

#### **4 – Digital Imaging (Filmless Radiology, Digitization, etc.)**

Balter SL, Janower ML. Radiographic viewing conditions. Proceedings of the Society of Photo-optical Instrumentation Engineers. Application of optical instrumentation in medicine II 1973; 43: 225-7.

*No abstract or full text available online.*

*Contact your academic library system for availability.*

**KEYWORDS:** *Radiographic Film Viewing; Viewing Conditions.*

Bates LM. Some physical factors affecting radiographic image quality: their theoretical basis and measurement. Public Health Service publication 999-RH-38. 1969.

*No abstract or full text available online.*

*Contact your academic library system for availability.*

**KEYWORDS:** *Medical Image Characteristics and Image Quality; Formation and Development of Medical Imaging Modalities.*

Bates LM, Bhatnagar JD. Spatial MTF of image intensifiers. Proceedings of the Society of Photo-optical Instrumentation Engineers. Application of optical instrumentation in medicine II 1973; 43: 155-9.

*No abstract or full text available online.*

*Contact your academic library system for availability.*

**KEYWORDS:** *Modulation Transfer Function; Measurement Methods; Image Intensifier Systems.*

Brown DW, Kirch DL, Trow RS. Optical image enhancement in nuclear medicine. Proceedings of the Society of Photo-optical Instrumentation Engineers. Application of optical instrumentation in medicine II 1973; 43: 101-5.

*No abstract or full text available online.*

*Contact your academic library system for availability.*

**KEYWORDS:** *Optical Spatial Filtering; Optical Image Enhancement; Medical Diagnosis; Nuclear Medicine.*

Catchpole CE, Liss RH. Use of a microchannel plate for fast auto-radiographic readout. Proceedings of the Society of Photo-optical Instrumentation Engineers. Application of optical instrumentation in medicine 1972; 35: 33-4.

*No abstract or full text available online.*

*Contact your academic library system for availability.*

**KEYWORDS:** *Computer Applications in Radiology; Medical Image Characteristics and Image Quality; Equipment Performance Analysis.*

Cerva JR. Technological challenges presented by filmless radiology. The MITRE Corporation 1989; 1: 314-318. IEEE Xplore.

*Abstract and full text available online.*

**URL:** <http://ieeexplore.ieee.org/stamp/stamp.jsp?arnumber=00049713>

**KEYWORDS:** *Digital Imaging Network (DIN); Filmless Radiology Department; Technological Challenges.*

Cerva JR, Glenn M, Kerlin B, Harrington M. Integration of digital imaging network technology into the U.S. Army's fixed facility and deployable medical centers. Proceedings of the Society of Photo-optical Instrumentation Engineers. Medical Imaging II 1988; 914-B: 1328-33.

*No abstract or full text available online.*

*Contact your academic library system for availability.*

**KEYWORDS:** *New Imaging Facilities; Digital Imaging; Equipment Performance Analysis.*

Dwyer III SJ, Harlow CA, Ausherman DA, Lodwick GS. Computer diagnosis of radiographic images. Proceedings of the November 16-18, 1971 fall joint computer conference. AFIPS joint computer conferences. ACM 1971: 1027-41.

*Abstract and full text available online.*

**URL:** <http://doi.acm.org/10.1145/1478873/1479009>

**KEYWORDS:** *Computer-assisted Diagnosis.*

El-Kareh AB. An x-ray omnicon: a new tool in radiology. Proceedings of the Society of Photo-optical Instrumentation Engineers. Application of optical instrumentation in medicine 1972; 35: 17-22.

*No abstract or full text available online.*

*Contact your academic library system for availability.*

**KEYWORDS:** *X-ray Exposure; Omnicon; Device Design; Electro-optical Instrumentation.*

Fraser RG, Breatnach E, Barnes GT. Digital radiography of the chest: clinical experience with a prototype unit. *Radiology* 1983; 148: 1-5.

*Abstract and full text available online.*

**URL:** <http://www.ncbi.nlm.nih.gov/pubmed/6856816>

**FULL TEXT SOURCE:** *HighWire Press.*

**KEYWORDS:** *Prototype Testing; Digital Radiography; Chest Examinations.*

Giger ML. Film digitization: technical requirements. Proceedings of the chest imaging conference. Medical physics. Ed. Pepler WW, Alter AA. Madison (WI) 1987: 92-100.

*No abstract or full text available online.*

*Contact your academic library system for availability.*

**KEYWORDS:** *Film Digitization; Technical Requirements; Chest Radiography.*

Gonçalves JGM, Taylor CJ. High resolution image digitizer for biomedical applications. Proceedings of the Society of Photo-optical Instrumentation Engineers. *Medical Imaging II* 1988; 914-B: 862-70.

*No abstract or full text available online.*

*Contact your academic library system for availability.*

**KEYWORDS:** *New Imaging Facilities; Digital Imaging; Medical Image Characteristics and Image Quality.*

Gray JE, Capp MP, Shannon RS, Whitehead FR. Modulation transfer function degradation and false resolution in radiographic imaging systems. Proceedings of the Society of Photo-optical Instrumentation Engineers. *Application of optical instrumentation in medicine* 1972; 35: 95-102.

*No abstract or full text available online.*

*Contact your academic library system for availability.*

**KEYWORDS:** *Radiographic Imaging Systems; Modulation Transfer Function Degradation; False Resolution; Image Analysis, Enhancement and Evaluation.*

Greberman M, Goeringer F, Shannon R, Hagen R, Sweeney T, Ghaed V, Thomas J. Collaborative digital imaging network project. Proceedings of the Society of Photo-optical Instrumentation Engineers. *Medical Imaging II* 1988; 914-B: 1326-7.

*No abstract or full text available online.*

*Contact your academic library system for availability.*

**KEYWORDS:** *Medical Imaging Systems; Medical Image Characteristics and Image Quality; Equipment Performance Analysis.*

Gregg EC. Image enhancement in clinical radiology. Proceedings of the Society of Photo-optical Instrumentation Engineers. Applications of optical instrumentation in medicine II 1973; 43: 97-9.

*No abstract or full text available online.*

*Contact your academic library system for availability.*

**KEYWORDS:** *Evaluation of Image Enhancement Techniques; Diagnosis.*

Grossel SS. Medical x-ray imaging, the evolving state of the art. Proceedings of the Society of Photo-optical Instrumentation Engineers. Application of optical instrumentation in medicine II 1973; 43: 161-4.

*No abstract or full text available online.*

*Contact your academic library system for availability.*

**KEYWORDS:** *Medical X-ray Imaging; Image Intensifier Systems.*

Haynor DR, Rowberg AH, Loop JW. Clinical evaluation of a prototype digital imaging network. Proceedings of the Society of Photo-optical Instrumentation Engineers. Medical Imaging II 1988; 914-B: 1341-43.

*No abstract or full text available online.*

*Contact your academic library system for availability.*

**KEYWORDS:** *Computer Applications in Radiology; Medical Image Characteristics and Image Quality; Equipment Performance Analysis.*

Kolodny GM, Parker JA, Donohoe KJ, Jansona D, Barbaras L, Wagenar D. Eight years' experience with a filmless all-digital nuclear medicine department. Journal of Nuclear Medicine 1994; 35: 28N-40N.

*Full text available online.*

**URL:** <http://www.ncbi.nlm.nih.gov/pubmed/7931680>

**FULL TEXT SOURCE:** *HighWire Press.*

**KEYWORDS:** *Digital Imaging; Equipment Performance Analysis; Formation and Development of Medical Imaging Modalities.*

Krohmer JS. Radiography and fluoroscopy, 1920 to the present. *Radiographics* 1989; 9: 1129-53.  
*Abstract and full text available online.*

**URL:** <http://www.ncbi.nlm.nih.gov/pubmed/2685938>

**FULL TEXT SOURCE:** *HighWire Press.*

**KEYWORDS:** *Chest Radiography; Fluoroscopy.*

Manning DJ. Medical imaging and radiological health: contributions of Dr. Robert F. Wagner. *Proceedings of the Society of Photo-optical Instrumentation Engineers. Medical imaging 2009: image perception, observer performance, and technology assessment.* Ed. Sahiner B. 2009; 7263: 72630D-2630H.

***This is a collection of five consecutive articles within the same section from volume 7263 of the publication Medical imaging 2009.***

*Abstract and full text available online from SPIE Digital Library.*

**URL:** <http://spiedl.aip.org/dbt/dbt.jsp?KEY=PSISDG&Volume=7263&Issue=1#MAJOR4>

**KEYWORDS:** *Medical Image Characteristics and Image Quality; Equipment Performance Analysis; Formation and Development of Medical Imaging Modalities.*

McFarland WD, Dwyer III SJ. An interactive digital image processing system. *Proceedings of the Society of Photo-optical Instrumentation Engineers. Application of optical instrumentation in medicine II* 1973; 43: 45-54.

*No abstract or full text available online.*

*Contact your academic library system for availability.*

**KEYWORDS:** *Computer Applications in Radiology; Medical Image Characteristics and Image Quality; Equipment Performance Analysis.*

Metz CE. An overview of some measures of image quality. *Proceedings of the Society of Photo-optical Instrumentation Engineers. Application of optical instrumentation in medicine VI* 1977; 137: 4-5.

*No abstract or full text available online.*

*Contact your academic library system for availability.*

**KEYWORDS:** *Image Quality Measurements; ROC Analysis; Comparative Studies.*

Morgan RH, Bates LM, Gapala Rao UV, Marinaro A. The frequency response characteristics of x-ray films and screens. *The American Journal of Röentgenology* 1964; 92: 426-40.

*No abstract or full text available online.*

*Contact your academic library system for availability.*

**KEYWORDS:** *Medical Image Characteristics and Image Quality; Equipment Performance Analysis; Formation and Development of Medical Imaging Modalities.*

Morgan RH, Roach JF. Clinical potentialities of screen intensifying systems. *American Journal of Röentgenology* 1949; 62: 635-44.

*No abstract or full text available online.*

*Contact your academic library system for availability.*

**KEYWORDS:** *New Imaging Facilities; Medical Image Characteristics and Image Quality; Equipment Performance Analysis.*

Nackunstz I, Kamm KF, Lüdtkke M, de Valk JPJ, ter Haar Romeny BM. Experiences with digital film scanners. *Proceedings of the Society of Photo-optical Instrumentation Engineers. Medical Imaging II* 1988; 914-B: 1178-82.

*No abstract or full text available online.*

*Contact your academic library system for availability.*

**KEYWORDS:** *New Imaging Facilities; Medical Imaging Systems; Equipment Performance Analysis.*

Plewes DB. A scanning system for chest radiography with regional exposure control: theoretical considerations. *Medical Physics* 1983; 10: 646-54.

*Full text not available online.*

*Contact your academic library system for availability.*

*Abstract available online.*

**URL:** <http://www.ncbi.nlm.nih.gov/pubmed/6646070>

**KEYWORDS:** *Scanning Equalization Radiography (SER); Theoretical Considerations; Chest Radiography.*

Plewes DB, Vogelstein E. A scanning system for chest radiography with regional exposure control: practical implementation. *Medical Physics* 1983; 10: 655-63.

*Full text not available online.*

*Contact your academic library system for availability.*

*Abstract available online.*

**URL:** <http://www.ncbi.nlm.nih.gov/pubmed/6646071>

**KEYWORDS:** *Scanning Equalization Radiography (SER); Practical Implementation; Chest Radiography.*

Roehrig H, Nudelman S, Capp MP, Frost MM. X-ray intensifier video system for diagnostic radiology: part 1, design characteristics. *Proceedings of the Society of Photo-optical Instrumentation Engineers. Application of optical instrumentation in medicine VI* 1977; 127: 216-25.

*No abstract or full text available online.*

*Contact your academic library system for availability.*

**KEYWORDS:** *Video Image Intensifier; Diagnostic Radiology; Exposure Reduction.*

Royal HD, Aker EM, Parker JA, Front D, Kolodny GM. An inexpensive auxiliary display station for a nuclear medicine computer system. *Journal of Nuclear Medicine* 1981; 22: 1089-90.

*Full text available online.*

**URL:** <http://www.ncbi.nlm.nih.gov/pubmed/7310517>

**FULL TEXT SOURCE:** *HighWire Press.*

**KEYWORDS:** *New Imaging Facilities; Medical Image Characteristics and Image Quality; References Related to Medical Imaging.*

Royal HD, Parker JA, Uren RF, Kolodny Gm. Cost effectiveness of the all-digital nuclear medicine department. *Radiology* 1983; 148: 860-1.

*Abstract and full text available online.*

**URL:** <http://www.ncbi.nlm.nih.gov/pubmed/6410453>

**FULL TEXT SOURCE:** *HighWire Press.*

**KEYWORDS:** *Medical Imaging Systems; References Related to Medical Imaging.*

Shea FJ, Revesz G. Performance standards of image intensifiers. Proceedings of the Society of Photo-optical Instrumentation Engineers. Application of optical instrumentation in medicine II 1973; 43: 203-4.

*No abstract or full text available online.*

*Contact your academic library system for availability.*

**KEYWORDS:** *Performance Standards, Image Intensifiers.*

Showalter CK, Bunge RE, Gross RE Seville ME. An analysis of film/screen combinations and patient exposures from nationwide evaluation of x-ray trends (NEXT). Proceedings of the Society of Photo-optical Instrumentation Engineers. Application of optical instrumentation in medicine VI 1977; 127: 136-40.

*No abstract or full text available online.*

*Contact your academic library system for availability.*

**KEYWORDS:** *Analysis of Film/Screen Combinations; Patient Exposure; Nationwide Evaluation of X-ray Trends (NEXT).*

Siedband MP. Limitatons of exposure reduction during fluoroscopy by image storage. Proceedings of the Society of Photo-optical Instrumentation Engineers. Application of optical instrumentation in medicine II 1973; 43: 151-4.

*No abstract or full text available online.*

*Contact your academic library system for availability.*

**KEYWORDS:** *X-ray Exposure Reduction; Image Storage Systems; Fluoroscopy; Image Intensifier Systems.*

Siegel EL, Reiner BI. Filmless radiology at the Baltimore VA Medical Center: a 9 year retrospective. Computerized Medical Imaging and Graphics 2003; 27: 101-9.

*Abstract and full text available online.*

**URL:** <http://www.ncbi.nlm.nih.gov/pubmed/12620300>

**FULL TEXT SOURCE:** *Elsevier Science.*

**KEYWORDS:** *Medical Imaging Systems; Digital Imaging; Equipment Performance Analysis.*

Siegel EL, Templeton AW, Cook LT, Eckard DA, Harrison LA, Dwyer III SJ. Image calibration of laser digitizers, printers, and gray-scale displays. Radiographics 1992; 12: 329-95.



*Abstract and full text available online.*

**URL:** <http://www.ncbi.nlm.nih.gov/pubmed/1561421>

**FULL TEXT SOURCE:** HighWire Press.

**KEYWORDS:** Laser Film Digitizer.

Simborg DW, Krajci EJ, Wheeler PS, Gitlin JN, Goldstein KS. Computer-assisted radiology reporting: quality of reports. *Radiology* 1977; 125: 587-9.

*Full text not available online.*

*Contact your academic library system for availability.*

*Abstract available online.*

**URL:** <http://www.ncbi.nlm.nih.gov/pubmed/928677>

**KEYWORDS:** Computer Applications in Radiology; Medical Image Characteristics and Image Quality; References Related to Medical Imaging.

Stewart BK, Mankovich NJ, Sayre JW, Dwyer III SJ, Gold RH, Grand EG, Kangarloo H, Yaghmal I. Technical development of shared radiology educational resources via teleconferencing. *Proceedings of the Society of Photo-optical Instrumentation Engineers. Medical imaging 1993: PACS design and evaluation 1993*: 1899; 284-95.

*Abstract and full text available online from SPIE Digital Library.*

**URL:** <http://spiedl.org/>

**KEYWORDS:** Teleconferencing; Technical Development.

Street PN, Wilson GD. A digital system for the automatic analysis and enhancement of medical imagery. *Proceedings of the Society of Photo-optical Instrumentation Engineers. Application of optical instrumentation in medicine 1972*; 35: 51-6.

*No abstract or full text available online.*

*Contact your academic library system for availability.*

**KEYWORDS:** Computer Applications in Radiology; Medical Image Characteristics and Image Quality; Equipment Performance Analysis.

Sturm RE, Morgan RH. Screen intensification systems and their limitations. *American Journal of Röntgenology* 1949; 63: 617-34.

*No abstract or full text available online.*

*Contact your academic library system for availability.*

**KEYWORDS:** *New Imaging Facilities; Medical Image Characteristics and Image Quality; Equipment Performance Analysis.*

Templeton AW, Dwyer SJ, Cox GG, Lee KR, Johnson JA, Martin NL, Chang CH, Anderson WH, Hensley KS, Bialek J. A digital radiology imaging system: description and clinical evaluation. American Journal of Röntgenology 1987; 149: 847-51.

*Abstract and full text available online.*

**URL:** <http://www.ncbi.nlm.nih.gov/pubmed/3498339>

**FULL TEXT SOURCE:** *HighWire Press.*

**KEYWORDS:** *Image Intensifier Systems; Hardware and Software Development; Clinical Evaluation.*

Tesic MM, Mattson RA, Barnes GT. Digital radiography of the chest: design features and considerations for a prototype unit. Radiology 1983; 148; : 259-64.

*Abstract and full text available online.*

**URL:** <http://www.ncbi.nlm.nih.gov/pubmed/6856847>

**FULL TEXT SOURCE:** *HighWire Press.*

**KEYWORDS:** *Prototype Testing; Digital Radiography; Chest Examinations.*

Thomas AMK, Banerjee AK, Busch E. Classic papers in modern diagnostic radiology. New York (NY) Springer; 2004.

*Full text available online.*

**URL:** [http://locatorplus.gov/cgi-](http://locatorplus.gov/cgi-bin/Pwebrecon.cgi?DB=local&v1=1&ti=1,1&Search_Arg=101237715&Search_Code=0359&CNT=20&SID=1)

[bin/Pwebrecon.cgi?DB=local&v1=1&ti=1,1&Search\\_Arg=101237715&Search\\_Code=0359&CNT=20&SID=1](http://locatorplus.gov/cgi-bin/Pwebrecon.cgi?DB=local&v1=1&ti=1,1&Search_Arg=101237715&Search_Code=0359&CNT=20&SID=1)

**KEYWORDS:** *New Imaging Facilities; Computer Applications in Radiology; References Related to Medical Imaging.*

Thornbury JR, Fryback DG, Patterson FE, Chiavarni RL. A methodology for comparison of quality of radiologic images from different screen/film combinations based on radiologists' subjective

judgments. Proceedings of the Society of Photo-optical Instrumentation Engineers. Application of optical instrumentation in medicine VI 1977; 127: 24-9.

*No abstract or full text available online.*

*Contact your academic library system for availability.*

**KEYWORDS:** *Image Quality Comparisons; Radiology Subjective Judgments; Evaluation of Methodologies.*

Vlasbloem H, Kool LJ. AMBER: a scanning multiple-beam equalization system for chest radiography. Radiology 1988; 169: 29-34.

*Abstract and full text available online.*

**URL:** <http://www.ncbi.nlm.nih.gov/pubmed/3420279>

**FULL TEXT SOURCE:** *HighWire Press.*

**KEYWORDS:** *AMBER (Advanced Multiple Beam Equalization Radiography); Chest Radiography.*

Wagner RF. The laboratory/clinical interface in image evaluation. Proceedings of the Society of Photo-optical Instrumentation Engineers. Application of optical instrumentation in medicine VI 1977; 127: 2-3.

*No abstract or full text available online.*

*Contact your academic library system for availability.*

**KEYWORDS:** *Image Evaluation; Laboratory Studies; Clinical Interfaces.*

Wagner RF. Lessons from my dinners with the giants of modern image science. Radiation Protection Dosimetry 205; 114: 4-10.

*Abstract and full text available online.*

**URL:** <http://www.ncbi.nlm.nih.gov/pubmed/15933075>

**FULL TEXT SOURCE:** *HighWire Press.*

**KEYWORDS:** *New Imaging Facilities; Medical Image Characteristics and Image Quality; Equipment Performance Analysis.*

Wagner RF, Barnes GT, Askins BS. Effect of reduced scatter on radiographic information content and patient exposure: a quantitative demonstration. Medical Physics 1980; 7: 13-8.

*No full text available online.*

*Contact your academic library system for availability.*

*Abstract available online.*

**URL:** <http://www.ncbi.nlm.nih.gov/pubmed/7366537>

**KEYWORDS:** *X-ray Scatter Reduction.*

Wagner RF, Brown DG. Unified SNR analysis of medical imaging systems. *Physics in Medicine and Biology* 1985; 30: 489-518.

*No abstract or full text available online.*

*Contact your academic library system for availability.*

**KEYWORDS:** *Signal to Noise Ratio; Image System Performance Assessment and Optimization.*

Wagner RF, Weaver KE. An assortment of image quality indexes for radiographic film-screen combinations, can they be resolved? *Proceedings of the Society of Photo-optical Instrumentation Engineers. Application of optical instrumentation in medicine I* 1972; 35: 83-94.

*No abstract or full text available online.*

*Contact your academic library system for availability.*

**KEYWORDS:** *Medical Imaging Systems; Equipment Performance Analysis; Formation and Development of Medical Imaging Modalities.*

Wagner RF, Weaver KE. Noise measurements on rare-earth intensifying screen systems. *Proceedings of the Society of Photo-optical Instrumentation Engineers. Medical x-ray* 1974; 56: 198-207.

*No abstract or full text available online.*

*Contact your academic library system for availability.*

**KEYWORDS:** *X-ray Intensifying Screens; Radiographic Film-screen Noise; X-ray Exposure Reduction.*

Wagner RF, Weaver KE. Prospects for x-ray exposure reduction using rare earth intensifying screens. *Radiology* 1976; 118: 183-88.

*Full text not available online.*

*Contact your academic library system for availability.*

*Abstract available online.*

**URL:** <http://www.ncbi.nlm.nih.gov/pubmed/1244656>

**KEYWORDS:** *New Imaging Facilities; Medical Image Characteristics and Image Quality; Radiation Exposure and Dose.*

Wandtke JC. Newer imaging methods in chest radiography. *Journal of thoracic imaging* 1990; 5: 1-9.

*Abstract and full text available online.*

**URL:** <http://www.ncbi.nlm.nih.gov/pubmed/2299696>

**FULL TEXT SOURCE:** *Ovid Technologies, Inc.*

**KEYWORDS:** *Storage Phosphor Imaging; Image Intensifiers; Chest Radiography; X-ray Detectors; Image Enhancement.*

Wandtke JC, Plewes DB. Exposure equalization radiography of the chest: clinical comparison of slit and raster scanning techniques. *American journal of Roentgenology* 1985; 144: 1171-81.

*Abstract and full text available online.*

**URL:** <http://www.ncbi.nlm.nih.gov/pubmed/3873796>

**FULL TEXT SOURCE:** *HighWire Press.*

**KEYWORDS:** *Scanning Equalization Radiography (SER); Slit and Raster Scanning Techniques; Clinical Comparison; Chest Radiography.*

Wheeler PS, Simborg DW, Gitlin JN. The Johns Hopkins radiology reporting system. *Radiology* 1976; 119: 315-9.

*Full text not available online.*

*Contact your academic library system for availability.*

*Abstract available online.*

**URL:** <http://www.ncbi.nlm.nih.gov/pubmed/772749>

**KEYWORDS:** *Medical Imaging Systems; Quality Assurance Programs; Formation and Development of Medical Imaging Modalities.*