

*NACÔR*



# Candidate's Examination Handbook

**National Association of Canadian Optician Regulators  
2709 - 83 Garry St.  
Winnipeg, MB  
R3C 4J9  
Phone: (866) 949-1950  
Fax: (204) 949-9153  
[exam@nacor.ca](mailto:exam@nacor.ca)**



## Steps to Application

Fill out the NACOR examination application form.

1. Supply ALL information requested on the form.
2. Sign the Personal Affidavit on the front of the application form.
3. Enclose a cheque payable to NACOR for \$750 or \$1500 if you are sitting both the Optical Sciences 1 - Eyeglass and Optical Sciences 2 – Contact Lens examinations. If paying by Visa or Mastercard supply all necessary credit card information on your application form.
4. Candidates who are going to be applying for registration in **Alberta** must be registered as a Provisional Optician with the Alberta College & Association of Opticians (ACAO). For further information on becoming registered as a Provisional Optician contact the ACAO at 780-429-2694 or [general@acao.ca](mailto:general@acao.ca)
5. Candidates who will be applying for registration in **Ontario** must be registered as an Intern Optician with the College of Opticians of Ontario. For further information on becoming registered as an intern, please visit the College's website at [www.coptont.org](http://www.coptont.org) or contact the College by email at [registration@coptont.org](mailto:registration@coptont.org) or by telephone at 416-368-3616.
6. **Send your completed application form with payment to the NACOR office. Applications can be mailed, faxed or emailed:**

NACOR  
2709-83 Garry St  
Winnipeg, MB  
R3C 4J9  
Fax:1-204-949-9153  
Email: [exam@nacor.ca](mailto:exam@nacor.ca)

7. Applications must be received in the NACOR office by 11:59 pm central time on the application due date. Late applications will be automatically assessed a \$50.00 late fee. Late applications will only be accepted if there is available space in the examination schedule.

## **Examination Schedule and Application Forms**

The examination schedule and application forms are available on the NACOR website at [www.nacor.ca](http://www.nacor.ca).

## **Approval of Application Forms**

NACOR will contact the provincial regulatory body indicated on your application form to verify your eligibility to sit the examination. If the provincial regulatory body deems you ineligible to sit the examination you will not be allowed to sit the examination. A full refund less an administration fee of \$75.00 will be issued by NACOR. A candidate's eligibility to write the examination will be verified by NACOR for each and every sitting of the examination.

## **Examination Eligibility**

To be eligible to take the Optical Sciences 1 – Eyeglasses examination or the Optical Sciences 2 – Advanced Practice Contact Lens examination a candidate must demonstrate that he or she has:

1. Graduated from an optical program accredited by NACOR  

or
2. If the candidate has not graduated from an optical program accredited by NACOR they must demonstrate that they have:
  - a) Applied to the provincial regulatory board in the province they plan to be registered in
  - b) Undergone a prior learning assessment and recognition process administered within the framework agreed upon by NACOR  

and
  - c) Completed any bridging required by the provincial regulatory board with the exception of the examination or examinations the candidate is applying for
3. Completed any additional requirements of the provincial regulatory board

## **Examination Accommodations**

If you require any accommodations during your examination due to disability or extenuating circumstances a written letter outlining your requested accommodations must be included with your application form. Official documentation confirming your circumstances must be included with your request. Requests will be reviewed and acted upon by the National Examination Committee and all decisions are final.

A candidate with a disability should outline their specific accommodation needs with any appropriate supporting documentation, but is not required to disclose their disability to NACOR. NACOR reserves the right to request additional information or supporting documentation if NACOR determines this to be necessary to make a decision.

## **Delivery of Examination Schedules**

The NACOR office will forward all eligible applications to the province hosting the examination. The host province will contact you by mail and/or email within two weeks of the application due date with the location, time, and date of your examination. Do not contact the NACOR office for this information as it is not supplied to the NACOR office by the host provinces.

## **Refund of Examination Fees**

A full refund less an administration fee of \$75.00 per examination will be issued by NACOR for a candidate who withdraws from an examination after the application due date but prior to the examination date provided that the withdrawal is due to illness or circumstances beyond a candidate's control. Written documentation verifying the illness or extenuating circumstances must accompany the request for a refund.

## **Failure to Attend Scheduled Examination**

Should a candidate be unable to attend the scheduled examination for a valid reason such as illness immediately prior to or on the same day as the examination, notification must be given immediately to the NACOR office. A message must be left at the NACOR office at 1-866-949-1950 or by email at exam@nacor.ca. Supporting documentation for missing the examination must be supplied. A full refund less an administration fee of \$75.00 per examination will be issued by NACOR. A candidate who does not attend the scheduled examination and who has failed to make the proper notification or who has made proper notification but is subsequently unable to supply supporting documentation, will forfeit all examination fees.

## **Pass Mark Optical Sciences 1 – Eyeglass Examination**

A candidate must achieve an overall mark of 61 % or a total of 144 out of a possible 236 marks to pass the Optical Sciences 1 – Eyeglasses examination. If a candidate fails the examination they must repeat the entire examination.

## **Pass Mark Optical Sciences 2 – Contact Lens Examination**

A candidate must achieve an overall mark of 68% or a total of 146 out of a possible 215 marks to pass the Optical Sciences 2 – Contact Lens examination. If a candidate fails the examination they must repeat the entire examination.

## National Entry to Practice Competencies

Entry to practice competencies for opticianry outline skills and standards that newly graduated opticians would acquire before entering the profession. This document provides an understanding of the knowledge, skills and abilities necessary for competent practice of opticianry in Canada:

[Link to the National Competencies for Canadian Opticians \(pdf\)](#)

### Examination Outline and Mark Breakdown

The **Optical Sciences 1 - Eyeglass examination** is broken down into 5 sections and measures 40 areas of competence with 135 enabling objectives. One of the sections is knowledge-based and four of the sections are practical skills-based.

Section 1 – Basic Dispensing and Lens Finishing Theory – 13% of exam	30 marks	55 minutes
Section 2 - Lens Duplication - 39% of exam	93 marks	75 minutes
Section 3 – Measurement - 15% of exam	36 marks	20 minutes
Section 4 – Verification -19% of exam	44 marks	60 minutes
Section 5 – Service - 14% of exam	33 marks	30 minutes

The **Optical Sciences 2 – Contact Lens examination** is broken down into 5 sections and measures 30 areas of competence with 125 enabling objectives. One of the sections is knowledge-based and four of the sections are practical skills-based with clinical judgment-based sub-sets.

Section 1 – Keratometry & Rx Interpretation - 22% of exam	48 marks	50 minutes
Section 2 – Pathology & Contact Lenses -15% of exam	32 marks	30 minutes
Section 3 – Verification and Lens Design - 20% of exam	43 marks	70 minutes
Section 4 – Insertion & Removal - 8% of exam	18 marks	20 minutes
Section 5 – Follow-up - 34% of exam	74 marks	55 minutes

## **Activities Performed in the Optical Sciences 1 - Eyeglass Examination**

### **Section 1 – Basic Dispensing and Lens Finishing Theory**

This section is theoretical. The candidate is given a series of scenarios to evaluate. In each scenario there is a set of lens specifications representing a work order sent to a lab along with a second set of lens specifications representing the actual eyeglasses that were delivered to the dispensary in return. The candidate is supplied with a tolerance chart and must determine, based on a comparison of what was ordered versus what was delivered, whether the lenses may be satisfactorily dispensed or returned to the lab. Answers for this section are to be based strictly on the tolerance chart supplied. Candidates will also be supplied with ten multiple choice questions and will be required to answer questions regarding lens layout, lens blank size, and problem solving.

#### **Equipment supplied by NACOR:**

Tolerance chart – Attached as Appendix A

### **Section 2 – Lens Duplication**

The objective of this section is to test the candidate's ability to neutralize lenses, using a lensometer, and to measure the physical aspects of the lenses using a lens clock, PD ruler, and thickness caliper. The candidate will be required to neutralize 5 pairs of eyeglasses which will include single vision, multifocal and progressive lenses.

#### **Equipment Supplied by NACOR:**

- 5 pairs of eyeglasses
- 1 lensometer
- 1 lens clock
- 1 thickness calliper
- 1 PD ruler
- 1 progressive centering chart
- 1 felt marker

### **Section 3 – Measurement**

In Part A of this section the candidate will be asked to take the monocular distance and near pupillary distance measurements of a live model using two different methods; a penlight and ruler and a pupilometer

In Part B of this section the candidate will be asked to take both the OD and OS vertex measurements of a live model fitted with a metal frame using a vertex distometer.

In Part C of this section the candidate will be asked to measure a live model for two pairs of progressive lenses using both a metal frame and a nylon mount frame. The candidate can use any technique they wish to obtain their measurements. The candidate will also be asked to measure the model for two pairs of flat-top bifocals using the same metal and rimless frame.

**Equipment Supplied by NACOR:**

- 1 PD ruler
- 1 penlight
- 1 pupilometer
- 1 vertex distometer that has been compensated for eyelid thickness
- 1 pair of metal eyeglasses
- 1 pair of nylon mount eyeglasses
- 1 felt pen
- 1 segment measure

**Section 4 – Verification**

The candidate will be provided with 5 pairs of eyeglasses along with the work order on which each pair was based. The candidate will be asked to verify the five pairs of eyeglasses to their corresponding work orders and determine if each component of the eyeglasses is within tolerance. The candidate is to base their answers strictly on the tolerance chart supplied.

**Equipment Supplied by NACOR:**

- 5 pairs of eyeglasses with corresponding work orders
- 1 lensometer
- 1 lens clock
- 1 thickness caliper
- 1 P.D. ruler
- 1 Tolerance chart – Attached as Appendix A

**Section 5 – Service**

In Part A of this section the candidate will be given both a metal and plastic frame that is out of standard alignment. The candidate will be asked to return both the metal frame and plastic frame to standard alignment. The candidate can use any method they wish to adjust the frames. In Part B the candidate will be required to adjust the metal frame to a live model. The candidate can use any method they wish to adjust the frame. In Part C of this section the candidate will be required to insert a pair of lenses into a plastic frame and a single lens into a nylon mount frame.

**Equipment Supplied by NACOR:**

- 2 metal frames
- 1 plastic frame
- 1 nylon mount frame
- 1 plastic frame with a set of precut lenses
- 1 PD ruler
- 1 hot air blower
- variety of frame adjusting tools
- 1 ribbon



## **Activities Performed in the Optical Sciences 2 – Advanced Practice Contact Lens Examination**

### **Section 1 – Keratometry & Rx Interpretation**

In Part A of this section the candidate will be given two case scenarios and will be required to complete calculations for fitting RGP lenses flatter and steeper than K, and determining ideal power for soft lenses. The candidate will be given 30 minutes to complete Part A.

In Part B of this section the candidate will be expected to mount a calibration ball, check the calibration of a keratometer and take K-readings on one eye of a live model. The candidate will be given 20 minutes to complete Part B.

#### **Equipment Supplied by NACOR:**

- 1 keratometer
- 1 calibration kit  
alcohol wipes
- 1 conversion chart

### **Section 2 – Pathology & Contact Lenses**

In Part A of this section the candidate will be given a series of ten photos and they must name the pathology and/or contact lens anomalies.

In Part B of this section the candidate will be given four photos and they must name the pathology and answer a multiple choice question based upon the slides.

#### **Equipment Supplied by NACOR:**

- 1 booklet containing photos

### **Section 3 - Verification and Lens Design**

In this section the candidate will be required to measure the back vertex power of two soft contact lenses using a lensometer. The candidate will also be required to measure the back vertex power, base curve, and diameter of three gas permeable lenses, using a radiuscope, lensometer, and diameter gauge. The candidate will also be required to identify the lens design of the three gas permeable lenses.

#### **Equipment Supplied by NACOR:**

- 1 radiuscope
- 1 lensometer
- 1 lens diameter gauge
- 1 magnifier loupe
- soft lens solution
- series of test lenses

#### **Section 4 – Insertion & Removal**

In Part A of this section the candidate will be required to flip the model's eyelid to reveal the palpebral conjunctiva. The candidate will be expected to demonstrate appropriate personal hygiene as well as appropriate disinfection protocols for equipment and lenses.

In Part B of this section the candidate will be required to demonstrate the proper cleaning of a soft lens.

In Parts C & D of this section the candidate will be required to insert and remove a soft as well as a gas permeable contact lens using a live model.

#### **Equipment Supplied by NACOR:**

- gas permeable lenses
- soft lenses
- soft and RGP lens solution
- Q-tips
- hand soap

#### **Section 5 – Follow-up**

Part A of this section is theoretical. The candidate will be given six case scenarios of contact lens patients and they will be required to name the conditions or identify the cause of the patient's problem. The candidate will be given 20 minutes to complete Part A.

In Part B of this section the candidate will be required to perform a thorough routine six-month follow-up examination on a live model.

In Part C of this section the candidate will be required to set up, on the eye of a live model, any three of the following slit lamp illuminations; parallelepiped, specular reflection, direct retro-illumination from the iris, sclerotic scatter, and conical beam.

The candidate will be given 35 minutes to complete both Parts B & C.

#### **Equipment Supplied by NACOR:**

- 1 slit lamp
- 1 keratometer
- 1 visual acuity chart
- alcohol wipes

## **Delivery of Examination Marks**

Examination results will be posted directly on the NACOR website on the Notification of Results page. Results will be posted by NACOR Candidate ID which is provided to all candidates at the sitting of the examinations. A copy of the results will also be forwarded to the candidate's provincial regulatory board. The NACOR office will not release marks over the telephone. Marking will be completed **within eight weeks** of the examination date.

## **Review of Examination Marks**

1. Examinations that are within five percent of a passing grade are reviewed and remarked **prior** to the marks being released to the candidate.
2. Candidates that fail the examination can have their examination reviewed to have their areas of weakness identified. Reviews are conducted over the phone. The review will not address specific questions in the examination and answers to questions will not be supplied to the candidate. Examinations are not remarked as part of the review process.
3. To schedule an appointment for an examination review, contact the NACOR office at exam@nacor.ca or 1-866-949-1950 Ext 2.
4. There is a fee of \$50 for an examination review.

## **Examination Failure**

A candidate is entitled to challenge the examination a maximum of three times. After the third and each ensuing unsuccessful attempt, the candidate must comply with an approved upgrade plan as specified by the provincial regulatory board before any further challenge of the examination will be permitted.

## **At the Examination**

1. Candidates must bring one piece of government issued photo identification to the examination. Candidates who do not have government issued photo identification will not be allowed to sit the examination and will forfeit all examination fees.
2. Candidates will not be allowed to enter the examination room or to sit the examination after the Moderator has started the session. A candidate who is late to the examination will forfeit all examination fees.
3. Candidates are responsible for supplying their own pens, pencils, calculators and erasers.

4. All books, papers, memoranda, audiovisual aids, personal tablets, computers, electronic translators or other memory aids or devices are not permitted in the examination environment. The examination Moderator must authorize scientific calculators and optical equipment brought to the examination by the candidate.
5. Cell phones and smart watches are not permitted in the examination environment.
6. Candidates are responsible for maintaining their own mental and physical health throughout the examination. If a candidate starts the examination and cannot complete the examination due to either mental or physical health issues their overall mark will be calculated based on the sections completed. The sitting will count as an attempt of the examination.
7. If a candidate determines that they cannot start the examination due to either mental or physical health issues they must notify the Moderator of this prior to the start of the examination. A full refund less an administration fee of \$75.00 per examination will be issued by NACOR.
8. The NACOR examination is a professional examination and candidates must dress appropriately. **A candidate not dressed professionally may be turned away at registration.** Jeans or leisure wear are not considered professional attire.
9. The examination is a **scents free environment** candidates are to refrain from wearing perfume and cologne to the examination.
10. Candidates may bring their own optical equipment to the examination. The candidate is responsible for the accuracy of calibration of their own equipment. NACOR and the host province assume no responsibility for the candidate's equipment.
11. If the candidate does not bring their own equipment they will be required to use the equipment provided by NACOR and the host provinces. The examiner for each section will randomly assign the candidate to the equipment provided for that section. Candidates will not be permitted to choose the equipment.
12. Programmable calculators are not permitted. Automated lensometers, radiuscopes and keratometers are not permitted.
13. The Moderator has complete discretion over maintaining the stability of the examination environment. The Moderator, upon ascertaining that the presence of a candidate represents a disruption to the other candidates, has the authority to require that candidate leave the environment.

## **Threats from Candidates**

1. NACOR has zero tolerance for threats of physical harm or violence to self or others, made by candidates prior to, during, or after an examination.
2. Upon making a threat a candidate will be immediately disqualified from sitting the examination. If the candidate has already begun the examination the Moderator will immediately expel the candidate from the examination environment.
3. NACOR will immediately inform the relevant police detachment of any threat of physical harm or violence.
4. Candidates threatening physical harm or violence will be prevented from further examination until a mental health assessment satisfactory to NACOR is provided independent of any police Mental Health Assessment. Such assessment is to be done at the expense of the candidate. The assessment must be done by a qualified medical practitioner and be in writing.
5. Threats of a non-violent nature will be assessed by the National Examination Committee; such threats may result in the imposition of conditions or permanent disqualification from examination.
6. NACOR has zero tolerance for harassment by candidates toward moderators, examiners or other candidates prior to, during or after an examination. Harassment includes any comment or conduct that is known or ought to be known to be unwelcome, including sexual conduct or comments, bullying, personal abuse, or psychological abuse.
7. Any harassment by a candidate may result in the imposition of conditions, immediate disqualification from the examination session, and/or permanent disqualification from the NACOR examination process.

## **Notification of Conduct to Regulatory Bodies**

Any inappropriate conduct by a candidate during an examination session, including threats or harassment will be reported to every opticianry regulatory body of which the candidate is a member and/or to which the candidate applies to be a member.

## **Examination Protocol**

1. Once inside the examination environment candidates must refrain from speaking to other examination candidates.
2. Candidates are to refrain from discussing with other candidates both during and after the examination any of the specific questions from their examination, or any of the practical procedures they performed during the examination.
3. Candidates who, disagree with the judgment of the Moderator, display unsafe and/or inappropriate behavior or who the Moderator suspects are guilty of examination dishonesty will be asked to leave the examination site and will forfeit their examination.
  - a. Plagiarism in the examination is the deliberate act of using another person's words or ideas as one's own.
  - b. Cheating is the use of unauthorized aids, assistance or materials in the demonstration of practical skills as required in the examination.
4. Decisions regarding breaches of appropriate candidate conduct in the examination environment are at the complete discretion of the Moderator.

## **Penalties for Breaching Examination Protocol**

At the discretion of the Moderator the following penalties may be assessed for breaches of examination protocol:

- a. Zero grade will be assigned on the examination section in which the offense occurred.
- b. Zero grades will be assigned on the entire examination.
- c. Suspension from the examination section.
- d. Expulsion from the examination as a whole.

## **Candidate Appeals of Decisions of the Examination Moderator**

1. An appeal is appropriate when a candidate believes that a decision of the Moderator has been made without justification.
2. All candidate appeals must be made in writing to the NACOR office. The candidate must decide on the central issue(s) contained in the appeal and submit rational written evidence related to each issue.
3. Candidates must present a written appeal within 90 calendar days following receipt of the examination results. Candidates may submit a written request for an extension of this deadline in extraordinary circumstances. Should the candidate submit an appeal after the 90-day deadline and not attach a summary of reasons for requesting an extension to the deadline, a formal appeal will be denied.
4. The first level of appeal is an informal review by the Chair of the National Examination Committee and the Examination Moderator. An appeal that is considered to have merit will be forwarded to the formal appeal stage.
5. Formal appeals may or may not require the physical appearance of the candidate.
6. The appeal documentation is expected to include:
  - a. The nature of the appeal
  - b. The appropriate rationale for the appeal
  - c. A summary of events that resulted in the submission of the appeal
  - d. The reasons why a judgment should be resolved
  - e. The action the candidate believes should be taken to resolve the appeal
7. The formal appeal will be reviewed within 60 days of receipt by the Examination Moderator and the Chair of the Examination Committee.
8. All parties to the appeal will be encouraged to submit written documentation supporting their positions.
9. A panel will review all documentation and at the candidate's request, allow the candidate to make an oral presentation. Travel expenses for the candidate to attend the formal appeal will be borne by the candidate.
10. The fee for a formal appeal is \$150 with all cheques made payable to NACOR. Payment is due upon the candidate receiving notification of the scheduled date of formal appeal.
11. Determinations made on a formal appeal are final and will be conveyed in writing to the candidate.
12. Should a candidate choose to proceed with legal action and the resulting determination of such actions is a ruling in favour of NACOR, the candidate will be responsible for any costs incurred by NACOR to defend its decision.

## **Recognition of the NACOR Examination**

Nine provincial regulatory bodies use the NACOR Optical Sciences 1 - Eyeglass and Optical Sciences 2 – Advanced Practice Contact Lens examinations as a pathway to registration. The examinations are used in British Columbia, Alberta, Saskatchewan, Manitoba, Ontario, New Brunswick, Nova Scotia, Newfoundland and Labrador, and Prince Edward Island.

## **Purpose of the NACOR Optical Sciences 1 - Eyeglass and the Optical Sciences 2 – Advanced Practice Contact Lens Examinations**

The National Association of Canadian Optician Regulators (NACOR), a consortium of Canadian regulatory bodies, developed the NACOR Optical Sciences 1 - Eyeglass and Optical Sciences 2 – Contact Lens examinations as a vehicle to measure competencies of those individuals seeking entry to practice as an optician.

## **Outline of the Examination Assessment Process & Content**

NACOR offers two examinations. The NACOR optical sciences 1 - eyeglasses and the NACOR optical sciences 2 – advanced practice contact lens examinations. Both examinations measure competencies through knowledge-based, skills-based, and clinical judgment-based modules. In both examinations the skills-based modules make use of live models and test case scenarios that require the candidate to demonstrate techniques in equipment usage, ability to develop required data and to base a clinical judgment on the data collected.

## **Quality Control of Examination Questions**

NACOR maintains a consistent standard of examination in several ways:

1. The NACOR Item Writing Committee meets regularly to develop new questions for the examination bank.
2. The NACOR Item Reading Committee reviews all questions in the examination bank to achieve clarity of composition, accuracy of marking keys, and relevance to the NACO Competency Matrix.
3. The NACOR Examination Committee reviews scoring on each question over a series of several examination sittings as a trigger to review the question form, content or the marking key.
4. NACOR supplies examination kits that contain test lenses, eyeglasses, frames, bench tools and other pieces of dispensary equipment. The kits are groomed and up-dated after every sitting of the examination.



## **The NACOR Competency Matrix**

The NACOR Competency Matrix is based on the results of a national project of the 10 provincial regulatory bodies and associations, in which a list of tasks, skills and competencies was developed, validated in the field, and adopted as currently reflecting the level of knowledge required to perform as an optician in Canada. The NACOR examinations represent an opportunity for the candidate to demonstrate the knowledge.

## **Contact Information for Provincial Regulatory Bodies**

### **British Columbia**

College of Opticians of British Columbia  
Suite 900 - 200 Granville St.  
Vancouver, B.C.  
V6C 1S4

1-604-278-7510 – ph  
1-604-278-7594 - fax

### **Alberta**

Alberta College & Association  
of Opticians  
201 – 2528 Ellwood Drive  
Edmonton, AB  
T6X 0A9

1-780-429-2694 - ph  
1-780-426-5576 – fax

### **Saskatchewan**

Saskatchewan College of Opticians  
13 - 350 103rd Street East  
Saskatoon, SK  
S7N 1Z1

1-306-652-0769 – ph  
1-306-652-0784 – fax

### **Manitoba**

The Opticians of Manitoba  
215 - 1080 Portage Ave.  
Winnipeg, MB  
R3G 3M3

1-204-222-8404 – ph  
1-204-222-5296 – fax

### **Ontario**

The College of Opticians of Ontario  
300 - 90 Adelaide St. W.  
Toronto, ON  
M5H 3V9

1-416-368-3616 – ph  
1-416-368-2713 – fax

**New Brunswick**

Opticians Association of New Brunswick  
P.O. Box 6743, Station A  
St. John, NB  
E2L 4S2

1-506-642-2878 – ph  
1-506-642-2878 – fax

**Nova Scotia**

Nova Scotia College of Dispensing Opticians  
Suite 342 Halifax Professional Centre  
5991 Spring Garden Road  
Halifax, NS  
B3H 1Y6

1-902-425-7928 – ph  
1-902-425-0360 – fax

**Prince Edward Island**

Prince Edward Island Board of  
Dispensing Opticians  
P.O. Box 20140, RPO Sherwood  
Charlottetown, P.E.  
C1A 9E3

**Newfoundland and Labrador**

Dispensing Opticians Board of Newfoundland and Labrador  
P.O. Box 2552  
St. John's, NL  
A1C 6K1

**Annex D – Optical and Mechanical Tolerances Summary**  
(Informative)

		MEASURE	POWER RANGE	TOLERANCE	SECT.	COMMENTS
General Optical Tolerances, Individual Lenses (edged or uncut)	Distance Refractive Power	Sphere Meridian Power (minus cylinder convention) For SV and MFs	$\geq 0.00 \text{ D}, \leq \pm 6.50 \text{ D}$ $> \pm 6.50 \text{ D}$	$\pm 0.13 \text{ D}$ $\pm 2\%$	5.1.1.1	2% of meridian power
		Sphere Meridian Power (minus cylinder convention) For Progressives	$\geq 0.00 \text{ D}, \leq \pm 8.00 \text{ D}$ $> \pm 8.00 \text{ D}$	$\pm 0.16 \text{ D}$ $\pm 2\%$	5.2.1.2	2% of meridian power
		Cylinder (-) For SV and MFs	$\geq 0.00 \text{ D}, \leq 2.00 \text{ D}$ $> 2.00 \text{ D}, \leq 4.50 \text{ D}$ $> 4.50 \text{ D}$	$\pm 0.13 \text{ D}$ $\pm 0.15 \text{ D}$ $\pm 4\%$	5.1.1.1	4% of cylinder power
		Cylinder (-) For Progressives	$\geq 0.00 \text{ D}, \leq 2.00 \text{ D}$ $> 2.00 \text{ D}, \leq 3.50 \text{ D}$ $> 3.50 \text{ D}$	$\pm 0.16 \text{ D}$ $\pm 0.18 \text{ D}$ $\pm 5\%$	5.2.1.2	5% of cylinder power
		Cylinder Axis	$> 0.00 \text{ D}, \leq 0.25 \text{ D}$ $> 0.25 \text{ D}, \leq 0.50 \text{ D}$ $> 0.50 \text{ D}, \leq 0.75 \text{ D}$ $> 0.75 \text{ D}, \leq 1.50 \text{ D}$ $> 1.50 \text{ D}$	$\pm 14^\circ$ $\pm 7^\circ$ $\pm 5^\circ$ $\pm 3^\circ$ $\pm 2^\circ$	5.1.2	
		Add	Add Power	$\leq +4.00 \text{ D}$ $> +4.00 \text{ D}$	$\pm 0.12 \text{ D}$ $\pm 0.18 \text{ D}$	5.1.3
	$\Delta$	Prism PRP Location		$\leq 0.33\Delta$ at PRP $\leq 1.0 \text{ mm}$ from specified PRP	5.1.4	
		Base Curve		$\pm 0.75 \text{ D}$	5.1.5	When specified

Mounted SV & Multifocal	$\Delta$ Imbalance	Vertical Prism	$\geq 0.00$ D, $\leq \pm 3.37$ D $> \pm 3.37$ D	$\leq 0.33\Delta$ $\leq 1$ mm difference in height of PRPs	5.2.1.1	
		Horizontal Prism	$\geq 0.00$ D, $\leq \pm 2.75$ D $> \pm 2.75$ D	$\leq 0.67\Delta$ PRPs $\leq \pm 2.5$ mm from specified distance interpupillary distance	5.2.1.1	
	Segment	Segment Tilt		$\pm 2^\circ$	6.2.4	Measured from $180^\circ$
		Vertical Location		$\pm 1.0$ mm	6.2.3.1	Each lens
Vertical Difference			$\pm 1.0$ mm	6.2.3.1	Between lenses	
		Horizontal Location		$\pm 2.5$ mm	6.2.3.1	From specified near interpupillary distance
Mounted PAL	$\Delta$ Imbalance	Vertical Prism (PAL imbalance)	$\geq 0.00$ D, $\leq \pm 3.375$ D $> \pm 3.375$ D	$\leq 0.33\Delta$ $\leq 1$ mm difference in height of PRPs	5.2.1.2	Between lenses
		Horizontal Prism (PAL imbalance)	$\geq 0.00$ D, $\leq \pm 3.375$ D $> \pm 3.375$ D	$\leq 0.67\Delta$ PRPs $\leq \pm 1.0$ mm from specified monocular interpupillary distance	5.2.1.2	
	Fitting point	Vertical Location		$\pm 1.0$ mm	6.2.3.2	Each lens
		Vertical Difference		$\leq 1.0$ mm	6.2.3.2	Between lenses
		Horizontal Location		$\pm 1.0$ mm	6.2.3.2	From specified monocular interpupillary distance
		Horizontal Axis Tilt		$\pm 2$ degrees	6.2.4	Using the permanent horizontal reference markings
	Misc.	Center Thickness		$\pm 0.3$ mm	6.1.3	When specified
Segment Size			$\pm 0.5$ mm	6.1.4		
Warpage			$\pm 1.00$ D	6.2.2	Cyl induced on front	