

FUJI Computed Radiography Specifications and Quality Assurance

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System Overview

- Phosphor Based Computed Radiography
- Cassette Based
 - Single Plate
 - Cassette Stacker
 - Scoliosis & Long-leg
 - Ultra High Resolution (50 micron)
- Cassetteless Systems
 - Table and Upright
 - Energy Subtraction



Specifications

- 100 micron resolution (standard)
- 50 micron mode (ClearView-CS)
 - For 18x24 and 24x30 cm sizes
- Exposure Range 0.01 to 100mR
- Multispeed System (exam limited)
 - General Studies typical 300 to 400
 - Energy Subtraction Chest typical 200
 - Low Dose Studies typical 600 to 900 (Noise limited)
 - Mammography* typical 100 to 150

*Pending FDA approval



Imaging Plate Technology

- ST and HR Single side emission
- ST and HR Dual side emission
 - DQE improvement of 30-40%
- Dual Side Emission IP used in
 - Most Cassetteless Upright Readers
 - Cassetteless Table Readers
 - Chest ES Upright Reader
 - 50 micron Imaging



IP Reading Technology and Throughput

- Standard 100 micron Point Scan
 - XG5000 109 14x17/hr
- 50 micron Point Scan
 - ClearView-CS 60 24x30/hr
- *New* Line Scan Technology_(100 micron)
 - Velocity Cassetteless Upright and Table
 - 240 17x17/hr



Image Processing Technology

- **D**ynamic **R**ange **C**ompensation
- **M**ulti objective **F**requency **P**rocessing
- **T**omographic (streaking) **A**rtifact **S**uppression
- **F**lexible **N**oise **C**ontrol
- **G**rid **P**attern **R**emoval
- **P**attern **E**nhancement for **M**ammography
- **S**coliosis and Long-leg **S**titching



Exposure Index

- S# (sensitivity number)
 - Range from 2 (100mR) to 20,000 (0.01mR)
- Formula
 - $S\# = \frac{200}{\text{exposure (mR)}}$
- Calibration Process
 - 80 kVp >72" SID 1 mR no added filtration
= S# 200



FCR Reader QA Options

- **1 Shot Phantom**
- Simple to Use
- Inexpensive
- Visual Evaluation
- **1 Shot Phantom Plus**
- Quantitative Testing
- Software Analysis and Reporting
- Both Systems Designed in Support of AAPM TG-10

FCR 1 Shot Phantom



Relative Sensitivity

- Laser Jitter Test

Shading Test

- Image Noise/Artifact

Contrast Evaluation

- Primary Erasure

Sharpness Test

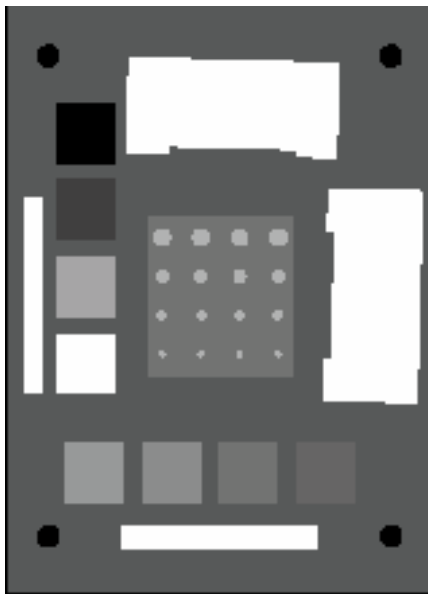
- Measurement Accuracy

•Exposure Linearity Test



FCR 1 Shot Plus System

- Advanced FCR Reader QA Program
 - New FCR 1 Shot Plus Phantom and Software



- AUTOMATED TESTS

- Relative S# Shading Noise
- Laser Jitter MTF Linearity
- Size Accuracy Erasure Darknoise

- VISUAL EVALUATION

- High Contrast Low contrast Artifact



Display System QA

- New Automated Printer QA
 - AutoCal Options
 - Grayscale and geometric test patterns
 - Reporting System
- New Automated Monitor QA
 - Viewing Conditions, Monitor Calibration, Grayscale and Geometric test Pattern
 - Reporting System
 - Reader, Monitor and Printer programs available Oct 04



Thank You

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