	71	2.1	2.5
	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

TESTING			Test	PASS/FAIL	
	KVP	Timer			
Exp 1			KVP	<input type="checkbox"/> P <input type="checkbox"/> F	
Exp 2					
Exp 3			Timer Acc.	<input type="checkbox"/> P <input type="checkbox"/> F	
Avg					
% Diff	%	%	HVL	<input type="checkbox"/> P <input type="checkbox"/> F	
Mfr. Spec			Timer Rep	<input type="checkbox"/> P <input type="checkbox"/> F	

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

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 _____





Instructions for General Purpose Radiation Machine Preventive 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.

Timer Reproducibility: 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% of Indicated

