

Redacted. Full documents provided upon deposit.

DIAGNOSTIC X-RAY SURVEY

DATE: 5 February 2019

Redacted

SYSTEM (Make & Model): GE Definium 8000

RADIOGRAPHIC max kV: 150 mA: 1000

EQUIPMENT CHECKS: RADIOGRAPHY

Features	Status	Comments
GENERATOR:		
kV Indicator	OK	
mA Indicator	OK	
Exposure Time Function	OK	
Beam-on Indicator	OK	
Audible Beam-on Tone	OK	

X-RAY SOURCE DESCRIPTION

1. Overhead Radiographic

MAJOR ACCESSORIES

1. GE bucky table
2. GE chest detector

SIGNATURE REQUIRED ON PAGE 4

NATURE OF SURVEY

Post-Repair

Date of Last Survey 29 Nov 2018

Type of repair: tube replacement

GENERAL CONDITIONS OF ROOM

Room Layout	Status	Comments
Arrangement of controls		
Interlock on booth door: Necessary ?	NA	
Present ?	NA	
18"/24" barrier beside window ?	Yes	56"
Viewing area \geq 1 square foot ?	Yes	30" x 36"
All room entries visible from controls ?	Yes	
Controls fixed \geq 40" from any open edge ?	Yes	66"
Adequacy of Setup		
	OK	

Room Entrances

	Main Door	ER Door			
Warning Light					
Present ?	Yes	Yes			
Functioning ?	Yes	Yes			
Wired to rotor ?	Yes	Yes			
Type	Backlit	Backlit			
Adequate labeling ?	Yes	Yes			
Necessary ?	Yes	Yes			
Door Interlock					
Present ?	No	No			
Functioning ?	NA	NA			
Required ?	No	No			
Adequacy of entrances	OK				

COMMENTS

None

RECOMMENDATIONS

None

X-RAY EQUIPMENT: GE Definium 8000
X-RAY SOURCE: Overhead

USE: General

INSERT **Manufacturer:** GE 8/18 **Serial #**
HOUSING **Manufacturer:** GE 8/18 **Serial #** **Redacted**
COLLIMATOR **Manufacturer:** Siemens 11/11 **Serial #** ----

RADIOGRAPHIC CHECK-OUT

COMPONENT CHECKS

Component	Status	Comments
Filters		
Inherent ?	<input type="text" value="Yes"/>	Housing: 1.05 @ 150 kVp Collimator: 2.0 @ 70 kVp
Under operator control ?	<input type="text" value="Yes"/>	
Well secured ?	<input type="text" value="Yes"/>	
Filtration labeled ?	<input type="text" value="Yes"/>	
Additional filtration needed ?	<input type="text" value="No"/>	
Distance Indicator Accuracy		
Table Top	<input type="text" value="OK"/>	
Bucky	<input type="text" value="OK"/>	

COLLIMATION ASSESSMENT

Field Size Indicator Accuracy (Deviation between indicators and field sizes)
 Measurement test distance (typically 40"): inches (= 101.6 cm)

	Crosswise		Lengthwise	
	inch	cm	inch	cm
Collimator setting:	<input type="text" value="10.00"/>	<input type="text"/>	<input type="text" value="10.00"/>	<input type="text"/>
Measured light field size:	<input type="text" value="10.00"/>	<input type="text"/>	<input type="text" value="10.00"/>	<input type="text"/>
Deviation in setting	0.00		0.00	
Deviation as % SID	+0.00%		+0.00%	
Pass/Fail (criteria: $\pm 2\%$)	Pass		Pass	

Action Limit: If vertical or horizontal deviation exceeds 2% of SID, seek service adjustment.

X-Ray / Light Field Alignment (Deviation between x-ray field and light field)
 Measurement test distance (typically 40"): inches (= 101.6 cm)

	Crosswise		Lengthwise
	cm		cm
Top edge deviation:	<input type="text" value="0.30"/>	<input type="text"/>	<input type="text" value="0.30"/>
Bottom edge deviation:	<input type="text" value="0.10"/>	<input type="text"/>	<input type="text" value="0.70"/>
Sum of top and bottom deviations:	0.40		1.00
Deviation as % SID	0.39%		0.98%
Pass/Fail (criteria: $\pm 2\%$)	Pass		Pass

Action Limit: If the sum of top plus bottom edge deviations or left plus right edge deviations exceeds 2% of SID, seek service adjustment

Positive Beam Limitation

(Deviation between field size and cassette size)

Table Bucky (40" SID)				
Cassette size: inches or cm	8x10 (20x25)	10x12 (24x30)	11x14 (30x35)	14x17 (35x43)
Field size within cassette size ?				
Status				
Chest Bucky (72" SID)				
Cassette size: inches or cm			11x14 (30x35)	14x17 (35x43)
Field size within cassette size ?				
Status				
Comment, if any: Seven collimation choices on tube head - OK				

Action Limit: If horizontal or vertical deviation exceeds 3% of SID, or the sum of deviations exceeds 4% of SID, seek service adjustment.

X-RAY TUBE CHARACTERISTICS**Instrument used:** Victoreen Panoramic**Leakage from Diagnostic Source Assembly**

or Ludlum Model 9 ion chamber survey meter

Observed dose rates (average):				
kV	mA	Distance from tube target	Reading	Corrected to 1 meter
60	100	0.5 meter	8 mR/hr	2.0 mR/hr
90	100	0.5 meter	80 mR/hr	20.0 mR/hr
Highest Reading:		80 mR/hr @ 0.5 meter	Location: General	
Max Continuous Operating Rating:		90/10		
Max Leakage at Max Rating:		2 mR/hr; 0.0176 mGy/hr		

Action Limit: If leakage radiation at 1 meter from the source exceeds 100 mR or 0.88 mGy in 1 hr at maximum continuous operating conditions, seek service adjustment.

Tube Output Consistency	SDD: 40 inches	Instrument used: Radcal AccuGold
Field size: 6" x 6"; 100 kV, 100 mAs =	0.924	R

IMAGE QUALITY**High Contrast Resolution**

Gammex Test pattern MA436

Small Focal Spot:	2.09	Lp/mm	Technique:	kV	mAs	mR
Large Focal Spot:	2.09	Lp/mm		50	1.25	2.55

Low Contrast Detectability

Gammex C/D phantom 1151

Row with best visibility:	4	Contrast:	9.6%	Technique: 60 kV, 10 mAs
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COMMENTS

System functioning properly.

RECOMMENDATIONS

None

Data

Facility: NSMC Salem Hospital Surveyor: F.X. Masse Associates
 Location: 81 Highland St, Salem, MA Date: February 5, 2019
 Room: ER
 System: GE Definium 8000 X-ray system manufactured after 10 June 2006 ? Yes

SDD **28in**

Pass/Fail Criteria			
kVp avg	10%	Time	10%

Machine Settings				Measurements						Percent Error			
kVp	mA	FS	Sec	kVp avg	Sec	mR	HVL	Est mA	mR/mAs	kVp avg	P/F	Sec	P/F
50	100	S	0.100	49.96	0.100	42.45	2.06	100	4.25	-0.1%	Pass	0.1%	Pass
60	100	S	0.100	60.51	0.100	66.14	2.42	100	6.61	0.8%	Pass	0.2%	Pass
70	100	S	0.100	69.68	0.100	91.60	2.81	100	9.16	-0.5%	Pass	0.4%	Pass
81	100	S	0.100	80.60	0.101	120.81	3.16	99	12.08	-0.5%	Pass	0.6%	Pass
90	100	S	0.100	91.05	0.101	152.31	3.51	99	15.23	1.2%	Pass	0.7%	Pass
102	100	S	0.100	100.92	0.101	186.12	3.91	99	18.61	-1.1%	Pass	0.8%	Pass
109	100	S	0.100	111.32	0.101	221.46	4.29	99	22.15	2.1%	Pass	0.9%	Pass
117	100	S	0.100	121.58	0.101	258.28	4.66	99	25.83	3.9%	Pass	1.1%	Pass
81	100	S	0.025	80.49	0.025	26.06	3.16	98	10.43	-0.6%	Pass	2.0%	Pass
81	100	S	0.050	80.56	0.050	53.69	3.16	99	10.74	-0.5%	Pass	1.0%	Pass
81	100	S	0.100	80.61	0.100	120.50	3.16	100	12.05	-0.5%	Pass	0.5%	Pass
81	100	S	0.200	80.55	0.200	254.06	3.16	100	12.70	-0.6%	Pass	0.2%	Pass
81	100	S	0.500	80.58	0.501	654.19	3.16	100	13.08	-0.5%	Pass	0.1%	Pass
81	100	S	1.000	80.58	1.001	1320.96	3.16	100	13.21	-0.5%	Pass	0.1%	Pass
81	50	S	0.100	80.56	0.101	60.20	3.16	50	12.04	-0.5%	Pass	0.6%	Pass
81	50	S	0.100	80.55	0.101	60.26	3.16	50	12.05	-0.6%	Pass	0.6%	Pass
81	100	S	0.100	80.54	0.100	120.45	3.16	100	12.04	-0.6%	Pass	0.5%	Pass
81	100	S	0.100	80.57	0.100	120.48	3.16	100	12.05	-0.5%	Pass	0.5%	Pass
81	200	S	0.100	80.66	0.100	241.17	3.16	199	12.06	-0.4%	Pass	0.5%	Pass
81	200	S	0.100	80.60	0.100	241.05	3.16	199	12.05	-0.5%	Pass	0.5%	Pass
81	320	L	0.100	80.60	0.100	387.66	3.14	319	12.11	-0.5%	Pass	0.5%	Pass
81	320	L	0.100	80.61	0.101	389.25	3.14	318	12.16	-0.5%	Pass	0.6%	Pass
81	400	L	0.100	80.55	0.100	484.48	3.14	399	12.11	-0.6%	Pass	0.4%	Pass
81	400	L	0.100	80.55	0.101	486.29	3.14	398	12.16	-0.6%	Pass	0.6%	Pass
81	500	L	0.100	80.48	0.100	605.85	3.14	498	12.12	-0.6%	Pass	0.4%	Pass
81	500	L	0.100	80.50	0.100	605.86	3.14	498	12.12	-0.6%	Pass	0.4%	Pass
81	630	L	0.100	80.44	0.101	765.72	3.14	627	12.15	-0.7%	Pass	0.6%	Pass
81	630	L	0.100	80.45	0.100	764.94	3.14	628	12.14	-0.7%	Pass	0.4%	Pass
81	100	S	0.100	80.60	0.100	120.45	3.16	100	12.05	-0.5%	Pass	0.5%	Pass
81	100	S	0.100	80.53	0.100	120.45	3.16	100	12.05	-0.6%	Pass	0.5%	Pass
81	100	S	0.100	80.59	0.100	120.46	3.16	100	12.05	-0.5%	Pass	0.5%	Pass

kVp Accuracy

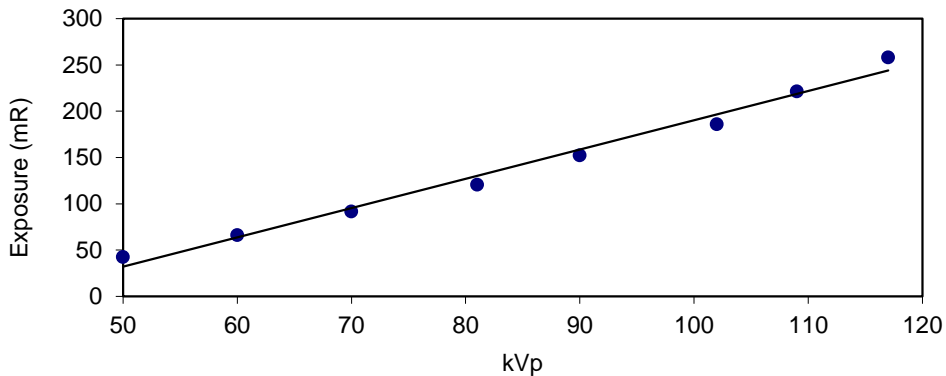
Facility: NSMC Salem Hospital
 Location: 81 Highland St, Salem, MA
 Room: ER
 System: GE Definium 8000

Machine Settings		
mA	FS	SDD
100	S	28in

Pass/Fail Criteria	
kVp avg	10%

		Measurements					
kVp	Sec	kVp avg	Sec	mR	HVL	Est mA	mR/mAs
50	0.100	49.96	0.100	42.45	2.06	100	4.25
60	0.100	60.51	0.100	66.14	2.42	100	6.61
70	0.100	69.68	0.100	91.60	2.81	100	9.16
81	0.100	80.60	0.101	120.81	3.16	99	12.08
90	0.100	91.05	0.101	152.31	3.51	99	15.23
102	0.100	100.92	0.101	186.12	3.91	99	18.61
109	0.100	111.32	0.101	221.46	4.29	99	22.15
117	0.100	121.58	0.101	258.28	4.66	99	25.83
81	0.025	80.49	0.025	26.06	3.16	98	10.43
81	0.050	80.56	0.050	53.69	3.16	99	10.74
81	0.100	80.61	0.100	120.50	3.16	100	12.05
81	0.200	80.55	0.200	254.06	3.16	100	12.70
81	0.500	80.58	0.501	654.19	3.16	100	13.08
81	1.000	80.58	1.001	1320.96	3.16	100	13.21

Percent Error	
kVp avg	P/F
-0.1%	Pass
0.8%	Pass
-0.5%	Pass
-0.5%	Pass
1.2%	Pass
-1.1%	Pass
2.1%	Pass
3.9%	Pass
-0.6%	Pass
-0.5%	Pass
-0.5%	Pass
-0.6%	Pass
-0.5%	Pass
-0.5%	Pass



Surveyor: F.X. Massé Associates
 Date: February 5, 2019

Timer Accuracy

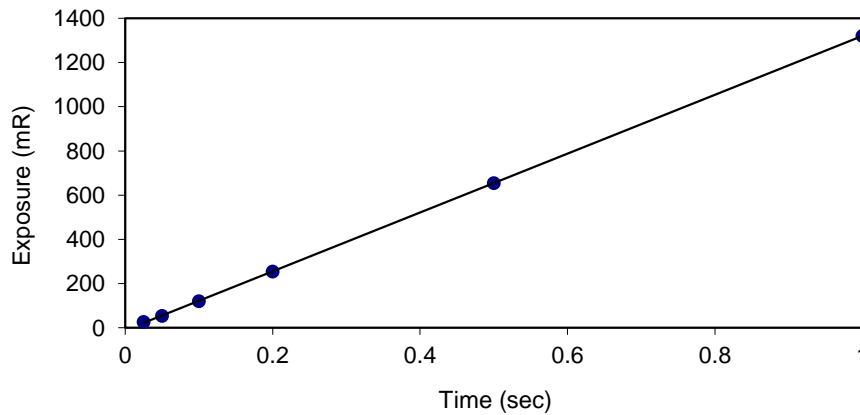
Facility: NSMC Salem Hospital
 Location: 81 Highland St, Salem, MA
 Room: ER
 System: GE Definium 8000

Machine Settings		
mA	FS	SDD
100	S	28in

Pass/Fail Criteria	
Timer	10%

		Measurements					
kVp	Sec	kVp avg	Sec	mR	HVL	Est mA	mR/mAs
50	0.100	49.96	0.100	42.45	2.06	100	4.25
60	0.100	60.51	0.100	66.14	2.42	100	6.61
70	0.100	69.68	0.100	91.60	2.81	100	9.16
81	0.100	80.60	0.101	120.81	3.16	99	12.08
90	0.100	91.05	0.101	152.31	3.51	99	15.23
102	0.100	100.92	0.101	186.12	3.91	99	18.61
109	0.100	111.32	0.101	221.46	4.29	99	22.15
117	0.100	121.58	0.101	258.28	4.66	99	25.83
81	0.025	80.49	0.025	26.06	3.16	98	10.43
81	0.050	80.56	0.050	53.69	3.16	99	10.74
81	0.100	80.61	0.100	120.50	3.16	100	12.05
81	0.200	80.55	0.200	254.06	3.16	100	12.70
81	0.500	80.58	0.501	654.19	3.16	100	13.08
81	1.000	80.58	1.001	1320.96	3.16	100	13.21

Percent Error	
Sec	P/F
0.1%	Pass
0.2%	Pass
0.4%	Pass
0.6%	Pass
0.7%	Pass
0.8%	Pass
0.9%	Pass
1.1%	Pass
2.0%	Pass
1.0%	Pass
0.5%	Pass
0.2%	Pass
0.1%	Pass
0.1%	Pass



Surveyor: F.X. Massé Associates
 Date: February 5, 2019

Reproducibility

Facility: NSMC Salem Hospital
 Location: 81 Highland St, Salem, MA
 Room: ER
 System: GE Definium 8000

Machine Settings				
kV	mA	FS	Sec	SDD
81	100	S	0.1	28in

Pass/Fail Criteria
CV
0.05

Measurements						
kVp avg	Sec	mR	HVL	Est mA	mR/mAs	
80.60	0.101	120.81	3.16	99	12.08	
80.61	0.100	120.50	3.16	100	12.05	
80.60	0.100	120.45	3.16	100	12.05	
80.53	0.100	120.45	3.16	100	12.05	
80.59	0.100	120.46	3.16	100	12.05	
80.54	0.100	120.45	3.16	100	12.04	
80.57	0.100	120.48	3.16	100	12.05	

Avg	80.58	0.100	120.51	3.16	100	12.05
CV	0.000	0.000	0.001	0.000	0.000	0.001

P/F	Pass	Pass	Pass	Pass	Pass	Pass
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Photocell Comparison and Delivered Dose

Responses of Left and Right Photocells compared to Center Photocell

Photo Cell:	Left	Center	Right		
Table Bucky	Feedback mAs:	4.03	3.99	3.96	kV set: 80
	mAs Deviation from Center Cell:	+0.0	Std.	-0.0	mA set: 320
	Skin Entry Dose (mR):	27.8	27.5	27.3	Density: 0
					Phantom: 0.5 mm Pb
Chest Bucky	Feedback mAs:	2.6	3.1	2.9	kV set: 120
	mAs Deviation from Center Cell:	-0.5	Std.	-0.2	mA set: 320
	Skin Entry Dose (mR):	9.8	11.7	10.9	Density: 0
					Phantom: 0.5 mm Pb

Surveyor: F.X. Massé Associates
 Date: February 5, 2019

mAs Linearity

Facility: NSMC Salem Hospital
 Location: 81 Highland St, Salem, MA
 Room: ER
 System: GE Definium 8000

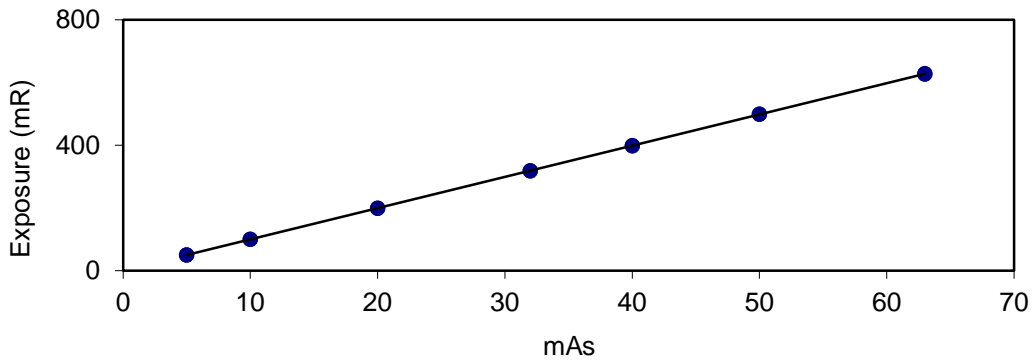
Machine Settings		
kV	Sec	SDD
81	0.1	28in

Pass/Fail Criteria		
Adjacent	Non-adjacent	
0.050		0.1

mA station	FS
50	S
50	S
100	S
100	S
200	S
200	S
320	L
320	L
400	L
400	L
500	L
500	L
630	L
630	L

Measurements					
kVp avg	Sec	mR	HVL	Est mA	
80.56	0.101	60.20	3.16	50	
80.55	0.101	60.26	3.16	50	
80.54	0.100	120.45	3.16	100	
80.57	0.100	120.48	3.16	100	
80.66	0.100	241.17	3.16	199	
80.60	0.100	241.05	3.16	199	
80.60	0.100	387.66	3.14	319	
80.61	0.101	389.25	3.14	318	
80.55	0.100	484.48	3.14	399	
80.55	0.101	486.29	3.14	398	
80.48	0.100	605.85	3.14	498	
80.50	0.100	605.86	3.14	498	
80.44	0.101	765.72	3.14	627	
80.45	0.100	764.94	3.14	628	

mR/mAs	Linearity	P/F
12.04	-	-
12.05	0.000	Pass
12.04	0.000	Pass
12.05	0.000	Pass
12.06	0.000	Pass
12.05	0.000	Pass
12.11	0.003	Pass
12.16	0.002	Pass
12.11	0.002	Pass
12.16	0.002	Pass
12.12	0.002	Pass
12.12	0.000	Pass
12.15	0.002	Pass
12.14	0.001	Pass



Surveyor: F.X. Massé Associates
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Beam Quality (HVL)

Facility: NSMC Salem Hospital
 Location: 81 Highland St, Salem, MA
 Room: ER
 System: GE Definium 8000

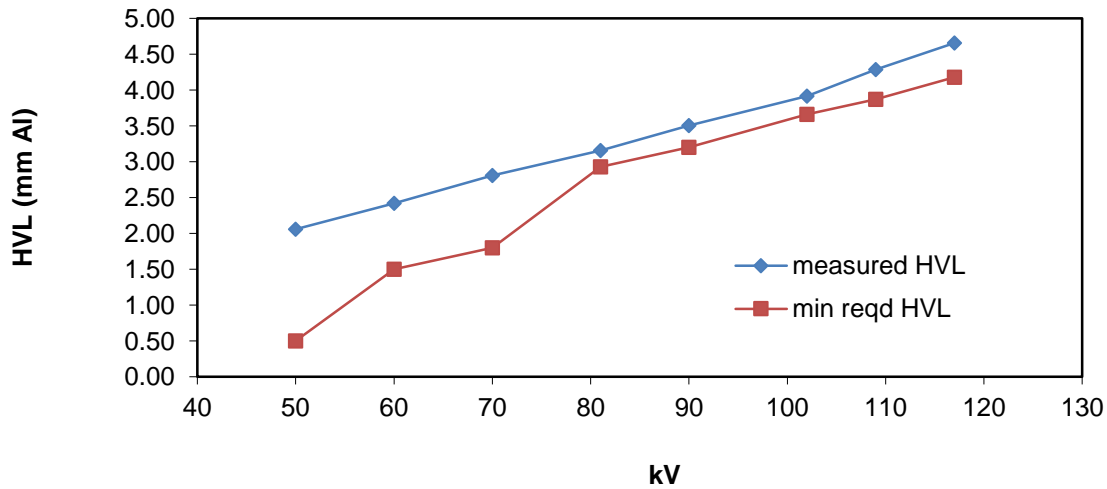
Machine Settings		
mA	FS	SDD
100	S	28in

Pass/Fail Criteria
Minimum Required (mm AL)

kVp	Sec
50	0.100
60	0.100
70	0.100
81	0.100
90	0.100
102	0.100
109	0.100
117	0.100

Measurements						
kVp avg	Sec	mR	HVL	Est mA	mR/mAs	
49.96	0.100	42.45	2.06	100	4.25	
60.51	0.100	66.14	2.42	100	6.61	
69.68	0.100	91.60	2.81	100	9.16	
80.60	0.101	120.81	3.16	99	12.08	
91.05	0.101	152.31	3.51	99	15.23	
100.92	0.101	186.12	3.91	99	18.61	
111.32	0.101	221.46	4.29	99	22.15	
121.58	0.101	258.28	4.66	99	25.83	

HVL	
Min reqd.	P/F
0.50	Pass
1.50	Pass
1.80	Pass
2.93	Pass
3.20	Pass
3.66	Pass
3.87	Pass
4.18	Pass



Surveyor: F.X. Massé Associates
 Date: February 5, 2019

ENTRANCE SKIN EXPOSURE (ESE) / ENTRANCE AIR KERMA (EAK) GUIDE FOR NON-PHOTOTIMED EXPOSURES

Facility: NSMC Salem Hospital
 Location: 81 Highland St, Salem, MA
 Room: ER
 System: GE Definium 8000

Date: February 5, 2019
 Surveyor: F.X. Massé Associates

View (Position)	Bucky Inch	(cm)	kVp	mAs	Body-Dim (cm.)	Dist (cm.)	ESE Roentgen	EAK (mGy)
Skull-AP	40	102	70	25	20	73	0.184	1.62
Skull-lateral	40	102	72	20	22	71	0.165	1.45
Skull-Townes	40	102	76	32	20	73	0.280	2.46
Skull-Basal	40	102	76	64	22	71	0.592	5.21
Sinuses-AP	40	102	72	20	16	77	0.140	1.23
Sinuses-Waters	40	102	72	20	20	73	0.156	1.37
Sinuses-Lateral	40	102	70	16	16	77	0.106	0.93
Sinuses-Basal	40	102	80	32	22	71	0.320	2.81
Mandible-AP/PA	40	102	62	12.5	12	81	0.058	0.51
Mastoids-Laws	40	102	60	20	14	79	0.090	0.80
Mastoids-Stens	40	102	60	20	16	77	0.095	0.84
Orbits-PA	40	102	82	25	16	77	0.223	1.96
Facial-Waters	40	102	75	25	16	77	0.191	1.68
Facial-Lateral	40	102	66	16	16	77	0.094	0.83
Cervical Spine-AP	40	102	70	6.4	12	81	0.038	0.34
Cervical Spine-Lateral	72	183	76	32	14	164	0.055	0.48
Cervical Spine- Obl	72	183			14	164		
Chest-AP	72	183	85	5	23	155	0.012	0.10
Chest-Lateral	72	183	80	10	28	150	0.022	0.20
Thoracic Spine-AP/OBL	40	102	76	32	25	68	0.323	2.84
Lumbar Spine-AP	40	102	76	40	22	71	0.370	3.26
Lumbar Spine-Lateral	40	102	86	75	35	58	1.304	11.48
Lumbar-L5/S1-Lateral	40	102	85	120	29	64	1.672	14.72
Pelvis Hips-AP	40	102	80	40	30	63	0.508	4.47
Hips-Lateral	40	102	80	80	22	71	0.799	7.03
Ribs above diaphragm	40	102	66	25	23	70	0.178	1.56
Ribs below diaphragm	40	102	66	40	23	70	0.284	2.50
Abdomen-AP/PA	40	102	80	19.4	22	71	0.194	1.71
Gall Bladder-AP	40	102	76	50	24	69	0.490	4.31
BE-GI AP/OBL	40	102	120	11.7	24	69	0.271	2.39
Shoulder-AP	40	102	76	25	12	81	0.177	1.56
Femur-AP/Lateral	40	102	70	25	12	81	0.149	1.31
Lower leg, Knee/AP	40TT	102	60	2.5	10	92	0.008	0.07
Elbow, Arm/AP	40TT	102	65	7	7	95	0.026	0.23
Hand, Wrist/AP/PA	40TT	102	60	5	5	97	0.015	0.13
Ankle, Foot/AP	40TT	102	66	7	9	93	0.028	0.25

Diagnostic Reference Levels (DRLs) are action levels used to identify unusually high radiation doses for common procedures. Doses exceeding DRLs should be reviewed to determine if techniques can be reduced and acceptable image quality achieved at lower doses. DRLs are set at the 75th percentile of doses at representative facilities (i.e., 75% of facilities surveyed by the ACR / AAPM deliver doses below DRLs). **Achievable Doses (ADs)** are set at the 50th percentile (i.e., 50% of facilities surveyed deliver doses below ADs), and can be used with DRLs to further optimize protocols.

ACR / AAPM DRLs and ADs are set as follows (ACR Practice Guidelines, 2014):			Delivered Dose (mGy)	Do above techniques meet suggested DRLs?	Are doses below ADs?
	DRL (mGy)	AD (mGy)			
Adult Chest	0.15	0.11	0.10	Yes	Yes
Adult Abdomen	3.4	2.4	1.71	Yes	Yes
Adult Lumbar Spine	4.2	2.8	3.26	Yes	No

ENTRANCE SKIN EXPOSURE (ESE) GUIDE FOR PHOTOTIMED EXPOSURES

Facility: NSMC Salem Hospital
 Location: 81 Highland St, Salem, MA

Room: ER
 System: GE Definium 8000

Date: February 5, 2019
 Surveyor: F.X. Massé Associates

Views: Skull (AP, Lateral, Townes, Basal); Sinuses (AP, Waters, Lateral, Basal); Mandible (AP/PA); Mastoids (Laws, Stens); Orbits; Facial (Waters, Lateral); Shoulder (AP); Femur (AP/Lateral)
 Cervical Spine (AP) (SID: 40"; Body Dim. 17 ± 4 cm*)

		Feedback mAs							
		5	10	20	30	40	50	60	70
Applied kVp	55	0.020	0.040	0.079	0.119	0.159	0.199	0.238	0.278
	60	0.024	0.048	0.097	0.145	0.194	0.242	0.290	0.339
	65	0.029	0.058	0.115	0.173	0.231	0.288	0.346	0.404
	70	0.034	0.067	0.134	0.201	0.268	0.335	0.402	0.469
	75	0.039	0.078	0.155	0.233	0.311	0.388	0.466	0.544
	80	0.043	0.086	0.172	0.259	0.345	0.431	0.517	0.604
	85	0.049	0.098	0.195	0.293	0.390	0.488	0.586	0.683
ESE (Roentgen)									

Views: Chest (AP, Lateral)

(SID: 72"; Body Dim. 27 ± 2 cm)

		Feedback mAs							
		2	5	10	15	20	25	30	35
Applied kVp	65	0.003	0.007	0.015	0.022	0.029	0.037	0.044	0.051
	75	0.004	0.010	0.020	0.030	0.039	0.049	0.059	0.069
	85	0.005	0.012	0.025	0.037	0.049	0.062	0.074	0.087
	95	0.006	0.016	0.031	0.047	0.063	0.078	0.094	0.110
	105	0.007	0.018	0.036	0.055	0.073	0.091	0.109	0.128
	115	0.009	0.023	0.045	0.068	0.090	0.113	0.135	0.158
	125	0.010	0.024	0.048	0.072	0.096	0.120	0.144	0.168
ESE (Roentgen)									

Views: Pelvis Hips (AP); Hips (Lateral); Ribs; Abdomen (AP/PA); Gall Bladder (AP); BE-GI (AP/Obl)

(SID: 40"; Body Dim. 24 ± 3 cm)

		Feedback mAs																	
		10	20	30	40	50	60	70	80	90	100	110	120	130	140	150	160	170	180
Applied kVp	50	0.038	0.075	0.113	0.151	0.188	0.226	0.264	0.301	0.339	0.377	0.414	0.452	0.490	0.527	0.565	0.603	0.640	0.678
	60	0.059	0.117	0.176	0.235	0.293	0.352	0.411	0.470	0.528	0.587	0.646	0.704	0.763	0.822	0.880	0.939	0.998	1.056
	70	0.081	0.163	0.244	0.325	0.406	0.488	0.569	0.650	0.732	0.813	0.894	0.975	1.057	1.138	1.219	1.301	1.382	1.463
	80	0.105	0.209	0.314	0.418	0.523	0.628	0.732	0.837	0.942	1.046	1.151	1.255	1.360	1.465	1.569	1.674	1.778	1.883
	90	0.135	0.270	0.405	0.541	0.676	0.811	0.946	1.081	1.216	1.352	1.487	1.622	1.757	1.892	2.027	2.163	2.298	2.433
	100	0.162	0.324	0.487	0.649	0.811	0.973	1.135	1.297	1.460	1.622	1.784	1.946	2.108	2.270	2.433	2.595	2.757	2.919
	110	0.190	0.381	0.571	0.761	0.951	1.142	1.332	1.522	1.712	1.903	2.093	2.283	2.473	2.664	2.854	3.044	3.234	3.425
120	0.229	0.458	0.688	0.917	1.146	1.375	1.604	1.834	2.063	2.292	2.521	2.750	2.980	3.209	3.438	3.667	3.896	4.126	
ESE (Roentgen)																			

* Mean ± SD

Views: Thoracic Spine (AP/OBL); Lumbar Spine (AP, Lateral); Lumbar L5/S1 (Lateral) (SID: 40"; Body Dim. 28 ± 6 cm)

		Feedback mAs							
		25	50	75	100	125	150	175	200
Applied kVp	50	0.106	0.212	0.318	0.425	0.531	0.637	0.743	0.849
	60	0.165	0.331	0.496	0.661	0.827	0.992	1.157	1.323
	70	0.229	0.458	0.687	0.916	1.145	1.374	1.603	1.832
	80	0.295	0.589	0.884	1.179	1.474	1.768	2.063	2.358
	90	0.381	0.762	1.142	1.523	1.904	2.285	2.665	3.046
	100	0.457	0.914	1.371	1.827	2.284	2.741	3.198	3.655
	110	0.536	1.072	1.608	2.144	2.680	3.216	3.752	4.288
ESE (Roentgen)									

Views: Cervical Spine (AP, Lateral, Obl)

(SID: 72"; Body Dim. 13 ± 1 cm)

		Feedback mAs							
		5	10	15	20	25	30	35	40
Applied kVp	60	0.005	0.010	0.015	0.021	0.026	0.031	0.036	0.041
	65	0.006	0.012	0.018	0.024	0.031	0.037	0.043	0.049
	70	0.007	0.014	0.021	0.028	0.036	0.043	0.050	0.057
	75	0.008	0.016	0.025	0.033	0.041	0.049	0.058	0.066
	80	0.009	0.018	0.027	0.037	0.046	0.055	0.064	0.073
	85	0.010	0.021	0.031	0.041	0.052	0.062	0.072	0.083
	90	0.012	0.024	0.035	0.047	0.059	0.071	0.083	0.095
ESE (Roentgen)									