

SERVICING THE GE SENOGRAPHE 2000D™ FFDM

Hands-On Training Course

Course Length: 2 Weeks
CEUs Awarded: 8 CEUs

Introduction

Mammography may be the most dynamic of all of today's imaging modalities. With the new regulatory and accreditation procedures, and advancements in technology, the service professional is becoming more involved in maintaining the quality and reliability of the mammographic system. This course is designed to teach the service professional how to safely and efficiently maintain the GE Senographe 2000D™ product. Given today's regulatory environment maintaining the system at peak performance is of the utmost importance.

Prerequisites

To attend this course, the service professional must possess fundamental knowledge and understanding of the principles of X-ray and basic electronics.

Objectives

- Describe the current digital mammographic imaging regulatory environment
- Describe the factors that affect digital mammographic image quality
- Describe how those factors are optimized to produce the highest quality digital mammographic images
- Describe the function of the basic components of the GE Senographe 2000D™ mammographic unit
- Demonstrate an understanding of the digital accreditation process
- Demonstrate an understanding of the Mammographic Quality Standards Act
- Demonstrate an understanding of the installation procedures associated with the GE Senographe 2000D™
- Perform the necessary mammographic performance monitoring and quality assurance procedures utilizing the GE Senographe 2000D™
- Perform the necessary tests to reproduce the results of the physicist's report to confirm corrective action
- Perform all system calibrations and adjustments to maintain the highest quality images and compliance with MQSA requirements
- Evaluate circuit functions to facilitate troubleshooting

Course Outline

DAY 1

- I. Digital mammography process overview
- II. Basic terminology
- III. 2000D system overview
- IV. 2000D system operation
- V. System specifications

Lab Activities

- I. Basic system operation
- II. AWS acquisition software
- III. Image acquisition
- IV. Image viewer
- V. Screen considerations
- VI. Technologist digital QC

DAY 2

- I. System documentation overview
- II. Installation
- III. Operations
- IV. Service
- V. Schematics
- VI. Review workstation
- VII. CAD

Lab Activities

- I. Annual physicist checks
- II. Image quality
- III. Signal to noise
- IV. Resolution
- V. Contrast ratio
- VI. MTF
- VII. Flatfield/phantom IQ
- VIII. AOP

DAY 3

- I. System service
- II. Required tools and software
- III. 1999 Mammography Quality Standards Act (MQSA)

Lab Activities

- I. Remove and replace covers and system panels
- II. AWS
- III. Gantry
- IV. Operators console
- V. Generator

DAY 4

- I. UNIX basics
- II. AWS configuration
- III. Site planning and installation
- IV. Network configuration
- V. System calibration
- VI. Functional checks

Lab Activities

- I. Component location
 - A. Schematic location
 - B. Physical location
 - C. Connector locations
 - D. Fuse location/identification
- II. UPS Battery check/replacement procedures
- III. UNIX Telnet session

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DAY 5

- I. Preventive maintenance
- II. Error codes
- III. System diagnostics

Lab Activities

- I. PM
- II. Diagnostics

DAY 6

- I. Review workstation
 - A. System overview
 - B. Browser software
 - C. Image viewer
- II. Hanging Protocols
 - A. Configuring hanging protocols circuits

Lab Activities

- I. RWS operation
- II. RWS utilities and service tools
- III. RWS QA

DAY 7

- I. System service procedures
 - A. Upgrades
 - B. Troubleshooting
 - C. Options
 - D. Networking
 - E. Output devices
 - 1. Laser printer
 - 2. PACS
 - 3. RWS
 - 4. CAD
 - 5. Media
 - F. Input devices
 - 1. Modality worklist

Lab Activities

- I. Configure and test output devices
- II. Configure and test input devices

DAY 8

- I. DMR generator changes in the 2000D
- II. Generator calibration changes in the 2000D

Lab Activities

- I. AEC calibration
- II. AOP calibration
- III. Beam alignment
- IV. Collimator format
- V. Bad pixel
- VI. Detector gain

DAY 9

- I. CAD
 - A. AWS
 - B. Gantry
 - C. Generator
 - D. RWS
- II. System schematics

Lab Activities

- I. Configure and test CAD
- II. Review system diagrams and communication

DAY 10

- I. Course review
- II. Course evaluation
- III. Final exam