

# EXPOSURE GUIDE - iRay HV and FV Detector Models

## Suggested techniques for High Frequency Cenerators

### SKULL

Townes

**Grid:**  
yes  
40"

### Medium

mAs	CM	kVp
22.5	18-19	82
25	20-21	82

PA

**Grid:**  
yes  
40"

mAs	CM	kVp
25	18-19	82
37.5	20-21	82

Lateral

**Grid:**  
yes  
40"

mAs	CM	kVp
15	14-15	78
22.5	16-17	78

### FACIAL BONES/SINUSES

Waters

**Grid:**  
yes  
40"

### Medium

mAs	CM	kVp
25	18-19	82
37.5	20-21	82

PA

**Grid:**  
yes  
40"

mAs	CM	kVp
25	18-19	78
37.5	20-21	78

*PA for Mandible*

*subtract 6-8 kVp*

Lateral

**Grid:**  
yes  
40"

mAs	CM	kVp
12	14-15	72
18	16-17	72

*Lateral  
for Nasal Bones*

**Grid:**  
**NO**  
40"

mAs	CM	kVp
2	-	56

*Rhese Obliques*

**Grid:**  
yes  
40"

mAs	CM	kVp
30	-	82

*Obliques  
for Mandible*

**Grid:**  
yes  
40"

mAs	CM	kVp
12	-	70

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CERVICAL SPINE					Small			Medium			Large		
Body Part	Grid:	mAs	CM	kVp	mAs	CM	kVp	mAs	CM	kVp	mAs	CM	kVp
AP/Oblq/OM	yes	6	7-8	76	8	11-12	88	16	15-16	94			
Cervical	72"	8	9-10	76	12	13-14	88	16	17-18	94	24	19-20	94
LATERAL Cervical	Grid: yes 72"	Same as AP		Increase 6	Same as AP		Increase 6	Same as AP		Increase 6			
THORACIC SPINE					Small			Medium			Large		
Body Part	Grid:	mAs	CM	kVp	mAs	CM	kVp	mAs	CM	kVp	mAs	CM	kVp
AP Thoracic	Yes 72"	10	13-14	80	20	19-20	86	40	25-26	92	60	27-28	92
		15	15-16	80	30	21-22	86	80	29-30	92	120	31-32	92
		20	17-18	80	40	23-24	86						
LATERAL Thoracic	Grid: Yes 72"	15	22-23	82	30	28-29	88	60	34-35	94	90	36-37	94
		22.5	24-25	82	45	30-31	88	120	38-39	94			
		30	26-27	82	60	32-33	88						
Swimmer's	Grid: Yes 72"	mAs		CM	kVp		add 10 kVp to LAT			add 10 kVp to LAT			

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LUMBAR SPINE					Small			Medium			Large			
Body Part	Grid:	mAs	CM	kVp	mAs	CM	kVp	mAs	CM	kVp	mAs	CM	kVp	
AP Lumbar	Yes	10	13-14	92	20	19-20	96	40	25-26	102				
	72"	15	15-16	92	30	21-22	96	60	27-28	102				
		20	17-18	92	40	23-24	96	80	29-30	102				
								120	31-32	102	-	108		
								160	33-34	102	-	108		
OBLIQUE Lumbar					Increase AP by 50%			Increase AP by 50%			Increase AP by 50%			
	Grid:	mAs	CM	kVp	mAs	CM	kVp	mAs	CM	kVp	mAs	CM	kVp	
	Yes	Increase AP		same as AP	Increase AP		same as AP	Increase AP		same as AP	Increase AP		same as AP	
	72"	by 50%			by 50%			by 50%			by 50%			
LATERAL Lumbar					Increase LAT by 50%			Increase LAT by 50%			Increase LAT by 50%			
	Grid:	mAs	CM	kVp	mAs	CM	kVp	mAs	CM	kVp	mAs	CM	kVp	
	Yes	25	22-23	92	50	28-29	98	100	34-35	104				
	72"	37.5	24-25	92	75	30-31	98	150	36-37	104				
		50	26-27	92	100	32-33	98	200	38-39	104	-	112		
								300	40-41	104	-	112		
L5-S1 LATERAL/ LATERAL Sacrum					Increase LAT by 50%			Increase LAT by 50%			Increase LAT by 50%			
	Grid:	mAs	CM	kVp	mAs	CM	kVp	mAs	CM	kVp	mAs	CM	kVp	
	Yes	Increase LAT		add 6 kVp to LAT	Increase LAT		add 6 kVp to LAT	Increase LAT		add 6 kVp to LAT	Increase LAT		add 6 kVp to LAT	
	72"	by 50%			by 50%			by 50%			by 50%			
PELVIS/HIP					Increase mAs 100%			Increase mAs 100%			Increase mAs 100%			
	Grid:	mAs	CM	kVp	mAs	CM	kVp	mAs	CM	kVp	mAs	CM	kVp	
AP Hip/Pelvis	YES	10	12-13	80	20	18-19	86	40	24-25	92				
	72"	15	14-15	80	30	20-21	86	60	26-27	92				
		20	16-17	80	40	22-23	86	80	28-29	92				
FROG LATERAL					Increase mAs 100%			Increase mAs 100%			Increase mAs 100%			

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### CHEST

Body Part	Grid:	mAs	CM	kVp
PA Chest	Yes	4	14-15	90
	72"	6	16-17	90
		8	18-19	90
Lateral Chest	Grid: Yes	Increase mAs		Increase
	72"	100%		10 kVp

Medium		
mAs	CM	kVp
3	20-21	100
4.5	22-23	100
6	24-25	100
Increase mAs		Increase
100%		10 kVp

Large		
mAs	CM	kVp
6	26-27	110
9	28-29	110
12	30-31	110
18	32-33	110
24	34-35	110
Increase mAs		Increase
100%		10 kVp

### Ribs or Sternum

Body Part	Grid:	mAs	CM	kVp
AP-above diaphragm	Yes	3	14-15	70
	40"	4.5	16-17	70
		6	18-19	70
OBLQ-above diaphragm		Increase AP by 50%		
AP-below diaphragm		Use AP Abdomen technique		

Medium		
mAs	CM	kVp
3	20-21	74
4.5	22-23	74
6	24-25	74
Increase AP		
		by 50%

Large		
mAs	CM	kVp
6	26-27	80
9	28-29	80
12	30-31	80
Increase AP		
		by 50%

### KUB/AP ABDOMEN

Body Part	Grid:	mAs	CM	kVp
AP	Yes	15	13-14	72
	40"	22.5	15-16	72
		30	17-18	72

Medium		
mAs	CM	kVp
15	19-20	78
22.5	21-22	78
30	23-24	78

Large		
mAs	CM	kVp
30	25-26	84
45	27-28	84
60	29-30	84
90	31-32	84 - 90
120	33-34	84 - 90

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SHOULDER GIRDLE					Small			Medium			Large		
AP Shoulder/Clavicle (includes Y view)	<b>Grid:</b>	<b>mAs</b>	<b>CM</b>	<b>kVp</b>	<b>mAs</b>	<b>CM</b>	<b>kVp</b>	<b>mAs</b>	<b>CM</b>	<b>kVp</b>			
	<b>Yes</b>	4	6-7	70	8	12-13	76	16	18-19	82			
	<b>40"</b>	6	8-9	70	12	14-15	76	24.0	20-21	82			
		8	10-11	70	16	16-17	76	32.0	22-23	82			
HUMERUS					Small			Medium			Large		
AP and Lateral	<b>Grid:</b>	<b>mAs</b>	<b>CM</b>	<b>kVp</b>	<b>mAs</b>	<b>CM</b>	<b>kVp</b>	<b>mAs</b>	<b>CM</b>	<b>kVp</b>			
	<b>Yes</b>	6	5-6	66	6	7-8	70	12.0	11-12	70			
	<b>40"</b>				9	9-10	70	12.0	13-14	76			
<b>Small or Medium patient exam with NO GRID - DECREASE mAs by 66%; use same kVp as above</b>													
FOREARM/ELBOW					Small			Medium			Large		
AP Forearm & Elbow	<b>Grid:</b>	<b>mAs</b>	<b>CM</b>	<b>kVp</b>	<b>mAs</b>	<b>CM</b>	<b>kVp</b>	<b>mAs</b>	<b>CM</b>	<b>kVp</b>			
	<b>NO</b>	1.5	2-3	62	2	6-7	66	4.0	10-11	66			
	<b>40"</b>	2	4-5	62	3	8-9	66	6.0	12-13	66			
Obliques			add 2-4 kVp to AP				add 2-4 kVp to AP			add 2-4 kVp to AP			
Lateral Forearm & Elbow			add 4-6 kVp to AP				add 4-6 kVp to AP			add 4-6 kVp to AP			
WRIST & HAND					Small			Medium			Large		
PA Hand/Wrist	<b>Grid:</b>	<b>mAs</b>	<b>CM</b>	<b>kVp</b>	<b>mAs</b>	<b>CM</b>	<b>kVp</b>	<b>mAs</b>	<b>CM</b>	<b>kVp</b>			
	<b>NO</b>	1	2	56	1	3-4	60	2.0	7-8	60			
	<b>40"</b>				1.5	5-6	60	3.0	9-10	60			
Oblique Hand/Wrist			add 2-4 kVp to AP				add 2-4 kVp to AP			add 2-4 kVp to AP			
Fanned Lateral Hand (for fingers)			use AP technique				use AP technique			use AP technique			
Lateral Hand/Wrist			add 4-6 kVp to AP				add 4-6 kVp to AP			add 4-6 kVp to AP			

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FEMUR		Small			Medium			Large		
AP/LAT	<b>Grid:</b>	mAs	CM	kVp	mAs	CM	kVp	mAs	CM	kVp
	<b>YES</b>	7.5	9-10	70	10	13-14	76	20	19-20	82
	<b>40"</b>	10	11-12	70	15	15-16	76	30	21-22	82
					20	17-18	76			
KNEE		Small			Medium			Large		
AP/Oblq Knee	<b>Grid:</b>	mAs	CM	kVp	mAs	CM	kVp	mAs	CM	kVp
	<b>YES</b>	7.5	6-7	70	10.0	10-11	76	15	14-15	82
	<b>40"</b>	10.0	8-9	70	15.0	12-13	76	22.5	16-17	82
Small or Medium patient exam with NO GRID - DECREASE mAs by 66%; use same kVp as above										
Lateral Knee		Subtract 4 kVp from AP technique			Subtract 4 kVp from AP technique			Subtract 4 kVp from AP technique		
LOWER LEG		Small			Medium			Large		
AP/Lateral	<b>Grid:</b>	mAs	CM	kVp	mAs	CM	kVp	mAs	CM	kVp
	<b>NO</b>	2.3	5-6	66	3.0	9-10	70	4.5	13-14	76
	<b>40"</b>	3.0	7-8	66	4.5	11-12	70	6.8	15-16	76
FOOT/ANKLE		Small			Medium			Large		
	<b>Grid:</b>	mAs	CM	kVp	mAs	CM	kVp	mAs	CM	kVp
	<b>NO</b>	2	5-6	64	2.0	7-8	68	3.0	11-12	74
	<b>40"</b>				3.0	9-10	68	4.5	13-14	74
Lateral		Subtract 4 kVp			Subtract 4 kVp			Subtract 4 kVp		
	<b>Grid:</b>	mAs	CM	kVp	mAs	CM	kVp	mAs	CM	kVp
	<b>NO</b>	1.5	4-5	60	1.5	6-7	64	2.25	10-11	70
	<b>40"</b>				2.3	8-9	64	3.375	12-13	70
Oblq Foot		add 2-4 kVp to AP			add 2-4 kVp to AP			add 2-4 kVp to AP		
Lateral Foot		add 4- 6 kVp to AP			add 4- 6 kVp to AP			add 4- 6 kVp to AP		
Toes ONLY		subtract 6 kVp from AP			subtract 6 kVp from AP			subtract 6 kVp from AP		

# PEDIATRIC GUIDELINES\*

## SKULL

Newborn: *use 1/4 of overall adult technique*

1 year: *use 1/2 of overall adult technique*

5 years: *use 3/4 of overall adult technique*

## Torso

Newborn: *use 1/4 of overall adult technique*

1 year: *use 1/2 of overall adult technique*

5 years: *use 3/4 of overall adult technique*

## Extremities

Newborn: *use 1/6 of overall adult technique*

2 years: *use 1/4 of overall adult technique*

8 years: *use 1/2 of overall adult technique*

12 years: *use 3/4 of overall adult technique*

\* From Quinn B. Carroll, M.Ed., R.T. *Radiography in the Digital Age-Physics, Exposure & Radiation Biology*  
2nd Edition, Charles C. Thomas, Publisher, LTD, Springfield, IL