OPHTHALMIC PHOTOGRAPHERS' SOCIETY
EYE IMAGING EXPERTS

BOARD OF CERTIFICATION

OCT-C

Optical Coherence Tomographer-*Certified*

Program Guide

Version 2.0 2014

Effective Date August 8, 2014

If the date on this Program Guide is more than six months old, please check the OPS website (opsweb.org) to make sure you have the most current version.

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Introduction

Welcome! Thank you for your interest in the **Optical Coherence Tomographer-*Certified* (OCT-C)** Program. This Program Guide details the process and procedures involved in becoming OCT-*C* Certified. It contains the program application, details the eligibility and portfolio requirements and includes the examination content outline. The OCT-*C* Program is administered by the Ophthalmic Photographers' Society Board of Certification (OPS BOC) http://www.opsweb.org/Certif/Certif.html.

The Ophthalmic Photographers' Society is a non-profit organization dedicated to a highly specialized form of medical photography. The main objectives of the Society are to provide primary and continuing education in the field of ophthalmic imaging, to set and maintain standards for the profession through certification programs, and to promote scientific advancement in the technology.

The Society provides for the sharing of information, sponsors meetings to promote the exchange of information and serves as a professional organization for its members, sponsoring educational meetings and promoting the field nationwide.

The OPS holds its Annual Educational Meeting in conjunction with the annual meeting of the American Academy of Ophthalmology. The OPS meeting program includes presentations of papers on advances in scientific photography and instrumentation, as well as an extensive educational program.

OPS' membership includes ophthalmologists, optometrists, veterinarians, pathologists, medical and ophthalmic photographers, nurses, ophthalmic assistants, technicians, technologists, researchers, and engineers. Active members promote the objectives of the Society. Sustaining members are organizations and individuals actively involved with ophthalmology or ophthalmic photography for commercial or charitable purposes. Anyone involved in ophthalmic photography is encouraged to apply to the OPS Membership Office (ops@opsweb.org).

The Society created the Board of Certification (BOC) in 1979. The OPS BOC serves as the formal body responsible for the certification of retinal angiographers and ophthalmic photographers.   Optical Coherence Tomographer Certification requires submission of work examples that meet established standards and successful completion of a written examination. Membership in the OPS, while encouraged, is not a requirement for Certification.

Communications

Please direct all communications to:

Mailing Address:	Ophthalmic Photographers' Society 1887 W Ranch Rd Nixa, MO 65714
Office Phone:	(417) 725-0181 1 (800) 403-1677
Office Fax:	(417) 724-8450
Web Address:	www.opsweb.org
Email Address:	oct@opsweb.org

Certification Policies

The Ophthalmic Photographers' Society Board of Certification (OPS BOC) is responsible for certification of retinal angiographers and ophthalmic photographers. Certification designates an individual who has met the OPS BOC's standards of competence. The OPS BOC is responsible for the administration of the certification examination; ISO Quality Testing, a professional examination administration contractor, performs the test center administration of the OCT-*C* examinations.

Statement of Proprietary Interest

The Board of Certification has no commercial or proprietary interest in any products used or mentioned in the certification program. The use of brand names in this program guide or on any examination is only for illustration and does not imply OPS BOC endorsement.

OCT-*C* Designation

The Optical Coherence Tomographer-*Certified* designates an individual who has met the OPS BOC standards of competence in optical coherence tomography. The OPS BOC standards are meant to assure delivery of competent, professional optical coherence tomography services.

OCT-*C*s demonstrate competence by
- Applying the Principles of the Anatomy of the Eye
- Applying the Concepts of Pathology of the Eye to OCT findings
- Managing OCT patients
- Demonstrating an Understanding of OCT Hardware and Software
- Managing OCT Data and Images
- Analyzing and Interpreting OCT Images
- Demonstrating Patient/Operator Safety

OCT-*C* examinations are offered year round at approved testing centers throughout the United States in addition to selected locations around the world. Examinations may be scheduled only <u>after</u> the applicant has fulfilled the certification eligibility requirements set forth in this Program Guide. Once eligible, the date and location of the exam may be chosen by the applicant.

The OPS BOC is the only agency authorized to designate an individual as an Optical Coherence Tomographer-*Certified.* The OPS BOC developed its program to facilitate voluntary certification of ophthalmic photographers and technicians. Its sole purpose is recognition of attainment of a standard level of knowledge and skill in optical coherence tomography. Certification does not guarantee recognition by any other individual, group, agency or institution; the liability of the OPS BOC or its representatives is limited strictly to this recognition by the OPS BOC.

Statement of Nondiscrimination

The Ophthalmic Photographers' Society Board of Certification shall admit applicants of any age, sex or sexual orientation, race, religion, color, national origin, disability or marital status to all rights, privileges, programs, and examinations generally made available through its association. It shall not discriminate on the basis of age, sex or sexual orientation, race, religion, color, national origin, disability or marital status in the administration of its certification policies.

Application Process

An OCT-*C* candidate must complete the following tasks in order to qualify to sit for the OCT-*C* examination:
1. Submit a completed OCT-*C* Program Application.
2. Upon acceptance of the Application, candidate may then submit a Portfolio.
3. Upon acceptance of the Portfolio, the candidate may complete the Examination Application.
4. Upon receipt of Exam Application, employment verification and exam fee, the candidate will receive information on how to schedule the OCT-C examination.

The Program Application can be submitted online. It can be found at www.opsweb.org > Certification > Forms & Guides.
The portfolio MUST BE submitted at www.opsweb.org > Certification > Portfolio Submission.

OCT-*C* applicants may apply online as described above or may request an application from the OPS Membership Office (1-800-403-1677 or OPS@opsweb.org). To ensure evaluators have adequate time to review your portfolio, the application and portfolio should be **submitted a minimum of eight weeks in** advance of a desired examination date. Portfolio requirements are detailed on page 6 and in the appendices.

Submission of the Program Application establishes a relationship between the Ophthalmic Photographers' Society Board of Certification and the individual applicant. All correspondence are electronic and certificates are mailed directly to the applicant's home address. Applicants **are responsible for notifying the Board of Certification directly of any change of name, email address or mailing address.** This will enable all confidential correspondence concerning certification and recertification to reach the applicant.

By applying for the OCT-*C* examination the applicant agrees to the terms set forth in this program guide regarding certification requirements and examination. Applicants attest that all information they submit is true and complete to the best of their knowledge. Any misrepresentation or misconduct in the application or examination process may result in disqualification or revocation of certification. (See Appeals and Disciplinary Policy on pages 19-21.

Once the portfolio committee approves the portfolio, the OCT-*C* Section Chair will email the applicant an **Examination Application** along with further instructions on how to proceed. The application, and employment verification letter (a minimum of one (1) year`s experience) must be completed and returned via email to oct@opsweb.org. The examination fee may be paid online at the OPS store or mailed to the OPS Central Office (Checks made payable to OPS BOC). OCT-*C* eligibility requirements for the OCT-*C* Program are explained in greater detail on page 5.

Program Fees

The OCT-*C* examination fee for current OPS members is $270 and $355 for non-OPS members (payment of the non-OPS member fee includes an optional one year OPS membership). There is no time limit for completion of the examination once an individual has submitted payment. The examination fee includes a $50 non-refundable application fee and one administration of the OCT-*C* examination at an OPS BOC approved testing center.

OCT-*C* Examination Fees: OPS member Fee: $270.00
                          Non OPS Member Fee: $355.00 (includes optional 1 year OPS membership)
                          Retesting Fee: $175.00

All fees must be remitted in U.S. dollars. Payment by credit card on the OPS Website "Store" (opsweb.org) or by calling the OPS Membership Office (1-800-403-1677).

Refunds

Examination fees will be fully refunded (minus the $50 application fee) if an applicant submits notification **at least** two weeks before a scheduled examination. Refunds for cancellations received fewer than two weeks before the scheduled examination are subject to a cancellation fee. Refunds are made payable and mailed to the party that originated the application fee payment. No refunds or credits will be issued to those who fail examinations or to those who do not appear for the examinations.

Special Testing Arrangements

The OPS BOC grants reasonable accommodations for candidates with documented disabilities, in compliance with the Americans with Disabilities Act. If special assistance or arrangements are required, the following protocol must be followed:

1. The candidate must request accommodations in writing and submit the request with the OCT-*C* application. This request must include a complete description of the requested accommodation.
2. Documentation of the disability, as diagnosed by a qualified health care professional, must accompany the request.

The OPS BOC may contact candidates requesting accommodations to discuss the disability and requested accommodation. In conference with a psychometrician, with consideration of examination security and examination administration guidelines, a reasonable accommodation will be made. Candidates will be notified of the accommodations to be offered, which will be offered without charge.

Privacy/Confidentiality Policy

The OPS BOC abides by the OPS strict privacy/confidentiality policy demonstrating its firm commitment to OCT-*C* candidates and certificant privacy (available at www.opsweb.org > Certification > Forms & Guides). The policy applies to all aspects of the OCT-*C* credential including the secure handling and storage of application materials, examinations, scores, and candidate and certificant records. OPS BOC staff and volunteers are required to complete a non-disclosure document agreeing to protect the privacy of OCT-*C* certificants and candidates. It is the policy of the OPS BOC that non-disclosure protected information may NOT be released to or shared with:

1. Any member of the public without an applicable statutory exception or written release from the OCT-*C* candidate/ certificant.
2. Any member of the OPS BOC unless the recipient has a legitimate interest for the use of that protected information to perform a service or carry out a responsibility within that person's scope of employment or engagement as an OPS BOC agent.

The OPS BOC procedure is that protected information may only be released or shared in accordance with this policy.

OPS staff and OPS BOC agents with access to protected information are expected to safeguard that information from unauthorized disclosure. This includes, as appropriate:

- Computer Systems and Applications Security: Central processing units, peripherals, portable storage devices, operating system, applications software and data;
- Physical Security: The premises occupied by OPS and/or the OPS personnel, agents or contractors using computer
- Operational Security: Environmental control, power equipment, operational activities related to operations;
- Procedural Security: Established and documented security processes for information technology staff, vendors, management and individual users of protected information;
- Network Security: Communications equipment, transmission paths, switches, terminals and adjacent areas.

The OPS and the OPS BOC reserve the right to change this policy at any time by notifying users of the adoption of a new privacy statement.

Records and Data Retention Policy

All applications, correspondence, supporting documentation and materials generated in the testing process will be held for one year following attainment of the OCT-*C* credential. Computer records of applicant demographics and test scores are kept indefinitely.

Requirements for Certification

Examination Eligibility Requirements

Eligibility for the written examination is contingent upon fulfilling these requirements:

1. Submission and acceptance of a satisfactory portfolio (See Portfolio Requirements).

2. Provision of a letter from the employing physician(s) or institution(s) verifying the applicant's employment history with Optical Coherence Tomography as part of responsibilities for a minimum of one year.

This one-year work experience requirement is meant to allow time for an applicant to acquire, through hands-on experience, the knowledge and skills necessary to perform optical coherence tomography. It should include enough patient interaction to allow an applicant to develop the clinical judgment and patient management skills necessary for competent performance as an optical coherence tomographer. A competent optical coherence tomographer must be able to elicit cooperation from a non-cooperative or challenging patient for acceptable performance of OCT imaging. Internships or practicum are considered part of a formal education program. These clinical experiences do not qualify as work experience.

Verification of Eligibility Information

The Board of Certification reserves the right to verify the experience attested to by the applicant by calling the employer(s) listed on the application form or requesting written documentation of the submitted information either prior to or after the examination.

Applicants will be declared ineligible for examinations if any of their eligibility requirements are found to be unsatisfactory.

Award of the OCT-*C* Credential

The following requirements are necessary to achieve the OCT-*C* designation by the Ophthalmic Photographers' Society Board of Certification.

- Satisfactory completion of all eligibility requirements;

- A passing score on the written examination.

Portfolio Requirements

The portfolio must be produced entirely by the applicant. You can find printable requirement lists for both Time Domain (TD-OCT) and Spectral Domain (SD-OCT) devices by following the links below. **The portfolio submission form (page) must be completed and submitted with the portfolio.** By signing the portfolio submission form, the applicant attests to the authenticity of the work submitted. Submission of work completed by anyone other than the applicant constitutes fraud. Fraud or misrepresentation of the portfolio may result in disqualification of the applicant.

You can find both the Time Domain OCT and Spectral Domain OCT Portfolio requirements in the OCT-C Program Guide appendices.

Naming Convention for OCT Scan Portfolio Submissions

Last Name: OCT Certification

First Name: Candidate Name (Your Name)

Birth date: 1-1-1900

Patient ID: Item # (Example: Item 1A or 3C)

Naming Your OCT Files

Label all files with your last name as a prefix to the Item #. For example, the submission set for # 7 should be labeled: "your last name"7a (SMITH7a).

Normal eyes can be used when pathology is not specified in the item description. If applicable, the same eye may be imaged for multiple items.

Portfolio Rating Standards

The Portfolio Committee uses standards established and approved by the Board to perform ratings of OCT-*C* portfolios. Two members of the Portfolio Committee independently rate each portfolio, and when required, the Committee Chair arbitrates scores.

OCT-*C* portfolios are rated based on conformance of the following matrix of standards:

Intent:	Is the required image present?
Protocol:	Does the image show the specified scan and analysis protocol?
Scan Quality:	Are the scan parameters within an acceptable range?
Artifacts:	Is the image free of undesirable artifacts?
Labeling:	Is the image de-identified of private health information and labeled properly?

All criteria for each required image must be met for the portfolio to be found satisfactory. Item specific criteria are identified in the Portfolio Guidelines in the appendices of this guide.

Portfolio Assembly

The required image files must not contain any patient information and must be labeled as described.

Acceptable Method of Image Submission

Images are to be submitted digitally in either in **pdf** or **jpeg** format.

All images must be de-identified (anonymized); no patient information can be visible on the submitted images.

The portfolio will be deemed unsatisfactory if it contains extra examples of the requested images or contains any patient information.

Portfolio Submission

Upload the portfolio at: www.opsweb.org > Certification > Portfolio Submission. The OCT-*C* Portfolio Committee will review the portfolio within 30 days. Candidates with portfolios meeting the requirements will receive an email-confirming acceptance. Candidates with portfolios not meeting the requirements will receive a critique of the unacceptable segments. The applicant can correct any deficiencies and resubmit the required component(s); if the portfolio committee returns the entire portfolio, correct the required components and resubmit the entire portfolio. If you are unable to send your portfolio digitally, please contact the OCT-C Portfolio Committee to see if special arrangements can be made.

The Ophthalmic Photographers' Society Board of Certification assumes no liability for any materials lost or damaged in shipping/transfer. The Board of Certification recommends that applicants maintain a copy of the portfolio for their personal records.

The Portfolio Committee will notify the OCT-*C* Section Chair of the applicant's examination eligibility. The Section Chair will send the applicant an Examination Application and guidelines on submitting your employment verification letter and exam fees. Upon verification of your paperwork and your exam fee is paid, the candidate will receive an e-mail from the testing center with directions on arranging your OCT-*C* exam at the date and location of your choice.

The OCT-*C* Examination

Examination Philosophy

The designation of OCT-*C* is meant to assure the stakeholders (patients, employers, regulators, the public) that the certificant has demonstrated an established level of competency in performing OCT imaging.. Certification requires a thorough knowledge of the subject matter. The examination is designed to recognize applicants who display a level of knowledge and ability that demonstrates competence as an optical coherence tomographer.

Examination Philosophy

The content validity (relevance), fairness and accuracy of the OCT-*C* examination are assured. The OPS BOC, working with experts in the field of certification programming, mandates that the examination development, administration, scoring and reporting adhere to international professional standards and guidelines establishing assessment and certification best practices. The most important of these standards are promulgated by such key organizations as the National Commission for Certifying Agencies (NCCA), ISO/American National Standards Institute (ANSI) 17024 Standards, the American Psychological Association (APA), and the Council on Licensure, Enforcement and Regulation (CLEAR). This body of standards provides a means for ensuring that the assessment and credentialing process is a fair measure of competence and is legally defensible.

The examination content outline is based upon the 2014 Job Analysis Study (also called a Role Delineation) that will be revalidated periodically. The most recent study findings were implemented in the summer of 2014, and utilized a full scale survey methodology inviting all known OCT professionals to participate. This research was performed under the direction of a panel of Subject Matter Experts (SMEs) representing the full complement of diversity in the field, providing a documented link between the content of the examination and practice on the job as an OCT-*C*.

The passing standard (cut score) for the OCT-*C* examination was determined using methodologies involving a representative panel of OCT-*C* SMEs and empirical judgments (Angoff, Design V). New forms and versions of the examination are systematically implemented to protect the integrity and security of the examination program and to conform to testing industry standards. Each new examination form contains a significant percentage of new questions that are unique to the new form. Psychometric procedures are used to score the examinations in compliance with relevant technical guidelines. The OCT-*C* examination reports scores using a scaled score model, where raw scores are placed on a 0-100 scale with 70 reported as the passing score on all examinations. Score scaling is a common psychometric practice, used on many examinations including the SAT, ACT and OPS CRA examinations.

Ongoing question writing, question review, and examination and question analyses are conducted to ensure that the validity, reliability and other psychometric characteristics of the examinations conform to standards. New questions written by OCT-C SMEs are reviewed multiple times, verified to an approved reference, and linked to the examination content outline. All questions undergo statistical review to ensure that they operate properly. Professional test development and psychometric staff, contracted by the OPS BOC, oversee all of these activities. The Board is highly confident that the validity of the exam content, the reliability of the test instruments, and the measurement processes employed to analyze, score and establish reporting scores are of the highest caliber.

Examination Design, Scoring and Reporting

The OCT-*C* examination is comprised of 100 four-option, multiple-choice questions, administered using computer-based examinations. Candidates are allotted two hours in which to complete the exam. Each multiple-choice question has four answer choices; only one answer choice is correct. It is a closed-book examination. Candidates will be provided with scratch paper and a pencil; both will be collected after the test administration. Candidates are encouraged to read the questions carefully, choosing the single best response,

first answering the questions that they are sure of, returning to the more difficult questions as time allows. Credit is given only for questions that have responses: questions left blank will be scored as incorrect; therefore, there is no penalty for guessing.

At the end of the testing session, a computer-generated score report will be issued.* This score is provisional, pending statistical verification that will take place within 72 hours. If candidates do not hear from the OPS BOC or its agent within that time period, they may assume the score stands as reported. Candidates passing the examination will not receive a scaled score. Failing candidates will receive a scaled score, along with a diagnostic report indicating examination content areas of weakness.

The examination score is based upon the total number of correct responses that represent competency. Scores are unrelated to the performance of other candidates taking the examination.

*At times during the examination development cycle, candidate scores may be withheld pending further psychometric analysis. Withheld scores will be released within approximately 60 days of the test administration date.

Examination Content

As described, the examination content outline is based upon Job Analysis research of the role of the OCT. The examination construction is based upon the importance rating of the seven main content areas. A complete content outline follows:

I.   Applies the Principles of the Anatomy of the Eye   (15%)

    A.   Demonstrates an understanding of anterior and posterior segment structures

    B.   Demonstrates an understanding of the layers of the retina

    C.   Demonstrates an understanding of optic nerve anatomy

    D.   Demonstrates an understanding of anatomical landmarks and terminology

II.   Applies the Concepts of Pathology of the Eye to OCT findings   (25%)

    A.   Recognize and identify the ocular manifestations of:

        1.   retinal diseases

        2.   optic nerve disorders

        3.   anterior segment disorders

        4.   systemic diseases

    B.   Recognize and identify the clinical posterior segment OCT findings of:

        1.   diabetic retinopathy/macular edema

        2.   macular degeneration/choroidal neovascular membrane

        3.   central serous retinopathy/subretinal fluid

        4.   cystoid macular edema/diffuse macular edema

        5.   retinal holes: pseudo/lamellar/full thickness

        6.   glaucoma

        7.   papilledema/optic pit

        8.   epiretinal membrane

        9.   vitreomacular traction

        10.   posterior vitreous detachment/weiss ring

        11.   pigment epithelial detachment

        12.   retinal detachment/retinoschisis

        13.   drusen/ hard and soft exudates

        14.   drusen, ONH

        15.   pathologic myopia

        16.   retinal nerve fiber layer defects

        17.   venous/arterial occlusions

        18.   tumors/nevi

        19.   asteroid hyalosis/vitreous hemorrhage

III.   Patient Management   (5%)

    A.   Informs patient of procedures to be performed.

    B.   Answers patient questions concerning the procedure

    C.   Establishes fixation

    D.   Elicits cooperation from uncooperative or physically disabled patients

    E.   Assesses pupil size/dilation

    F.   Establishes/reviews patient records including:

        1.   medical/surgical history

        2.   ocular history

        3.   photographic history

IV.   OCT Hardware and Software   (28%)

    A.   Applies the basic concepts of OCT equipment technology as it relates to:

        1.   time of flight delay

        2.   interferometry

        3.   spectrometer

        4.   Fourier transform

        5.   sampling arm/reference arm

        6.   reference mirror

    B.   Understands the function and components of the OCT machine including:

        1.   wavelength of light

        2.   limitations of machine

        3.   resolution

        4.   algorithm differences across instruments

    C.   Performs routine maintenance and equipment troubleshooting including:

        1.   cleaning equipment

        2.   software maintenance

    D.   Understands and applies scanning protocols related to time domain and spectral domain devices:

        1.   qualitative/quantitative retina including:

            a.   high resolution line scan

            b.   raster line scan

            c.   radial lines thickness/volume map

            d.   cube thickness/volume map

            e.   repeat/follow up

            f.   custom scan

        2.   qualitative/quantitative optic nerve/glaucoma including:

        a.   high resolution line scan

        b.   raster line scan

        c.   RNFL

        d.   optic nerve head/disc

        e.   repeat/follow up

        f.   custom scan

E.   Understands the function and properties of the OCT equipment including the use of the following controls including:

    1.   chin/forehead rest

    2.   table height

    3.   internal fixation device

    4.   external fixation device

    5.   focus knob

    6.   image averaging/sampling

    7.   image brightness

    8.   image contrast

    9.   OCT image noise

    10. line length

    11. line angle

F.   Understands the function and properties of the OCT equipment including the use of the following image placement in the acquisition window as it relates to:

    1.   optimal placement (Time Domain)

    2.   optimal placement (Spectral Domain)

    3.   enhanced depth imaging (EDI)

G.   Understands the function and properties of the OCT equipment including the use of the following scan pattern placement including:

    1.   peripheral scanning

    2.   free scanning/dynamic scanning

    3.   using anatomical landmarks

H.   Uses OCT hardware and software by understanding the function and properties of the OCT equipment including:

    1.   positioning the optical head/patient module

    2.   enhance/polarization - auto

    3.   enhance/polarization - manual

    4.   resolution

V. Data and Image Management   (3%)

    A.   Storage utilization

B.   Organizes archival/retrieval system

C.   Organizes backup/retrieval/disaster recovery systems

D.   Coordinates network file transfers for archiving/patient data base systems

E.   Exports images and data to:

    1.   CD /DVD-Ram

    2.   external USB devices

    3.   external users (off device, image sharing/transfer)

F.   Networks the OCT to the server

VI.   Analysis/Interpretation of OCT   (20%)

A.   Performs analysis/interpretation of retinal images including:

    1.   false color scale/pseudo color/gray scale

    2.   macular center thickness measurement

    3.   total macular volume

    4.   retinal map

    5.   measurement tools

    6.   shadowing

    7.   analysis artifacts/plotting errors/failures

    8.   signal strength

    9.   +/- center deviation

    10.   signal-to-noise ratio

B.   Performs Analysis of Optic Nerve/glaucoma images including

    1.   false color scale/pseudo color/gray scale

    2.   disc reference points

    3.   cup/disc ratio

    4.   RNFL analysis

    5.   analysis artifacts/plotting errors/failures

    6.   asymmetry (i.e. posterior pole thickness)

C.   Performs Analysis of Anterior Segment OCT images including

    1.   pachymetry

    2.   analysis artifacts/plotting errors/failures

    3.   measurement tools

D.   Scanning artifacts in OCT imaging relating to:

    1.   movement

    2.   inversion

    3.   sampling errors

4. vibration

5. patient tear film

6. media opacities/shadowing

7. dirty lens

VII. Patient/Operator Safety   (4%)

    A.   Adheres to Universal Precautions as defined by the Centers for Disease Control and Prevention (CDC)

    B.   Observes precautions set forth by equipment manufacturers

    C.   Observes Occupational Safety and Health Administration (OSHA) and The National Institute for Occupational Safety and Health (NIOSH) regulations relating to OCT

    D.   Understands HIPAA confidentially and privacy regulations relating to OCT

Suggested References: Preparing for the OCT-*C* Examination

The OCT-*C* examination tests the applicant's knowledge of optical coherence tomography imaging. The Examination Content Outline and Weightings (page 10) identify the areas in which to concentrate for the examination. The OPS BOC provides a suggested reference list as a resource that may be useful to supplement the training and experience related to competent performance as an OCT-*C*. Candidates are encouraged to review resources and information in content areas where skills or knowledge may be weak. The OPS BOC does not recommend that candidates memorize all recommended references. The information tested on the examination pertains to the common body of knowledge which is delineated in the OCT-*C* Examination Content Outline.

The OPS BOC does not endorse any particular text or author. This list is not intended to be inclusive, but reflects references used to support the test development process. Use of the references during study for the OCT-C exam does not guarantee successful performance on the examination.

1. Coscas, G.. Atlas of Indocyanine Green Angiography: Fluorescein Angiography, ICG Angiography and OCT Correlations. Elsevier, 2006.
2. Gupta, V., Gupta, A., Dogra, M.. Atlas of Optical Coherence Tomography of Macular Diseases. Taylor & Francis, 2004.
3. Tasman, W. and Jaeger, E. (Eds.). Duanes Clinical Ophthalmology. Lippincott, Williams and Wilkins. 2006.
4. Schuman, J., Puliafito, and C Fujimoto, J.. Everyday OCT:A Handbook for Clinicians and   Technicians. Slack, Inc., 2005.
5. Brancato R. and Lumbroso B. Guide to Optical Coherence Tomography Interpretation. Rome: Innovation-News-Communication, 2004.
6. Bouma, B and Tearne, G. (Eds.). Handbook of Optical Coherence Tomography. Marcel Dekker, 2002.
7. Gallimore, G. http://www.eyetec.net. TZV Publishing, 2007.
8. Martidis, A., Optical Coherence Tomography and Retinal Diseases. Lippincott Williams & Wilkin., 2006.
9. Schuman J., Puliafito C., and Fujimoto J. Ocular Coherence Tomography of Ocular Diseases. Slack Inc., 2004.
10. Emerson, J.. Stratus OCT: A Practical Operation Guide. Carl Zeiss Meditech, 1 800 342 9821
11. Bressler, N. and Ahmed, I. .The Stratus OCT Primer: Essential OCT. Carl Zeiss Meditech, 1 800 342 9821.
12. Stratus Owner's Manual. Carl Zeiss Meditech, 1 800 342 9821.
13. Quillen, D. and Blodi, B., Clinical Retina. American Medical Association Press, 2002.
14. Newell, F., Ophthalmology - Principles and Concepts. Mosby. 1996.
15. Lumbroso, B. Rispoli, M..Guide to Interpreting Spectral Domain Optical Coherence Tomography. I.N.C., 2009.
16. Strong, J. Optical Coherence Tomography http://www.opsweb.org/?page=RetinalOCT
17. Moyer, S. Anterior Segment Optical Coherence Tomography (AS- OCT) http://www.opsweb.org/?page=ASOCT
18. Making the Most of Anterior Segment OCT. Review of Ophthalmology. online 4/12/11
19. Smith, A. Correlation of Ocular Ultrasound & Spectralis EDI of Ocular Lesions. Journal of Ophthalmic Photography. 2011. Vol.35: 64-67.
20. Clinical Assessment of Mirror Artifacts in SD OCT. IOVS. 2010. Vol: 51.
21. Cosas, G.. Optical Coherence Tomography in Age-Related Macular Degeneration Springer Medizin Verlag Heidelberg 2009
22. Walsh, A.. Spectral Domain OCT: An A-Z Guide. Journal of Ophthalmic Photography. 2008. Vol 30.
23. Li Y, Meisler DM, et al. Keratoconus diagnosis w/ OCT. Ophth. 2008. Vol115: 2159-2166.
24. Instrument Manuals http://www.opsweb.org/default.asp?page=Instrument_Manuals

Additional Opportunities for Study

The OPS offers OCT-related courses, workshops and publications independent of the OPS BOC. The OPS BOC provides no training nor educational materials, and it is important to note that OCT-C candidates are not required to purchase training or education materials from the OPS in order to pass the examination. Attendance at OPS courses and workshops is not a prerequisite to sitting for the OCT-*C* examination; the courses are not designed to serve as examination preparation classes, nor do they serve any ancillary examination-related purposes. The course curriculums are designed specifically to review broad concepts and offer high-level overviews of OPS-relevant topics and sub-topics. More information about educational opportunities may be found at the OPS Web Site at http://www.opsweb.org.

Acronyms and Terminology used on the OCT-*C* Examination

The list that follows includes acronyms that are used on the OCT-*C* Examination, as well as terminology, in addition to terminology found in the content outline, which candidates are expected to be familiar. Candidates are expected to recognize the meaning of these acronyms and this terminology.

<u>Acronym</u>   <u>Expansion</u>

Acronym	Expansion
ART	Automatic Real Time
CDC	Centers for Disease Control
DICOM	Digital Imaging and Communications in Medicine
EDI	Enhanced Depth Imaging
EHR	Electronic Health Record
EMR	Electronic Medical Record
ILM	Inner Limiting Membrane
IS/OS	Inner Segment/Outer Segment
OCT	Optical Coherence Tomography
RNFL	Retinal Nerve Fiber Layer
RPE	Retinal Pigment Epithelium
SD	Spectral Domain
SLD	Superluminescent diode
SLO	Scanning Laser Ophthalmoscope
TD	Time Domain

<u>Terminology Listing</u>

Acquisition	Algorithm	Anterior
Archiving	Artifact	A-scan
Averaging	Axial resolution	Axis
Backscattering	Blocking	B-scan
Caliper	Coherence	Confocal
Coronal scan	Defragmentation	Detector arm
Distal	En face	Fixation
Fourier transform	Hyper reflectance	Hypo reflectance
Interface	Interference	Interferometry
Interpolation	IS/OS junction	Lateral
Noise	Normative database	Optimizing
Oversampling	Pixel	Pixelation
Polarizing	Posterior	Raster
Reference arm	Reference mirror	Reflectivity
Repeatability	Resolution	Segmentation
Serous	Shadowing	Signal
Slice	Spectrometer	Tomographic
Topographic	Traction	Transmission
Transverse resolution	Volumetric analysis	Watszke-Allen sign
Temporal	Nasal	Lateral
Superior	Inferior	

Examination Registration

Once the OCT-*C* portfolio and examination application have been approved, candidates will receive official notification of their right to register to take the examination and instructions on how to do so. The examination is offered via computer administration at OPS/BOC approved testing centers.

The OCT-*C* Examination is offered at over 250 test sites in the U.S. and Puerto Rico, U.S. Territories, Canada and various sites outside of North America. Test sites operate in all 50 states and most are open from Monday-Saturday from 9:00 a.m.-9:00 p.m., and Sundays from 1:00 p.m.-6:00 p.m., excluding holidays. These sites are operated by the OCT-C administration contractor, ISO Quality Testing. Information concerning testing center locations and hours of operation may be found at www.isoqualitytesting.com, by clicking the Take a Test Tab and then the Locate a Testing Center hyperlink.

Note: candidates may not register for a testing site until registration information is provided by the OCT-*C* Certification Board upon approval of the application.

Once approved to sit for the OCT-*C* examination, candidates will receive correspondence directing them to:
1. Navigate to the testing contractor examination registration page: www.IQTTesting.com
2. Use the option "Examination Registration" and select the organization: OPS
3. Select the exam: OCT-C
4. Enter the provided Username and Password to login:
    Username: (Your e-mail address)
    Password: Unique OCT-*C* applicant number provided by IQT correspondence

After logging in, please follow the on-screen instructions to schedule an appointment. Note: candidates must test within 12 months of receipt of application approval. For assistance call toll free in USA and Canada 866.773.1114, or other countries +1.727.733.1110.

Rescheduling an Examination Registration

Examination fees will be fully refunded (minus the $50 application fee) if an applicant submits notification **at least** two weeks before a scheduled examination. Refunds for cancellations received fewer than two weeks before the scheduled examination are subject to a cancellation fee. Refunds are made payable and mailed to the party that originated the application fee payment. No refunds or credits will be issued to those who fail examinations or to those who do not appear for the examinations.

Failure to appear at any scheduled examination site without contacting IQT or failure to reschedule an examination date within a one-year window will cause the forfeiture of all application fees. Candidates may reapply for the OCT-*C* Program by paying the full application fee. It is the candidate's responsibility to contact the OPS Board of Certification or its computer-testing administrator, ISO Quality Testing, to reschedule a test administration.

Examination Administration Rules and Regulations

The Examination Administrator or proctor is the OPS BOC's designated agent for maintaining secure and valid examination administration. Any individual found by the Board or its agent to have engaged in conduct that compromises or attempts to compromise the integrity of the examination process will be subject to disciplinary action as sanctioned by the OPS BOC, The Code of Ethics, and the OPS BOC policies and procedures. Examinations are administered according to a strict protocol to ensure the examination security and to protect the right of each candidate to a standardized testing experience. In addition to the attestation on the OCT-*C* Application, as a prerequisite to distribution of examination materials, candidates are required to sign a Security Affidavit agreeing to abide by all rules and regulations, including the following:

- During the registration procedures at the test site, candidates must sign the test roster and provide one form of valid government-issued photo identification, such as a driver's license or passport.

- No books, papers, texts, references, or personal calculators are allowed into the examination room. Scratch paper and a pencil will be provided, and then collected by the test proctor after testing. No electronic devices of any kind are permitted in the testing room (e.g. cell phones, smart phones). If any are found, the candidate will be disqualified.
- If at all possible, personal belongings should not be brought to the testing site. If they are, they will be placed in a secure location and will be unavailable to the candidate during the examination.
- No food or drink is allowed in the examination site. Candidates with a specific medical condition (e.g., hypoglycemia, pregnancy, diabetes) requiring the consumption of water or food during the examination period must submit a written request to the OPS BOC for a special accommodation prior to the examination.
- Visitors are not permitted in the examination room.
- At no time during the examination may candidates give or receive help to one another, or communicate in any way. Examination proctors have the authority to remove a candidate suspected of cheating from the examination room, at which time scores will be cancelled and disciplinary action will be taken.
- Candidates are expected to follow all instructions from examination proctors, printed in test booklets and answer sheets, and/or displayed in the computer-testing program. Candidates will be provided with the opportunity to ask questions prior to beginning the examination.

The computer-delivered examinations include a detailed five-minute tutorial program designed to give candidates confidence in the use of the program, as well as familiarity with the system prior to beginning the examination. The tutorial questions are for demonstration purposes only and do not impact examination scores. Candidates are encouraged to take the time to complete the tutorial as it explains features of the computerized testing system. The candidate name and the name of the examination will be shown at the upper left corner of the screen. If either of these is incorrect, candidates are asked to inform the proctor. A navigation grid is posted on the upper right of the screen, depicting the number of questions on the examination, and the status of those questions (answered, bookmarked for review, or skipped). A digital clock is also posted indicating a countdown of available time. Registered candidates may take a sample test (content is not OCT-related) before going to the test site by accessing the testing contractor's website using the following URL link:

https://www.iqttesting.com/Default.aspx?Function=SampleExam&Exam=8

Candidates may leave the testing room only after receipt of express permission from the proctor. Candidates must sign out and sign in from the room and must surrender all testing materials when they exit. Exit from the testing room is permitted for washroom and drinking fountain visits only. Candidates may not access cell phones or leave the building during breaks. Test timing is not paused for these breaks.

Disqualifying behaviors include but not limited to:
- Creating a disturbance
- Aiding or asking for aid from another candidate
- Any attempt to remove copy, buy, sell, or reproduce testing materials
- Unauthorized possession of test materials
- Impersonation of another candidate
- Use of contraband materials or equipment in the testing site
- Any falsification or misrepresentation of information provided during the OCT-C application process

Candidate Comments

During the examination candidates have the opportunity to post comments simply by clicking on the icon entitled Comment on this Question. Once the examination is completed, candidates may provide additional feedback and comments on the examination exit survey. Examination proctors may not discuss or comment on the examination contents. All comments and questions are reviewed and considered by the OPS BOC; however, security procedures preclude discussion with candidates concerning individual test questions or comments. Candidates should not expect a response to a comment unless it relates to a problem with the examination administration. Candidate comments or lack thereof may be taken into consideration as evidence during the appeals process (details of examination appeal procedures follow).

Examination Scoring and Reporting

The OPS BOC works with its testing consultant and contractors in the development, administration, scoring and reporting of the OCT-*C* examination, and facilitates research studies with a committee of OCT-*C*s to establish passing scores for each examination. Using Modified Angoff V standard-setting procedures, the OCT-*C*s are asked to review every question on the examination and provide empirical judgments of the likelihood of competent OCT-*C*s answering the question correctly. Through this process, a raw score representing competency is established. The raw passing score is translated onto a scaled reporting score. Passing the examination requires a scaled score of 70.

1.   Candidates passing the examination receive notice of successful performance. The OCT-*C* examination is a minimum competency examination and is not intended to distinguish scores above the passing point. Numeric scores are not reported above the passing point.

2.   Failing candidates receive a numeric scaled score and a report indicating content areas of weakness. The report is designed to provide a tool for study and preparation for retaking the examination.

3.   At the testing site, candidates receive a preliminary printed score report upon completion of the examination; at certain times within the test development process, scores may be withheld pending test/question statistical review. In either case official scores are sent via USPS from the OPS BOC representatives of from OPS headquarters.

4.   Examination report will be provided only to the candidate, and will NOT be provided over the phone, fax, or internet.

Award of Certification

Once the OPS BOC notifies applicants that they have completed all requirements for certification, they may use the title Optical Coherence Tomographer-*Certified* as long as the certificant maintains his or her certification (see recertification guidelines below). This designation may be used as part of a signature, and on letterheads and business cards, etc. The OPS BOC mails official certificates to successful applicants.

Retesting for Failing Candidates

Failing candidates are allowed to reapply to retake the examination upon payment of a $175 re-examination fee. The first retake may take place as soon as the re-examination fee is received and processed. Candidates may retest four times. An additional $175 re-examination fee must be paid for any subsequent retest. Candidates are afforded 12 months in which to take and pass the examination. After the fourth failure there is a six-month waiting period, after which candidates may schedule another retest.

Appeals

Examination candidates have the right to appeal examination results within the following specified criteria established by the OPS BOC.

Section 1: Grounds for Appeal
1.01   Appellants may appeal examination results in situations restricted to extraordinary circumstances that:
- Arise coincidentally with the examination administration;
- Are outside the control of the appellant;
- Made the appellant's experience different from other candidate's (related to the examination administration) and/or affected the candidate's ability to receive credit for a test question (related to the examination content);
- Were severe enough to account for examination failure; and,
- Were properly reported to the Examination Administrator and the OPS BOC.

Unless all of the above circumstances are met, no circumstance will be considered grounds for appeal.

1.02   If written documentation of the extraordinary circumstances is not received by the OPS BOC within seventy-two (72) hours of a computer-administered examination, an appellant will forfeit the right to appeal.

Section 2: Method of Appeal

Appeals shall:
- Be set out in writing;
- Detail the nature of the appeal and all particulars necessary for the appeal to be adjudicated;
- Be mailed (must be postmarked within 72 hours of the examination administration), faxed or couriered to the OPS BOC;
- Include a non-refundable fee of $50.

Section 3: Appeal Procedures

3.01   Level One: OPS Appeals and Discipline Committee Appeal Consideration:
   a) An appeal shall be submitted to the Appeals and Discipline Committee within fourteen (14) days of the receipt of examination scores. All communication from the Appeals and Discipline Committee will be mailed to the address stated on the submitted appeal.
   b) Two representatives of the Appeals and Discipline Committee shall determine the validity of the appeal based upon the submitted documentation, as to the existence of extraordinary circumstances described in Section 1.01.
   c) An Appeal and Discipline Committee representative shall notify the appellant by mail within ten (10) business days of receipt of the appeal regarding whether the appeal has been accepted or denied. Accepted appeals will be brought to the consideration of the Appeal and Discipline Committee.

3.02   Level Two: Appeals and Discipline Committee Action:
   a) Only appeals brought forth for consideration by the Appeals and Discipline Committee representatives will be reviewed. Review will take place within sixty (60) days of receipt of the appeal from the representatives.
   b) The Appeals and Discipline Committee shall review the following:
      1. The appellant's statement of appeal;
      2. A statement from a IQT representative or psychometric professional staff member concerning the exam process relative to the appeal;
      3. Examiner reports and comments submitted by the appellant at the time of the examination.
   c) The Appeals and Discipline Committee decision is mailed to the appellant within fifteen (15) business days of the hearing.

Section 4: Appeals and Discipline Committee Decisions

4.01   The Appeal and Discipline Committee may put forth the following decisions based upon evidence presented by the appellant and by the OPS BOC
- Grant the appeal;
-               Deny the appeal;
- Deny the appeal and grant the appellant an attempt at the next examination administration without cost to the appellant.

4.02   All decisions of the Appeals and Discipline Committee are final. Should certification be denied, applicants have 30 days to appeal the decision in writing to the OPS BOC Chairman. Any charge or complaint will be investigated, reviewed and reported to all parties concerned.

The Chairman of the OPS BOC may appoint a special committee to conduct an impartial review. The members of the committee shall be outside the sphere of OPS BOC influence. The committee will make recommendations to the OPS BOC. The OPS BOC, which will deliberate and vote as a whole, shall render the final decision regarding the recommendation of the committee. The OPS BOC's decision is final and binding.

Section 5: Revocation

Fraud or misrepresentation on the application, portfolio, or in the examination can result in denial or revocation of Certification. The OPS BOC reserves the right to void examination results, bar participation in the certification program and revoke certification or other sanctions in accordance with the Disciplinary Policy. The OPS BOC will consider such actions if members have reason to question the validity of an applicant's examination results, suspects misconduct at a test center or suspects an applicant has reported fraudulent information. Denial or revocation of certification may be appealed in writing to the Chairman of the OPS BOC.

Disciplinary Policy

The OPS BOC may impose sanctions against applicants or individuals already awarded certification for failure to meet OPS BOC rules and standards of initial certification or recertification. The OCT-*C* program is a voluntary process, not required by law for employment in the field. Monitoring and evaluating actual job performance is beyond the scope of the OPS BOC.

Grounds for Action

The Board of Certification reserves the right to deny certification, void examination results, bar participation in the certification program or to revoke certification. The following are grounds for action:

- Obtaining or attempting to obtain certification or recertification for oneself or another through fraud or misrepresentation on any certification application, document, portfolio, or examination.
- Improper conduct during the examination, including, but not limited to giving or receiving answers from another applicant, attempting to remove test materials or information from any examination room, or impersonating another applicant.
- Unauthorized possession, distribution or disclosure of examination materials or content.
- Misrepresentation of certification or certification status.
- Gross or repeated negligence in providing ophthalmic imaging services.
- Substance abuse to a degree, which impairs professional performance.
- Physical or mental condition which impairs competent professional performance.
- Physical or sexual abuse of a patient.
- The conviction of, plea of guilty, or plea of nolo contendere to a crime which is directly related to public health, safety, or professional performance providing ophthalmic photography services.
- Failure to cooperate reasonably with any OPS BOC investigation of a disciplinary matter.

Sanctions for violation of standards of conduct or examination procedures may include:

- Denial or suspension of eligibility
- Re-examination
- Revocation
- Censure
- Reprimand
- Suspension
- Probation
- Other corrective action as the OPS BOC deems appropriate.

Sanctions may be appealed to the OPS BOC.

Requirements for OCT-*C* Recertification

OCT-*C* recertification is required at three-year intervals following initial certification. Certificants may achieve recertification by retesting or accrual of continuing education credit. It is the responsibility of the Optical Coherence Tomographer-*Certified* to provide proof of compliance with the recertification requirements prior to the end of the third year of each interval of certification. The three year recertification cycle begins on January 1st of the year after certification is earned. Therefore, any education credits earned prior to December 31st of the year of your OCT-C certification will not count towards recertification. Failure to recertify will result in the revocation of OPS certification. Once certification is revoked, a candidate can regain certification by applying for and fulfilling the current requirements for OCT-*C* certification.

The requirements for recertification are as follows:

1. Recertification requires retesting prior to the end of the third year of each interval of certification.

    OR

2. Recertification requires the accrual of **8 hours** of continuing education credit **(8 CECs)** during each three-year interval following initial certification.

    CECs may be earned in the following manner:

    a. Of the eight required hours, **a minimum of 4 (4 CECs)** <u>MUST be earned by attending official OPS courses or OPS BOC pre-approved courses and workshops.</u> Each hour of lecture or workshop equals one credit hour (1 CEC).

    b. Of the eight required hours, **a maximum of 6 (6 CECs)** <u>MAY be earned by teaching official OPS or OPS approved courses or workshops.</u> Each hour of lecture or workshop equals one credit hour (1 CEC).

    c. Of the eight required hours, **a maximum of 4 (4 CECs)** <u>MAY be earned by attending NON-OPS APPROVED courses or workshops.</u> These include courses or workshops approved by the Joint Commission of Allied Health Personnel in Ophthalmology (JCAHPO) or courses approved by the American Medical Association (AMA) for Category I Continuing Ophthalmic Medical Education. Each hour of these courses or workshops equals one half-credit hour (1/2 CEC).

    d. Of the eight required hours, **a maximum of 3 (2 CECs)** <u>MAY be earned by first authorship or co-authorship</u> in the OPS Journal, ophthalmic or photographic journals or text books and other scientific publications. All submissions must be of merit and well recognized. The total value for any submission shall not exceed three (3 CECs). Submission of publications for CEC review must be made by separate application. (See CECs for Publication on OPS website for details)

Responsibility and Verifications

It is the responsibility of certificants to keep track of their CECs and submit their application with supporting documentation verifying course teaching, course or workshop attendance or publication credits. <u>Credits for teaching must be supported</u> by a copy of the printed program reflecting the type and degree of involvement. <u>A certificate of attendance</u> or statement of attendance on official letterhead from the director of the course or workshop is required. A paid receipt is not acceptable as evidence of attendance. <u>Credits for publications require</u> a validation letter from the Recertification Section Chair. CECs submitted for CRA recertification may also be submitted for OCT-C recertification.

Payment of the prevailing **recertification fee**, payable in US dollars to the OPS/BOC is submitted with the recertification application. Certificants that choose to retest will pay the prevailing examination fee and will not be required to pay a recertification fee. Payment by credit card can be made on the OPS Website "Store" (opsweb.org) or by calling the OPS Membership Office (1-800-403-1677).

Recertification Fees

Non-member Fee: $160.00   OPS Member Fee: $ 80.00

Please call the OPS Membership Office (1-800-403-1677) to verify your membership status.

Recertification Extensions and Appeals

Recertification extensions may be issued on an individual basis due to extreme hardship. The Recertification Section Chair (Recert@opsweb.org) is authorized to give a one-time 6 week extension. Letters of revocation are sent after the 6 week period. Should recertification be denied, the applicant may appeal within thirty (30) days to the Chair of the Board of Certification (BOC@opsweb.org). Appeal instructions are provided with the letter of revocation. The Board of Certification decision regarding all appeals will be final and binding. (Refer to appeals and grievances policy on page 19 for details.)

Recertification Applications and Information

The Chair of the Recertification Section notifies certificants with an expiration date of December 31st of the concurrent year regarding the upcoming recertification deadline at the beginning of the expiration year.

Recertification instructions and applications are available for download on the OPS web site OCT-C Recertification page at www.opsweb.org > Certification > Recertification. Certificants who have not downloaded their applications by March 1st of their third year of certification, or who are having difficulties navigating the website, should contact the Recertification Chair (Recert@opsweb.org)

Certificants having difficulty completing their requirements or who expect to be unable to meet the December 31st deadline should contact the Recertification Section Chair as soon as possible. The Recertification Section Chair may be able to provide assistance or a course of action for completing the requirements. Certificants should contact the Section Chair by e-mail, phone or fax for current answers to any questions or concerns about recertification requirements or accrual of continuing education credits.

OCT-*C* Certification Process Check List

_____ 1. **Submit a completed online Program Application.**

_____ 2. **Compile OCT-*C* Portfolio. When finished…**

_____ 3. **Upload your portfolio.**

_____ 4. **AFTER your portfolio is accepted, complete the Examination Application (sent to you by OCT-*C* Section Chair). Submit this form, along with your employer OCT verification letter and exam fees as directed (payable in US dollars to the OPS/BOC or by credit card via the OPS website store or the OPS Central Office at 1-(800)-403-1677).**

_____5. **Once all paperwork and fees are received, the OCT-*C* Section Chair will contact you with final instructions on selecting the place and time of your exam.**

Appendices

Appendix A: Time Domain OCT Portfolio Requirements (Stratus)

Appendix B: Spectral Domain OCT Portfolio Requirements

Appendix A
Time Domain OCT (Stratus) Portfolio Requirements

The portfolio must be produced entirely by the applicant.

The portfolio submission form must be completed and submitted along with the portfolio. By signing the portfolio submission form, the applicant attests to the authenticity of the work submitted. Submission of work completed by anyone other than the applicant constitutes fraud. Fraud or misrepresentation of the portfolio may result in disqualification of the applicant.

Label all files with your last name as a prefix to the item #. For example, the submission set for item # 7 should be labeled: **"your last name" 7a (SMITH 7a). Complete naming and labeling conventions can be found on page 6 of the OCT-C Program Guide.**

1. Submit a serial set of two Fast Macular Thickness Maps of one eye with normal foveal thickness (less than 200 microns as measured using the central subfield thickness measurement.) The scans must be performed on the same day of the same eye with a minimum of five minutes and a maximum of eight hours between scans – make a note of time. The center point thickness measurement of each map must be within 10 percent of each other.
    a. Submit the Retinal Map Analyses of both scans
        i. Label first map: **1A**
        ii. Label second map: **1B +** the length of time between scans
            (for example: **1B5** for +5 minutes or **1B1HR** for + 1 hour)

2. Submit a serial set of two Fast Macular Thickness Maps of one eye with central foveal thickness (greater than 350 microns as measured using the central subfield thickness measurement.) The scans must be performed on the same day of the same eye with a minimum of five minutes and a maximum of eight hours between scans – make a note of time. The center point thickness measurement of each scan must be within 10 percent of each other.
    a. Submit a retinal thickness analysis of each of the six scans of the **FIRST** Fast Macular Scan
        i. Label set: **2A1, 2A2, 2A3, 2A4, 2A5, 2A6**
    b. Submit the Retinal Map Analyses
        i. Label first map: **2B**
        ii. Label second map: **2C +** the length of time between scans
            (for example: **2C5** for +5 minutes or **2C1HR** for + 1 hour)

3. Submit the specified scan and analyses sets for one eye for **four** of the **five** conditions below:

    a. Cystoid Macular Edema

        i. SCAN: Macular Thickness Map or Radial Lines ANALYSIS: Retinal Map

            1. Label **3A1**

        ii. From the same capture, submit the individual line scans for 0 degree and 90 degree

            i. Label **3A2** and **3A3**

    b. Macular Hole/ Macular Traction

        i. SCAN: Line Scan ANALYSIS: Normalize

            1. Label **3B1**

        ii. SCAN: Cross Hairs ANALYSIS: Align

            1. Label **3B2a** and **3B2b**

    c. Glaucoma

        i. SCAN: Fast RNFL Thickness(3.4) ANALYSIS: RNFL Thickness Avg

            1. Label **3C1**

        ii. SCAN: Fast Optic Disc ANALYSIS: Optic Nerve Head

            1. Label **3C2 - Provide first scan (90 degree)**

    d. Retinal Pigment Epithelial Detachment

        i. SCAN: Line ANALYSIS: Proportional

            1. Label **3D1**

        ii. SCAN: Fast Macular Thickness Map ANALYSIS: Retinal Map

            1. Label **3D2**

    e. Age Related Macular Degeneration

        i. SCAN: Fast Macular Thickness Map ANALYSIS: Retinal Map

            1. Label **3E1**

        ii. SCAN: Macular Thickness Map or Radial Lines ANALYSIS: Retinal Map

            1. Label **3E2**

            *The central thickness measurement of 3E1 map must be within 10 percent of 3E2map.

4. Acquire a Fast Macula Thickness and a Fast RNFL scan through an **un-dilated** or minimally dilated pupil. Pupil size should be less than 4mm. Both scans must be acquired on the same eye. Signal strength must be five or better on all scans.

    a. Provide **ONLY** a Retinal Map and RNFL Thickness Average.

        i. Label Retinal Map: **4A**

        ii. Label RNFL Thickness Average: **4B**

5. Acquire a high resolution (512 A scans) Line scan through a media opacity (i.e. cataract, vitreous hemorrhage, or debris) of a patient with macular or foveal pathology. Scan should illustrate compromised scan quality (signal blocking or "shadowing") from the opacity.
    a. Analysis: Align
        i. Label: **5A**

6. On the same eye used for Item #5, acquire a high resolution (512 A-scans) Line scan around media opacity (i.e. cataract, vitreous hemorrhage or debris). Scan angle or positioning within pupil should be adjusted to minimize (signal blocking or "shadowing") from the opacity and illustrate improved visibility of pathology.
    a. Analysis: Align
        i. Label: **6A**

7. Acquire one high resolution (512 a-scans) line scan at 6mm vertical (at 90 degrees).
    a. Analysis: Align or Proportional
        i. Label: **7A**

8. Acquire one high resolution (512 a-scans) line scan at 10mm horizontal (at 0 degrees).
    a. Analysis: Proportional
        i. Label: **8A**

9. Acquire a 7mm scan centered on the fovea in the right eye, with a 5° incline from temporal to nasal.
    a. Analysis: Align or Proportional
        i. Label: **9A**

10. Using any line scan, provide a Retinal Thickness (single eye) Analysis using the calipers to measure retinal pathology. Caliper placement and measurement must be displayed on print/file.
    a. Analysis: Retinal Thickness (single eye)
        i. Label **10A**

Appendix B

Spectral Domain OCT Portfolio Requirements

The portfolio must be produced entirely by the applicant. These requirements are broad-based and can be applied to any SD OCT device. If you have questions about your particular device please first refer to the device-specific user manual and if needed please contact the OCT-C Section Chair and they will direct you to someone that can help with you question.

The portfolio submission form must be completed and submitted along with the portfolio. By signing the portfolio submission form, the applicant attests to the authenticity of the work submitted. Submission of work completed by anyone other than the applicant constitutes fraud. Fraud or misrepresentation of the portfolio may result in disqualification of the applicant.

Label all files with your last name as a prefix to the item #. For example, the submission set for item # 7 should be labeled: **"your last name" 7a (SMITH 7a). Complete naming and labeling conventions can be found on page 6 of the OCT-C Program Guide.**

Normal eye can be used when pathology is not specified in the item description. If applicable, the same eye may be imaged for multiple items.

1. Submit a serial set of two macular map analyses of one eye without macular pathology and a normal foveal contour. The scans must be performed on the same day of the same eye with a minimum of 5 minutes and a maximum of 8 hours between scans (make a note of the time). The central foveal thickness value for each map must be within 10% of each other.
   a. Submit the map analyses for both scans
      i. Label first map: **1A**
      ii. Label second map: **1B +** the length of time between scans (EX: **1B5** for +5 minutes or **1B1HR** for +1 hour
2. Submit a serial set of two macular map analyses of one eye with a central foveal thickness of 350 microns or more. The scans must be performed on the same day of the same eye with a minimum of 5 minutes and a maximum of 8 hours between scans (make a note of the time). The central foveal thickness value for each map must be within 10% of each other.
   a. Submit the map analyses for both scans
      i. Label first map: **2A**
      ii. Label second map: **2B +** the length of time between scans (EX: **2B5** for +5 minutes or **2B1HR** for +1 hour

3. Acquire one macula and one RNFL mapping scan group through an **un-dilated** or minimally dilated pupil. Pupil size should be less than 4 mm. Both scans must be acquired on the same eye. Signal strength needs to be 50% or greater as displayed by your device's scan quality value.
   a. Submit one retinal map and one RNFL analysis map for each scan
      i. Label retinal map: **3A**
      ii. Label RNFL map: **3B**
4. Acquire one high resolution line scan through some type of media opacity (i.e. cataract, vitreous hemorrhage, etc.) of an eye with macular or foveal pathology. Scan should illustrate the compromised scan quality from the opacity.
   a. Submit one individual scan for portfolio
      i. Label: **4A**
5. On the same eye used in item # 4, acquire a high resolution line scan around the media opacity. Scan angle or positioning within the pupil should be adjusted to minimize scan degradation and be able to illustrate improved visibility of pathology and retinal layers
   a. Submit one individual scan for portfolio
      i. Label: **5A**
6. Acquire one high resolution line scan at 90 degrees
   a. Submit one individual scan for portfolio
      i. Label: **6A**
7. Acquire one high resolution line scan horizontally at the **default** scan length setting possible for your device.
   a. Submit one individual scan for portfolio
      i. Label: **7A**
8. Acquire one high resolution line scan centered on the fovea in the right eye at the **longest** scan length setting for your device. Change the axis of the scan by 5 degrees and scan the eye from temporal to nasal.
   a. Submit one individual scan for portfolio
      i. Label: **8A**
9. Using any line scan, provide a measurement of any retinal pathology using the caliper or measurement function provided by your specific device. Caliper or measured value must be displayed on the submitted scan or image.
   a. Submit one individual scan for portfolio
      i. Label: **9A**
10. Submit the specified scan and analysis for **four out of the five** conditions below. **You only need submissions for <u>one eye</u> for each condition.**
    a. Cystoid Macular Edema
       i. Macular thickness analysis or map
          1. Label: **10A1**
       ii. Perform and submit one individual high resolution **horizontal** line scan
          1. Label: **10A2**
    b. Macular Hole/Macular Traction/Epi-Retinal Membrane
       i. Perform and submit one individual high resolution **horizontal** line scan

        1. Label: **10B1**
- ii. Perform and submit one individual high resolution **vertical** line scan
  - 1. Label: **10B2**
- c. Glaucoma
  - i. RNFL scan with report/analysis
    - 1. Label: **10C1**
  - ii. Perform and submit one individual high resolution **horizontal** line scan of the optic nerve head. Scan should section the nerve at 3:00 and 9:00
    - 1. Label: **10C2**
- d. Retinal Pigment Epithelial Detachment
  - i. Macular thickness map centered on the macula. Pathology must be within the scanned area (i.e. macula).
    - 1. Label: **10D1**
  - ii. Perform and submit one individual high resolution **horizontal or vertical** line scan sectioned through the pathology
    - 2. Label: **10D2**
- e. Age Related Macular Degeneration
  - i. Macular thickness map centered on the fovea.
    - 1. Label: **10E1**
  - ii. Macular thickness map centered on the fovea.
    - 1. Label: **10E2**

    ** The central thickness measurement must be within 10% of each other.