

Name: _____ Date: _____ Team: _____

Lab Experiment # 5

Technique Compensation

Computed Radiography

Purpose

This experiment is designed to demonstrate the effect of mAs on the exposure index Igm. In addition, students will learn how to compensate their technical factors to obtain optimal quality radiographs.

Learning Objectives

After completing this lab, you should be able to:

1. Use the laboratory equipment properly.
2. Set up the control console and ceiling tube mount correctly.
3. Function effectively in group work.
4. Perform the experiment independently.
5. Set up the control console.
6. Explain the effect of mAs on Igm.
7. Determine which radiographic technique will produce optimal radiographs.

Materials Needed

- **10" x 12"**
- Whole Body Phantom
- Set of radiopaque markers

Experimental Setup

Instructions for Exposure 1 – 6

1. Place a 10 x 12" CR image receptors in the **ucky** and set the SID to 40 inches.
2. Place the **Whole Body Phantom** on the tabletop positioned for various projections as indicated on the worksheet
3. Set the control console to the **AEC** mode.
4. Make exposures 1 – 6 using the settings indicated on the worksheet. Analyze exposure indices and determine if any technique changes are needed. Make repeat exposure using manual mode and new technical factors. **Use technique chart for proper kVp settings.**

Technique Worksheets

Computed Radiography 10 x 12" IR

Worksheet A

	Anatomy	mode	kV	mAs	Back-Up Time	Radiation Detectors	Speed Class	Grid	Grid Ratio	SID	LGM
1	Shoulder AP	AEC					M	bucky	12:1	40"	
2	C-spine AP	AEC					L	bucky	12:1	40"	
3	Hip AP	AEC					L	bucky	12:1	40"	
4	Sacrum AP	AEC					H	bucky	12:1	40"	
5	Coccyx AP	AEC					H	bucky	12:1	40"	
6	Knee AP	AEC					M	bucky	12:1	40"	

Worksheet B

Technique Compensation **(manual technique)**

	Anatomy	mode	kV	mAs	Back-Up Time	Radiation Detectors	Speed Class	Grid	Grid Ratio	SID	LGM
1	Shoulder AP	AEC					M	bucky	12:1	40"	
2	C-spine AP	AEC					L	bucky	12:1	40"	
3	Hip AP	AEC					L	bucky	12:1	40"	
4	Sacrum AP	AEC					H	bucky	12:1	40"	
5	Coccyx AP	AEC					H	bucky	12:1	40"	
6	Knee AP	AEC					M	bucky	12:1	40"	

Worksheet

lgn	Describe what needed to be done to obtain Lgm 2.4
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1	
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2	
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3	
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4	
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5		
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6		
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DR Technique Compensation Chart

Optimal Exposure Igm 2.4

Igm deviation from 2.4	mAs compensation to obtain DI of 0
+0.1 (2.5)	mAs/1.25
+0.15	mAs/1.45
+0.2	mAs/1.60
+0.25	mAs/1.80
+0.3	mAs/2
+0.35	mAs/2.25
+0.4	mAs/2.5
+0.45	mAs/2.85
+0.5	mAs/3.2
+0.55	mAs/3.5
+0.6	mAs/4
+0.65	mAs/4.5
+0.7	mAs/5
+0.75	mAs/5.6
+0.8 (3.2)	mAs/6.3

Optimal Exposure lgm 2.4

lgm deviation from 2.4	mAs compensation to obtain DI of 0
-0.1(2.3)	mAs x 1.25
-0.15	mAs x 1.45
-0.2	mAs x 1.6
-0.25	mAs x 1.8
-0.3	mAs x 2
-0.35	mAs x 2.25
-0.4	mAs x 2.55
-0.45	mAs x 2.85
-0.5	mAs x 3.22
-0.55	mAs x 3.58
-0.6	mAs x 4
-0.65	mAs x 4.55
-0.7	mAs x 5.25
-0.75	mAs x 5.85
-0.8 (1.6)	mAs x 6.5