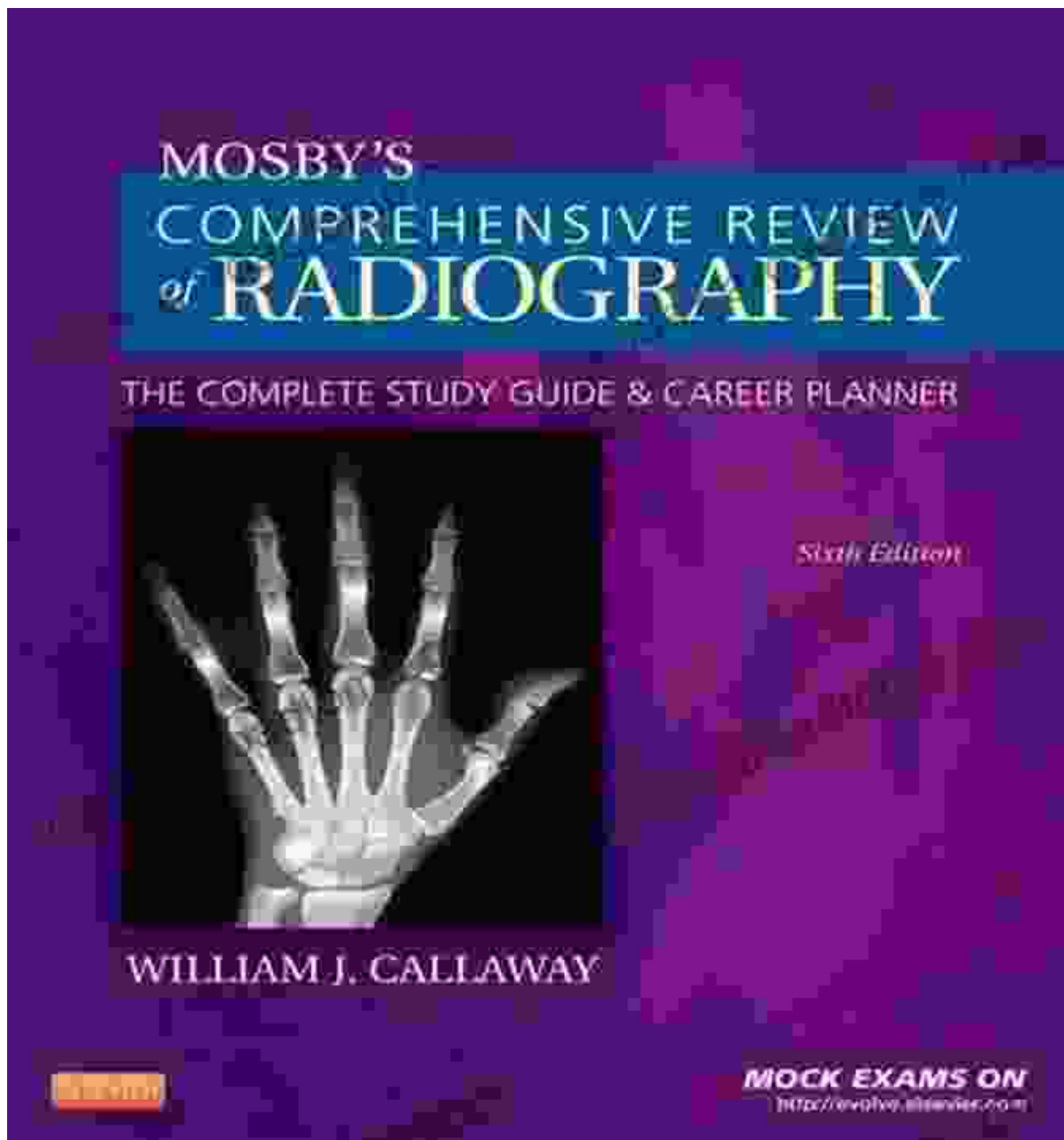


Computed Radiography: A Comprehensive Guide to Image Acquisition, Quality Control, and Clinical Applications

By Robert Lang, PhD



Computed Radiography (CR) is a digital X-ray imaging technology that uses phosphor plates to capture and store X-ray images. It is widely used in medical imaging, dental imaging, and industrial applications. CR systems offer several advantages over traditional X-ray film-based systems, including higher image quality, faster image acquisition times, and the ability to store and transmit images electronically.



Computed Radiography by Robert J. Lang

★★★★☆ 4.3 out of 5

Language	: English
File size	: 38496 KB
Text-to-Speech	: Enabled
Screen Reader	: Supported
Enhanced typesetting	: Enabled
Print length	: 383 pages



This book is a comprehensive guide to CR technology. It covers the following topics:

- Image acquisition and processing
- Quality control and image quality assessment
- Clinical applications of CR
- Future trends in CR technology

This book is written by a leading expert in CR technology. It is a valuable resource for radiologists, radiographers, medical physicists, and anyone else who uses or is interested in CR technology.

Image Acquisition and Processing

CR systems use phosphor plates to capture X-ray images. Phosphor plates are coated with a layer of phosphor material that emits light when exposed to X-rays. The light emitted by the phosphor plate is then detected by a photomultiplier tube, which converts the light into an electrical signal. The electrical signal is then processed by a computer to create a digital image.

CR systems offer several advantages over traditional X-ray film-based systems. First, CR systems provide higher image quality. CR images are digital, so they can be processed and enhanced to improve the visibility of fine details. Second, CR systems have faster image acquisition times. CR images can be acquired in a matter of seconds, which is much faster than the development time required for X-ray film. Third, CR systems allow images to be stored and transmitted electronically. This makes it easy to share images with other healthcare professionals and to store images for future reference.

Quality Control and Image Quality Assessment

Quality control is an important aspect of CR imaging. It is important to ensure that CR systems are functioning properly and that the images produced are of high quality. Quality control procedures include testing the system for artifacts, measuring the image quality, and calibrating the system.

Image quality assessment is the process of evaluating the quality of CR images. Image quality assessment factors include the image resolution, the contrast, and the noise level. It is important to assess the image quality of CR images to ensure that the images are of sufficient quality for the intended clinical application.

Clinical Applications of CR

CR is used in a wide variety of clinical applications. Some of the most common applications include:

- Chest radiography
- Mammography
- Dental radiography
- Fluoroscopy
- Computed tomography (CT)
- Magnetic resonance imaging (MRI)

CR is a valuable tool for healthcare professionals. It offers several advantages over traditional X-ray film-based systems, including higher image quality, faster image acquisition times, and the ability to store and transmit images electronically.

Future Trends in CR Technology

CR technology is constantly evolving. Some of the future trends in CR technology include:

- The development of new phosphor materials with improved image quality
- The development of new image processing algorithms to improve the visibility of fine details
- The development of new system designs to reduce the cost and improve the ease of use of CR systems

CR technology is a rapidly growing field. The future of CR technology is bright, and CR is expected to play an increasingly important role in medical imaging in the years to come.

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