

Petar Seslija, M.S., MCCPM

Position: Certified Medical Physicist
Therapy Physics, Inc.
2501 Cherry Ave, #270
Signal Hill, CA 90755
Phone: (562) 317-0650, Fax: (562) 317-0650
Email: petar@therapyphysics.com

Certification: Member of the Canadian College of Physicists in Medicine (MCCPM) - July 2014
Diagnostic Radiological Physics

State of California Approved Physicist List:

Approved to Provide Medical Physics Support Services for
Mammography in the State of California - MQA # 0273
Qualified in Digital Mammography and Tomosynthesis

ACR Accreditation Programs Qualified For:

Mammography	Stereotactic Breast Biopsy
CT	PET
MRI	Breast MRI
Ultrasound	Breast Ultrasound

Education: Master of Engineering Science (M.S.) - October 2009
Biomedical Engineering Graduate Program
University of Western Ontario, London, Ontario, Canada

Bachelor of Applied Science (B.S.) - June 2006
Electrical and Computer Engineering
University of Windsor, Windsor, Ontario, Canada

Experience: Certified Medical Physicist – October 2018 to present
Therapy Physics, Inc.

Diagnostic Medical Physicist – July 2011 to October 2018
Lower Mainland Medical Imaging
Vancouver Coastal Health Authority
Vancouver, BC, Canada

Professional Societies:

American Association of Physicists in Medicine (AAPM)
Canadian Organization of Physicists in Medicine (COMP)

Initial Education for Mammography Physics:

MTMI 22nd Annual Mammography Update for Physicists, Charleston SC – Oct. 20-21, 2018

TOTAL Initial Mammography Credits = 16.4 Credits

TOTAL Initial FFDM Credits = 8 Credits

TOTAL Initial DBT Credits = 9.5 Credits

TOTAL Initial Stereo Credits = 3.0 Credits

Continuing Education for Mammography Physics (past 36 months):

AAPM 61st Annual Meeting and Exhibition, San Antonio TX – Jul. 14-18, 2019

TOTAL Mammography Credits (past 36 months) = 23.4 Credits

Continuing Education for Diagnostic Radiological Physics (past 36 months):

AAPM 61st Annual Meeting and Exhibition, San Antonio TX – Jul. 14-18, 2019

AAPM Online Learning Modules x 11 (1 credit/module) = 11.0 Credits

Image Wisely Radiation Safety Cases x 8 (0.5 credits/case) = 4.0 Credits

TOTAL Diagnostic Radiological Physics Credits (past 36 months) = 40.75 Credits

Publications:

1. Cropp R., **Seslija P.**, Thakur Y. A radiographic diagnostic reference level survey using patient and phantom data. *Radiation Protection Dosimetry* 2016 1-9.
2. Cropp R., **Seslija P.**, Tso D., Thakur Y. Scanner and kVp dependence of measured CT numbers in the ACR phantom. *Journal of Applied Clinical Medical Physics* 14(6): 4417, 2013.
3. Teeter M., **Seslija P.**, Milner J., Nikolov H., Yuan X., Naudie D., Holdsworth D. Quantification of in vivo implant wear in total knee replacement from dynamic single plane radiography. *Physics in Medicine and Biology* 58(9): 2751-67, 2013.
4. **Seslija P.**, Teeter M., Yuan X., Naudie D., Bourne R., Macdonald S., Peters T., Holdsworth D. Measurement of joint kinematics using a conventional clinical single-perspective flat-panel radiography system. *Medical Physics* 39(10): 6090-103, 2013.
5. Lang P., **Seslija P.**, Chu M., Bainbridge D., Guiraudon G., Jones D., Peters T. US-fluoroscopy registration for transcatheter aortic valve implantation. *IEEE Transactions on Biomedical Engineering* 59(5): 1444-53, 2012.

Continuing Medical Physics Experience
Petar Seslija, M.S., MCCPM - MQA # 0273

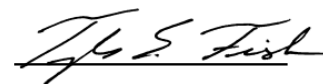
To demonstrate compliance with 21CFR 900.12 (a) (3) (iii) (B) - “the medical physicist shall have surveyed at least two mammography facilities and a total of at least six mammography units during the 24 months immediately preceding the date of the facility’s annual MQSA inspection or the last day of the calendar quarter or any date in-between the two.”

I have provided the mammography physics services to the following facilities on the mammography units as listed below:

St. Luke’s Breast Detection Center – Nampa, ID	Hologic Selenia Dimensions (w/DBT) – Room 2	Aug. 23, 2019
St. Luke’s Breast Detection Center – Fruitland, ID	Hologic Selenia Dimensions (w/DBT) – Mammography Rm	Aug. 22, 2019
Magan Medical Clinic – Covina, CA	Hologic Selenia Dimensions (w/DBT) – Mammography Rm	Jul. 26, 2019
San Antonio Women’s Breast & Imaging Center – Upland, CA	Hologic Selenia Dimensions (w/DBT) – Room 1	Jul. 25, 2019
Centrelake Imaging & Oncology – West Covina, CA	Lorad (Hologic) Selenia – Mammography Rm	Jul. 12, 2019
Centrelake Imaging & Oncology – Chino, CA	Lorad (Hologic) Selenia – Mammography Rm 2	Jun. 12, 2019
Randall & Eleanor Hill Breast Center – Pasadena, CA	Lorad (Hologic) Selenia – Diagnostic Rm 1	May 6, 2019
San Antonio Regional Hospital Outpatient Center – Upland, CA	Hologic Selenia Dimensions (w/DBT) – Mammo Rm 1	Apr. 22, 2019
San Antonio Regional Hospital Outpatient Center – Upland, CA	Hologic Affirm Prone Biopsy System	Apr. 22, 2019
Claremont Imaging Associates – Pomona, CA	Lorad (Hologic) Selenia – Mammography Rm	Apr. 3, 2019
Providence Little Company of Mary – San Pedro, CA	Lorad (Hologic) Selenia – Mammography Rm 1	Mar. 25, 2019
Providence Little Company of Mary Women’s Imaging Center – Torrance, CA	Hologic Affirm Prone Biopsy System	Mar. 4, 2019



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Certified Medical Physicist



Attested by: Tyler S. Fisher, M.S., DABR
Certified Medical Physicist

Continuing Medical Physics Experience

I have provided medical physics services in accordance with ACR guidelines to the following facilities as listed below:

Computed Tomography

Greater El Monte Community Hospital, South El Monte, CA	GE Lightspeed 16	Sep. 3, 2019
St. Luke's Medical Center, Nampa, ID	Siemens Somatom Definition AS x2	Aug. 23, 2019
Centrelake Imaging & Oncology, West Covina, CA	GE Lightspeed 8	Jul. 24, 2019

Magnetic Resonance Imaging

ProHealth Advanced Imaging, West Hills, CA	GE Signa LX	Jun. 6, 2019
Huntington Hill Imaging Center, Pasadena, CA	Philips Intera Achieva	May 23, 2019
Centrelake Imaging & Oncology, Ontario, CA	GE Signa LX	May 13, 2019

Ultrasound

St. Luke's Medical Center, Nampa, ID	Philips PureWave	Aug. 23, 2019
Hill Imaging Center, West Covina, CA	GE LogiQ S6 & Philips EPIQ 5G	Mar. 13, 2019
Pueblo Radiology Medical Group, Santa Barbara, CA	Philips Affiniti 70G	Jan. 23, 2019

PET

Long Beach Memorial Medical Center, Long Beach, CA	Siemens Biograph 20	Jul. 2, 2019
Glendale MRI Institute, Glendale, CA	Philips Gemini GXL	Apr. 11, 2019
Beverly Hills Medical Imaging, Beverly Hills, CA	GE Discovery 690	March 7, 2019



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**THE CANADIAN
COLLEGE
OF PHYSICISTS
IN MEDICINE**



**LE COLLÈGE
CANADIEN
DES PHYSICIENS
EN MÉDECINE**

elects élit

Petar Seslija

Diagnostic Radiological Physics

to membership
in recognition of
proven competence in physics
as applied to medicine.

comme « membre »
en reconnaissance de sa
compétence avérée en physique
appliquée à la médecine.



10th July 2014

M Schmid

President/président

Chief Examiner/Examineur en chef

A. Palanis

Registrar/registraire

*Ongoing validity of this certificate is contingent upon
meeting the requirements of recertification.*

*La validité de ce certificat est soumise à la
satisfaction de critères de recertification.*



The UNIVERSITY of
WESTERN ONTARIO

*The Senate on the recommendation of
the School of Graduate and Postdoctoral Studies
has conferred upon*

PETAR SESLIJA

the degree of

MASTER OF ENGINEERING SCIENCE
Biomedical Engineering Science

with all its rights, privileges and obligations

*Given at London, Canada, on the twenty-second day of October,
two thousand and nine,
in the one hundred and thirty-first year of the University*



President and Vice-Chancellor

Registrar

Vice Provost (Graduate and Postdoctoral Studies)



KAREN L. SMITH, MD, MPH
Director and State Public Health Officer

State of California—Health and Human Services Agency
California Department of Public Health



Gavin Newsom
Governor

March 15, 2019

PETAR SESLIJA, MS, MCCPM
2501 CHERRY AVE., SUITE 270
SIGNAL HILL, CA 90755

Dear Mr. Seslija:

Registration No.: MQA-0273
Initial Qualification Date: February 27, 2019
Expiration Date: March 15, 2022

**APPROVAL TO PROVIDE MEDICAL PHYSICS SUPPORT SERVICES
(MAMMOGRAPHY) IN THE STATE OF CALIFORNIA**

Reference:

- (a) Application for Authorization to Provide Physics Support Services in the State of California, dated February 27, 2019.

Individuals performing mammography equipment evaluations or annual physics surveys must meet the initial and continuing requirements found in the regulations as set forth in Mammography Quality Standards Act Regulations, 21 Code of Federal Regulations Part 900, Final Rule, effective April 28, 1999, and California Code of Regulations, title 17, subchapter 4, group 3, article 4.5, effective July 18, 2003.

The California Department of Public Health (Department) has reviewed your application and supporting documentation that describes your qualifications to conduct mammographic equipment evaluations and surveys of mammography facilities and to provide oversight of their quality assurance programs. Your combination of education and experience demonstrates that you meet the initial qualifications required by 21 Code of Federal Regulations 900.12(a)(3)(i) and California Code of Regulations, title 17, sections 30315.52 and 30315.60. You are hereby authorized to provide mammography physics services in



Petar Seslija, MS, MCCPM

March 15, 2019

Page 2

California. Although this authorization is valid for three years, your initial qualification date will remain unchanged. Please use this letter as evidence of your placement on the Department's "Approved Mammography Physicists" List.

Requirements for documentation of continuing education and continuing experience can be found in 21 Code of Federal Regulations 900.12(a)(3)(iii) and (iv) and California Code of Regulations, title 17, section 30315.52. This letter does not constitute evidence of meeting either requirement. Such documentation must be provided to each facility for which you provide mammography physics services. Each facility must maintain records to demonstrate that you meet these requirements.

Please be advised that it is your responsibility to notify the Department in writing of any change of name and/or address. If we are unable to contact you, we reserve the right to remove your name from the approved list.

If you have questions regarding this authorization or other areas where the Department may be of assistance, please contact Victor Angelo Margallo at 916-322-4475.

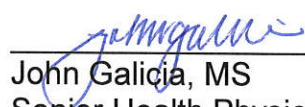
For the Department,

AUTHORIZING:



Victor Angelo Margallo, M.Sc.
Associate Health Physicist
Registration Unit
Radiologic Health Branch

CONCURRING:



John Galicia, MS
Senior Health Physicist
Registration Unit
Radiologic Health Branch

MTMI

Medical Technology
Management Institute

THIS CERTIFIES THAT:

PETAR SESLIJA

HAS SUCCESSFULLY COMPLETED THE PROGRAM ENTITLED:

22ND ANNUAL MAMMOGRAPHY UPDATE FOR PHYSICISTS

October 20-21, 2018 | Charleston, SC

This seminar provides 16.5 hours of continuing education in mammography for medical physicists in compliance with the requirements of the Mammography Quality Standards Act of 1992 and FDA final rules (21CFR Part 900). Credits to be awarded from CAMPEP.

This seminar includes 8 hours training on the surveying of digital mammography units, 3 hours on stereotactic breast biopsy units, and 9.5 hours on digital breast tomosynthesis (DBT).

The training includes the unique features of the following FDA approved DBT systems: Hologic Selenia Dimensions; GE Pristina and GE SenoClaire Digital Breast Tomosynthesis (DBT) System, Siemens Mammomat Inspiration with Tomosynthesis Option (DBT) System and Fujifilm Aspire Cristalle with Digital Breast Tomosynthesis (DBT) Option.

18.5 hours of Category A credit for Radiologic Technologists have been approved by the ASRT.
ASRT# WID0108028 (10/22/2018)



MTMI, Director

MTMI

W140 N8917 Lilly Road

Menomonee Falls, WI 53051

A continuing education division of Herzing University

Continuing Medical Physics Experience
Petar Seslija, M.S. - MQA # 0273

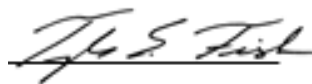
To demonstrate initial compliance with 21CFR 900.12 (a) (3)(B)(3) - “The Medical Physicist shall... Have the experience of conducting surveys of at least 1 mammography facility and a total of at least 10 mammography units...under the direct supervision of a medical physicist who meets all the requirements of paragraphs (a)(2)(i) and (a)(3)(iii) of this section.”

The following mammography units were surveyed under the direct supervision Katie L. Darner and Tyler S. Fisher, both qualified medical physicists:

Radiology Diagnostic Center – Templeton, CA	Hologic Selenia Dimensions (w/DBT) – Room 2	Jan. 15, 2019
Providence Little Company of Mary Women’s Imaging Center – Torrance, CA	Lorad (Hologic) Selenia Room 2	Dec. 14, 2018
Providence Little Company of Mary Women’s Imaging Center – Torrance, CA	Lorad (Hologic) Selenia Room 3	Dec. 14, 2018
Providence Little Company of Mary Women’s Imaging Center – Torrance, CA	Lorad (Hologic) Selenia Room 4	Dec. 14, 2018
California Imaging & Diagnostics – Hemet, CA	Lorad (Hologic) Selenia Room 1	Dec. 12, 2018
California Imaging & Diagnostics – Hemet, CA	Lorad (Hologic) Selenia Room 2	Dec. 12, 2018
SimonMed Imaging – San Bernardino, CA	GE Senographe Essential	Dec. 5, 2018
Los Alamitos Medical Center – Los Alamitos, CA	Lorad (Hologic) Selenia Room 1	Nov. 14, 2018
Los Alamitos Medical Center – Los Alamitos, CA	Lorad (Hologic) Selenia Room 2	Nov. 14, 2018
Jim & Eleanor Randall Breast Center – Pasadena, CA	Hologic Selenia Dimensions (w/DBT) – Screening Room 1	Nov. 13, 2018
Jim & Eleanor Randall Breast Center – Pasadena, CA	Hologic Selenia Dimensions (w/DBT) – Screening Room 2	Nov. 13, 2018



Petar Seslija, M.S., MCCPM, MQA# 0273
Certified Medical Physicist



Tyler S. Fisher, M.S., DABR, MQA #0183
Certified Medical Physicist



Katie Darner, M.S., DABR, MQA #0166
Certified Medical Physicist

CAMPEP
Commission on Accreditation of Medical Physics Education Programs, Inc.
Certificate of Medical Physics Continuing Education Credits
----Transcript----

Petar Seslija
 2501 Cherry Ave, Suite 270
 Signal Hill, CA 90755
 US

Participated in the following CAMPEP accredited educational program(s) and is awarded Medical Physics Continuing Education Credits (MPCECs) as designated

<u>Program Title</u>	<u>Date Credits Earned</u>	<u>Category/SubCategory</u>	<u>EA Title</u>	<u>Credits</u>
2019 61st AAPM Annual Meeting & Exhibition	07/16/2019	Diagnostic Radiology: Mammography	ACR Updates:Digital Mammography/CT/	1
2019 61st AAPM Annual Meeting & Exhibition	07/15/2019	Diagnostic Radiology: Mammography	From Breast Cancer Screening to Stereotactic Biopsy: A Technological, Clinical, and Patient Perspective	2
2019 61st AAPM Annual Meeting & Exhibition	07/17/2019	Diagnostic Radiology: Mammography	In Memoriam of Libby Brateman: Education, Licensure, Guidance and Mammography-Enhancing the Recognition of the Medical Physics Profession	2
2019 61st AAPM Annual Meeting & Exhibition	07/18/2019	Diagnostic Radiology: Mammography	Vendor Related Mammography Updates	2
22nd Annual Mammography Update for Physicists	10/20/2018	Diagnostic Radiology: Mammography	ACR FFDM QC Manual and Phantom	2.25
22nd Annual Mammography Update for Physicists	10/20/2018	Diagnostic Radiology: Mammography	Breast Biopsy Using Digital Breast Tomosynthesis	0.5
22nd Annual Mammography Update for Physicists	10/20/2018	Diagnostic Radiology: Mammography	Clinical Experience with Digital Breast Tomosynthesis	1
22nd Annual Mammography Update for Physicists	10/20/2018	Diagnostic Radiology: Mammography	Digital Breast Imaging Artifacts	0.75
22nd Annual Mammography Update for Physicists	10/20/2018	Diagnostic Radiology: Mammography	Digital Breast Imaging Technology and Technical Considerations for DBT Imaging	1.5
22nd Annual Mammography Update for Physicists	10/20/2018	Diagnostic Radiology: Mammography	Digital mammography & digital breast tomosynthesis QC Programs/ Hologic	0.67
22nd Annual Mammography	10/20/2018	Diagnostic Radiology: Mammography	Digital Mammography and Digital Breast Tomosynthesis QC Programs/ Fuji	0.67

Update for Physicists				
22nd Annual Mammography Update for Physicists	10/20/2018	Diagnostic Radiology: Mammography	Digital Mammography and Digital Breast Tomosynthesis QC Programs/ GE Healthcare (Pristina)	0.67
22nd Annual Mammography Update for Physicists	10/20/2018	Diagnostic Radiology: Mammography	Digital Mammography and Digital Breast Tomosynthesis QC Programs/ GE Healthcare (SenoClaire)	0.67
22nd Annual Mammography Update for Physicists	10/20/2018	Diagnostic Radiology: Mammography	Digital Mammography and Digital Breast Tomosynthesis QC Programs/ Siemens	0.67
22nd Annual Mammography Update for Physicists	10/20/2018	Diagnostic Radiology: Mammography	Dose and Image Quality in Digital Mammography	0.67
22nd Annual Mammography Update for Physicists	10/20/2018	Diagnostic Radiology: Mammography	Meet the Experts - Panel Discussion	0.25
22nd Annual Mammography Update for Physicists	10/20/2018	Diagnostic Radiology: Mammography	New Directions in Breast Imaging	1
22nd Annual Mammography Update for Physicists	10/20/2018	Diagnostic Radiology: Mammography	Overview of Digital Breast Tomosynthesis	0.33
22nd Annual Mammography Update for Physicists	10/20/2018	Diagnostic Radiology: Mammography	Questions, Discussions and Evaluations	0.33
22nd Annual Mammography Update for Physicists	10/20/2018	Diagnostic Radiology: Mammography	Soft Copy Display: Image Communications and QC	1
22nd Annual Mammography Update for Physicists	10/20/2018	Diagnostic Radiology: Mammography	Stereotactic Breast Biopsy: Clinical Considerations and Comparison to Alternative Biopsy Techniques	1
22nd Annual Mammography Update for Physicists	10/20/2018	Diagnostic Radiology: Mammography	Surveying/QC of Stereotactic Breast Biopsy Units and Tips & Tricks- Group Discussion	1.25
22nd Annual Mammography Update for Physicists	10/20/2018	Diagnostic Radiology: Mammography	The Diagnosis & Treatment of Breast Cancer	1
22nd Annual Mammography Update for Physicists	10/20/2018	Diagnostic Radiology: Mammography	Welcome & Introductions	0.25
Total Released Credits:				23.43

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Certificate of Medical Physics Continuing Education Credits
----Transcript----

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 US

Participated in the following CAMPEP accredited educational program(s) and is awarded Medical Physics Continuing Education Credits (MPCECs) as designated

Program Title	Date Credits Earned	Category/SubCategory	EA Title	Credits
2019 61st AAPM Annual Meeting & Exhibition	07/17/2019	Diagnostic Radiology: None	Advances in Image-Guided Interventions	2
2019 61st AAPM Annual Meeting & Exhibition	07/16/2019	Diagnostic Radiology: None	Biomedical Modeling Using Imaging Data	1
2019 61st AAPM Annual Meeting & Exhibition	07/18/2019	Diagnostic Radiology: Magnetic Resonance	Design Elements and Performance Evaluation of MRI Radiofrequency Coils	2
2019 61st AAPM Annual Meeting & Exhibition	07/18/2019	General Medical Physics: Dosimetry	Dose and Safety	2
2019 61st AAPM Annual Meeting & Exhibition	07/15/2019	Diagnostic Radiology: Magnetic Resonance	ISMRM - AAPM Joint Symposia: MR Safety Foundations	2
2019 61st AAPM Annual Meeting & Exhibition	07/17/2019	Diagnostic Radiology: Magnetic Resonance	ISMRM-AAPM Joint Symposia: MR Safety for Experts	2
2019 61st AAPM Annual Meeting & Exhibition	07/16/2019	Diagnostic Radiology: Magnetic Resonance	ISMRM-AAPM Joint Symposia: MR Safety Operations	2
2019 61st AAPM Annual Meeting & Exhibition	07/16/2019	General Medical Physics: None	Medical Physics Life Hacks	1.25
2019 61st AAPM Annual Meeting & Exhibition	07/15/2019	Nuclear Medicine: Dosimetry	Novel Approaches to Dose Optimization in Nuclear Medicine	1.5
2019 61st AAPM Annual Meeting & Exhibition	07/15/2019	General Medical Physics: None	Poster Viewing	5
2019 61st AAPM Annual Meeting & Exhibition	07/15/2019	General Medical Physics: None	President's Symposium: Building Bridges	2
2019 61st AAPM Annual Meeting & Exhibition	07/16/2019	General Medical Physics: Regulatory/Accreditation	Session in Memory of Edward Nickoloff: Joint Commission Update: Satisfying the Joint Commission Fluoroscopy Requirements	1.5
2019 61st AAPM Annual Meeting & Exhibition	07/17/2019	Diagnostic Radiology: Computed Tomography	Tailoring CT Protocol to Patient Age and Size with a Focus On Pediatric Patient	1.5

2019 AAPM Online Continuing Education	03/06/2019	Diagnostic Radiology: Magnetic Resonance	1915-N MRI Annual Equipment Performance Evaluation and Acceptance Testing	1
2019 AAPM Online Continuing Education	03/06/2019	Diagnostic Radiology: Magnetic Resonance	2010-N Report of MR Subcommittee Task Group I - Acceptance Testing and QA Procedures for MRI	1
2019 AAPM Online Continuing Education	03/06/2019	Diagnostic Radiology: Ultrasound	2054-N Imaging Educational Course - Ultrasound II: Current State and Future of Ultrasound	1
2019 AAPM Online Continuing Education	03/06/2019	Nuclear Medicine: PET	2136-N Motion Correction in PET Imaging	1
2019 AAPM Online Continuing Education	03/06/2019	Diagnostic Radiology: Magnetic Resonance	2218-N The Revised ACR MRI Quality Control Manual: Status Report	1
2019 AAPM Online Continuing Education	03/06/2019	Diagnostic Radiology: Computed Tomography	2474-N CT Quality Control	1
2019 AAPM Online Continuing Education	03/06/2019	Diagnostic Radiology: Magnetic Resonance	2483-N Model of a MRI Safety Program: the Mayo Clinic Experience	1
2019 AAPM Online Continuing Education	03/06/2019	Diagnostic Radiology: Computed Tomography	2519-N The Inspector's Viewpoint on Conventional CT Equipment Evaluation	1
2019 AAPM Online Continuing Education	03/08/2019	Diagnostic Radiology: Digital Radiography	2624-N Improvement of Pediatric DR (2017)	1
2019 AAPM Online Continuing Education	03/06/2019	Diagnostic Radiology: Ultrasound	2625-N Diagnostic ultrasound QA/QC (2017)	1
2019 AAPM Online Continuing Education	03/06/2019	Diagnostic Radiology: Digital Radiography	2626-N Digital Radiography Detectors	1
Total Released Credits:				36.75

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Service Report

Received: 06-Sep-19

The equipment was tested for conformance with Radcal specifications using applicable Conformance test procedures. These procedures include inspection, operation with an x-ray machine and electrical test. The results are summarized below:

Model Number	Serial Number	Description	Meets Mfr Spec	Spec limit (±)	Cal Date
AGDM+	48-1280	Accu-Gold Digitizer Module	Yes	Pass/Fail	20-Sep-19
10X6-3CT	05-1217	Ion Chamber	Yes	4%	20-Sep-19
AGLS	01-0166	Accu-Gold Light Sensor	Yes	Pass/Fail	20-Sep-19
AGMS-DM+	43-0987	Accu-Gold Multi-Sensor	Yes	Pass/Fail	20-Sep-19

Service requested:

AGLS does not measure luminance values & trigger is touchy/finicky.
Cal date AGMS is not correct when using software computer interface.
Perform conformance test, inspection and issue certificate.

Service performed:

Verified customers problem statement.
Replaced measurement switch and recalibrated.
Added quiet bias for optimal performance.
The 10X5-6M ionization chamber was calibrated to meet the requirements of FDA-MQSA "Final rules for Quality Mammographic Standards".
Recalibrated system at customers request.
Issued report on Calibration 126605.
Issued Certificate of Conformance.



Certificate of Conformance

Issued to: Therapy Physics
2501 Cherry Ave .Suite 270
Signal Hill, CA 90755

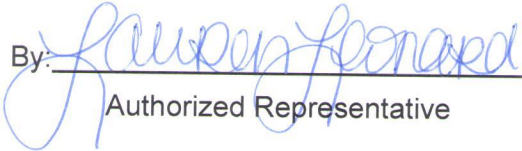
<u>Equipment Description</u>	<u>Model</u>	<u>S/N</u>
Accu-Gold Digitizer Module	AGDM+	48-1280
Ion Chamber	10X6-3CT	05-1217
Accu-Gold Light Sensor	AGLS	01-0166
Accu-Gold Multi-Sensor	AGMS-DM+	43-0987

The equipment identified above has been calibrated and tested using Radcal calibration and acceptance procedure PP1102, Radcal Quality Manual PP1007, Radcal Policy and Procedure PP1038, PI1045, PI1055 and other related documents. The equipment has been found to conform in all respects. These test procedures are designed to ensure that the tested equipment meets or exceeds all aspects of Radcal's published product specifications and requirements. Radcal is an ACLASS accredited calibration lab that meets the requirements of ISO 17025 and ANSI/NCLS Z540-1, cert number AC-1553.

All measurements performed during the testing employ equipment traceable to NIST or another recognized National Laboratory such as Physikalisch-Technische Bundesanstalt (PTB).

For additional information please refer to Radcal's Product note: "The Importance of Conformance Testing".

Certificate Issue Date: 20-Sep-19

By: 
Authorized Representative

Radcal Corporation
426 W. Duarte Rd. Monrovia, CA 91016
Tel: (626) 357-7921 FAX: (626) 357-8863 email: service@radcal.com



PRODUCT NOTE

TOPIC: QUIET-BIAS TECHNOLOGY (What Quiet-Bias Equipped means)

The ion chamber brings reliability and versatility to the radiation protection industry and has been the gold standard for decades. Originally, Radcal developed a unique filter making ion chambers that were robust to electromagnetic interference.

Through a second major innovation, Radcal was able to provide high fidelity waveforms (time-dependent representations of the dose rate signal) as measured by the ion chamber. Visualization of the waveform provides unparalleled quality assurance and failure mode identification for today's x-ray imaging systems.

Unfortunately, achieving the rapid time response necessary to produce useful waveforms compromised some of the electromagnetic interference robustness of prior instruments. In particular, triggering for very low dose rate measurements became challenging in the presence of high levels of electromagnetic noise. Special grounding accessories partially mitigated this effect, but were often inconvenient.

Radcal is excited to announce that research and development efforts have yielded a new ion chamber technology, the "Quiet Bias". A specially design electronic circuit filters the bias voltage supply eliminating noise that would have appeared in the output signal.

Quiet-Bias technology is now incorporated into the current generation of Accu-Gold+ Digitizers and Accu-Gold+ Touch systems. Additionally, it can be provided as a retrofit to any Accu-Gold+ instrument at no cost during regular service and calibration. Note: Quiet Bias is only compatible with the Accu-Gold+ family systems.

Quiet-Bias Technology eliminates the need to use grounding accessories and for this reason Radcal will discontinue the practice of sending grounding kits with each unit unless specifically requested.

MQSA⁽¹⁾ Certificate of Calibration

Issued To: Therapy Physics
2501 Cherry Ave .Suite 270
Signal Hill, CA 90755

Equipment Description	Model	S/N	Asset No.
Accu-Gold Digitizer Module	AGDM+	48-1280	N/A
Accu-Gold Multi-Sensor	AGMS-DM+	43-0987	N/A

Condition of Equipment As-Left:

In Tolerance

Remarks: Prior to calibration, the equipment was examined and found to be in good condition and performed in accordance with the manufacturer's specifications with the exceptions listed below:

1. None

The equipment identified above has been calibrated and tested using standard Radcal calibration and acceptance procedures in accordance with Radcal Quality Manual PP1007, 4600131 - CertCal - Mammo Sensor.XLT Rev:G and technical requirements contained in the customer's order. These procedures are designed to ensure that the tested equipment meets or exceeds the stated specifications and the requirements of ANSI/NCLS Z540-1-1994.

⁽¹⁾See MQSA Advisory Note attached.

All measurements performed during the testing employ equipment traceable to NIST or another recognized National Laboratory such as Physikalisch-Technische Bundesanstalt (PTB). All calibration results included with this certificate were recorded at the time of measurement and shall not imply anything about the instrument's future stability. This must be determined from previous historical data.

Calibration Date: 20 September 2019

Date of Report 20 September 2019

Interval, as defined by MQSA: 12 months after date of calibration

Calibration Due: 20 September 2020

Calibration Tech.:


AV

By:


Authorized Reviewers
E. Macintosh / M. Bryant

MQSA⁽¹⁾ Certificate of Calibration

Measurement Test Conditions

A Lorad M-II Mammographic X-ray generator equipped with Molybdenum target and a beryllium window x-ray tube was used as the source of the required mammographic x-ray beam. The generator ripple is less than 1 kV. Filters were added to produce the required beam (see data). The output of the generator was measured with a Radcal Dynalyzer invasive voltage divider. The HV-1 output was measured with an analog-to-digital converter with an uncertainty of $\pm 0.1\%$. All reported kVp, mA and time measurement results have an uncertainty of better than $\pm 1\%$ at the 95% confidence level. Dose measurements were made using the substitution method and normalized with a reference mammographic dose diode. Reported dose and dose rate measurement results have an uncertainty of better than $\pm 5\%$ at the 95% confidence level.

Conditions of Measurement

Temperature: 23.7 °C
 Pressure: 99.58 kPa
 Humidity: 39%

NOTE: All dose measurements were normalized to 22°C, 101.3 kPa.
 "CF" = correction factor and True Reading = CF x Reading
 All exposures were made with the DUT oriented perpendicular to the beam.
 The beam is collimated to not expose the chamber stem (if applicable).

All Multi-Sensor readings were captured with: Accu-Gold 2.55.1

Exposure Properties

ISO Beam	Added Filtration ($\mu\text{m Mo}$)	First HVL (mm Al)	Set kV	Avg. Current mA	Avg. Time ms	Distance (Perp.)
RQR-M-3	32.6	0.361	30.4	27.8	406	48 cm

Calibration Results

Exposure #	Standard	DUT	DUT CF
	Dose mGy	Dose mGy	
1	3.166	3.165	1.000
2	3.157	3.163	0.998
3	3.156	3.162	0.998
Avg.	3.159	3.163	0.999

MQSA Advisory Note

Date: 15 April 1999
Revision: 01 June 2018
Topic: FDA-MQSA "Final Rule for Quality Mammography Standards"

The FDA-MQSA "Final Rule for Quality Mammography Standards" (effective 28 April 1999), requires that all air kerma measuring instruments used by medical physicists in their annual survey of a mammography unit, must be calibrated at least once every two years, and each time it is repaired. The instrument calibration must be traceable to a national standard and calibrated with an accuracy of $\pm 6\%$ (95% confidence level) in the mammography energy range. Traceable to a national standard means an instrument is either calibrated at NIST or at a calibration laboratory that participates in a proficiency test with NIST at least every 2 years and the results of the proficiency test shows agreement within 3% of the national standard in the mammography energy range.

Radcal has met these requirements (ref: NIST Proficiency Report DG13398/18 dated 01 June 2018). The repetition of your calibration can wait until up to two years after the last calibration or until after the next repair, whichever comes first.

If your instrument was calibrated in Roentgens, air kerma is related to the exposure by the equation:

$$K = 2.58 \times 10^{-4} \cdot (W/e) \cdot X / (1-g)$$

Where:

- K is air kerma in grays (Gy)
- W/e is the mean energy per unit charge expended by electrons in dry air in Joules per coulomb (J/C): the value used at NIST is $W/e = 33.97 \text{ J/C}$
- X is the exposure in roentgens (R)
- g is the fraction of the initial kinetic energy of secondary electrons dissipated in air through radiative processes: the value used at NIST is $g = 0.00$ for x-rays with energy less than 300 keV.

Each medical physicist who provides medical physics services at this facility **must verify that they meet FDA requirements** by completing a copy of this form.

Please print and complete this form. Signature dates must be within one year from the date of the most recent medical physicist's Annual Survey report. Original, electronic or faxed signatures are required and considered legally binding for this document. Stamped signatures are not acceptable. Complete all sections; **an incomplete application will delay your accreditation.**

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Code of Virginia 8.01-581.17

PERSONNEL • MEDICAL PHYSICIST

1. Name: Seslija Petar M.S.
LAST NAME FIRST NAME MI DEGREE

2. ACR Membership ID#: (optional) _____

3. Initial qualifying date (earliest date qualified to do mammography physics. Medical physicists qualifying prior to the MQSA Interim Rules should check "prior to October 1, 1994."):

prior to October 1, 1994 or specify date after October 1, 1994 Feb / 2019
MO YR

INITIAL QUALIFICATIONS

4. Do you meet FDA requirements for initial qualifications for medical physicists? (complete ONLY the column that pertains to you)

FDA Requirements	Initial Qualifications (Master's degree or higher)		Alternative Initial Qualifications <i>must have met before April 28, 1999</i> (Bachelor's degree)	
	Board	Year	Board	Year
Qualified as a medical physicist under FDA's interim regulations and retained that qualification by maintenance of the active status of licensure, approval, or certification?	<i>Not applicable</i>		<input type="checkbox"/> ¹ No <input type="checkbox"/> ² Yes	
Board Certified by either the 1. American Board of Radiology (ABR) in Diagnostic Radiological Physics* (alone or combined with another sub-specialty), Radiological Physics, Roentgen Ray or Gamma Ray Physics or X-Ray and Radium Physics, or 2. American Board of Medical Physics (ABMP) in Diagnostic Imaging Physics *also, effective 2011, Diagnostic Medical Physics	ABR		ABR	
	ABMP		ABMP	
State licensed?	<input type="checkbox"/> ¹ No <input checked="" type="checkbox"/> ² Yes		<input type="checkbox"/> ¹ No <input type="checkbox"/> ² Yes	
State approved?	<input type="checkbox"/> ¹ No <input checked="" type="checkbox"/> ² Yes		<input type="checkbox"/> ¹ No <input type="checkbox"/> ² Yes	
Meet the following degree requirement in a physical science from an accredited institution?	Master's degree or higher <input type="checkbox"/> ¹ No <input checked="" type="checkbox"/> ² Yes		Bachelor's degree obtained before training and initial experience <input type="checkbox"/> ¹ No <input type="checkbox"/> ² Yes	
Have no less than the following semester hours or equivalent of college undergraduate or graduate level physics?	20 semester hours or equivalent <input type="checkbox"/> ¹ No <input checked="" type="checkbox"/> ² Yes		10 semester hours or equivalent <input type="checkbox"/> ¹ No <input type="checkbox"/> ² Yes	
Have the following contact hours of documented specialized training in conducting surveys of mammography facilities?	20 hours <input type="checkbox"/> ¹ No <input checked="" type="checkbox"/> ² Yes		40 hours <input type="checkbox"/> ¹ No <input type="checkbox"/> ² Yes	
Have experience conducting surveys of at least one mammography facility and the following number of mammography units? (No more than one survey of a specific unit within a period of 60 days may be counted towards the total mammography unit survey requirement. If experience was acquired after April 28, 1999, it must be under the direct supervision of a qualified medical physicist).	10 units <input type="checkbox"/> ¹ No <input checked="" type="checkbox"/> ² Yes		20 units <input type="checkbox"/> ¹ No <input type="checkbox"/> ² Yes	

New modalities: You must have received at least 8 hours of modality-specific training (e.g., full-field digital or screen-film) in surveying these systems before independently performing surveys on these systems. Have you received this training? (may be included in the above formal mammography education or obtained separately)

- | | | |
|---|---|--|
| Full-field digital mammography (direct capture digital and/or computed radiography) | <input type="checkbox"/> ¹ No | <input checked="" type="checkbox"/> ² Yes |
| Screen-film mammography | <input checked="" type="checkbox"/> ¹ No | <input type="checkbox"/> ² Yes |
| Digital Breast Tomosynthesis (DBT) | <input type="checkbox"/> ¹ No | <input checked="" type="checkbox"/> ² Yes |

CONTINUING EXPERIENCE

5. How many mammography facilities and units have you surveyed over the previous 24-month period?

facilities: >5 # units: >10

If less than 2 facilities and 6 units, are you in the process of requalifying?

- ¹No ²Yes

CONTINUING EDUCATION

6. Have you earned at least 15 continuing education units in mammography in a 36-month period? (see FDA's Policy Guidance Help System for acceptable subject areas)

- ¹No ²Yes

If you answered "No", are you in the process of requalifying?

- ¹No ²Yes

I certify that the information provided in Section H is true and

correct. Executed on: 01/17/2020
DATE



SIGNATURE OF MEDICAL PHYSICIST