

Name: _____ Date: _____ Team: _____

Lab Experiment # 4

Technique Compensation

Direct Radiography

Purpose

This experiment is designed to demonstrate the effect of mAs on the exposure index (EI) and deviation index (DI). 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 EI and DI.
7. Determine which radiographic technique will produce optimal radiographs.

Materials Needed

- DR FPD
- Whole Body Phantom
- Set of radiopaque markers

Experimental Setup

Instructions for Exposure 1 – 5 using bucky

1. Place a FPD image receptors in the **bucky lengthwise** 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 **manual** 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 new factors. **Do not use technique chart.**



Note: The wireless digital image receptor can only be handled by an instructor

Technique Worksheets

Direct Radiography

Worksheet A

	Anatomy	mode	kV	mAs	Back-Up Time	Radiation Detectors	Density Selector	Grid	Grid Ratio	SID	EI DI TEI
1	Chest	manual	86	2				bucky	12:1	40"	
2	T-spine	manual	86	32				bucky	12:1	40"	
3	KUB	manual	85	14				bucky	12:1	40"	
4	L-spine	manual	90	5				bucky	12:1	40"	
5	Pelvis AP	manual	90	1.5				bucky	12:1	40"	
6	Hip	manual	90	28				bucky	12:1	40"	

Worksheet B

Technique Compensation

	Anatomy	mode	kV	mAs	Back-Up Time	Radiation Detectors	Density Selector	Grid	Grid Ratio	SID	EI DI TEI
1	Chest	manual	86					bucky	12:1	40"	
2	T-spine	manual	86					bucky	12:1	40"	
3	KUB	manual	85					bucky	12:1	40"	
4	L-spine	manual	90					bucky	12:1	40"	
5	Pelvis AP	manual	90					bucky	12:1	40"	
6	Hip	manual	90					bucky	12:1	40"	

Worksheet

EI DI TEI	Describe what needed to be done to obtain DI of < 0.5
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1	
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4	
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5		
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6		
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DR Technique Compensation Chart

DI	mAs compensation to obtain DI of 0
1	mAs/1.25
1.5	mAs/1.45
2	mAs/1.60
2.5	mAs/1.80
3.0	mAs/2
3.5	mAs/2.25
4	mAs/2.5
4.5	mAs/2.85
5	mAs/3.2
5.5	mAs/3.5
6	mAs/4
6.5	mAs/4.5
7	mAs/5
7.5	mAs/5.6
8	mAs/6.3

DI	mAs compensation to obtain DI of 0
-1	mAs x 1.25
-1.5	mAs x 1.45
-2	mAs x 1.6
-2.5	mAs x 1.8
-3.0	mAs x 2
-3.5	mAs x 2.25
-4	mAs x 2.55
-4.5	mAs x 2.85
-5	mAs x 3.22
-5.5	mAs x 3.58
-6	mAs x 4
-6.5	mAs x 4.55
-7	mAs x 5.25
-7.5	mAs x 5.85
-8	mAs x 6.5