

Redacted. Full documents available upon deposit.

DIAGNOSTIC X-RAY SURVEY

INSTITUTION:

LOCATION: Salem , MA

DATE: 15 December 2016

ROOM: ER 1

Contact:

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

Initial _____	Routine Repeat <u>x</u>
Date of Last Survey: 18 Jan 2016	
After Repair ?	
Describe Repair:	

INSTITUTION:
ROOM:

ER 1

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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

INSTITUTION:

ROOM: ER 1

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DATE: 15 Dec 2016

X-RAY EQUIPMENT: GE Definium 8000

X-RAY SOURCE: Overhead

USE: General

INSERT Manufacturer: GE 11/14
 HOUSING Manufacturer: GE 11/14
 COLLIMATOR Manufacturer: Siemens 12/11

Serial #
 Serial #
 Serial #

RADIOGRAPHIC CHECK-OUT

COMPONENT CHECKS

Component	Status	Comments
Filters		
Inherent ?	<input type="text" value="Yes"/>	Housing: 1.1 mm Al eq @ 150 kVp Collimator: 2.0 mm Al eq @ 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: + 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="0.20"/>		Left edge deviation:	<input type="text" value="0.10"/>
Bottom edge deviation:	<input type="text" value="0.20"/>		Right edge deviation:	<input type="text" value="0.20"/>
Sum of top and bottom deviations:	0.40		Sum of left and right deviations:	0.30
Deviation as % SID	0.39%			0.30%
Pass/Fail (criteria: + 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

INSTITUTION:
 ROOM: ER 1

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 DATE: 15 Dec 2016

Positive Beam Limitation (Deviation between field size and cassette size)

Table Bucky (40" SID)		8x10 (20x25)	10x12 (24x30)	11x14 (30x35)	14x17 (35x43)
Cassette size: inches or cm					
Field size within cassette size ?					
Status					
Chest Bucky (72" SID)				11x14 (30x35)	14x17 (35x43)
Cassette size: inches or cm					
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 or Ludlum Model 9 ion chamber survey meter

Leakage from Diagnostic Source Assembly

Observed dose rates (average):				
kV	mA	Distance from tube target	Reading	Corrected to 1 meter
60	100	0.5 meter	Background	Background
90	100	0.5 meter	27 mR/hr	6.8 mR/hr
Highest Reading:		27 mR/hr @ 0.5 meter	Location: General	
Max Continuous Operating Rating:		90/10		
Max Leakage at Max Rating:		0.675 mR/hr; 0.0594 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 2025 or 2026

Field size: 6" x 6"; 100 kV, 100 mAs =	1.018 R
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IMAGE QUALITY

High Contrast Resolution

Gammex Test pattern MA436

Small Focal Spot:	2.89	Lp/mm	Technique:	kV	mAs	mR
Large Focal Spot:	1.88	Lp/mm		50	1.6	3.8

Low Contrast Resolution

Gammex C/D phantom 1151

Row with best visibility:	5	Contrast:	6.4%	Technique: 60 kV, 10 mAs
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COMMENTS

System functioning properly.

RECOMMENDATIONS

None

Qualified Medical Physicist:

Responsible Individual:
 (Radiology Manager or Physician)

Review and sign this report, and arrange for follow up on recommendations within 30 days of report date

Data

Facility: Surveyor:
 Location: _____ Date: December 15, 2016
 Room: ER 1
 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				
kVp	mA	FS	Sec	Al
50	100	S	0.100	
60	100	S	0.100	
70	100	S	0.100	
80	100	S	0.100	
90	100	S	0.100	
100	100	S	0.100	
110	100	S	0.100	
120	100	S	0.100	
80	100	S	0.025	
80	100	S	0.050	
80	100	S	0.100	
80	100	S	0.200	
80	100	S	0.500	
80	100	S	1.000	
80	50	S	0.100	
80	50	S	0.100	
80	100	S	0.100	
80	100	S	0.100	
80	200	S	0.100	
80	200	S	0.100	
80	320	L	0.100	
80	320	L	0.100	
80	400	L	0.100	
80	400	L	0.100	
80	500	L	0.100	
80	500	L	0.100	
80	630	L	0.100	
80	630	L	0.100	
80	100	S	0.100	
80	100	S	0.100	
80	100	S	0.100	
80	100	S	0.100	1.0
80	100	S	0.100	3.3

Measurements							
kVp avg	kV eff	kV peak	Sec	mR	mR/mAs	P/F	
49.91	49.80	50.35	0.100	50.45	5.045	Pass	
59.61	59.51	60.06	0.100	80.00	8.000	Pass	
68.24	68.13	68.56	0.100	112.50	11.250	Pass	
80.63	80.47	81.13	0.100	148.60	14.860	Pass	
89.80	89.62	90.50	0.100	189.20	18.920	Pass	
101.00	100.80	102.20	0.100	234.00	23.400	Pass	
110.80	110.60	111.60	0.100	280.20	28.020	Pass	
120.80	120.50	121.80	0.100	329.00	32.900	Pass	
80.35	79.94	80.83	0.025	36.57	14.628	Pass	
80.52	80.29	81.08	0.050	73.51	14.702	Pass	
80.68	80.51	81.17	0.100	147.80	14.780	Pass	
80.67	80.62	81.25	0.200	295.80	14.790	Pass	
80.69	80.69	81.21	0.498	738.70	14.774	Pass	
80.70	80.72	81.18	0.996	1471.00	14.710	Pass	
80.75	80.56	81.65	0.099	73.06	14.612	Pass	
80.83	80.59	81.88	0.099	73.06	14.612	Pass	
80.75	80.60	81.49	0.100	147.80	14.780	Pass	
80.71	80.57	81.36	0.100	147.30	14.730	Pass	
80.79	80.66	81.21	0.100	294.60	14.730	Pass	
80.83	80.67	81.25	0.100	294.60	14.730	Pass	
80.66	80.55	81.11	0.100	474.40	14.825	Pass	
80.64	80.55	81.06	0.100	475.40	14.856	Pass	
80.80	80.65	81.40	0.100	594.20	14.855	Pass	
80.82	80.64	81.49	0.100	594.20	14.855	Pass	
80.71	80.57	81.25	0.100	740.70	14.814	Pass	
80.74	80.60	81.28	0.100	741.70	14.834	Pass	
80.71	80.57	81.15	0.100	932.30	14.798	Pass	
80.75	80.58	81.17	0.100	932.30	14.798	Pass	
80.76	80.46	81.83	0.099	147.00	14.700	Pass	
80.75	80.44	81.77	0.099	147.00	14.700	Pass	
80.74	80.44	81.94	0.099	147.30	14.730	Pass	
80.87	80.54	82.28	0.099	121.70	12.170		
81.05	80.63	83.15	0.099	85.73	8.573		

Percent Error			
kVp avg	P/F	Sec	P/F
-0.2%	Pass	-0.2%	Pass
-0.7%	Pass	-0.3%	Pass
-2.5%	Pass	-0.2%	Pass
0.8%	Pass	-0.3%	Pass
-0.2%	Pass	-0.3%	Pass
1.0%	Pass	-0.4%	Pass
0.7%	Pass	-0.4%	Pass
0.7%	Pass	-0.4%	Pass
0.4%	Pass	-1.1%	Pass
0.6%	Pass	-0.6%	Pass
0.9%	Pass	-0.3%	Pass
0.8%	Pass	-0.2%	Pass
0.9%	Pass	-0.3%	Pass
0.9%	Pass	-0.4%	Pass
0.9%	Pass	-0.6%	Pass
1.0%	Pass	-0.7%	Pass
0.9%	Pass	-0.3%	Pass
0.9%	Pass	-0.3%	Pass
1.0%	Pass	-0.2%	Pass
1.0%	Pass	-0.2%	Pass
0.8%	Pass	0.0%	Pass
0.8%	Pass	0.0%	Pass
1.0%	Pass	-0.2%	Pass
1.0%	Pass	-0.2%	Pass
0.9%	Pass	-0.2%	Pass
0.9%	Pass	-0.2%	Pass
0.9%	Pass	-0.2%	Pass
0.9%	Pass	-0.2%	Pass
1.0%	Pass	-0.6%	Pass
0.9%	Pass	-0.6%	Pass
0.9%	Pass	-0.6%	Pass
1.1%	Pass	-0.6%	Pass
1.3%	Pass	-0.6%	Pass

kVp Accuracy

Facility:
 Location:
 Room: ER 1
 System: GE Definium 8000

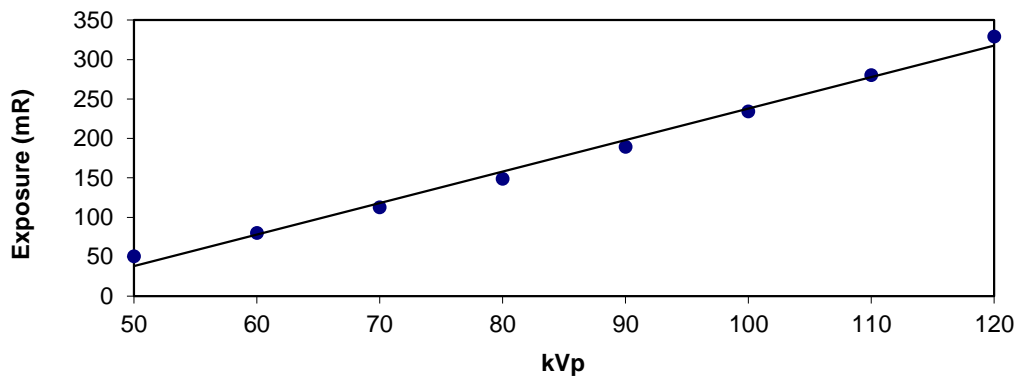
Machine Settings		
mA	FS	SDD
100	S	28in

Pass/Fail Criteria	
kVp avg	10%

kVp	Sec
50	0.100
60	0.100
70	0.100
80	0.100
90	0.100
100	0.100
110	0.100
120	0.100
80	0.025
80	0.050
80	0.100
80	0.200
80	0.500
80	1.000

Measurements								
kVp avg	kV eff	kV peak	Sec	mR	mR/mAs	P/F		
49.91	49.80	50.35	0.100	50.45	5.045	Pass		
59.61	59.51	60.06	0.100	80.00	8.000	Pass		
68.24	68.13	68.56	0.100	112.50	11.250	Pass		
80.63	80.47	81.13	0.100	148.60	14.860	Pass		
89.80	89.62	90.50	0.100	189.20	18.920	Pass		
101.00	100.80	102.20	0.100	234.00	23.400	Pass		
110.80	110.60	111.60	0.100	280.20	28.020	Pass		
120.80	120.50	121.80	0.100	329.00	32.900	Pass		
80.35	79.94	80.83	0.025	36.57	14.628	Pass		
80.52	80.29	81.08	0.050	73.51	14.702	Pass		
80.68	80.51	81.17	0.100	147.80	14.780	Pass		
80.67	80.62	81.25	0.200	295.80	14.790	Pass		
80.69	80.69	81.21	0.498	738.70	14.774	Pass		
80.70	80.72	81.18	0.996	1471.00	14.710	Pass		

Percent Error	
kVp avg	P/F
-0.2%	Pass
-0.7%	Pass
-2.5%	Pass
0.8%	Pass
-0.2%	Pass
1.0%	Pass
0.7%	Pass
0.7%	Pass
0.4%	Pass
0.6%	Pass
0.9%	Pass
0.8%	Pass
0.9%	Pass
0.9%	Pass



Surveyor:
 Date: December 15, 2016

Timer Accuracy

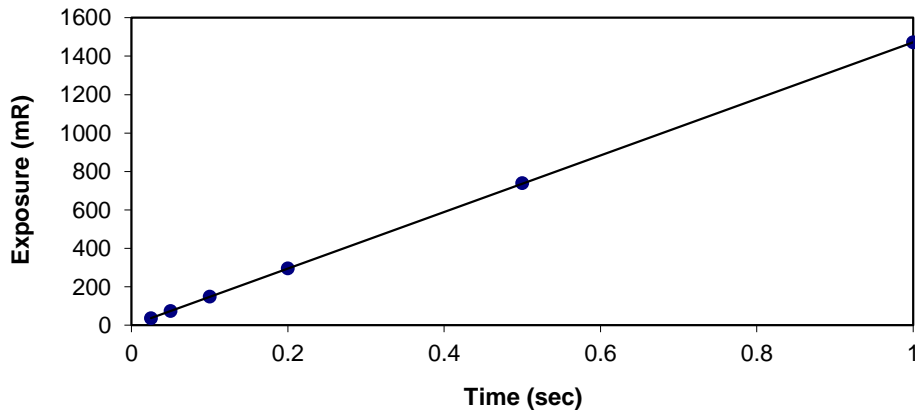
Facility:
 Location:
 Room: ER 1
 System: GE Definium 8000

Machine Settings		
mA	FS	SDD
100	S	28in

Pass/Fail Criteria	
Timer	10%

kVp	Sec	Measurements						
		kVp avg	kV eff	kV peak	Sec	mR	mR/mAs	P/F
50	0.100	49.91	49.80	50.35	0.100	50.45	5.045	Pass
60	0.100	59.61	59.51	60.06	0.100	80.00	8.000	Pass
70	0.100	68.24	68.13	68.56	0.100	112.50	11.250	Pass
80	0.100	80.63	80.47	81.13	0.100	148.60	14.860	Pass
90	0.100	89.80	89.62	90.50	0.100	189.20	18.920	Pass
100	0.100	101.00	100.80	102.20	0.100	234.00	23.400	Pass
110	0.100	110.80	110.60	111.60	0.100	280.20	28.020	Pass
120	0.100	120.80	120.50	121.80	0.100	329.00	32.900	Pass
80	0.025	80.35	79.94	80.83	0.025	36.57	14.628	Pass
80	0.050	80.52	80.29	81.08	0.050	73.51	14.702	Pass
80	0.100	80.68	80.51	81.17	0.100	147.80	14.780	Pass
80	0.200	80.67	80.62	81.25	0.200	295.80	14.790	Pass
80	0.500	80.69	80.69	81.21	0.498	738.70	14.774	Pass
80	1.000	80.70	80.72	81.18	0.996	1471.00	14.710	Pass

Percent Error	
Sec	P/F
-0.2%	Pass
-0.3%	Pass
-0.2%	Pass
-0.3%	Pass
-0.3%	Pass
-0.4%	Pass
-0.4%	Pass
-0.4%	Pass
-1.1%	Pass
-0.6%	Pass
-0.3%	Pass
-0.2%	Pass
-0.3%	Pass
-0.4%	Pass



Surveyor:
 Date: December 15, 2016

Reproducibility

Facility:
 Location:
 Room: ER 1
 System: GE Definium 8000

Machine Settings				
kV	mA	FS	Sec	SDD
80	100	S	0.1	28in

Pass/Fail Criteria
CV
0.05

Measurements						
kVp avg	kV eff	kV peak	Sec	mR	mR/mAs	
80.63	80.47	81.13	0.100	148.60	14.860	
80.68	80.51	81.17	0.100	147.80	14.780	
80.76	80.46	81.83	0.099	147.00	14.700	
80.75	80.44	81.77	0.099	147.00	14.700	
80.74	80.44	81.94	0.099	147.30	14.730	

Avg	80.71	80.46	81.57	0.10	147.54	14.754
CV	0.001	0.000	0.005	0.001	0.005	0.005

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:	2.53	2.48	2.53	kV set: 80
	mAs Deviation from Center Cell:	+0.0	Std.	+0.0	mA set: 320
	Skin Entry Dose (mR):	22.0	21.6	22.0	Density: 0 Phantom: 0.5 mm Pb
Chest Bucky	Feedback mAs:	2.23	2.42	2.3	kV set: 120
	mAs Deviation from Center Cell:	-0.2	Std.	-0.1	mA set: 320
	Skin Entry Dose (mR):	10.7	11.6	11.1	Density: 0 Phantom: 0.5 mm Pb

Surveyor:
 Date: December 15, 2016

mAs Linearity

Facility:
 Location:
 Room: ER 1
 System: GE Definium 8000

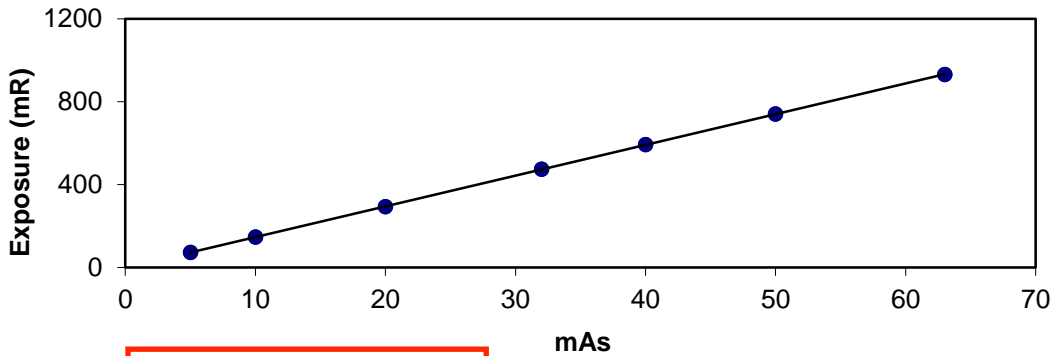
Machine Settings		
kV	Sec	SDD
80	0.1	28in

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	kV eff	kV peak	Sec	mR	
80.75	80.56	81.65	0.099	73.06	
80.83	80.59	81.88	0.099	73.06	
80.75	80.60	81.49	0.100	147.80	
80.71	80.57	81.36	0.100	147.30	
80.79	80.66	81.21	0.100	294.60	
80.83	80.67	81.25	0.100	294.60	
80.66	80.55	81.11	0.100	474.40	
80.64	80.55	81.06	0.100	475.40	
80.80	80.65	81.40	0.100	594.20	
80.82	80.64	81.49	0.100	594.20	
80.71	80.57	81.25	0.100	740.70	
80.74	80.60	81.28	0.100	741.70	
80.71	80.57	81.15	0.100	932.30	
80.75	80.58	81.17	0.100	932.30	

mR/mAs	Linearity	P/F
14.612	-	-
14.612	0.000	Pass
14.780	0.006	Pass
14.730	0.002	Pass
14.730	0.000	Pass
14.730	0.000	Pass
14.825	0.003	Pass
14.856	0.001	Pass
14.855	0.000	Pass
14.855	0.000	Pass
14.814	0.001	Pass
14.834	0.001	Pass
14.798	0.001	Pass
14.798	0.000	Pass



Surveyor:
 Date: December 15, 2016

Beam Quality (HVL)

Facility:
 Location:
 Room: ER 1
 System: GE Definium 8000

Surveyor:
 Date: December 15, 2016

Machine Settings				
kV	mA	FS	Sec	SDD
80.76	80.46	81.83	0.0995	28in

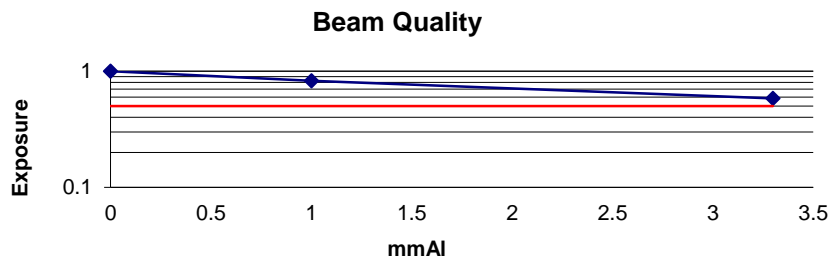
Pass/Fail Criteria	
Minimum HVL	
2.90	mm Al

Measurements					
kVp avg	kV eff	kV peak	Sec	mR	mR/mAs
80.74	80.44	81.94	0.099	147.30	18.408
80.87	80.54	82.28	0.099	121.70	15.209
81.05	80.63	83.15	0.099	85.73	10.714

mm Al	Normalized Exposure
0	1
1	0.826205024
3.3	0.582009504

Avg	80.8867	80.537	82.4567	HVL	4.23	Pass
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The Half-Value Layer passed measuring 4.23 mm Al at 80.74 kVp



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

Facility:

Date:

Location:

Surveyor: F.X. Massé Associates

Room:

ER 1

System:

GE Definium 8000

View (Position)	Bucky		kVp	mAs	Body-Dim (cm.)	Dist (cm.)	ESE Roentgen	EAK (mGy)
	Inch	(cm)						
Skull-AP	40	102	70	25	20	73	0.225	1.98
Skull-lateral	40	102	72	20	22	71	0.203	1.79
Skull-Townes	40	102	76	32	20	73	0.344	3.03
Skull-Basal	40	102	76	64	22	71	0.728	6.40
Sinuses-AP	40	102	72	20	16	77	0.172	1.52
Sinuses-Waters	40	102	72	20	20	73	0.192	1.69
Sinuses-Lateral	40	102	70	16	16	77	0.130	1.14
Sinuses-Basal	40	102	80	32	22	71	0.403	3.55
Mandible-AP/PA	40	102	62	12.5	12	81	0.070	0.62
Mastoids-Laws	40	102	60	20	14	79	0.109	0.96
Mastoids-Stens	40	102	60	20	16	77	0.115	1.01
Orbits-PA	40	102	82	25	16	77	0.282	2.48
Facial-Waters	40	102	75	25	16	77	0.235	2.07
Facial-Lateral	40	102	66	16	16	77	0.115	1.01
Cervical Spine-AP	40	102	70	6.4	12	81	0.047	0.41
Cervical Spine-Lateral	72	183	76	32	14	164	0.068	0.59
Cervical Spine- Obl	72	183			14	164		
Chest-AP	72	183	85	5	23	155	0.015	0.13
Chest-Lateral	72	183	80	10	28	150	0.028	0.25
Thoracic Spine-AP/OBL	40	102	76	32	25	68	0.397	3.49
Lumbar Spine-AP	40	102	76	40	22	71	0.455	4.00
Lumbar Spine-Lateral	40	102	86	75	35	58	1.652	14.54
Lumbar-L5/S1-Lateral	40	102	85	120	29	64	2.117	18.63
Pelvis Hips-AP	40	102	80	40	30	63	0.641	5.64
Hips-Lateral	40	102	80	80	22	71	1.008	8.87
Ribs above diaphragm	40	102	66	25	23	70	0.217	1.91
Ribs below diaphragm	40	102	66	40	23	70	0.347	3.05
Abdomen-AP/PA	40	102	80	19.4	22	71	0.244	2.15
Gall Bladder-AP	40	102	76	50	24	69	0.602	5.30
BE-GI AP/OBL	40	102	120	11.7	24	69	0.346	3.04
Shoulder-AP	40	102	76	25	12	81	0.218	1.92
Femur-AP/Lateral	40	102	70	25	12	81	0.183	1.61
Lower leg, Knee/AP	40TT	102	60	2.5	10	92	0.010	0.09
Elbow, Arm/AP	40TT	102	65	7	7	95	0.032	0.28
Hand, Wrist/AP/PA	40TT	102	60	5	5	97	0.018	0.16
Ankle, Foot/AP	40TT	102	66	7	9	93	0.034	0.30

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):	DRL (mGy) AD (mGy)		Delivered Dose (mGy)	Do above techniques meet suggested DRLs?	Are doses below ADs?
Adult PA Chest	0.15	0.11	0.13	Yes	No
Adult AP Abdomen	3.4	2.4	2.15	Yes	Yes
Adult AP Lumbar Spine	4.2	2.8	4.00	Yes	No

ENTRANCE SKIN EXPOSURE (ESE) GUIDE FOR PHOTOTIMED EXPOSURES

Facility:
 Location:

Room: ER 1
 System: GE Definium 8000

Date: December 15, 2016
 Surveyor:

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	0.024	0.048	0.095	0.143	0.191	0.239	0.286	0.334
	60	0.029	0.059	0.117	0.176	0.234	0.293	0.351	0.410
	65	0.035	0.070	0.141	0.211	0.282	0.352	0.422	0.493
	70	0.041	0.082	0.165	0.247	0.329	0.411	0.494	0.576
	75	0.048	0.095	0.191	0.286	0.382	0.477	0.573	0.668
	80	0.054	0.109	0.217	0.326	0.435	0.543	0.652	0.761
	85	0.062	0.124	0.247	0.371	0.494	0.618	0.741	0.865

ESE (Roentgen)

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	0.126	0.252	0.378	0.505	0.631	0.757	0.883	1.009
	60	0.200	0.400	0.600	0.800	1.000	1.200	1.400	1.600
	70	0.281	0.563	0.844	1.125	1.406	1.688	1.969	2.250
	80	0.372	0.743	1.115	1.486	1.858	2.229	2.601	2.972
	90	0.473	0.946	1.419	1.892	2.365	2.838	3.311	3.784
	100	0.585	1.170	1.755	2.340	2.925	3.510	4.095	4.680
	110	0.701	1.401	2.102	2.802	3.503	4.203	4.904	5.604

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	0.004	0.009	0.018	0.027	0.036	0.045	0.054	0.062
	75	0.005	0.012	0.024	0.036	0.048	0.060	0.073	0.085
	85	0.006	0.016	0.031	0.047	0.063	0.078	0.094	0.110
	95	0.008	0.020	0.039	0.059	0.078	0.098	0.118	0.137
	105	0.010	0.024	0.048	0.071	0.095	0.119	0.143	0.167
	115	0.011	0.028	0.056	0.085	0.113	0.141	0.169	0.198
	125	0.012	0.030	0.061	0.091	0.122	0.152	0.183	0.213

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	0.006	0.012	0.019	0.025	0.031	0.037	0.043	0.050
	65	0.007	0.015	0.022	0.030	0.037	0.045	0.052	0.060
	70	0.009	0.017	0.026	0.035	0.044	0.052	0.061	0.070
	75	0.010	0.020	0.030	0.041	0.051	0.061	0.071	0.081
	80	0.012	0.023	0.035	0.046	0.058	0.069	0.081	0.092
	85	0.013	0.026	0.039	0.052	0.066	0.079	0.092	0.105
	90	0.015	0.029	0.044	0.059	0.073	0.088	0.103	0.117

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	0.045	0.090	0.134	0.179	0.224	0.269	0.313	0.358	0.403	0.448	0.492	0.537	0.582	0.627	0.672	0.716	0.761	0.806
	60	0.071	0.142	0.213	0.284	0.355	0.426	0.497	0.568	0.639	0.710	0.781	0.852	0.923	0.994	1.065	1.136	1.207	1.278
	70	0.100	0.200	0.300	0.399	0.499	0.599	0.699	0.799	0.899	0.998	1.098	1.198	1.298	1.398	1.498	1.597	1.697	1.797
	80	0.132	0.264	0.396	0.527	0.659	0.791	0.923	1.055	1.187	1.319	1.451	1.582	1.714	1.846	1.978	2.110	2.242	2.374
	90	0.168	0.336	0.504	0.672	0.839	1.007	1.175	1.343	1.511	1.679	1.847	2.015	2.183	2.351	2.518	2.686	2.854	3.022
	100	0.208	0.415	0.623	0.831	1.038	1.246	1.454	1.661	1.869	2.077	2.284	2.492	2.700	2.907	3.115	3.322	3.530	3.738
	110	0.249	0.497	0.746	0.995	1.243	1.492	1.741	1.989	2.238	2.487	2.735	2.984	3.233	3.481	3.730	3.978	4.227	4.476
120	0.292	0.584	0.876	1.168	1.460	1.752	2.044	2.336	2.628	2.920	3.212	3.504	3.795	4.087	4.379	4.671	4.963	5.255	

ESE (Roentgen)

* Mean + SD