Johnson & Johnson Vision Care, Inc.

Clinical Study Protocol

The effects of contact lenses with experimental dye on visual function

Protocol CR-6100

Version: 2.0, Amendment 1.0

Date: 07 June 2018

Investigational Products: senofilcon A with new UV-blocker

Key Words: senofilcon A-based contact lens with new UV-blocker, ACUVUE® OASYS®, senofilcon A, daily disposable, non-dispensing.

Statement of Compliance to protocol, GCP and applicable regulatory guidelines:
This trial will be conducted in compliance with the protocol, ISO 14155,[1] the International Conference on Harmonization Good Clinical Practice E6 (ICH-GCP),[2] the Declaration of Helsinki,[3] and all applicable regulatory requirements.

Confidentiality Statement:
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PROTOCOL TITLE, NUMBER, VERSION

Title: The effects of contact lenses with new UV-blocker on visual function
Protocol Number: CR-6100
Version: 2.0
Date: 07 June 2018

SPONSOR NAME AND ADDRESS

Johnson & Johnson Vision Care (JJVC)
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The Medical Monitor must be notified by the clinical institution/site by e-mail, fax, or telephone within 24 hours of learning of a Serious Adverse Event. The Medical Monitor may be contacted during business hours for adverse event questions. General study related questions should be directed towards your assigned clinical research associate.

The Medical Monitoring Plan is maintained as a separate document and included in the Trial Master File.

AUTHORIZED SIGNATURES

The signature below constitutes the approval of this protocol and the attachments, and provides the necessary assurances that this trial will be conducted according to all stipulations of the protocol, including all statements regarding confidentiality, and according to local legal and regulatory requirements and applicable U.S. federal regulations,[4] ICH guidelines,[2] ISO 14155,[1] and the Declaration of Helsinki.[3]

Author/Study Responsible Clinician	See Electronic Signature Report John R. Buch, O.D., M.S. Sr. Principal Research Optometrist, JJVC	DATE
Co-author	[redacted]	
Clinical Operations Manager		
Biostatistician		
Data Management		
Approver		
Reviewer		

CHANGE HISTORY

Version	Originator	Description of Change(s) and Section Number(s) Affected	Date
1.0	John R. Buch	Original Protocol	28 March 2018
2.0	John R. Buch	Update visit windows from1-14 day to 1-28 days	07 June 2018

SYNOPSIS

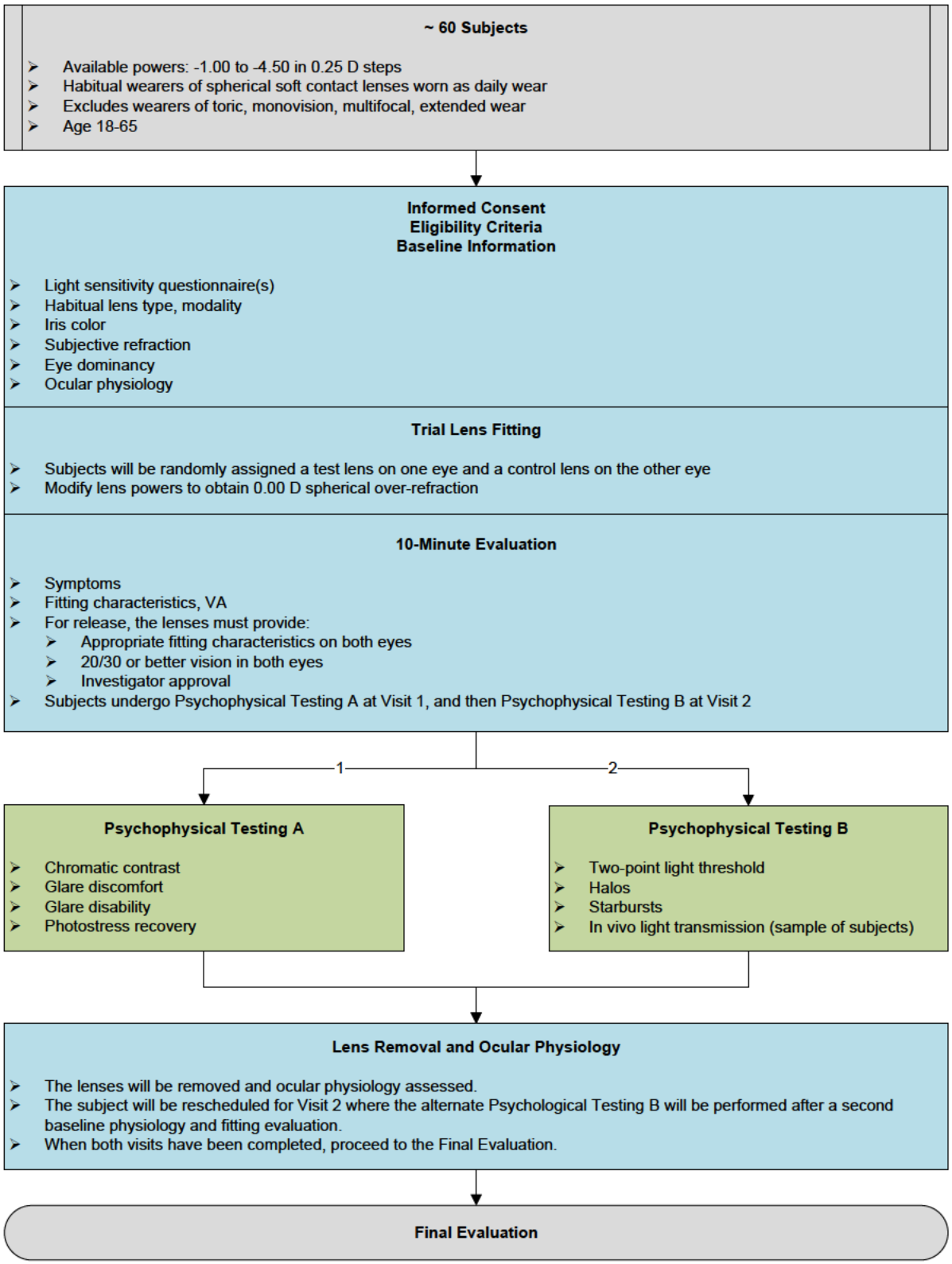
Protocol Title	The effects of contact lenses with experimental dye on visual function
Sponsor	JJVC, 7500 Centurion Parkway, Jacksonville, FL 32256
Clinical Phase	Development phase 3
Trial Registration	This study will be registered on ClinicalTrials.gov.
Test Article(s)	Investigational Products: senofilcon A-based contact lens with new UV blocker. Control Products: ACUVUE OASYS
Wear and Replacement Schedules	Wear Schedule: daily wear Replacement Schedule: daily
Objectives	The objective of this study is to objectively measure potential benefits of the new UV blocker.
Study Endpoints	Primary endpoint(s): two-point light thresholds, halo and starbursts geometry. Secondary endpoint(s): photostress recovery (PR) time, glare discomfort threshold (GDc), glare disability threshold (GDs), heterochromatic contrast. Other observations: on-eye light transmission, ocular physiology, subjective response.
Study Design	This is a single-site, two-visit, contralateral, non-dispensing, randomized, controlled and subject-masked study. At Visit 1 subjects will be randomly assigned to wear one of two lens wear sequences (left: Test, right: Control or left: Control, right: Test) and will undergo Psychometric Testing A. At Visit 2, there are two levels of randomization, first subjects will be assigned randomly to 1 of 2 lens wear sequences (left: Test, right: Control or left: Control, right: Test) and subjects will then be randomized to the order of the Test lens activation (activated/inactivated or inactivated/activated) and will then undergo Psychometric Testing B. See the flow chart at the end of the synopsis table for the schematic of the study visits and procedures of main observations (Figure 1: Study Flowchart).
Sample Size	Approximately 66 eligible subjects will be enrolled and randomized into the study. Approximately 60 subjects are targeted to complete the study. Of these, approximately 40 will be in the 18-39 age range, and approximately 20 in the 40-65 age range.

Study Duration	There are two study visits that will last approximately 2-3 hours each. At least 24 hours must separate the end of Visit 1 and the beginning of Visit 2. Once enrolled, all subjects are expected to complete both visits within 28 days. The study enrollment period will be approximately 6 weeks.
Anticipated Study Population	All subjects will be habitual wearers of spherical soft silicone hydrogel contact lenses that can be fit with the lens powers available for this study. Healthy male and female volunteers of any race and ethnicity will be recruited that are ≥18 and ≤39 years of age (~2/3 of the total sample) and are ≥40 and ≤65 years of age (~1/3 of the total sample).
Eligibility Criteria (Inclusion)	Potential subjects must satisfy all of the following inclusion criteria to be enrolled in the study: 1. The subject must read, understand, and sign the STATEMENT OF INFORMED CONSENT and receive a fully executed copy of the form. 2. Appear able and willing to adhere to the instructions set forth in this clinical protocol 3. Between 18 and 65 (inclusive) years of age at the time of screening. 4. Be a current spherical soft silicone hydrogel contact lens wearer in both eyes with a minimum of 6 hours/day and 5 days/week wear time over the last 30 days by self-report. Inclusion Criteria after Baseline 5. The subject's vertex-corrected spherical equivalent distance refraction must be in the range of -1.00 through -4.50 D in each eye. 6. The subject has a best corrected visual acuity of 20/25 or better in each eye.

Eligibility Criteria (Exclusion)	Potential subjects who meet any of the following criteria will be excluded from participating in the study: 1. Currently pregnant or breastfeeding. 2. Any ocular or systemic allergies or diseases that may interfere with contact lens wear. 3. Any autoimmune disease or use of medication, which may interfere with contact lens wear. Habitual medications used by successful soft contact lens wearers are considered acceptable. 4. Entropion, ectropion, extrusions, chalazia, recurrent styes, glaucoma, history of recurrent corneal erosions, or aphakia. 5. Any previous, or planned, ocular or interocular surgery (e.g., radial keratotomy, PRK, LASIK, etc.). 6. Any corneal distortion resulting from previous hard or rigid gas permeable contact lens wear. 7. Multifocal, toric or extended wear contact lens correction. 8. Participation in any contact lens or lens care product clinical trial within 14 days prior to study enrollment. 9. History of binocular vision abnormality or strabismus. 10. Any infectious disease (e.g., hepatitis, tuberculosis) or contagious immunosuppressive diseases (e.g., HIV) by self-report. 11. Employee or immediate family member of an employee of clinical site (e.g., Investigator, Coordinator, Technician). Exclusion Criteria after Baseline 12. Any ocular infection. 13. Any grade 3 or greater slit lamp findings (e.g., edema, corneal neovascularization, corneal staining, tarsal abnormalities, conjunctival injection) on the FDA classification scale, any previous history or signs of a contact lens-related corneal inflammatory event (e.g., past peripheral ulcer or round peripheral scar), or any other ocular abnormality that may contraindicate contact lens wear.
Disallowed Medications/Interventions	Use of any prescription or over-the-counter (OTC) medications that may affect contact lens wear from 24 hours prior to receiving the study product through the study period of 2 visits. Habitual medications taken by successful soft contact lens wearers are considered acceptable.

Measurements and Procedures	The new UV-blocker has the potential to provide visual benefits that go beyond the correction of ametropia. This study will objectively measure these benefits using an optical bench set-up.
Microbiology or Other Laboratory Testing	None
Study Termination	The occurrence of one or more Unanticipated Adverse Device Effect (UADE), or any SAE where relationship to study agent cannot be ruled out, will result in stopping further dispensing investigational product. In the event of a UADE or SAE, the Sponsor Medical Monitor may unmask the treatment regimen of subject(s) and may discuss this with the Principal Investigator before any further subjects are enrolled.
Ancillary Supplies/ Study-Specific Materials	EyeCept preservative-free eyedrops, optical bench set-up.
Principal Investigator(s) and Study Institution(s)/Site(s)	A full list of Principal Investigators, clinical sites, and institutions is kept separately from the Study Protocol and is included in the study Trial Master File.

Figure 1: Study Flowchart



COMMONLY USED ABBREVIATIONS AND DEFINITIONS OF TERMS

ADD	Plus Power Required For Near Use
ADE	Adverse Device Effect
AE	Adverse Event/Adverse Experience
BCVA	Best Corrected Visual Acuity
BSCVA	Best Spectacle Corrected Visual Acuity
CFR	Code of Federal Regulations
CIE	Corneal Infiltrative Event
CLUE	Contact Lens User Experience
COAS	Complete Ophthalmic Analysis System
COM	Clinical Operations Manager
CRA	Clinical Research Associate
CRF	Case Report Form
CRO	Contract Research Organization
CT	Center Thickness
[redacted]	[redacted]
D	Diopter
DMC	Data Monitoring Committee
eCRF	Electronic Case Report Form
EDC	Electronic Data Capture
ETDRS	Early Treatment Diabetic Retinopathy Study
FDA	Food and Drug Administration
GCP	Good Clinical Practice
HIPAA	Health Insurance Portability and Accountability Act
HEV	High Energy Visible
IB	Investigator's Brochure
ICF	Informed Consent Form
ICH	International Council on Harmonisation
IDE	Investigational Device Exemption
IEC	Independent Ethics Committee
IRB	Institutional Review Board
ISO	International Organization for Standardization
ITT	Intent-to-Treat
JJVC	Johnson & Johnson Vision Care, Inc.
LC	Limbus Center
LogMAR	Logarithm of Minimal Angle of Resolution
MedDRA©	Medical Dictionary for Regulatory Activities
MOP	Manual of Procedures
MPMVA	Maximum Plus to Maximum Visual Acuity
NIH	National Institutes of Health
OD	Right Eye
OHRP	Office for Human Research Protections
OHSR	Office for Human Subjects Research
OS	Left Eye
OU	Both Eyes
PD	Protocol Deviation

PHI	Protected Health Information
PI	Principal Investigator
PIG	Patient Instruction Guide
PQC	Product Quality Complaint
PRO	Patient Reported Outcome
QA	Quality Assurance
QC	Quality Control
SAE	Serious Adverse Event/Serious Adverse Experience
SAP	Statistical Analysis Plan
SAS	Statistical Analysis System
SD	Standard Deviation
SKU	Stock Keeping Unit
SOP	Standard Operating Procedure
UADE	Unanticipated Adverse Device Effect
USADE	Unanticipated Serious Adverse Device Effect
UV	Ultraviolet
VA	Visual Acuity

1. INTRODUCTION AND BACKGROUND

Photochromic spectacle lenses have been tested for their ability to improve visual functions under intense light conditions.[5] In that study, 75 subjects were tested in a subject-masked cross-over design (a transparent spectacle lens was compared to a partially activated photochromic). Subjects wearing the photochromic lenses (a variety of types were used) showed significant improvements in photostress recovery, glare disability, and glare discomfort. Recently, a similar effect was found for photochromic contact lenses (unpublished) using a contralateral design. Compared to a clear contact in one eye (the OASYS), a photochromic contact [redacted] demonstrated improved photostress recovery, glare disability and discomfort (and chromatic contrast, an effect not seen as strongly in the parallel photochromic spectacle study). Although compelling as a first study, two major questions remain.

Question 1: Are the deleterious effects of light scatter continuous? Glare disability specifically refers to visual function under intense light circumstances. Light enters the eye, is scattered by the anterior media (or even surface characteristics of the cornea such as excess lacrimal fluid or even contact lenses), and this scatter interferes with visual function (e.g., by veiling an image). Since this scattering, however, is caused by static features of the eye (ranging from the optical quality of a contact lens to in homogeneities within the cornea or lens), it is also present under low light conditions. Stated differently, scattering is no more excessive in intense light, it is just more aversive. Scattering under low-moderate light conditions may not be as bothersome but it is much more pervasive: to wit, it degrades our vision under all lighting conditions.

One very convenient way of measuring the visual effects of low-level light scatter is based on the two-point-light spread technique .[6] Two small points of light are used (simulated sunlight is the best to use for ecological validity). The light can either start as one point (subjects then

determine the minimum distance needed to see two points) or two points (the subjects indicate when only one point is perceived). The intensity of the points can be varied from very high to low. As the point spread function of the eye is increased, the distance between when the points are deemed distinct is also proportionally increased.

Question 2: What aspects of glare are improved by filtering? Glare disability is measured by exposing subjects to a bright source of light and then measuring how this light interferes with some form of visual discrimination (either the glare source can be varied or the intensity of the target). In this scenario, one is simply testing how bright light interferes with some aspect of visual function (such as contrast discrimination). It does not, however, measure how the glare light itself is scattered. For example, light can scatter uniformly causing a homogenous veil (similar to a ganzfeld).[7] It can also spread in what appears like spokes or starbursts (this sometimes referred to as positive dysphotopsia and is caused by high-order aberrations). These appear to be particularly pernicious when individuals have gone through laser correction of myopia and cataract surgery (dysphotopsia is the number one problem following successful cataract surgery, around 51% of patients). They also, however, accompany a plethora of other conditions including dry eye, astigmatism, epiphora, mild-traumatic brain injury, epicanthic eye structure, increased lens density (particularly glycemic), etc. Ritschel et al. (2009) described these autonomous glare phenomenon

> "In general the effects of glare can be divided into bloom, a general loss of contrast in the surroundings of the retinal image of the light-source (veil), and flare which comprises the ciliary corona (the sharp needles) and the lenticular halo surrounding the light."[8]

In the previous study, we measured the first aspect of glare (the veil or bloom). In this study, we would like to measure the latter two, the halo and spokes.

Practical implications:
Visual disturbance in the form of halos and starbursts is common; when the issues become clinical, they are often referred to as dysphotopsia. Dysphotopsia, for instance, is common in patients who have had LASIK surgery to correct vision. In fact, it has been argued that these complications are why LASIK has dropped by more than 50 percent, from 1.5 million procedures a year in 2007 to 604K in 2015 (e.g., see lasikcomplications.com). Dysphotopsia is also common in patients who are progressing from early, pre-cataractous vision toward severe (operable) cataract (about half of the population over 70 years). Dysphotopsia is particularly evident during night time driving and is one of the major reasons why older adult patients stop driving at night. It is also a major reason for displanting IOLs that were implanted to correct cataracts.

It is not simply older patients, however, who have these issues. To demonstrate this (unpublished data), we measured halos and visual starbursts in a sample of young subjects (17-22 years of age). The size of the central halo for these young subjects varied by a factor of six (range = 3-13 cm). Their peripheral spokes varied by nearly a factor of three (6-15). Hence, even in these young healthy and largely homogeneous subjects the range (and aversive ness) was very large. This is why a number of spectacle lenses (even contact lenses, see

http://blog.uniqso.com/contact-lenses-help-reduce-halos-glare/) are specifically marketed for their ability to reduce halos and starbursts.

This study will have one Control lens (ACUVUE OASYS), and one Test lens (Investigational). However, the one Test lens will be evaluated under two separate lighting conditions making three study articles altogether.

1.1. Name and Descriptions of Investigational Products

This study will evaluate the Test lens vs. the Control lens. The Test lens is senofilcon A with a new UV blocker, while the Control lens is senofilcon A without the new UV blocker (i.e., ACUVUE OASYS). Further details about the test articles are found in Section 6 of this protocol.

1.2. Intended Use of Investigational Products

The intended use of the investigative product in this study is for correcting myopia and for the attenuation of bright lights. The study articles will be worn contralaterally in a daily wear, daily disposable modality for approximately 2 hours on both days of the study. The study articles will not be dispensed.

1.3. Summary of Findings from Nonclinical Studies

All previous pre-clinical findings were deemed satisfactory prior to proceeding with clinical trials on humans. For the most comprehensive nonclinical information regarding the senofilcon A-based contact lens with new UV blocker, refer to the latest version of the Investigator's Brochure

1.4. Summary of Known Risks and Benefits to Human Subjects

In addition to the correction of their myopia, subjects are likely to experience a reduction of bright lights.

For the most comprehensive risk and benefit information regarding the senofilcon A-based contact lens with new UV blocker, refer to the latest version of the Investigator's Brochure.

1.4.1. Relevant Literature References and Prior Clinical Data Relevant to Previous Utilized Measures: Disability Glare, Discomfort Glare, Photostress Recovery, and Chromatic Contrast

- Colombo, L., Melardi, E., Ferri, P., Montesano, G., Attaalla, S. S., Patelli, F., ... & Rossetti, L. (2017). Visual function improvement using photocromic and selective blue-violet light filtering spectacle lenses in patients affected by retinal diseases. BMC ophthalmology, 17(1), 149.
- Huang, W. J., Yang, Y., & Luo, M. R. (2017). Discomfort glare caused by white LEDs having different spectral power distributions. Lighting Research & Technology, 1477153517704996.
- Lee, H. S., Kim, J. Y., Subramaniyam, M., Park, S., & Min, S. N. (2017). Evaluation of quantitative glare technique based on the analysis of bio-signals. Ergonomics, 60(10), 1376-1383.

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- Stringham, J. M., O'Brien, K. J., & Stringham, N. T. (2016). Macular carotenoid supplementation improves disability glare performance and dynamics of photostress recovery. Eye and Vision, 3(1), 30.
- Wahl, S., Fornoff, L., Ochakovski, G. A., & Ohlendorf, A. (2017). Disability glare in soft multifocal contact lenses. Contact Lens and Anterior Eye.

See also the Investigator's Brochure.[9]

1.5. Relevant Literature References and Prior Clinical Data Relevant to Proposed Clinical Study

[redacted] evaluated the same study lenses as the current study on a similar optical bench set up. In that study, the Test and Control lenses were subjected to a 395 nm light source that would normally be present in the outdoor environment on a sunny day. The Test lens performed better than the Control lens in this simulated environment.[10] However, previous studies [redacted] have shown an indoor benefit of the Test lens over the Control lens and this remains unexplained - particularly since indoor light is typically absent of any significant 395 nm light.[11] It is important to understand whether the same optical bench metrics

(photostress recovery, discomfort glare, disability glare, and heterochromatic contrast) can help explain the indoor benefit.

The same previous studies that have shown an indoor benefit with the Test lens have shown a benefit with daytime and nighttime driving. Subjects typically report that their vision is better and they have less issues with bright lights. The mechanism behind this remains unexplained. The current study will investigate this area by evaluating the magnitude of dysphotopsia with the Test and Control lens under simulated daytime and nighttime wavelengths.

1.5.1. Relevant Literature References and Prior Clinical Data Relevant to New Proposed Measures: Halos, Starbursts, Two-Point Thresholds

- Artal, Pablo, and Rafael Navarro (1992). Simultaneous measurement of two-point-spread functions at different locations across the human fovea. Applied optics 31.19: 3646-3656.
- Aujla, M., Wolffsohn, J. S., & Sheppard, A. L. (2015). Halo size and subjective complaints of dysphotopsia in a normal population. Investigative Ophthalmology & Visual Science, 56(7), 4314-4314.
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- Renzi, L. and Hammond, B.R. (2016). The effects of photochromic lenses on visual performance. Clinical and Experimental Optometry, 1-7.

- Ritschel, T., Ihrke, M., Frisvad, J. R., Coppens, J., Myszkowski, K., & Seidel, H. P. (2009, April). Temporal Glare: Real-Time Dynamic Simulation of the Scattering in the Human Eye. In Computer Graphics Forum (Vol. 28, No. 2, pp. 183-192). Blackwell Publishing Ltd.
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- Sheedy, J. E., Truong, S. D., & Hayes, J. R. (2003). What are the visual benefits of eyelid squinting?. *Optometry and vision science*, *80*(11), 740-744.
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2. STUDY OBJECTIVES, ENDPOINTS AND HYPOTHESES

2.1. Objectives

Primary Objective(s)
The primary objective of this study is to investigate the daytime and nighttime driving benefit seen with previous studies. It will determine whether the Test lens can demonstrate an objective benefit in the absence and presence of a UV/HEV light source over the Control lens. The size of dysphotopsia (halos, starburst, scattering) will be measured.

Secondary Objective(s)
The secondary objective of this study is to investigate the indoor benefit seen with previous studies. It will determine whether the investigational lens can demonstrate an objective benefit in the absence of a UV/HEV light source over the Control lens. Psychophysical measures such a photostress recovery, disability glare, discomfort glare, and chromatic contrast will be used.

Exploratory Objective(s)
The on-eye light transmission will be measured on a sampling of subjects by measuring absolute sensitivity to test lights with activated and inactivated lenses. Slit lamp findings and subjective ratings will be monitored.

2.2. Endpoints

There is one Control lens and one Test lens in this study. However, the Test lens is evaluated with and without an added UV/HEV light source. The testing conditions and endpoints are summarized here with detail provided.

Visits	Compare Lens	Endpoints						
		Photo	Disabil	Discom	CC	Halo	Starb	Scatt
1	A/B	✓	✓	✓	✓	-	-	-
2	A/B A/C	-	-	-	-	✓	✓	✓

- A: Control lens, B: investigational lens without added UV/HEV light, C: investigational lens with added UV/HEV light
- Photo: photostress recovery, Disabil: disability glare, Discom: discomfort glare, CC: chromatic contrast, Halo: haloes, Starb: starbursts, Scatt: scattering

Primary Endpoint(s)
Positive dysphotopsia can take many forms and can manifest itself as scintillating vision (scattering), seeing arcs, flare, flashes, starbursts and haloes. The investigational lens has the potential to decrease these symptoms, particularly in the presence of an added UV/HEV light source. In this study, the investigators will evaluate the degree of light scattering, haloes, and starbursts using a two-point light threshold test and a newly-designed halometer. Light scattering, halos, and starbursts are more obvious at night prompting testing to occur with an inactivated lens. However, they are also present during the day prompting testing to also occur with an activated lens.

Secondary Endpoint(s)
The psychophysical metrics of photostress recovery, disability glare, discomfort glare, and chromatic contrast will be recorded in the absence of an added UV/HEV light source. An optical bench set up will be used. This will relate to indoor vision when the lenses are less likely to be activated. [redacted]

Other Exploratory Endpoint(s)
Knowing the light transmission through the contact lenses is of particular interest to the development team. A sampling of subjects will undergo additional absolute sensitivity testing to estimate the in vivo light transmission. Slit lamp findings and subjective ratings will be monitored.

2.3. Hypotheses

Primary Hypotheses (each is considered independent)

1. Light Scattering
    a. The Test lens (in the absence of an additional UV/HEV light source) will be statistically lower than the Control lens with respect to light scattering as measured using the two-point light threshold instrument.
    b. The Test lens (in the presence of an additional UV/HEV light source) will be statistically lower than the Control lens with respect to light scattering as measured using the two-point light threshold instrument.

2. Haloes
    a. The Test lens (in the absence of an additional UV/HEV light source) will be statistically lower than the Control lens with respect to halos. This is measured using the halometer instrument.
    b. The Test lens (in the presence of an additional UV/HEV light source) will be statistically lower than the Control lens with respect to halos. This is measured using the halometer instrument.

3. Starbursts
    a. The Test lens (in the absence of an additional UV/HEV light source) will be statistically lower than the Control lens with respect starbursts as measured using the halometer instrument.
    b. The Test lens (in the presence of an additional UV/HEV light source) will be statistically lower than the Control lens with respect starbursts as measured using the halometer instrument.

Secondary Hypotheses (each is considered independent)

1. The Test lens (in the absence of an additional UV/HEV light source) will be statistically lower than the Control lens with respect to photostress recovery time (seconds) as measured using the optical bench instrument.
2. The Test lens (in the absence of an additional UV/HEV light source) will be statistically higher than the Control lens with respect to disability glare threshold as measured using the optical bench instrument.
3. The Test lens (in the absence of an additional UV/HEV light source) will be statistically lower than the Control lens with respect to discomfort glare (eyelid squinting) as measured using the optical bench instrument.
4. The Test lens (in the absence of an additional UV/HEV light source) will be statistically higher than the Control lens with respect to chromatic contrast threshold than as measured using the optical bench instrument.

Other Hypotheses

1. In vivo light transmission will be collected on a sampling of subjects for informational purposes only. Slit lamp findings and subjective ratings will be described descriptively.

3. TARGETED STUDY POPULATION

3.1. General Characteristics

Male and female volunteers of any nationality that satisfy the inclusion and exclusion criteria.

3.2. Inclusion Criteria

Potential subjects must satisfy all of the following criteria to be enrolled in the study:

Inclusion Criteria after Screening

1. The subject must read, understand, and sign the STATEMENT OF INFORMED CONSENT and receive a fully executed copy of the form.
2. Appear able and willing to adhere to the instructions set forth in this clinical protocol
3. Between 18 and 65 (inclusive) years of age at the time of screening.
4. Be a current spherical soft silicone hydrogel contact lens wearer in both eyes with a minimum of 6 hours/day and 5 days/week wear time over the last 30 days by self-report.

Inclusion Criteria after Baseline

5. The subject's vertex-corrected spherical equivalent distance refraction must be in the range of -1.00 through -4.50 D in each eye.
6. The subject has a best corrected visual acuity of 20/25 or better in each eye.

3.3. Exclusion Criteria

Potential subjects who meet any of the following criteria will be excluded from participating in the study:

Exclusion Criteria after Screening:

1. Currently pregnant or breastfeeding.
2. Any ocular or systemic allergies or diseases that may interfere with contact lens wear.
3. Any autoimmune disease or use of medication, which may interfere with contact lens wear. Habitual medications used by successful soft contact lens wearers are considered acceptable.
4. Entropion, ectropion, extrusions, chalazia, recurrent styes, glaucoma, history of recurrent corneal erosions, or aphakia.
5. Any previous, or planned, ocular or interocular surgery (e.g., radial keratotomy, PRK, LASIK, etc.).
6. Any corneal distortion resulting from previous hard or rigid gas permeable contact lens wear.
7. Multifocal, toric or extended wear contact lens correction.
8. Participation in any contact lens or lens care product clinical trial within 14 days prior to study enrollment.
9. History of binocular vision abnormality or strabismus.
10. Any infectious disease (e.g., hepatitis, tuberculosis) or contagious immunosuppressive diseases (e.g., HIV) by self-report.
11. Employee or immediate family member of an employee of clinical site (e.g., Investigator, Coordinator, Technician).

Exclusion Criteria after Baseline

12. Any ocular infection.
13. Any grade 3 or greater slit lamp findings (e.g., edema, corneal neovascularization, corneal staining, tarsal abnormalities, conjunctival injection) on the FDA classification scale, any previous history or signs of a contact lens-related corneal inflammatory event (e.g., past peripheral ulcer or round peripheral scar), or any other ocular abnormality that may contraindicate contact lens wear.

3.4. Enrollment Strategy

Study subjects will be recruited from the Institution/clinical site's subject database and/or utilizing Independent Ethics Committee (IEC) or Institutional Review Board (IRB) approved materials.

4. STUDY DESIGN AND RATIONALE

4.1. Description of Study Design

The study is a single-site, controlled, randomized, subject-masked, non-dispensing, contralateral design. The study begins with an initial visit (Visit 1 - Day 0), if a subject is found to meet all eligibility criteria, then they will be randomized to one of two lens wear sequences (Left: Test, Right: Control or Left: Control, Right: Test); otherwise a subject will be deemed ineligible for this study.

If a subject is found eligible and was 'dispensed' study lenses at the initial visit, then one additional visit will occur. Visit 2 will occur no sooner than 24 hours after Visit 1 and no later than 28 days after visit 1. Each visit will last approximately 2-3 hours each. Unscheduled visits may occur during the course of the study.

4.2. Study Design Rationale

This study will be executed using a contralateral design. There are several benefits to this choice of design. First, we intend to relate performance with the investigational lens in its activated and inactivated states to baseline light sensitivity. A contralateral design will allow us to compare performance with both activation states within the same individual, ostensibly with the same baseline light sensitivity. Second, other subject factors that can influence visual performance, such as iris color and absorption of test lights via macular pigment, are better controlled using this design. Third, in psychophysical testing, which is the gold standard for many of the visual functions being tested, participants make judgments about some event threshold, such as when an image disappears or how large or bothersome or intense a visual event appears. Participants may have different criteria for threshold events that are internally consistent *within* subjects but can vary *between* subjects. A contralateral design allows the investigational lens to be compared within subjects, with consistent criteria for threshold events. Given the fact that sufficient time will be taken between measures, in some cases 24 hours or more, carryover effects are unlikely.

4.3. Enrollment Target and Study Duration

Approximately 66 subjects will be enrolled to complete approximately 60 at a single site. The point of study enrollment is the execution and completion of the signed Informed Consent document. Subjects will be stratified into one of two age groups using a 2:1 allocation ratio:

- 40 subjects ±3 in age group 18-39
- 20 subjects ±3 in age group 40-65

There are two study visits that will last approximately 2-3 hours each. At least 24 hours must separate the end of Visit 1 and the beginning of Visit 2. Once enrolled, all subjects are expected to complete both visits within 28 days. The study enrollment period will be approximately 6 weeks.

5. TEST ARTICLE ALLOCATION AND MASKING

5.1. Test Article Allocation

Use of the test articles will be randomized using a randomization scheme supplied by the study biostatistician.

This is a single-site, two-visit, contralateral, subject-masked, non-dispensing and randomized study. The study lenses will be worn in a contralateral and random fashion. At visit 1, a block size of (2) sequences will be used to randomly assign subjects to one of two lens wear sequences (Left: Test, Right: Control or Left: Control, Right: Test).

At visit 2, there are two levels of randomization, a block size of (2) sequences will be used to randomly assign subjects to one of two lens wear sequences (Left: Test, Right: Control or Left: Control, Right: Test). Once subjects are randomized to a lens wear sequence, subjects will then be randomized to the order of Test lens activation (activated/inactivated or inactivated/activated).

The random scheme for each visit will be generated by site using the PROC PLAN procedure from SAS Software Version 9.4 or higher (SAS Institute, Cary, NC).

The study site must follow the randomization scheme provided and complete enrollment according to the randomization list and not pre-select or assign subjects. The randomized assignment of subjects will be performed at the first visit prior to the first fitting. The following must have occurred prior to randomization:

- Informed consent has been obtained
- Subject meets all the inclusion / exclusion criteria
- Subject history and baseline information has been collected

5.2. Masking

This is a subject-masked study. Masking will be used to reduce potential bias. Subjects will be unaware of the identity of the investigational product. Investigators and clinical site personnel involved in the data collection will not be masked as to the identity of the investigational product. Although the subjects will not be aware of which study lens is going on which eye, the dynamic nature of the test lens during the assessments may give the identity.

Under normal circumstances, the mask should not be broken until all subjects have completed the study and the database is finalized. Otherwise, the mask should be broken only if specific emergency treatment/course of action would be dictated by knowing the treatment status of the subject. In such cases, the Investigator may, in an emergency, contact the medical monitor. In the event the mask is broken, the Sponsor must be informed as soon as possible. The date, time, and reason for the unmasking must be documented in the subject record. The Investigator is also advised not to reveal the study treatment assignment to the clinical site or Sponsor personnel.

Subjects who have had their treatment assignment unmasked are expected to return for all remaining scheduled evaluations. Subjects who are discontinued will be replaced.

5.3. Procedures for Maintaining and Breaking the Masking

The identity of the study lenses will be masked to the subjects by over labeling the blister pack of the study lens. The label will contain the study number, lot number, sphere power, expiration date and the randomization codes S and N.

The test articles mask shall not be broken unless information concerning the lens type is necessary for the urgent medical treatment of a subject. The Sponsor must be notified before the mask is broken.

When dispensing test articles, the following steps should be followed to maintain randomization codes:

1. Investigator or designee (documented on the Delegation Log) will consult the lens fitting schedule/randomization scheme to obtain the test article assignment for that subject prior to dispensing
2. Investigator or designee will record the subject's number on the appropriate line of the randomization scheme
3. Investigator or designee will pull the appropriate test articles from the study supply. All test articles that are opened, whether dispensed (placed/fit on eye or dispensed outside the clinical site) or not, must be recorded on the Test Article Accountability Log in the "Dispensed" section

Subjects who have had their treatment assignment unmasked are expected to return for all remaining scheduled evaluations. Subjects who are discontinued may be replaced.

6. STUDY INTERVENTION

6.1. Identity of Test Articles

The following contact lenses will be used in this study:

Table 1: Test Articles

	Test	Control
Name	ECL100	ACUVUE OASYS
Manufacturer	JJV	JJV
[redacted]	[redacted]	[redacted]
Lens Material	senofilcon A	senofilcon A
Nominal Base Curve @ 22 °C	8.4	8.4
Nominal Diameter @ 22 °C	14.0	14.0
Nominal Distance Powers (D)	-1.00 through -4.50	-1.00 through -4.50
Water Content *(Optional)*	38	38
Center Thickness *(Optional)*	0.085	0.070
Oxygen Permeability (Dk)	103	103
Wear Schedule in Current Study	Daily	Daily
Replacement Frequency	Daily	Daily
Packaging Form (vial, blister, etc.)	Blister	Blister
Other distinguishing items (e.g., dye, packaging solution, optical design, etc.)	New UV/HEV blocker	NA

Approximately 25 lenses per stock keeping unit (SKU) will be provided based on 66 subjects, 2-periods, contralateral, non-dispensing design, US population normalized for peak SKUs and a safety factor of 50%.

6.2. Ancillary Supplies/Products

The following solutions will be used in this study:

Table 2: Ancillary Supplies

	Solution
Solution Name/Description	EyeCept Rewetting Drops
Manufacturer	Optics Laboratories
Preservative	NA

6.3. Administration of Test Articles

Test articles will be dispensed to subject meeting all eligibility requirements, including any dispensing requirements set forth in this clinical protocol. Subjects will be dispensed an adequate supply of test articles to complete the study. Lost or damaged test articles may be replaced at the discretion of the Investigator and/or the Sponsor.

6.4. Packaging and Labeling

The test articles will be packaged in blisters as the primary packaging. The test article will be over-labeled to mask the subject to the identity of the lens. The test articles will be in investigational cartons sealed with a tamper evident seal, commercial cartons, or in plastic bags as the secondary packaging form. The sample study label is shown below:

6.5. Storage Conditions

Test articles will be maintained at ambient temperatures at the clinical site. Test articles must be kept under secure conditions and stored out of direct sunlight or other source of UV/HEV radiation.

6.6. Collection and Storage of Samples

When possible, any lens or test article associated with an Adverse Events and/or a Product Quality Complaint must be retained and stored in a glass vial with moderate solution pending directions from the sponsor for potential return back to JJVC.

6.7. Accountability of Test Articles

JJVC will provide the Investigator with sufficient quantities of study articles and supplies to complete the investigation. The Investigator is asked to retain all lens shipment documentation for the test article accountability records.

Test article must be kept in a locked storage cabinet, accessible only to those assigned by the Investigator for dispensing. The Investigator may delegate this activity to authorized study site personnel listed on the Site Delegation Log. All test articles must be accounted. This includes:

1. What was dispensed for the subject for trial fitting, to wear out of the office, or issued for the subject to replace appropriately between visits
2. What was returned to the Investigator unused

3. The number and reason for unplanned replacements

The Investigator will collect all unused test articles from the subjects at the end of the subject's participation. Subject returned unused test articles must be separated from the clinical study inventory of un-dispensed test articles, and must be labeled with the subject number and date of return. Following final reconciliation of test articles by the monitor, the Investigator or monitor will return all unused test articles to JJVC.

If there is a discrepancy between the shipment documents and the contents, contact the study monitor immediately.

[redacted] Site Instructions for Test Article Receipt and Test Article Accountability for additional information.

7. STUDY EVALUATIONS

7.1. Time and Event Schedule

Table 3: Time and Events

Visit Information	Visit 1 Screening, Baseline 1, Psychometric Testing A	Visit 2 Baseline 2, Psychometric Testing B
Time Point	Day 1	1-28 Days after Visit 1
Estimated Visit Duration	2.5 hours	2.5 hours
Statement of Informed Consent	x	
Demographics	x	
Medical History/Concomitant Medications	x	x
Habitual Contact Lens Information	x	
Inclusion/Exclusion Criteria	x	
Baseline Questionnaires	x	
Entrance Visual Acuity	x	x
Subjective Sphero-Cylindrical Refraction	x	
Slit Lamp Biomicroscopy	x	x
Lens Selection	x	x
Lens Insertion & Settling	x	x
Visual Acuity and Over Refraction	x	x
Lens Power Modification (if applicable)	x	x
Subject Reported Ocular Symptoms	x	x
Lens Fit Assessment	x	x
Snellen Distance Visual Acuity	x	x
Study Assessments (dysphotopsia and/or psychophysical testing)	x	x

Visit Information	Visit 1 Screening, Baseline 1, Psychometric Testing A	Visit 2 Baseline 2, Psychometric Testing B
Time Point	Day 1	1-28 Days after Visit 1
Estimated Visit Duration	2.5 hours	2.5 hours
Post-assessment Questionnaire	x	x
Study Completion		x

7.2. Detailed Study Procedures

VISIT 1

Subjects must enter Visit 1 wearing their own contact lenses.

Visit 1: Screening			
Step	Procedure	Details	[redacted]
1.1	Statement of Informed Consent	Each subject must read, understand, and sign the Statement of Informed Consent before being enrolled into the study. The Principal Investigator or his/her designee conducting the informed consent discussion must also sign the consent form. **Note**: The subject must be provided a signed copy of this document.	
1.2	Demographics	Record the subject's year of birth, gender, race and ethnicity.	
1.3	Medical History and Concomitant Medications	Questions regarding the subjects' medical history and concomitant medications.	
1.4	Habitual Lenses	Questions regarding the subject's habitual lens type and parameters.	
1.5	Eligibility after Screening	All responses to Screening Inclusion Criteria questions must be answered "yes" and all responses to Exclusion Criteria must be answered "no" for the subject to be considered eligible. If subject is deemed to be ineligible after screening, proceed to Final Evaluation and complete Subject Disposition. Refraction and Biomicroscopy forms are not required.	

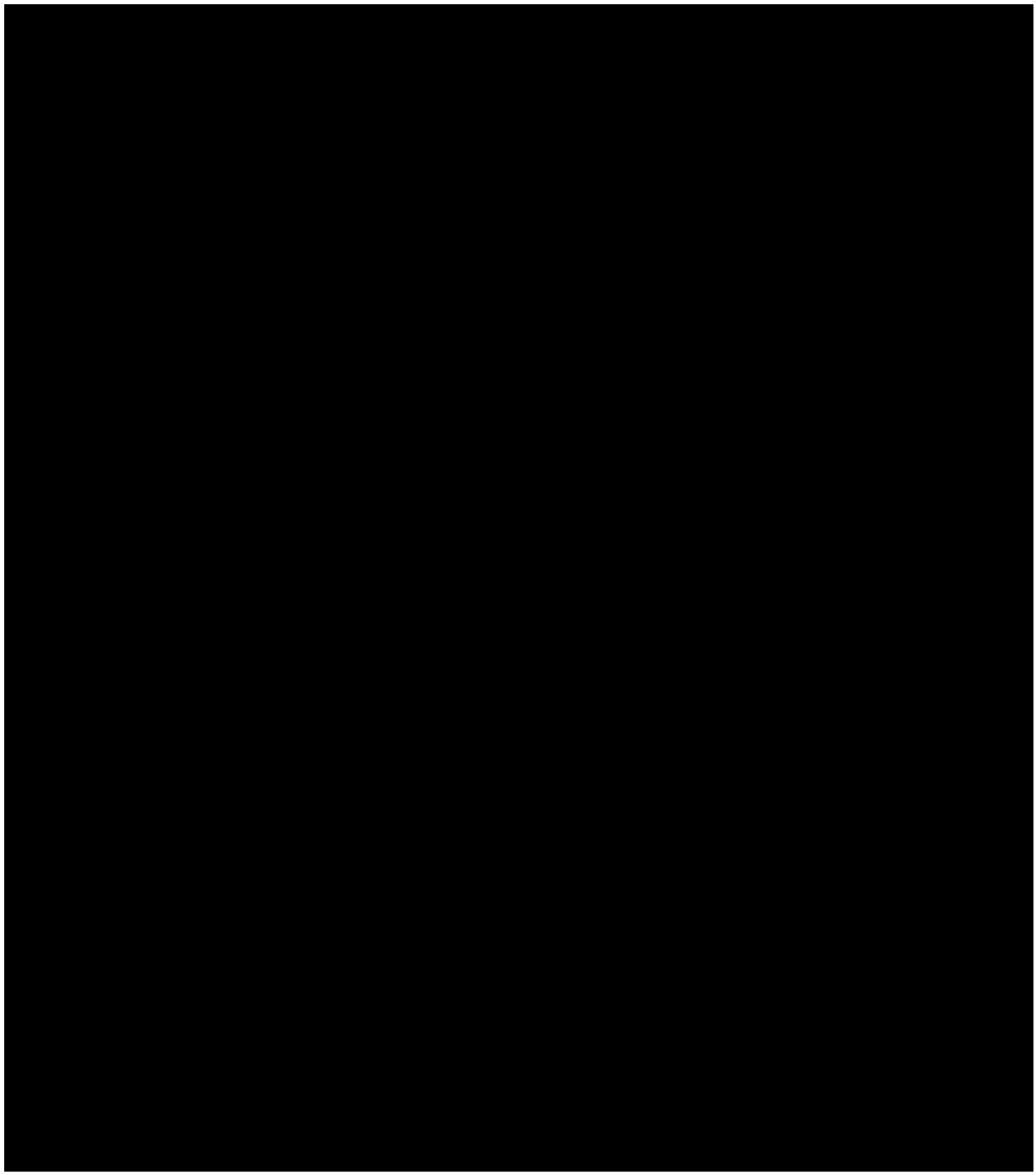
Visit 1: Baseline			
Step	Procedure	Details	[redacted]
1.6	Baseline Questionnaire	In order to determine how light sensitive participants in the study are at baseline, participants will be administered several questions from various validated instruments that measure self-reported light sensitivity.	[redacted]
1.7	Entrance Visual Acuity	Record the distance Snellen visual acuity (OD, OS, and OU) to the nearest letter with their habitual contact lens correction in place. Subjects must read the smallest line until at least 50% of the letters are read incorrectly.	[redacted]
1.8	Remove Habitual Lens	If applicable, the subject's habitual contact lenses will be removed and stored in their own lens case. If they forgot to bring their lens case, one will be provided to them.	
1.9	Subjective Sphero-cylindrical Refraction	Perform subjective best sphere refraction with a phoropter (adopt the maximum plus to maximum visual acuity (MPMVA) approach and use a balancing technique (e.g., the duo-chrome test for binocular balancing, or the binocular blur balancing test, etc., …) and record the best corrected distance visual acuity (OD, OS, and OU) to the nearest letter.	[redacted]
1.10	Eye Dominancy	The investigator will determine eye dominancy of the subject by first using the +1.00 blur test. If this fails to determine dominancy, then the sighting test will be used. See Appendix E.	Appendix E
1.11	Slit Lamp Biomicroscopy	FDA Slit Lamp Classification Scale will be used to grade the findings and determine eligibility. If any of these slit lamp findings are grade 3 or higher, the subject may not continue at this time, but may return up to one additional time to determine eligibility. If discontinued a final examination must be completed. If the clearance of the fluorescein needs to be expedited, preservative-free rewetting drops or saline may be instilled.	[redacted]

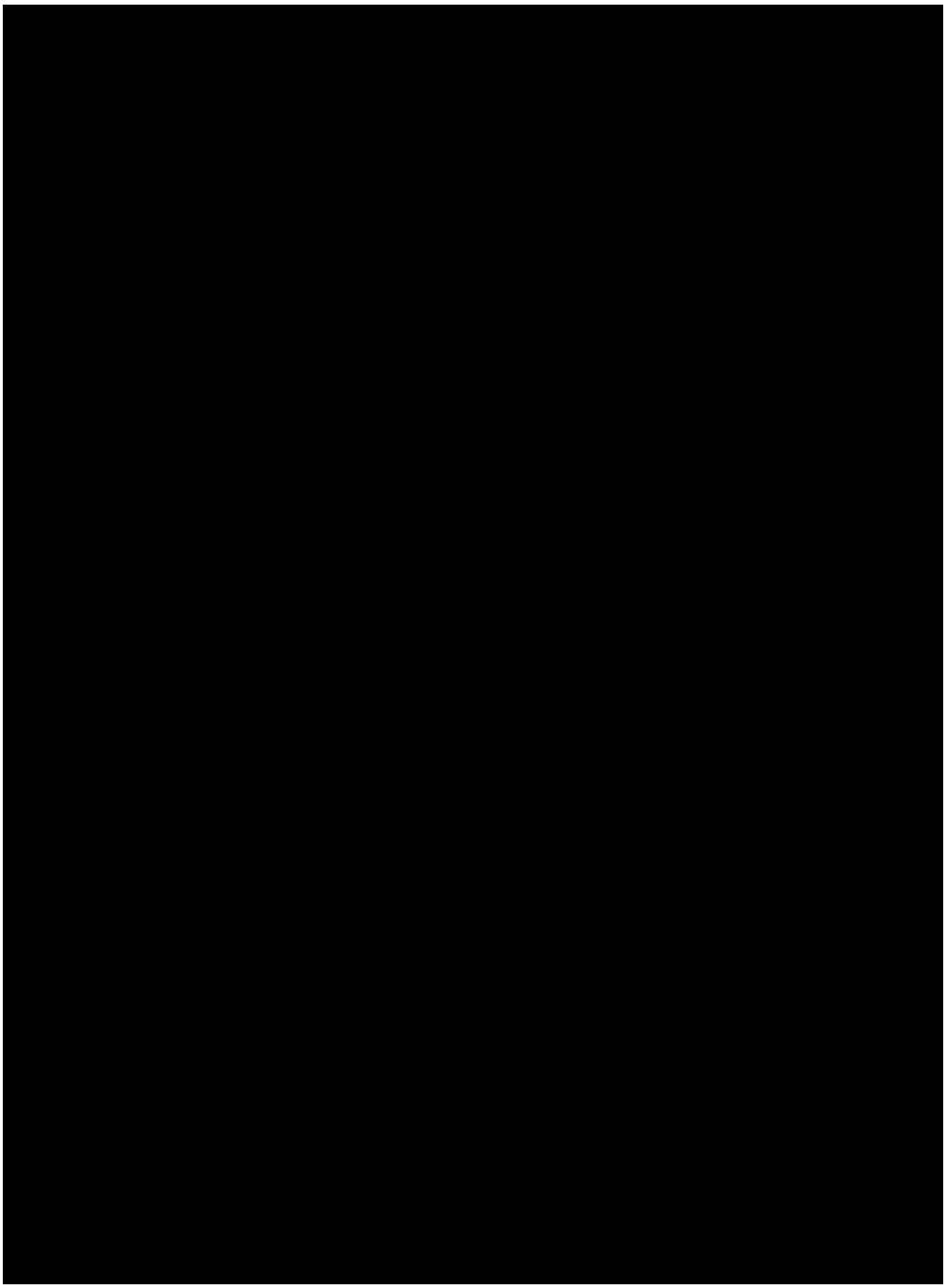
Visit 1: Baseline			
Step	Procedure	Details	[redacted]
1.12	Iris Color	The investigator will record the subject's iris color based on the scale provided (Appendix F).	Appendix F
1.13	Eligibility after Baseline	All responses to Inclusion Criteria questions must be answered "yes" and all responses to Exclusion Criteria questions must be answered "no" for the subject to be considered eligible. If subject is deemed to be ineligible after two baseline attempts at Visit 1, proceed to Final Evaluation and complete all forms.	
1.14	Lens Selection	Assign the study lens based on the randomization scheme. Select the contact lens power based on the refraction. Record the test condition.	
1.15	Lens Insertion	The Investigator or the subject inserts the study lenses. Record the time of lens insertion. Check for lens damage under the slit lamp before proceeding with lens settling. Replace damaged lenses if applicable.	
1.16	Lens Settling 1	Allow the study lenses to settle for a minimum of 5 minutes.	
1.17	Subjective Best Sphere Over Refraction	Perform subjective best sphere refraction over the study lenses (adopt the maximum plus to maximum visual acuity (MPMVA) approach.	
1.18	Lens Power Modification (if applicable)	Adjust the lens power if the subject's best sphere over-refraction is not plano. For any power modification, repeat steps (1.15-1.17). One power modification is allowed.	
1.19	Lens Settling 2	Please wait a total of 10 minutes from final lens insertion to continue.	
1.20	Subject Reported Ocular Symptoms	Subjects will respond to a verbal open-ended symptoms questionnaire.	[redacted]

Visit 1: Baseline			
Step	Procedure	Details	[redacted]
1.21	Visual Acuity	Record the best corrected Snellen distance visual acuity to the nearest letter (OD and OS). Subjects must read the smallest line until at least 50% of the letters are read incorrectly.	[redacted]
1.22	Subjective Lens Fit Assessment	Evaluate overall lens fit acceptance (acceptable or unacceptable) based on centration, movement and other fitting characteristics. An unacceptable fit is deemed by one of the following criteria: • limbal exposure at primary gaze or with extreme eye movement • edge lift • excessive movement in primary and up gaze • insufficient movement in all three of the following conditions: primary gaze, up gaze, and Josephson push up **Note**: if lens fit is unacceptable subject will be discontinued from the study.	[redacted]
1.23	Continuance	For the subject to continue in the study, they must meet all three of the following criteria: 1. Visual acuity is 20/30 or better OD and OS 2. The lens fit is acceptable OD and OS 3. Investigator approval. If the Investigator does not approve the wearing of the study lenses for the psychophysical testing, then the study is terminated for that subject.	
1.24	Lenses Worn in Clinic	The lenses will be released for approximately two hours. 1. The subjects must wear both study lenses the entire time. 2. The lenses will be worn as daily wear only. 3. Rewetting drops are permitted if needed.	

Visit 1: Baseline			
Step	Procedure	Details	[redacted]
		Note: In the event a lens is lost or damaged, it will be replaced immediately. **Note:** A clinic-only-wear Patient Instruction Guide will be provided.	
1.25	Psychophysical Testing Sequence	At Visit 1, all subjects will proceed to Psychophysical Testing A: This includes photostress recovery, discomfort glare, disability glare, and heterochromatic contrast in the absence of an activating light source. Following the psychometric testing by the co-investigator, the subject will return to the principal investigator to complete the study visit as described in steps 1.26-1.28.	
1.26	Lens Removal	The worn study lenses will be removed and discarded.	
1.27	Exit Slit Lamp Biomicroscopy	FDA Slit Lamp Classification Scale will be used to grade the findings and determine eligibility. Ocular adverse events shall be those that grade 3 or 4 on the FDA scale. The study monitored must be notified immediately. The AE will be followed to resolution at which time the subject will be terminated from the study. If the clearance of the fluorescein needs to be expedited, preservative-free rewetting drops or saline may be instilled.	[redacted]
1.28	Exit VA	Record subjects' distance Snellen visual acuity, OD, OS, and OU to the nearest letter with their habitual correction in place (spectacles or contact lenses). Schedule Visit 2 at least 24 hours and no more than 28 days from now.	[redacted]

Psychophysical Testing A: Photostress / Glare / Chromatic Contrast
Apparatus Four efficacy parameters will be measured (heterochromatic contrast threshold (HCT), photostress recovery [PR] time, glare disability [GDs], and glare discomfort [GDc]). All tests will utilize the same apparatus, modified for each parameter. The apparatus used to measure HCT, GDs, GDc, and PR is a two-channel Maxwellian view system and is shown in Figure 2 and Figure 3. The glare source (annulus/disk) and the visual target will be produced by a 1000 Watt xenon arc point source lamp, with a modified housing that allows dual-channel exit (Newport Optics; Irvine, CA). Alignment of the subject's eye with the optical system will be maintained with a forehead rest and a dental impression bite bar that will be custom-fit for each subject. An auxiliary optical channel with a high-resolution camera and monitor will be used to monitor the pupil during testing to ensure proper fixation and sustained alignment, and will be used to measure GDc. The same apparatus, with small variations, will be used to test HCT, GDs, and PR. All photometric calibrations will be performed using a PR-650 SpectraScan Colorimeter (Photo Research, Inc., Chatsworth, CA). Wedge and neutral density radiometric calibrations will be performed by using a Graseby Optronics United Detection Technology (UDT) instrument (Orlando, FL). The same UDT instrument will be used before every experimental session to ensure that the total light output of the optical system remains constant and consistent throughout the study. The PR-650 can make measurements down to about 380 nm. An additional radiometer (General Tools and Instruments; New York, NY) will be used to measure output farther down into the UV portion of the spectrum.
Investigational contact lenses The Investigational lenses will be tested without an additional UV/HEV light source.
The test target The visual target will be the same in all the visual function tests (HCT, GDc, GDs, PR).
The background The background channel will be manipulated to produce either an annulus (for GDs) or a three-degree background field (for GDc and PR). For the HCT test, the same three-degree background will be filtered through a 460 nm interference filter (half-power bandwidth = 8 nm; Edmund Optics; Barrington, NJ) in order to produce a monochromatic field. Xenon was selected as the light source because it has the characteristic broad band emission spectrum (as assessed by the SpectraScan colorimeter) with a CIE chromaticity of u' = 0.25, v' = 0.53. Xenon is widely regarded as a good match for sunlight. For example, in a study of 26 solar simulators,[12] the authors noted that xenon-arc light sources match the most accurately. The xenon spectrum that will be produced by this system is shown in Figure 4 as compared to mid-day sunlight.





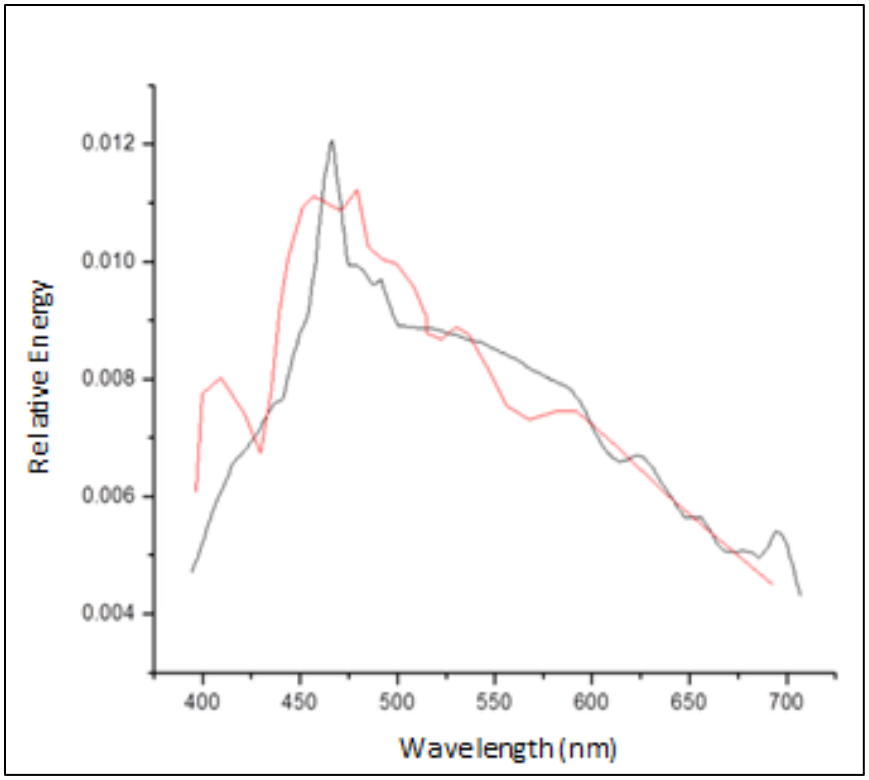
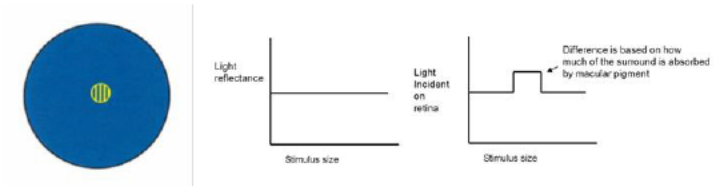
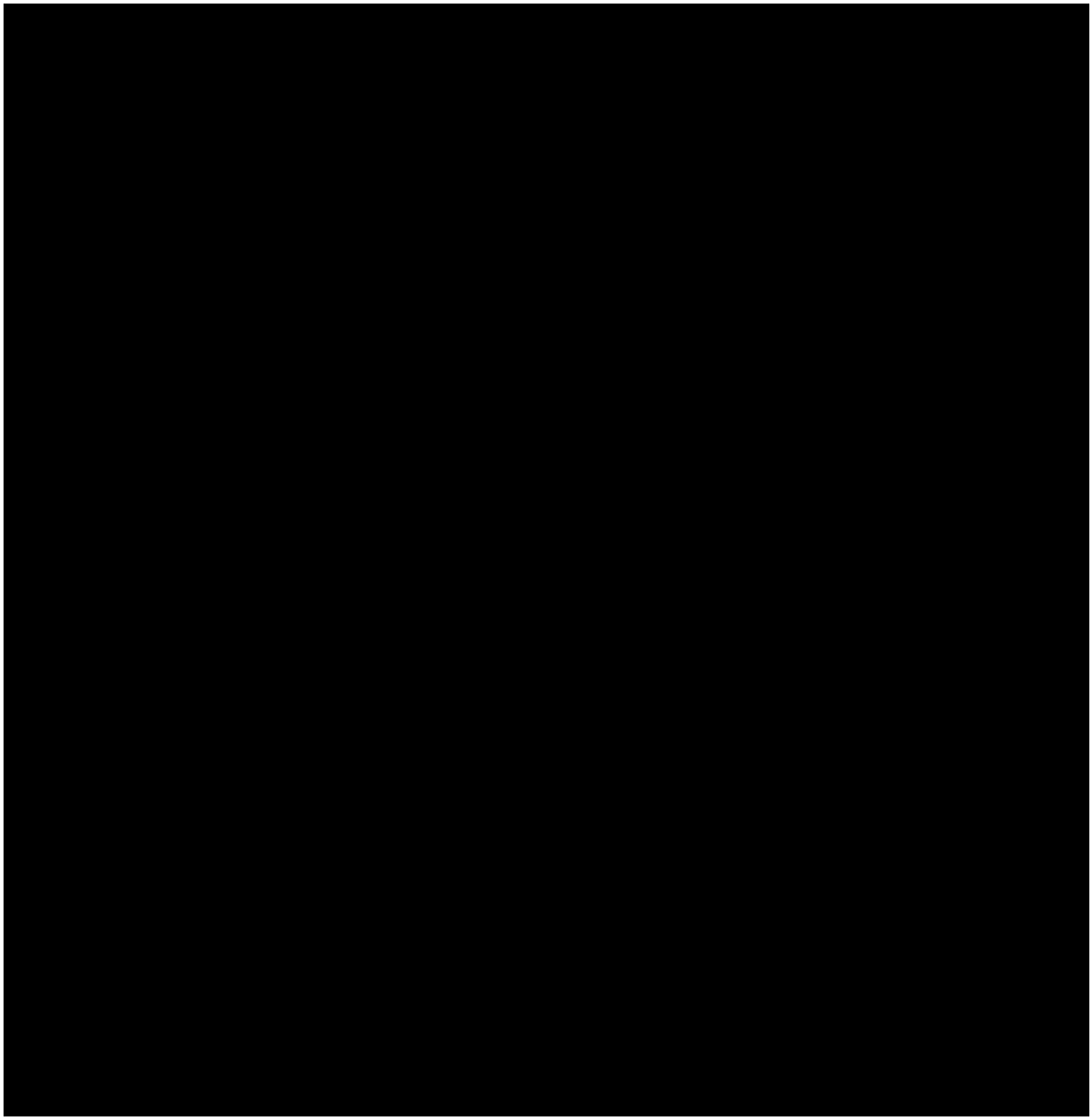


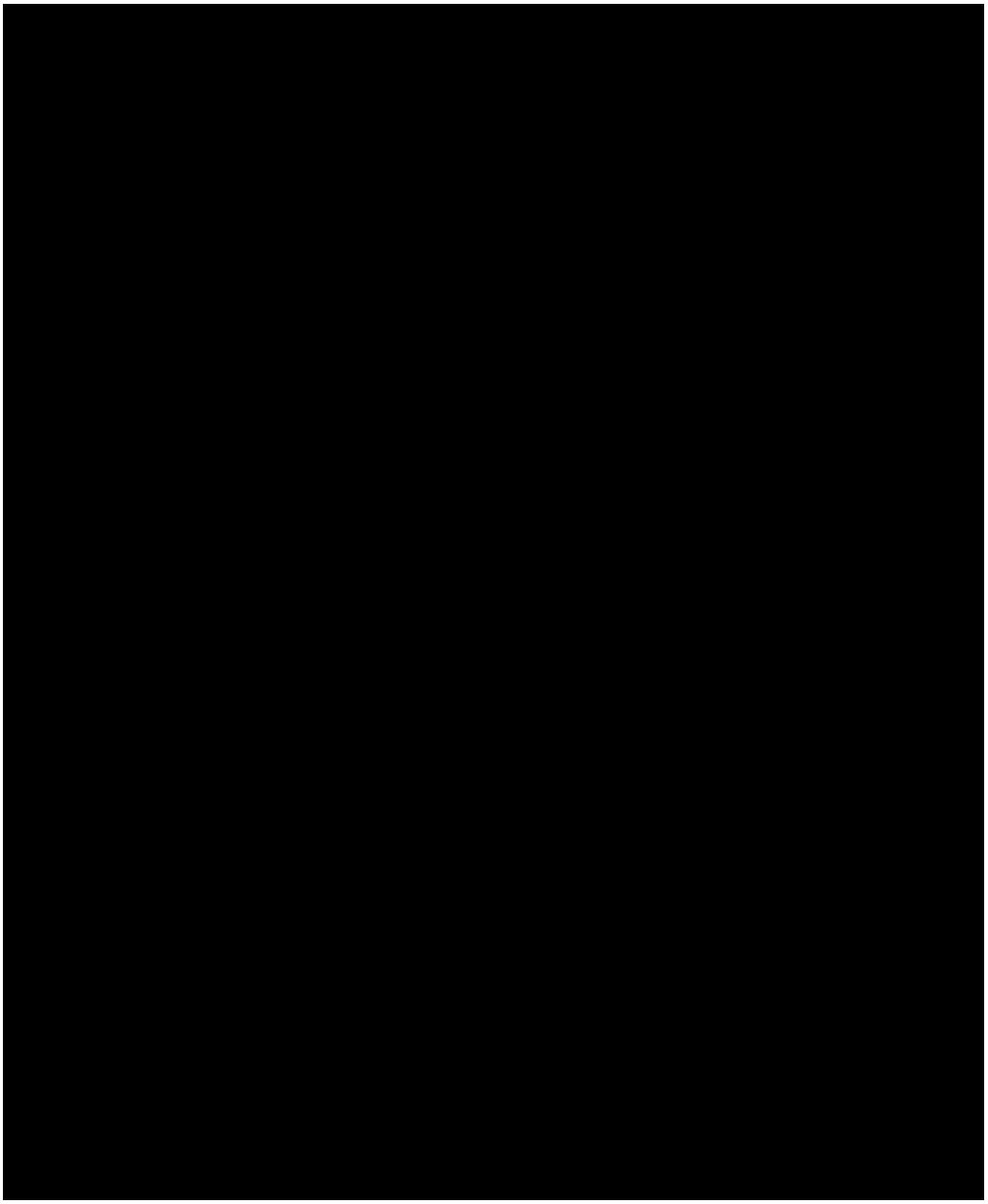
Figure 4: The xenon (dark line) compared to noon day sun light (red line). The line in red is taken from the NASA solar spectrum measured at the earth's surface [13] and adjusted along the ordinate with respect to the xenon source that will be used in this study.

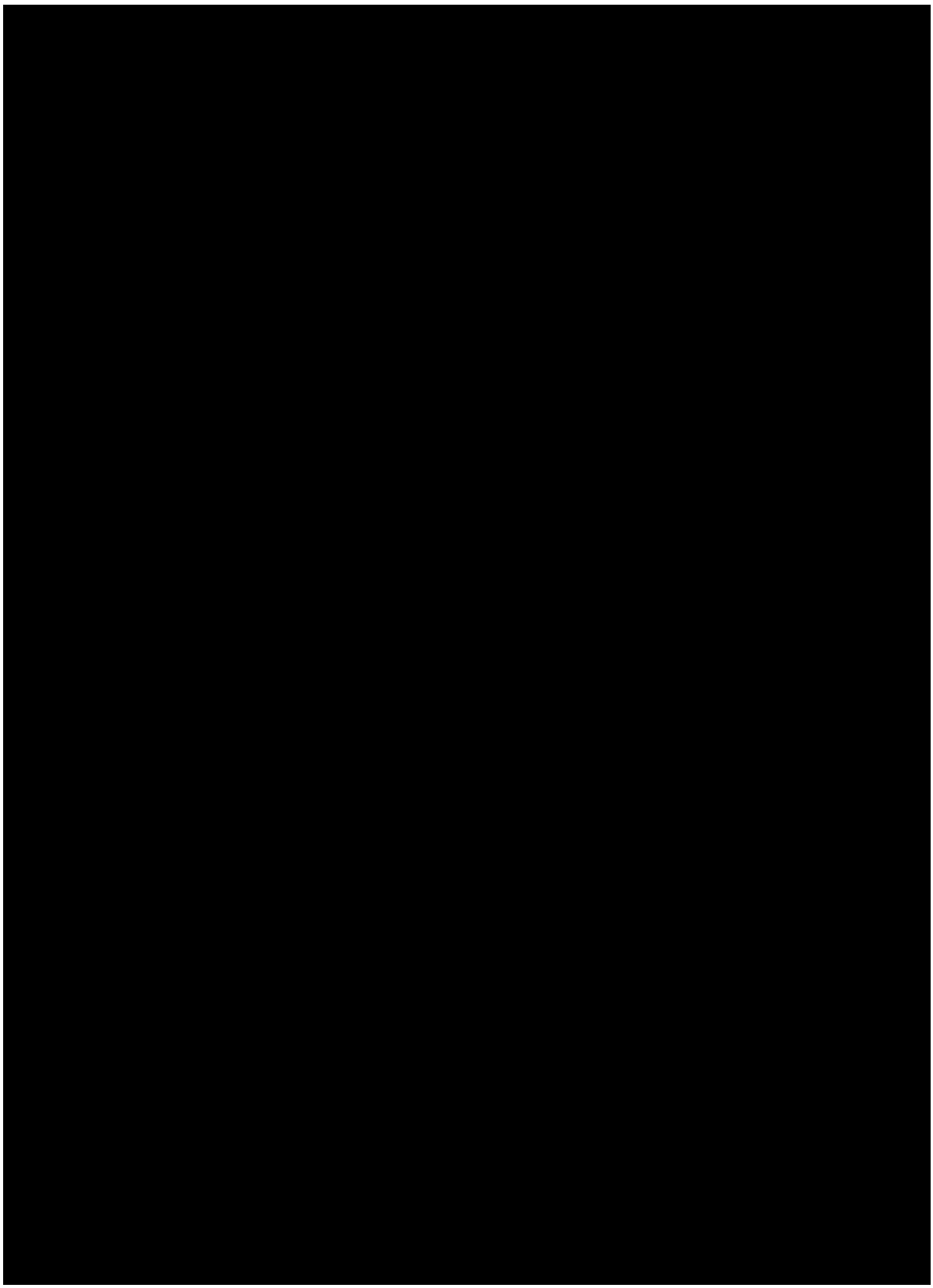
Psychophysical Testing A: Photostress / Glare / Chromatic Contrast		
The psychophysical tests described in Steps 1-4 below may occur in any order. No additional UV/HEV activation light source will be used.		
Step	Procedure	Details
1	Glare Disability (GDs)	The target stimulus will be presented for 2 seconds on and 1 second off to reduce the chances that subjects will habituate to the stimulus. A second channel will provide an annulus with an approximately 11-degree inner diameter and 12-degree outer diameter, as shown below.  Before each trial, the annulus will be set at a level well below that which would cause the target stimulus to be veiled. The experimenter will then adjust, via the neutral-density wedge, the intensity of the annulus until the target stimulus is no longer visible. Participants will indicate that the target has been veiled by pressing a buzzer. The experimenter increases the intensity of light scattering within the subjects' test eyes until they cannot effectively see. Unlike the photostress bleach which is set and standard, the intensity is varied in this test, and hence, so is the aversiveness of the dependent variable. This measurement has been conducted successfully, repeatedly, in the past [14]
2	Heterochromatic Contrast Threshold (HCT)	Chromatic contrast will be measured as thresholds to a variable wavelength central target presented on a short-wave (460 nm) sky-light background. This aspect of the testing is mostly exploratory to see how the contacts influence chromatic contrast. The relation to filtering is very strong as long as there is differential filtering between the target and the background. 

Psychophysical Testing A: Photostress / Glare / Chromatic Contrast		
3	Photostress Recovery (PR)	To measure PR time, participants are exposed to the same target used in each of the other visual function tests. Once the participant is comfortably viewing the target, the experimenter will cover the target with a bright, bleaching light. Exposure to the light will cause participants to momentarily lose sight of the target, which will be covered by an afterimage. As the afterimage fades, participants will gradually be able to re-gain sight of the target. PR time will be recorded as the time it takes following exposure to the bleaching light to regain sight of the target. 
4	Glare Discomfort (GDc)	Glare discomfort (GDc) will be quantified using the squint response and a questionnaire. The discomfort that accompanies exposure to light in excess of an individual's adaptive state is accompanied by contraction of the extraocular muscles (squint). The squint response has been shown to be a valid objective indicator of glare discomfort.[15-17] This procedure was described by Gowrisankaran.[18] Degree of squint is calculated as the ratio of the height of the palpebral fissure under normal lighting conditions compared to maximal squint produced during the photostress exposure.  A high-resolution camera (AmScope MU300 digital camera; Irvine, CA) will be used and calibrated against a spatial standard before the start of each day of testing. The resultant videos will be analyzed as still frames using AmScope measurement software (Irvine, CA). To determine subjective ratings of GDc, subjects will be asked to rate the degree of discomfort of the photostressor using a single-item questionnaire OD and OS: • How bothersome was the glare that you just experienced? Subjects will have the following response options: Extremely bothersome, Very bothersome, Somewhat bothersome, A little bothersome, Not at all bothersome.

Psychometric Testing B: Dysphotopsia Evaluation
Apparatus Three efficacy parameters will be measured (two-point light spread functions, halos, starbursts) for three lens conditions (OASYS, investigational lens without additional UV/HEV light source, investigational lens with additional UV/HEV light source). All tests will utilize the same apparatus, modified for each parameter. The general optical apparatus is shown in Figure 6 and Figure 7. The light source will be produced by a 250 Watt xenon arc point source lamp. Alignment of the subject's eye with the optical system will be maintained with a forehead and chin rest assembly. All photometric calibrations will be performed using an ILT 950 (Peabody, MA). and a Graseby Optronics United Detection Technology (UDT) instrument (Orlando, FL). The same UDT instrument will be used before every experimental session to ensure that the total light output of the optical system remains constant and consistent throughout the study. The PR-650 can make measurements down to about 380 nm. An additional radiometer (General Tools and Instruments; New York, NY) will be used to measure output farther down into the UV portion of the spectrum.
Investigational contact lenses The investigational lenses will be tested with an additional UV/HEV light source as one of the test conditions. "Activation" will be achieved using an ultraviolet activator consisting of LEDs waveband 365-400 nm that combines with the primary optical path of the system, after the final lens of the optical system (see Figure 7). The spectral output of the ultra-violet LEDs is given in Appendix G. The ultra-violet LEDs will be used, at a low constant rate, while the visual measures (halos, etc.) are being collected. The overall energy at the plane of the eye is 64 µw/cm2 (measured using the ILT 950, the graph in Appendix G is the light source at the energy we plan to use during the measurement). As a comparison, the UV activator emits 0.07 mw/cm2 whereas mid-day sunlight measured 11 mw/cm2 using the same instrument (1:00 PM, partially cloudy day, September 18, 2017, Athens, GA using a UVA light meter: General UV254SD).







Psychometric Testing B: Dysphotopsia Evaluation		
The psychophysical tests described in Steps 1-3 below may occur in any order. All three tests will perfomed twice: once with an UV/HEV activating light source and once with no activating light source. The order of light source testing will be randomized.		
Step	Procedure	Details
1	Two-point Light Spread Function	These thresholds are defined as the minimum distance that two points of light are completely distinct. An ascending and a descending method of limits will be used. This measurement takes about 10-15 minutes. Record values OD and OS, in mm (2 decimal places).
2	Starburst	This is defined as the diameter of the light's lateral spread. Subjects will have the nature of starbursts explained using visual aids prior to the experiment. The investigator will adjust a calibrated custom-made micrometer (two sides with reverse threading) to spread two posts out from a central mid-point. Those posts will be used to define the outer boundaries of the starburst image. Ascending and descending methods of limits would be used based on subject feedback. This measurement takes about 10-15  Calipers are adjusted until the inner edges are just touching the edges of the starburst pattern. minutes. Record values OD and OS, in mm (2 decimal places). Subjects will respond to a single-item post-starburst questionnaire OD and OS: • How severe / intense was the starburst that you experienced? Subjects will have the following response options: Severe, moderate, mild, not at all.

Psychometric Testing B: Dysphotopsia Evaluation		
The psychophysical tests described in Steps 1-3 below may occur in any order. All three tests will perfomed twice: once with an UV/HEV activating light source and once with no activating light source. The order of light source testing will be randomized.		
Step	Procedure	Details
3	Halos	Subjects will have the nature of halos explained using visual aids prior to the experiment. The halo measurement will utilize the same light source as the starburst and two-point measures to produce the halo. The same calibrated micrometer from the starburst test will be used to define the outer edges of the halo image (investigator adjusting based on subject feedback). Ascending and descending methods of limits will be used. This measurement takes about 10-15 minutes. Record values OD and OS, in mm (2 decimal places). Subjects will respond to a single-item post-halo questionnaire OD and OS: • How severe / intense was the halo that you experienced? Subjects will have the following response options: Severe, moderate, mild, not at all.
4	Repeat	The steps above will be repeated but with the alternate light source testing method. The investigator must allow at least 10 minutes to lapse before starting the second round of testing.
5	On-eye Light Transmission	Measuring the in vivo light transmission (alternatively, the optical density) of ophthalmic lenses has been described in detail elsewhere using similar optical systems. The optical density (OD) of the test lens will be derived by comparing these threshold values to the rhodopsin curve, adjusted to a maximum OD equal to 0.35. This procedure obviously measures the density of all the ocular media. However, because the majority of the absorbance is due to the lens, the convention of referring to these values simply as lens density will be used. Given the extra time needed to perform this measurement, and the fact that on eye light transmission will be constant across all subjects (this reflects properties of the optical system and lenses, themselves, as opposed to visual performance of individuals wearing the lenses), these measurements will be taken in a small subset of subjects (n=5) who, when scheduled, report having enough extra time to complete the measurements.

VISIT 2

Subjects must enter Visit 2 wearing their own contact lenses.

Visit 2: Treatment 2			
Step	Procedure	Details	[redacted]
2.1.	Adverse Events and Concomitant Medications Review	Review any changes to the subject's medical history or concomitant medications from the previous study visit. Record any changes, and any adverse events.	
2.2.	Entrance Visual Acuity	Record the distance Snellen visual acuity (OD, OS, and OU) to the nearest letter with their habitual correction in place. Subjects must read the smallest line until at least 50% of the letters are read incorrectly.	[redacted]
2.3.	Remove Habitual Lens	If applicable, the subject's habitual contact lenses will be removed and stored in their own lens case. If they forgot to bring their lens case, one will be provided to them.	
2.4.	Slit Lamp Biomicroscopy	FDA Slit Lamp Classification Scale will be used to grade the findings and determine eligibility. If any of these slit lamp findings are grade 3 or higher, the subject may not continue at this time, but may return up to one additional time to determine eligibility. If discontinued a final examination must be completed. If the clearance of the fluorescein needs to be expedited, preservative-free rewetting drops or saline may be instilled.	[redacted]
2.5.	Continuance after Baseline	All responses to Inclusion Criteria questions must be answered "yes" and all responses to Exclusion Criteria questions must be answered "no" for the subject to be considered eligible. This refers to the concomitant medications and slit lamp biomicroscopy. If subject is deemed to be ineligible after two baseline attempts at Visit 2, proceed to Final Evaluation and complete all forms.	
2.6.	Lens Selection	Assign the study lens based on the randomization scheme.	

Visit 2: Treatment 2			
Step	Procedure	Details	[redacted]
		Select the contact lens power based on the refraction from Visit 1 or the final lens power from Visit 1. Record the test condition.	
2.7.	Lens Insertion	The Investigator or the subject inserts the study lenses. Record the time of lens insertion. Check for lens damage under the slit lamp before proceeding with lens settling. Replace damaged lenses if applicable.	
2.8.	Lens Settling 1	Allow the study lenses to settle at least 5 minutes before continuing.	
2.9.	Subjective Best Sphere Over Refraction	Perform subjective best sphere refraction over the study lenses (adopt the maximum plus to maximum visual acuity (MPMVA) approach.	
2.10.	Lens Power Modification (if applicable)	Adjust the lens power if the subject's best sphere over-refraction is not plano. For any power modification, repeat steps 2.7-2.9). One power modification is allowed.	
2.11.	Lens Settling 2	Please wait for at least 10 minutes from final lens insertion to continue.	
2.12.	Subject Reported Ocular Symptoms	Subjects will respond to a verbal open-ended symptoms questionnaire.	[redacted]
2.13.	Visual acuity	Record the best corrected Snellen distance visual acuity to the nearest letter (OD and OS). Subjects must read the smallest line until at least 50% of the letters are read incorrectly.	[redacted]
2.14.	Subjective Lens Fit Assessment	Evaluate overall lens fit acceptance (acceptable or unacceptable) based on centration, movement and other fitting characteristics. An unacceptable fit is deemed by one of the following criteria: • limbal exposure at primary gaze or with extreme eye movement • edge lift	[redacted]

Visit 2: Treatment 2			
Step	Procedure	Details	[redacted]
		• excessive movement in primary and up gaze • insufficient movement in all three of the following conditions: primary gaze, up gaze, and Josephson push up **Note**: if lens fit is unacceptable subject will be discontinued from the study.	
2.15.	Continuance	For the subject to continue in the study, they must meet all three of the following criteria: 1. Visual acuity is 20/30 or better OD and OS 2. The lens fit is acceptable OD and OS 3. Investigator approval. If the Investigator does not approve the wearing of the study lenses for the psychophysical testing, then the study is terminated for that subject.	
2.16.	Lenses Worn in Clinic	The lenses will be released for approximately two hours. 1. The subjects must wear both study lenses the entire time. 2. The lenses will be worn as daily wear only. 3. Rewetting drops are permitted if needed. **Note**: In the event a lens is lost or damaged, it will be replaced immediately. **Note:** A clinic-only-wear Patient Instruction Guide will be provided.	
2.17.	Sequence Randomization	At Visit 2, all subjects will proceed to Psychophysical Testing B: This includes 2-point light threshold, haloes, and starbursts. Five subjects that are willing to undergo further in vivo light transmission testing will have this procedure performed. Following the psychometric testing by the co-investigator, the subject will return to the principal investigator to complete the study visit as described in steps 2.18 – 2.19.	

Visit 2: Treatment 2			
Step	Procedure	Details	[redacted]
2.18.	Lens Removal	The worn study lenses will be removed and discarded.	
2.19.	Exit Slit Lamp Biomicroscopy	FDA Slit Lamp Classification Scale will be used to grade the findings and determine eligibility. Ocular adverse events shall be those that grade 3 or 4 on the FDA scale. The study monitored must be notified immediately. The AE will be followed to resolution. If the clearance of the fluorescein needs to be expedited, preservative-free rewetting drops or saline may be instilled.	[redacted]

FINAL EVALUATION

The final evaluation will ordinarily take place immediately following the last scheduled follow-up visit per the study protocol. It may also take place at any point the subject discontinues the study or is terminated from the study.

Final Evaluation			
Step	Procedure	Details	[redacted]
F.1	Final Exam Form	Indicate if the subject completed the study successfully. If subject discontinued from the study, indicate the reason.	
F.2	Subjective spherocylindrical Refraction	Perform bare-eye subjective spherocylindrical refraction with a phoropter and record the best corrected distance visual acuity to the nearest letter (OD, OS, and OU).	[redacted]

7.3. Unscheduled Visits

If, during the investigation, a subject requires an unscheduled visit to the clinical site, the following information will be collected at a minimum:

- Chief complaint prompting the visit. If the reason is an adverse event, the applicable eCRF for the adverse event must be completed and subject record completed as appropriate
- Date and time of the visit and all procedures completed at the unscheduled visit
- Review of adverse event and concomitant medications
- Documentation of any test article dispensed or collected from the subject, if applicable
- Slit lamp findings (using the Slit Lamp Classification Scale)

If the Investigator withdraws a subject from the study, the final study visit case report forms must be completed indicating the reason(s) why the subject was withdrawn. The subject record must be completed documenting the date and primary reason for withdrawal and the study CRA notified.

Any ocular and non-ocular Adverse Events that are ongoing at the time of the study visit will be followed by the Investigator, within licensure, until they have resolved, returned to pre-treatment status, stabilized, or been satisfactorily explained. If further treatment i.e., beyond licensure is required, the subject will be referred to the appropriate health care provider.

The following information will be collected during an unscheduled visit.

Unscheduled Visit			
Step	Procedure	Details	[redacted]
U.1	Chief Complaints	Record the subject's chief complaints for reasons for the unscheduled visit.	
U.2	Adverse Events and Concomitant Medications Review	Review any changes to the subject's medical history or concomitant medications from the previous study visit. Record any changes, and any adverse events.	
U.3	Entrance VA	Record the entrance distance visual acuity (OD, OS and OU) to the nearest letter.	[redacted]
U.4	Subjective Sphero-cylindrical Refraction	Perform bare-eye subjective spherocylindrical refraction with a phoropter (adopt the maximum plus to maximum visual acuity (MPMVA) approach and use the duo-chrome test for binocular balancing) and record the best corrected distance visual acuity to the nearest letter (OD, OS, and OU).	[redacted]
U.5	Slit Lamp Biomicroscopy	FDA Slit Lamp Classification Scale will be used to grade the findings. If the clearance of the fluorescein needs to be expedited, preservative-free rewetting drops may be instilled.	[redacted]
U.6	Exit Visual Acuity	Record the subject's exit distance visual acuity (OD, OS, and OU) to the nearest letter.	[redacted]

7.4. Laboratory Procedures

The optical bench will be used to measure the light transmission characteristics for all worn Test lenses. The findings are for internal information only and will not be part of the final report.

8. SUBJECTS COMPLETION/WITHDRAWAL

8.1. Completion Criteria

Subjects are considered to have completed the study if they have completed all scheduled visits.

8.2. Withdrawal/Discontinuation from the Study

A subject will be withdrawn from the study for any of the following reasons:

- Subject death during the study period
- Subject withdrawal of consent
- Subject not compliant to protocol (e.g. Subject more than 2 days out of visit window).
- Subject lost to follow-up
- Subject no longer meets eligibility criteria (e.g. the subject becomes pregnant)
- Subject develops significant or serious adverse events causing discontinuation of study lens wear (subjects missing more than 2 days of missed lens wear within a period 1 of week should be discontinued)
- Subjects who have experienced a Corneal Infiltrative Event (CIE)
- Investigator's clinical judgment regarding the subject safety reasons (that it is in the best interest of the subject to stop treatment)
- Subject missed any scheduled study visits
- Subject not compliant with study lens wear schedule
- Subject not successfully dispensed due to lack of efficacy and safety including poor vision, poor comfort or unacceptable fit

For discontinued subjects, the Investigator will:

- Complete the current visit (scheduled or unscheduled)
- Complete the Final Evaluation, indicating the reason that the subject was discontinued from the study
- Record the spherocylindrical refraction with best corrected distance visual acuity
- Collect used test article(s) (worn or brought to the visit) from the subject and discard them, unless otherwise stated in Section 7.2. Collect all unused test article(s) from the subject.

Investigator will discuss with sponsor before enrolling any additional subjects if a subject discontinues from the study prematurely.

In cases where a subject is lost to follow-up, every possible effort must be made to contact the subject and determine the reason for discontinuation/withdrawal. The measures taken to follow up must be documented including two written attempts and a certified letter (or equivalent) as the final attempt.

9. PRE-STUDY AND CONCOMITANT INTERVENTION/MEDICATION

Concomitant medications will be documented during screening and updated during the study.
Disallowed medications for this study include: See section 3.3
Concomitant therapies that are disallowed include: See section 3.3

10. DEVIATIONS FROM THE PROTOCOL

Investigator will notify study sponsor upon identification of a protocol deviation. Major protocol deviations must be reported to the sponsor within 24 hours after discovery of the protocol deviation. The Investigator will report deviations per IRB/IEC requirements. All deviations will be tracked and corrective actions implemented as appropriate.

If it becomes necessary for the Investigator to implement a deviation in order to eliminate an immediate hazard to the trial subject, the Investigator may implement the deviation immediately without notification to the sponsor. Within 24 hours after the implemented deviation, the Investigator must notify and provide the rationale to the Sponsor and, as required, the IEC/IRB.

11. STUDY TERMINATION

The occurrence of one or more Unanticipated Serious Adverse Device Effect (USADE), or any SAE where the relationship to study agent cannot be ruled out, may result in stopping further dispensing of test article. In the event of a USADE or SAE, the Sponsor may unmask the treatment regimen for the subject(s) and will discuss this with the Investigator before any further subjects are enrolled.

The Sponsor will determine when a study will be stopped. The Principal Investigator always has the discretion to initiate stopping the study based on patient safety or if information indicates the study's results are compromised.

JJVC reserves the right to terminate the study at any time for any reason. Additionally, the IEC/IRB reserves the right to terminate the study if an unreasonable risk is determined. The study can be terminated by the Principal Investigator at the individual clinical site due to specific clinical observations, if in their opinion, after a discussion with JJVC, it is determined that it would be unwise to continue at the clinical site.

JJVC (and the IEC/IRB and DMC, if applicable) will evaluate all adverse events. If it is determined that an adverse event presents an unreasonable risk, the investigation, or that part of the investigation presenting the risk, will be terminated, as soon as possible.

Should the study be terminated (either prematurely or as scheduled), the Investigator will notify the IEC/IRB and Regulatory Authority as required by local regulatory requirements.

12. PROCEDURE FOR HANDLING PRODUCT QUALITY COMPLAINTS

A Product Quality Complaint (PQC) refers to any written, electronic, or oral communication that alleges deficiencies related to the identity, quality, durability, reliability, safety, effectiveness or performance of test articles after they have been released for clinical trial use.

Potential complaints may come from a variety of sources including but not limited to subjects, clinical research associates (CRA), clinical operations managers (COM), medical monitors, and site personnel, etc. The following are not considered product quality complaints:

- Subject satisfaction inquiries reported via "Subjective Questionnaires" and "Patient Reported Outcomes (PRO)"
- Clinical test articles that are stored improperly or damaged after receipt at the investigational site
- Lens replacements that occur due to drops/fall-outs
- Damage deemed by clinicians or clinical staff to be caused by handling by the user, and not indicative of a quality deficiency (i.e. tears, rips, etc.), only in situations where there is no deficiency alleged by the subject

Within 24 hours of site personnel becoming aware that a PQC has occurred, the PQC must be recorded in the EDC system, which will trigger an automatic email notification to the appropriate COM/CRA and Clinical QA representative. In cases where the EDC system in use is not configured to send automatic notifications or when an EDC system is not used, the COM/CRA is responsible for notifying Clinical QA upon discovery that a PQC has occurred.

Upon receipt of the EDC notification, the COM/CRA will contact the study site to collect additional information which will include:

- Date the complaint was received/recorded in the EDC System (Date of Sponsor Awareness)
- Who received the complaint
- Study number
- Clinical site information (contact name, site ID, telephone number)
- Lot number(s)
- Unique Subject Identifier(s)
- Indication of who first observed complaint (site personnel or subject)
- OD/OS indication, along with whether the lens was inserted
- Any related AE number if applicable
- Detailed complaint description (scheduled/unscheduled visit, wear time, symptoms, resolution of symptoms, etc.)
- Eye Care Provider objective (slit lamp) findings if applicable
- Confirmation of product availability for return (and tracking information, if available), or rationale if product is not available for return [redacted]

Once a complaint is received, it will be assessed by the COM, CRA, or trained site personnel to determine if it is an Adverse Event/Serious Adverse Event (AE/SAE). If the complaint results in an AE/SAE, the COM/CRA, or trained site personnel will follow Section 13 of this protocol. If the AE/SAE was potentially the result of a product quality related deficiency, these procedures also applies and will be executed in parallel.

In some cases, a PQC form may be generated in EDC by the site in error. In this event, the PQC forms will be marked "Intentionally Left Blank" or "ILB". Justification for ILB must be documented.

13. ADVERSE EVENTS

13.1. Definitions and Classifications

Adverse Event (AE) – An AE is "any untoward medical occurrence, unintended disease or injury, or untoward clinical signs (including abnormal laboratory findings) in subjects, users or other persons, whether or not related to the investigational medical device.
Note 1 to entry: This definition includes events related to the investigational medical device or the comparator.
Note 2 to entry: This definition includes events related to the procedures involved.
Note 3 to entry: For users or other persons, this definition is restricted to events related to investigational medical devices." [1]

An AE includes any condition (including a pre-existing condition) that:

1. Was not present prior to the study, but appeared or reappeared following initiation of the study
2. Was present prior to the study, but worsened during the study. This would include any condition resulting from concomitant illnesses, reactions to concomitant medications, or progression of disease states
3. Pregnancy must be documented as an adverse event and must be reported to the clinical monitor and to the Sponsor immediately upon learning of the event

Serious Adverse Event (SAE) – An SAE is any untoward medical occurrence that:

- Results in death
- Is life threatening
- Requires in-patient hospitalization or prolongation of existing hospitalization
- Results in persistent or significant disability/incapacity (e.g., a sight threatening event, a significant persistent or permanent change, impairment, damage, or disruption to the subject's body)
- Is a congenital anomaly/birth defect
- Requires intervention to prevent permanent damage (the use of the test article resulting in a condition which requires medical or surgical intervention to preclude permanent impairment of the body structure or a body function). Important medical events that may not result in death, be life-threatening, or require hospitalization may be considered an SAE when, based upon appropriate medical judgment, they may jeopardize the patient or subject and may require medical or surgical intervention to prevent one of the outcomes listed in the above definition

Diagnoses and conditions that are considered Ocular Serious Adverse Events include, but not limited to:

- Microbial Keratitis (MK)
- Iritis (including cells in the anterior chamber)
- Permanent decrease in best spectacle corrected visual acuity equivalent to 2 acuity lines or greater
- Central Corneal Opacity
- Central Corneal Neovascularization

- Uveitis
- Endophthalmitis
- Hypopyon
- Hyphemia
- Penetration of Bowman's Membrane
- Persistent Epithelial Defect
- Limbal cell Damage leading to Conjunctivalization

Significant Adverse Events – Those events that are usually symptomatic and warrant discontinuation (temporary or permanent) of the test article (excluding Serious Adverse Events).

Diagnoses and conditions that are considered Ocular Significant Adverse Events include, but not limited to the following:

- Contact Lens Induced Peripheral Ulcer (CLPU)
- Significant Infiltrative Events (SIE)
- Superior Epithelial Arcuate Lesions (SEALs)
- Any Temporary Loss of > 2 Lines of BSCVA
- Other grade 3 or higher corneal findings, such as abrasions or edema
- Non-contact lens related corneal events - e.g. Epidemic Keratoconjunctivitis (EKC)
- Asymptomatic Corneal Scar
- Any corneal event which necessitates temporary lens discontinuation > 2 weeks

Non-Significant Adverse Events – Those conditions that are usually asymptomatic and usually do not warrant discontinuation (temporary or permanent) of the test article. However, the Investigator may choose to treat as a precautionary measure.

Diagnoses and conditions that are considered Ocular Non-Significant Adverse Events include, but not limited to the following:

- Non-significant Infiltrative Event (NSIE)
- Contact Lens Papillary Conjunctivitis (CLPC)
- Superficial Punctate Keratitis (SPK)
- Conjunctivitis: Bacterial, Viral, Allergic
- Blepharitis
- Meibomianitis
- Contact Dermatitis
- Localized Allergic Reactions
- Any corneal event not explicitly defined as serious or significant adverse event, which necessitates temporary lens discontinuation < 2 weeks

Adverse Device Effect (ADE) – An ADE is an "adverse event related to the use of an investigational medical device.
Note 1 to entry: This definition includes adverse events resulting from insufficient or inadequate instructions for use, deployment, implantation, installation, or operation, or any malfunction of the investigational medical device.

Note 2 to entry: This definition includes any event resulting from use error or from intentional misuse of the investigational medical device." [1]

Unanticipated Adverse Device Effect (UADE) – Any serious adverse effect on health or safety or any life-threatening problem or death caused by, or associated with, the test article, if that effect, problem, or death was not previously identified in nature, severity, or degree of incidence in the investigational plan, Investigator's Brochure or protocol, or any other unanticipated serious problem associated with the test article that relates to the rights, safety and welfare of subjects.

13.2. Assessing Adverse Events

In conjunction with the medical monitor, the Investigator will evaluate adverse events to ensure the events are categorized correctly. Elements of categorization will include:

- Seriousness/Classifications (see definition in Section 13.1)
- Causality or Relatedness – i.e. the relationship between the test article, study treatment or study procedures and the adverse event (not related; unlikely related; possibly related; related - see definition in Section 13.2.1)
- Adverse Event Severity – Adverse event severity is used to assess the degree of intensity of the adverse event (mild; moderate; severe for all events - see definition in Section 0)
- Outcome – not recovered or not resolved; recovering or resolving; recovered or resolved with sequelae; recovered or resolved; death related to adverse event; unknown
- Actions Taken – none; temporarily discontinued; permanently discontinued; other

13.2.1. Causality Assessment

Causality Assessment – A determination of the relationship between an adverse event and the test article. The test article relationship for each adverse event should be determined by the investigator using these explanations:

- Not Related- An adverse event that is not related to the use of the test article, study treatment or study procedures
- Unlikely Related – An adverse event for which an alternative explanation is more likely, e.g. concomitant treatment, concomitant disease(s), or the relationship of time suggests that a causal relationship is not likely
- Possibly Related – An adverse event that might be due to the use of the test article, or to the study treatment or study procedures. An alternative explanation, e.g. concomitant treatment, concomitant disease(s), is inconclusive. The relationship in time is reasonable. Therefore, the causal relationship cannot be excluded
- Related – An adverse event that is listed as a possible adverse effect (device) or adverse reaction (drug) and cannot be reasonably explained by an alternative explanation, e.g. concomitant treatment of concomitant disease(s). The relationship in time is very suggestive, e.g. it is confirmed by de-challenge and re-challenge

13.2.2. Severity Assessment

Severity Assessment – A qualitative assessment of the degree of intensity of an adverse event as determined by the Investigator or reported to him/her by the subject. The assessment of

severity is made irrespective of test article, study treatment or study procedure relationship or seriousness of the event and should be evaluated according to the following scale:

- Mild – Event is noticeable to the subject, but is easily tolerated and does not interfere with the subject's daily activities
- Moderate – Event is bothersome, possible requiring additional therapy, and may interfere with the subject's daily activities
- Severe – Event is intolerable, necessitates additional therapy or alteration of therapy and interferes with the subject's daily activities

13.3. Documentation and Follow-Up of Adverse Events

The recording and documenting of adverse events (ocular and non-ocular) begins when the subjects are exposed to the test article, study treatment or study procedure. Adverse events reported before the use of test article, start of study treatment, or study procedures will be recorded as medical history. However, if the condition deteriorates at any time during the study it will be recorded and reported as an AE. Untoward medical events reported after the subject's exit from the study will be recorded as adverse events at the discretion of the Investigator.

Upon finding an adverse event, the Principal Investigator will document the condition in the subject record and in the eCRFs. He/she will complete the Adverse Event /eCRF.

Complete descriptions of all adverse events must be available in the subject record. All Adverse Events including local and systemic reactions not meeting the criteria for "serious adverse events" shall be captured on the appropriate case report form or electronic data system. All adverse events occurring while the subject is enrolled in the study must be documented appropriately regardless of relationship.

It is the Investigator's responsibility to maintain documentation of each reported adverse event. All adverse events will be followed in accordance with applicable licensing requirements. Such documentation will include the following:

- Adverse event (diagnosis not symptom)
- Drawings or photographs (where appropriate) that detail the finding (e.g., size, location, and depth, etc.)
- Date the clinical site was notified
- Date and time of onset
- Date and time of resolution
- Adverse event classification, severity, and relationship to test articles, as applicable
- Treatment regimen instituted, including concomitant medications prescribed, in accordance with applicable licensing requirements
- Any referral to another health care provider if needed
- Outcome, ocular damage (if any)
- Likely etiology
- Best corrected visual acuity at the discovery of the event and upon conclusion of the event

In addition, if an infiltrate(s) is present, he/she will complete the Corneal Infiltrate Assessment eCRF. Where necessary, a culture of the corneal lesion will be collected to determine if the infection is microbial in nature. If cultures are collected, the date of culture collection and laboratory utilized will be recorded.

Changes in the severity of an AE shall be documented to allow an assessment of the duration of the event at each level of intensity to be performed. Adverse events characterized as intermittent require documentation of the onset and duration of each episode. Changes in the assessment of relationship to the Test Article shall also be clearly documented.

Subjects who present with an adverse event shall be followed by the Investigator, within licensure, until all signs and symptoms have returned to pre-treatment status, stabilized, or been satisfactorily resolved. If further treatment beyond licensure is required, the patient will be referred to the appropriate health care provider. The Investigator will use his/her clinical judgment as to whether a subject reporting with an adverse event will continue in the study. If a subject is discontinued from the study, it will be the responsibility of the Investigator to record the reason for discontinuation. The Investigator will also document the adverse event appropriately and complete the Adverse Event eCRF. Any subjects with ongoing adverse events related to the test article, study treatment or study procedures, as of the final study visit date, should be followed to resolution of the adverse event or until referral to an appropriate health care provider, as recommended by the Investigator. Non-ocular adverse events that are not related to the test article, study treatment, or study procedures may be recorded as "ongoing" without further follow-up.

13.4. Reporting Adverse Events

The Investigator will notify the Sponsor of an adverse event by e-mail, facsimile, or telephone as soon as possible and no later than 24 hours from discovery for any serious /significant adverse events, and 2 days from discovery for any non-significant adverse event. In addition, a written report will be submitted by the Principal Investigator to the IEC/IRB according to their requirements (Section 13.4.2). The report will comment whether the adverse event was considered to be related to the test article, study treatment or study procedures.

13.4.1. Reporting Adverse Events to Sponsor

Serious/Significant Adverse Events

The Investigator will inform the sponsor of all serious/significant adverse events occurring during the study period as soon as possible by e-mail, fax, or telephone, but no later than 24 hours following discovery of the event. The Investigator is obligated to pursue and obtain information requested by the Sponsor in addition to that information reported on the eCRF. All subjects experiencing a serious/significant adverse event must be followed up and all outcomes must be reported.

When medically necessary, the Investigator may break the randomization code to determine the identity of the treatment that the subject received. The Sponsor and study monitor should be notified prior to unmasking the test articles.

In the event of a serious/significant adverse event, the Investigator must:

- Notify the Sponsor immediately
- Obtain and maintain in the subject's records all pertinent medical information and medical judgment for colleagues who assisted in the treatment and follow-up of the subject
- Provide the Sponsor with a complete case history which includes a statement as to whether the event was or was not related to the use of the test article
- Notify the IEC/IRB as required by the IEC/IRB reporting procedure according to national regulations

Unanticipated (Serious) Adverse Device Effect (UADE)
In the event of an Unanticipated (Serious) Adverse Device Effect (UADE), the Investigator will submit a report of the UADE to the Sponsor and IEC/IRB as soon as possible, but no later than 24 hours after the Investigator first learns of the effect. This report is in addition to the immediate notification mentioned above.

The Sponsor must conduct an evaluation of the UADE and must report the results of the evaluation to FDA, the IEC/IRB and participating Investigators within 10 working days after the Sponsor first receives notification of the effect.

Non-Serious Adverse Events
All non-serious adverse events, including non-serious adverse device effects, will be reported to the sponsor by the Investigator no later than 2 days from discovery.

13.4.2. Reporting Adverse Events to the Responsible IEC/IRB and Health Authorities

Adverse events that meet the IEC/IRB requirements for reporting must be reported within the IEC/IRB's written guidelines. Each clinical site will refer to and follow any guidelines set forth by their Approving IEC/IRB. Each clinical site will refer to and follow any guidelines set forth by their local governing Health Authorities.

The Sponsor will report applicable Adverse Events to the local health authorities according the written guidelines, including reporting timelines.

13.5. Event of Special Interest

None

13.6. Reporting of Pregnancy

Subjects reporting pregnancy (by self-report) during the study will be discontinued after the event is recorded as an Adverse Event. Once discontinued, pregnant participants and their fetuses will not be monitored for study related purposes. At the Investigator's discretion, the study participant may be followed by the Investigator through delivery. However, this data will not be collected as part of the clinical study database. Pregnant participants are not discontinued from contact lens or solution related studies for safety concerns, but due to general concerns relating to pregnancy and contact lens use. Specifically, pregnant women are discontinued due to fluctuations in refractive error and/or visual acuity that occur secondary to systemic hormonal changes, and not due to unforeseen health risks to the mother or fetus.

14. STATISTICAL METHODS

14.1. General Considerations

Statistical Analysis will be undertaken by the sponsor or under the authority of the sponsor. A general description of the statistical methods to be implemented in this clinical trial is outlined below.

All data summaries and statistical analyses will be performed using the SAS software Version 9.4 (SAS Institute, Cary, NC). Throughout the analysis of data, the results for each subject/eye will be used when available for summarization and statistical analysis. Unscheduled visits will be summarized separately and will be excluded from the statistical analysis.

Summary tables (descriptive statistics and/or frequency tables) will be provided for all baseline variables, efficacy variables and safety variables as appropriate. Continuous variables will be summarized with descriptive statistics (n, mean, standard deviation (SD), median, minimum and maximum). Frequency count and percentage of subjects or eyes within each category will be provided for categorical data.

14.2. Sample Size Justification

The plan is to enroll a maximum of 66 subjects with a minimum target of 60 subjects to complete. The sample size was chosen by the study responsible clinician and was not based on any empirical power calculation. Furthermore, a power calculation cannot be provided for any of the primary endpoints because no historical data is available. This data from this study will be utilized in the sample size calculations for any additional follow-up studies.

14.3. Analysis Populations

Safety Population:
All subjects who were administered any test article excluding subjects who drop out prior to administering any test article. At least one observation should be recorded.

Per-Protocol Population:
All subjects who have successfully completed all visits and did not substantially deviate from the protocol as determined by the trial cohort review committee prior to database hard lock (Per-Protocol Population). Justification of excluding subjects with protocol deviations in the per-protocol population set will be documented in a memo to file.

Intent-to-Treat (ITT) Population:
All randomized subjects regardless of actual treatment and subsequent withdrawal from study or deviation from protocol. At least one observation should be recorded.

14.4. Level of Statistical Significance

Each primary and secondary hypothesis will be tested individually using a type I error rate of 5%.

14.5. Primary Analysis

Light Scattering (Two-point Light Spread Function)
This is defined as the minimum distance (mm) that two points of light are completely distinct. This threshold will be analyzed by a linear mixed model. Sequence of lens wear, lens type, age group, dominant eye and the interaction between lens type and age group will be included in the model as fixed effects. An appropriate covariance structure will be used to model the residual errors between measurements between eyes within a subject. The variance-covariance structure will be selected based on the finite-sample corrected Akaike's Information Criterion Corrected (AICC). The structure that returns the lowest AICC will be deemed the most appropriate structure. Covariance structures under consideration include:

- Unstructured (UN)
- Compound Symmetry (CS)
- Heterogeneous Compound Symmetry (CSH)

Heterogeneous covariance structures across lens type may be considered if necessary. The Kenward and Roger method (Kenward and Roger, 1997)[15] will be used for the denominator degrees of freedom.

Comparisons between lenses (Test inactivated vs Control and Test activated vs Control) will be carried out using 2-sided 95% confidence intervals constructed for the least-square mean (LSM) difference (Test – Control). Statistically significantly lower differences of the Test lens relative to the Control lens will be concluded if the upper limit of the 95% confidence interval is below 0. If the interaction between lens type and age is significant then comparisons between lenses will be made within age group.

Starburst
Starbursts will be quantified by the diameter of the light's lateral spread. A calibrated custom-made micrometer (two sides with reverse threading) will be used to spread two posts out from a central mid-point). Those posts can then be used to define the outer boundaries of the starburst image (i.e. the diameter). The diameter of the light's lateral spread will be analyzed and tested in the same manner as described for light scattering above.

Halos
Halos will be quantified by the diameter (mm) of outer edges of the halo image and is measured using the same micrometer as for starbursts and light scattering. The diameter will be analyzed using the same model as described for light scattering.

14.6. Secondary Analysis

Photostress Recovery Time (Seconds)
Photostress recovery time (PSRT) will be evaluated by exposing subjects to an intense light source (10-deg circular broad-band white at ~4.5 log Tds) and will be quantified as the time necessary to regain site of the grating after exposure.

PSRT will be analyzed using a linear mixed model. Sequence of lens wear, lens type, age group dominant eye and all the interaction between lens type and age group will be included as fixed

effects. An appropriate covariance structure will be used to model the residual errors between measurements between eyes within a subject. The variance-covariance structure will be selected based on the finite-sample corrected Akaike's Information Criterion Corrected (AICC). The structure that returns the lowest AICC will be deemed the most appropriate structure. Covariance structures under consideration include:

- Unstructured (UN)
- Compound Symmetry (CS)
- Heterogeneous Compound Symmetry (CSH)

Heterogeneous covariance structures across lens type may be considered if necessary. The Kenward and Roger method (Kenward and Roger, 1997)[15] will be used for the denominator degrees of freedom.

Comparisons between lenses will be carried out using 2-sided 95% confidence intervals constructed for the least-square mean (LSM) difference (Test – Control). Statistically significantly lower differences of the Test lens relative to the Control lens will be concluded if the upper limit of the 95% confidence interval is below 0. If the interaction between lens type and age is significant then comparisons between lenses will be made within age group.

Disability Glare Threshold (Change in log relative energy level)
Glare disability threshold (GDT) (change in log relative energy level) will be evaluated by exposing subjects to various intensity of a white-light annulus (10-geg diameter) and will be quantified by the log relative energy level necessary to obscure a central target.

GDT will be analyzed and tested in the same manner as described for PSRT.

Discomfort Glare (change in palpebral fissure height (mm))
Glare discomfort (GD) will be evaluated by squint response of the extraocular muscles and by a subjective questionnaire regarding the patients' comfort. Squint response will be captured by using a high-resolution camera for each subject eye. The resultant videos will then be analyzed as still frames. Squint response will be quantified as the calculated ratio of the height of the palpebral fissure under normal light conditions compared to maximal squint produced during the Photostress exposure. GD will be analyzed in the same manner as described for PSRT.

Comparisons between lenses will be carried out using 2-sided 95% confidence intervals constructed for the least-square mean (LSM) difference (Test – Control). Statistically significantly higher differences of the Test lens relative to the Control lens will be concluded if the lower limit of the 95% confidence interval is above 0. If the interaction between lens type and age is significant then comparisons between lenses will be made within age group.

Heterochromatic Contrast Threshold (HCT)
Heterochromatic contrast thresholds will be evaluated using a variable wavelength central target presented on a short-wave (460nm) sky-light background and will be quantified by the amount of light absorbed by the macular.

HCT will be analyzed and tested in the same manner as GD.

14.7. Other Exploratory Analyses

In vivo light transmission and slit lamp findings will be descriptively summarized for each lens type.

14.8. Interim Analysis

There will not be an interim analysis conducted on this study.

14.9. Procedure for Handling Missing Data and Drop-Outs

Missing or spurious values will not be imputed. The count of missing values will be included in the summary tables and listings.

Subject dropout is expected to be one of the main reasons of missing data in this clinical trial. Past clinical trials don't provide the evidence that subject dropout is systematic or not-at-random. To evaluate the impact of missing data, sensitivity analysis will be conducted using multiple imputation methods if the proportion of subject dropout is greater than the 15%. The SAS/STAT procedures PROC MI and PROC MIANALYZE will be utilized with a parametric regression method used to make at least 10 imputations.

14.10. Procedure for Reporting Deviations from Statistical Plan

The analysis will be conducted according to that specified in above sections. There are no known reasons for which it is planned to deviate from these analysis methods. If for any reason a change is made, the change will be documented in the study report along with a justification for the change.

15. DATA HANDLING AND RECORD KEEPING/ARCHIVING

15.1. Electronic Case Report Form/Data Collection

The data for this study will be captured on electronic case report forms (eCRFs) using an EDC system (Bioclinica). An authorized data originator will enter study data into the eCRFs using the EDC system. Data collected on equipment that is not captured in EDC will be formatted to the specification of the JJVC database manager and sent to JJVC for analysis.
The follow data testing/measurements will be calculated and entered into the EDC at the study site.

- Light Scattering
- Starburst
- Halos
- Photostress Recovery Time
- Disability Glare Threshold
- Discomfort Glare
- Heterochromatic Contrast Threshold

The clinical data will be recorded on dedicated eCRFs specifically designed to match the study procedures for each visit. Once completed, the eCRFs will be reviewed for accuracy and completeness and signed by the Investigator. The sponsor or sponsor's representatives will be authorized to gain access to the subject recordation for the purposes of monitoring and auditing the study.

Edit checks, electronic queries, and audit trails are built into the system to ensure accurate and complete data collection. Data will be transmitted from the clinical site to a secure central database as forms are completed or updated, ensuring information accuracy, security, and confidentiality. After the final database lock, the Investigator will be provided with Individual Patient Profiles (IPP) including the full audit trail on electronic media in PDF format for all of the study data. The IPP must be retained in the study files as a certified copy of the source data for the study.

The content and structure of the eCRFs are compliant with ISO14155:2011. [1]

15.2. Subject Record

At a minimum, subject record should be available for the following:

- subject identification
- eligibility
- study identification
- study discussion
- provision of and date of informed consent
- visit dates
- results of safety and efficacy parameters as required by the protocol
- a record of all adverse events
- follow-up of adverse events
- medical history and concomitant medication
- test article receipt/dispensing/return records
- date of study completion
- reason for early discontinuation of test article or withdrawal from the study, if applicable

The subject record is the eCRF or an external record. The author of an entry in the subject record must be identifiable. The first point of entry is considered to be the source record.

Adverse event notes must be reviewed and initialed by the Investigator.

16. DATA MANAGEMENT

16.1. Access to Source Data/Document

The Investigator/Institution will permit trial-related monitoring, audits, IEC/IRB review and regulatory inspection(s) by providing direct access to source data/documents. Should the

clinical site be contacted for an audit by an IEC/IRB or regulatory authority, JJVC must be contacted and notified in writing within 24 hours.

16.2. Confidentiality of Information

Information concerning the investigational product and patent application processes, scientific data or other pertinent information is confidential and remains the property of JJVC. The Investigator may use this information for the purposes of the study only. It is understood by the Investigator that JJVC will use information developed in this clinical study in connection with the development of the investigational product and therefore may disclose it as required to other clinical investigators and to regulatory agencies. In order to allow the use of the information derived from this clinical study, the Investigator understands that he/she has an obligation to provide complete test results and all data developed during this study to the Sponsor.

16.3. Data Quality Assurance

Steps will be taken to ensure the accuracy and reliability of data, include the selection of qualified investigators and appropriate clinical sites and review of protocol procedures with the Principal Investigator. The Principal Investigator, in turn, must ensure that all Sub-Investigators and clinical site personnel are familiar with the protocol and all study-specific procedures and have appropriate knowledge of the study article.

Training on case report form completion will be provided to clinical site personnel before the start of the study. The Sponsor will review case report forms for accuracy and completeness remotely during the conduct of the study, during monitoring visits, and after transmission to data management. Any data discrepancies will be resolved with the Investigator or designee, as appropriate.

Quality Assurance representatives from JJVC may visit clinical sites to review data produced during the study and to access compliance with applicable regulations pertaining to the conduct of clinical trials. The clinical sites will provide direct access to study-related source data/documents and reports for the purpose of monitoring and auditing by JJVC and for inspection by local and regulatory authorities.

17. MONITORING

The study monitors will maintain close contact with the Principal Investigator and the Investigator's designated clinical site personnel. The monitor's responsibilities will include:

- Ensuring that the investigation is being conducted according to the protocol, any subsequent amendments, and regulatory requirements are maintained
- Ensuring the rights and wellbeing of subjects are protected
- Ensuring adequate resources, including facilities, laboratories, equipment, and qualified clinical site personnel
- Ensuring that protocol deviations are documented with corrective action plans, as applicable
- Ensuring that the clinical site has sufficient test article and supplies

- Clarifying questions regarding the study
- Resolving study issues or problems that may arise
- Reviewing of study records and source documentation verification in accordance with the monitoring plan

18. ETHICAL AND REGULATORY ASPECTS

18.1. Study-Specific Design Considerations

Potential subjects will be fully informed of the risks and requirements of the study and, during the study, subjects will be given any new information that may affect their decision to continue participation. Subjects will be told that their consent to participate in the study is voluntary and may be withdrawn at any time with no reason given and without penalty or loss of benefits to which they would otherwise be entitled. Only subjects who are fully able to understand the risks, benefits, and potential adverse events of the study, and provide their consent voluntarily will be enrolled.

18.2. Investigator Responsibility

The Principal Investigator is responsible for ensuring that the clinical study is performed in accordance with the signed agreement, the investigational plan, Section 4 of the ICH E6 guidelines on Good Clinical Practice (GCP),[2] and applicable regulatory requirements. GCP is an international ethical and scientific quality standard for designing, conducting, recording, and reporting studies that involve the participation of human subjects. Compliance with this standard provides public assurance that the rights, safety, and well-being of study subjects are protected, consistent with the principles of the Declaration of Helsinki 64th WMA General Assembly 2013[3] and that the clinical study data are credible. The Investigator must maintain clinical study files in accordance with Section 8 of the ICH E6 guidelines on Good Clinical Practice (GCP),[2] and applicable regulatory requirements.

18.3. Independent Ethics Committee or Institutional Review Board (IEC/IRB)

Before the start of the study, the Investigator (or Sponsor when applicable) will provide the IEC/IRB with current and complete copies of the following documents (where applicable):

- Final protocol and, if applicable, amendments
- Sponsor-approved informed consent form (and any other written materials to be provided to the subjects)
- Investigator's Brochure (or equivalent information) and amendments
- Sponsor-approved subject recruitment materials
- Information on compensation for study-related injuries or payment to subjects for participation in the study
- Investigator's curriculum vitae, clinical licenses, or equivalent information (unless not required, as documented by IEC/IRB)
- Information regarding funding, name of the Sponsor, institutional affiliations, other potential conflicts of interest, and incentives for subjects
- Any other documents that the IEC/IRB requests to fulfill its obligation

This study will be undertaken only after IEC/IRB has given full approval of the final protocol, amendments (if any), the informed consent form, applicable recruiting materials, and subject compensation programs, and the Sponsor has received a copy of this approval. This approval letter must be dated and must clearly identify the documents being approved.

During the study, the Investigator (or Sponsor when applicable) will send the following documents to the IEC/IRB for their review and approval, where appropriate:

- Protocol amendments
- Revision(s) to informed consent form and any other written materials to be provided to subjects
- If applicable, new or revised subject recruitment materials approved by the Sponsor
- Revisions to compensation for study-related injuries or payment to subjects for participation in the study
- Investigator's Brochure amendments or new edition(s)
- Summaries of the status of the study (at least annually or at intervals stipulated in guidelines of the IEC/IRB)
- Reports of adverse events that are serious, unanticipated, and associated with the test articles, according to the IRB's requirements
- New information that may adversely affect the safety of the subjects or the conduct of the study
- Major protocol deviations as required by the IEC/IRB
- Report of deaths of subjects under the Investigator's care
- Notification if a new Investigator is responsible for the study at the clinical site
- Any other requirements of the IEC/IRB

For protocol amendments that increase subject risk, the amendment and applicable informed consent form revisions must be submitted promptly to the IEC/IRB for review and approval before implementation of the change(s).

At least once a year, the IEC/IRB will review and reapprove this clinical study. This request should be documented in writing.

At the end of the study, the Investigator (or Sponsor where required) will notify the IEC/IRB about the study completion. Documentation of this notification must be retained at the clinical site and a copy provided to the CRO or Sponsor as applicable.

18.4. Informed Consent

Each subject must give written consent according to local requirements after the nature of the study has been fully explained. The consent form must be signed before performance of any study-related activity. The consent form that is used must be approved by both the Sponsor and by the reviewing IEC/IRB. The informed consent is in accordance with principles that originated in the Declaration of Helsinki,[3] current ICH[2] and ISO 14155[1] guidelines, applicable regulatory requirements, and Sponsor Policy.

Before entry into the study, the Investigator or an authorized member of the clinical site personnel must explain to potential subject the aims, methods, reasonably anticipated benefits, and potential hazards of the study, and any discomfort it may entail. Subjects will be informed that their participation is voluntary and that they may withdraw consent to participate at any time.

The subject will be given sufficient time to read the informed consent form and the opportunity to ask questions. After this explanation and before entry into the study, consent should be appropriately recorded by means of the subject's dated signature. After having obtained the consent, a copy of the informed consent form must be given to the subject.

18.5. Privacy of Personal Data

The collection, processing and disclosure of personal data and medical information related to the Study Subject, and personal data related to Principal Investigator and any clinical site personnel (e.g., name, clinic address and phone number, curriculum vitae) is subject to compliance with the Health Information Portability and Accountability Act (HIPAA)[19] and other applicable personal data protection and security laws and regulations. Appropriate measures will be employed to safeguard these data, to maintain the confidentiality of the person's related health and medical information, to properly inform the concerned persons about the collection and processing of their personal data, to grant them reasonable access to their personal data and to prevent access by unauthorized persons.

All information obtained during the course of the investigation will be regarded as confidential. All personal data gathered in this trial will be treated in strictest confidence by Investigators, monitors, Sponsor's personnel and IEC/IRB. No data will be disclosed to any third party without the express permission of the subject concerned, with the exception of Sponsor personnel (monitor, auditor), IEC/IRB and regulatory organizations in the context of their investigation related activities that, as part of the investigation will have access to the CRFs and subject records.

The collection and processing of personal data from subjects enrolled in this study will be limited to those data that are necessary to investigate the efficacy, safety, quality, and utility of the investigational product(s) used in this study.

These data must be collected and processed with adequate precautions to ensure confidentiality and compliance with applicable data privacy protection laws and regulations.
The Sponsor ensures that the personal data will be:

- processed fairly and lawfully
- collected for specified, explicit, and legitimate purposes and not further processed in a way incompatible with these purposes
- adequate, relevant, and not excessive in relation to said purposes
- accurate and, where necessary, kept current

Explicit consent for the processing of personal data will be obtained from the participating subject before collection of data. Such consent should also address the transfer of the data to other entities and to other countries.

The subject has the right to request through the Investigator access to his personal data and the right to request rectification of any data that are not correct or complete. Reasonable steps should be taken to respond to such a request, taking into consideration the nature of the request, the conditions of the study, and the applicable laws and regulations.

Appropriate technical and organizational measures to protect the personal data against unauthorized disclosures or access, accidental or unlawful destruction, or accidental loss or alteration must be put in place. Sponsor personnel whose responsibilities require access to personal data agree to keep the identity of study subjects confidential.

19. STUDY RECORD RETENTION

In compliance with the ICH/GCP guidelines,[2] the Investigator/Institution will maintain all CRFs and all subject records that support the data collected from each subject, as well as all study documents as specified in ICH/GCP[2] and all study documents as specified by the applicable regulatory requirement(s). The Investigator/Institution will take measures to prevent accidental or premature destruction of these documents.

Essential documents must be retained until at least two (2) years after the last approval of a marketing application in an ICH region and until there are no pending or contemplated marketing applications in an ICH region or until at least two (2) years have elapsed since the formal discontinuation of clinical development of the investigational product. These documents will be retained for a longer period if required by the applicable regulatory requirements or instructed by the Sponsor. It is the responsibility of the Sponsor to inform the Investigator/Institution as to when these documents no longer need to be retained.

If the responsible Investigator retires, relocates, or for other reasons withdraws from the responsibility of keeping the study records, custody must be transferred to a person who will accept the responsibility. The Sponsor must be notified in writing of the name and address of the new custodian. Under no circumstance shall the Investigator relocate or dispose of any study documents before having obtained written approval from the Sponsor.

If it becomes necessary for the Sponsor or the appropriate regulatory authority to review any documentation relating to this study, the Investigator must permit access to such reports.
If the Investigator has a question regarding retention of study records, he/she should contact JJVC.

20. FINANCIAL CONSIDERATIONS

Remuneration for study services and expenses will be set forth in detail in the Clinical Research Agreement. The Research Agreement will be signed by the Principal Investigator and a JJVC management representative prior to study initiation.

JJVC reserves the right to withhold remuneration for costs associated with protocol violations such as:

- Continuing an ineligible subject in the study
- Scheduling a study visit outside the subject's acceptable visit range

JJVC reserves the right to withhold final remuneration until all study related activities have been completed, such as:

- Query resolution
- Case Report Form signature
- Completion of any follow-up action items

21. PUBLICATION

This study will be registered on ClinicalTrials.gov by the Sponsor.

22. REFERENCES

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2. International Conference on Harmonization Good Clinical Practice E6 (ICH-GCP): http://www.ich.org/products/guidelines/efficacy/article/efficacy-guidelines.html
3. Declaration of Helsinki – Ethical principles for Medical Research Involving Human Subjects. http://www.wma.net/en/30publications/10policies/b3/index.html.
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5. Renzi-Hammond, L.M. and B.R. Hammond, *The effects of photochromic lenses on visual performance.* Clinical and Experimental Optometry, 2016. **99**(6): p. 568-574.
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9. Buch, J.*Clinical Study Protocol* [redacted] *Investigator Brochure Evaluation of Lenses Made with new UV-Blocker* [redacted] 2018 09 January
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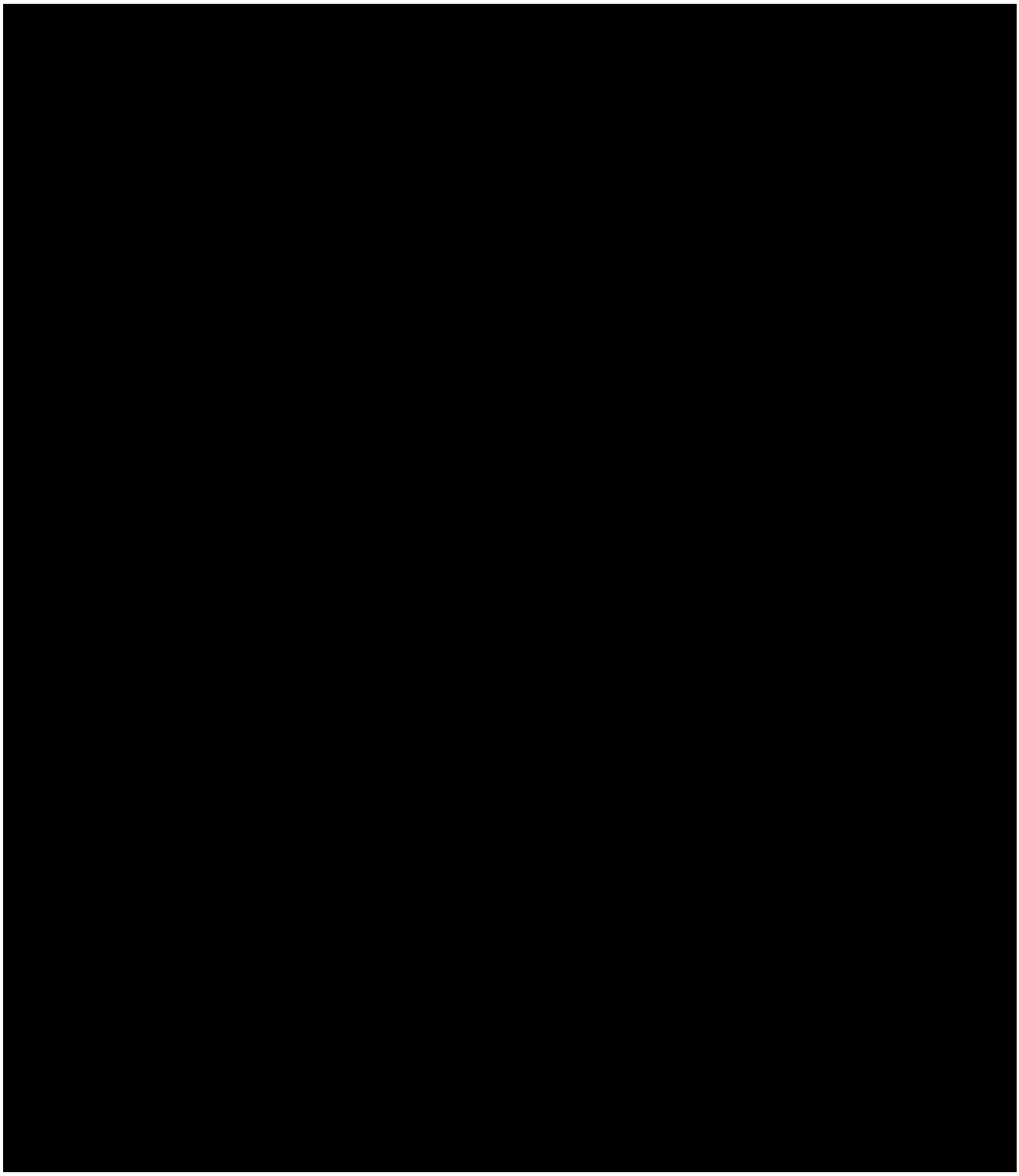
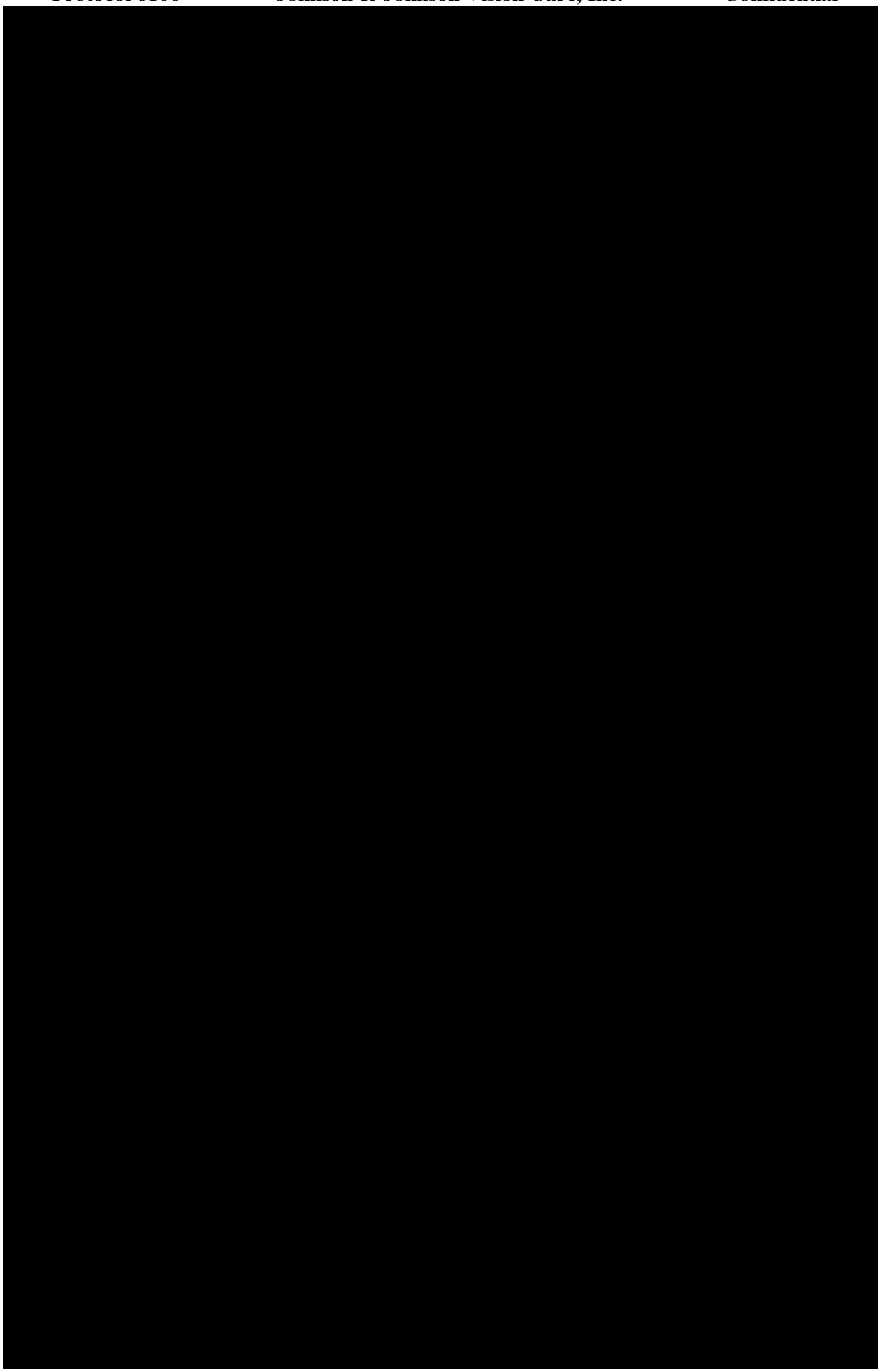
19. Health Information Portability and Accountability Act (HIPAA). In https://www.hhs.gov/hipaa/for-professionals/privacy/index.html (Ed.).

APPENDIX A: PATIENT REPORTED OUTCOMES (STUDY QUESTIONNAIRES)





APPENDIX B: PATIENT INSTRUCTION GUIDE

The Patient Instruction Guide will be provided separately.

APPENDIX C: PACKAGE INSERT (APPROVED PRODUCT)

- Acuvue OASYS Brand Contact Lenses

If vision is acceptable, perform a slit lamp examination to assess adequate fit (centration and movement). If fit is acceptable, dispense the lenses instructing the patient to return in one week for reassessment (see dispensing and follow-up information in PATIENT MANAGEMENT).

All patients should be supplied with a copy of the PATIENT INSTRUCTION GUIDE for these lenses. Copies are available for download at www.acuvue.com.

TORIC FITTING GUIDELINES

Although most aspects of the fitting procedure are identical for all types of soft contact lenses, including torics, there are some additional steps and/or rules to follow to assure the proper fit of toric lenses.

The only new steps you must follow in prescribing ACUVUE OASYS® for ASTIGMATISM contact lenses are that you must determine the stability, repeatability and drift angle of the lens axis so that you can prescribe the correct lens axis for your patient.

A. How to Determine Lens Cylinder and Axis Orientation

1. Locate the Orientation Marks

To help determine the proper orientation of the toric lens, you'll find two primary marks about 1 mm from the lens edge representing the vertical position on opposite ends of the lens at 6 and 12 o'clock (Fig. 1). Because of the lens' ballasting system, either mark can represent the vertical position – there is no "top" and "bottom" as in a prism-ballasted lens. You don't need to view both marks to assess orientation; simply look for the 6 o'clock mark as you would with a prism-ballasted lens.

Figure 1

You'll need a biomicroscope and a 1 mm or 2 mm parallelepiped beam to highlight the marks when the lens is fitted to the eye. There are a number of techniques you can use to improve the visibility of the 6 o'clock mark. Using a parallelepiped beam and medium magnification (10x or 16x), slowly pan down the lens, looking just below the direct illumination at the retrol luminated area. Backlighting the mark this way should make it more visible. Sometimes manipulating the lower lid may be necessary to uncover the mark.

2. Observe Lens Rotation and Stability

Observe the position and stability of the "bottom" mark. It usually stabilizes at the 6 o'clock position. If it does, calculation of the lens power will be straightforward. The 6 o'clock position is not a "must"; however, the absolute requirement is that the axis position be stable and repeatable.

A low fitted lens to settle for about 20 minutes with the correct power lenses in place. Walk across the room and have the patient look at you. Assess the patient's reaction to distance vision under these circumstances. Then have the patient look at familiar near objects such as a watch face or fingernails. Again assess the reaction. As the patient continues to look around the room at both near and distance objects, observe the reactions. Only after these vision tests are completed should the patient be asked to read print. Evaluate the patient's reaction to large print (e.g., typewritten copy) at first and then gradually to newsprint and finally smaller type sizes.

A ter the patient's performance under the above conditions is completed, lasts of visual acuity and reading ability under conditions of moderately dim illumination should be attempted.

An initial unfavorable response in the office, while indicative of a guarded prognosis, should not immediately rule out a more extensive trial under the usual conditions in which a patient functions.

4. Adaptation

Visually demanding situations should be avoided during the initial wearing period. A patient may at first experience some mild blurred vision, dizziness, headaches, and a feeling of slight imbalance. You should explain the adaptational symptoms to the patient. These symptoms may last for a brief minute or for several weeks. The longer these symptoms persist, the poorer the prognosis for successful adaptation.

To help in the adaptation process, the patient can be advised to first use the lenses in a comfortable familiar environment such as in the home.

Some patients feel that automobile driving performance may not be up imal during the adaptation process. This is particularly true when driving at night. Before driving a motor vehicle, it may be recommended that the patient be a passenger first, to make sure that their vision is satisfactory for operating an automobile. During the first several weeks of wear (when adaptation is occurring, it may be advisable for the patient to only drive during optimal driving conditions. After adaptation and success with these activities, the patient should be able to drive under other conditions with caution.

B. Other Suggestions

The success of the monovision technique may be further improved by having the patient follow the suggestions below:

- Have a third contact lens (distance power) to use when critical distance viewing is needed.
- Have a third contact lens (near power) to use when critical near viewing is needed.
- Having supplemental spectacles to wear over the monovision contact lenses

The mark may stabilize somewhat left or right (dirt) of the vertical meridian and still enable you to fit a toric lens for that eye, as long as the lens always returns to the same "drift axis" position after settling. This deviation can be compensated for in the final prescription. Your objective is to ensure that whatever position the initial lens assumes near 6 o'clock, this position must be stable and repeatable. With full eye movement or heavy blink, you may see the marks swing away, but they must return quickly to the original stable position. If the lens does not return quickly, you may need to select a different lens.

Assessing Rotation

Imagine the eyes as a clock dial and every hour represents a 30° inte val. If the orientation marks of the initial lens stabilizes somewhat left or right of the vertical position, the final lens will orient on the eye with the same deviation. You can use an axis reticule in the slit lamp or use a line-scribed lens in a spectacle trial frame to measure or estimate the "drift angle" of the cylinder axis.

To compensate for this "drift", measure or estimate the "drift", then add or subtract it from the refractive axis to determine the correct cylinder axis. Use the LARS: Left Add, Right Subtract) method to determine which direction to compensate.

B. How to Determine the Final Lens Power

When the diagnostic lens has its axis aligned in the same meridian as the patient's refractive axis, a sphere cylindrical over-refraction may be performed and visual acuity determined. However, in the case of crossed axes, such as when the diagnostic lens axis is different from the patient's refractive axis, it is not advisable to over-refract because of the difficulty in computing the resultant power. In fitting contact lenses, it is customary to prescribe the ful power in the sphere. In the cylinder, however, any lens rotation is visually disturbing to the patient, so it is practical to prescribe as weak a cylinder as possible. So, here is how to determine the final lens power.

For the Sphere:

If spheres alone or combined spheres and cylinder Rx >-4.00 D, compensate for vertex distance. If spheres alone or combined spheres and cylinder Rx is -4.00 D, vertex compensation is not necessary.

For the Cylinder:

Adjust the axis by the drift angle using LARS. Choose a cylinder that is ≤ 0.25 D from the refractive cylinder.

Case Examples:

Example 1
Manifest (spectacle) refraction:
O.D. –2.50 –1.25 x 180 20/20
O.S. –2.00 –1.00 x 180 20/20
Choose a diagnostic lens for each eye with an axis as close to 180° as possible. Place the lens on each eye and allow a minimum of 5 minutes for

for specific visual tasks may improve the success of monovision co nection. This is particularly applicable for those patients who cannot pass state drivers licensing requirements with monovision co nection.

- Make use of proper illumination when carrying out visual tasks.

Monovision fitting success can be improved by the following suggestions:

- Reverse the distance and near eyes if a patient is having trouble adapting.
- Refine the lens powers if there is trouble with adaptation. Accurate lens power is critical for presbyopic patients.
- Emphasize the benefits of clear near vision and straight ahead and upward gaze with monovision.

The decision to fit a patient with a monovision co nection is most appropriately left to the Eye Care Professional in conjunction with the patient after carefully considering the patient's needs.

All patients should be supplied with a copy of the PAT ENT INSTRUCTION GUIDE for these lenses. Copies are available for download at www.acuvue.com.

PATIENT MANAGEMENT

Dispensing Visit

- PROVIDE THE PATIENT WITH A COPY OF THE PATIENT INSTRUCTION GUIDE FOR THESE LENSES. REVIEW THESE INSTRUCTIONS WITH THE PATIENT SO THAT HE OR SHE CLEARLY UNDERSTANDS THE PRESCRIBED WEARING AND REPLACEMENT SCHEDULE (DISPOSABLE OR FREQUENT REPLACEMENT).
- Recommend an appropriate cleaning and disinfecting system and provide the patient with instructions regarding proper lens care. Chemical or hydrogen peroxide disinfection is recommended.
- Schedule a follow-up examination.

Follow-up Examinations

- Follow-up care (necessary to ensure continued successful contact lens wear) should include routine periodic progress examinations, management of specific problems, if any, and a review with the patient of the wear schedule, lens replacement schedule, and proper lens care and handling procedures.
- Recommended Follow-up Examination Schedule (complications and specific problems should be managed on an individual patient basis):
  1. One week from the initial lens dispensing to patient
  2. One month post-dispensing
  3. Every three to six months thereafter

it to equilibrate, based on the patient's initial response to the lens. If the lens has not yet stabilized, re check until stable.

Check the orientation of the axis mark. If the bottom axis mark is in the 6 o'clock position in both eyes, choose the appropriate cylinder as listed previously. If the lens has not yet stabilized, re check until stable.

Here is the Rx Prescribed:
O.D. -2.50 -1.25 x 180
O.S. -2.00 -0.75 x 180

Example 2

Manifest (spectacle) refraction:
O.D. –3.00 –1.00 x 90 20/20
O.S. –4.75 –2.00 x 90 20/20

Choose diagnostic lenses of –3.00 –0.75 x 90 for the right eye and –4.50 –1.75 x 90 for the left eye, the nearest lenses available to the spherical power and axis needed. Place the lens on each eye and allow a minimum of 5 minutes for it to equilibrate, based on the patient's initial response to the lens. If the lens has not yet stabilized, re check until stable. The orientation mark on the right lens rotates left from the 6 o'clock position by 10°.

The fitting indicates the following:

Right Eye:
Compensate the 10° axis drift by adding it to the manifest refraction axis.
Here is the Rx prescribed:
O.D. –3.00 –0.75 x 100
Left Eye
The lens on the left eye shows good centration, movement and a consistent tendency for the mark to drift right by 10° from the 6 o'clock position following a forced ink. Since the manifest refraction called for a power of –4.75 D, adjust for the vertex distance and reduce the sphere by 0.25 D and prescribe the –1.75 D cylinder. Compensate for the 10° axis drift by subtracting it from the manifest refraction.

Here is the Rx Prescribed:

O.S. –4.50 –1.75 x 80

If vision is acceptable, perform a slit lamp examination to assess adequate fit (centration and movement). If fit is acceptable, dispense the lenses instructing the patient to return in one week for reassessment (see dispensing and follow up information in PATIENT MANAGEMENT).

All patients should be supp ied with a copy of the PATIENT INSTRUCTION GU DE for these lenses. Copies are available for download at www.acuvue.com.

NOTE: More frequent or additional follow-up visits may be recommended for patients on an extended wear schedule.

- Preferably, at the follow-up visits, lenses should be worn for at least eight hours. If the lenses are being worn for continuous wear, the examination should be performed as early as possible on the morning following overnight wear.
- Recommended Procedures for Follow-Up Visits:
  1. Solicit and record patient's symptoms, if any.
  2. Measure visual acuity monocularly and binocularly at distance and near with the contact lenses.
  3. Perform an over-refraction at distance and near to check for residual refractive error.
  4. With the biomicroscope, judge the lens fit ting characteristics (as described in the GENERAL FITTING GUIDELINES) and evaluate the lens surface for deposits and damage.
  5. Following lens removal, examine the cornea and conjunctiva with the biomicroscope and fluorescein (unless contraindicated).
     - The presence of vertical corneal stries in the posterior central cornea and/or corneal neovascularization is indicative of excessive corneal edema.
     - The presence of corneal staining and/or limbal-conjunctival hyperemia can be indicative of an uncleanliness, a reaction to solution preservatives, excessive lens wear, and/or a poorly fitting lens.
     - Papillary conjunctival change is may be indicative of an unclean and/or damaged lens.
  6. Periodically perform keratometry and spectacle refractions. The values should be recorded and compared to the baseline measurements.

If any observations are abnormal, use professional judgment to alleviate the problem and restore the eye to optimal conditions. If the criteria for successful fit are not satisfied during any follow-up examinations, repeat the patient's trial fitting procedure and refit the patient.

WEARING SCHEDULE

The wearing and replacement schedules should be determined by the Eye Care Professional. Regular checkups, as determined by the Eye Care Professional, are also extremely important.

For Daily Wear:

Patients tend to overwear the lenses initially. The Eye Care Professional should emphasize the importance of adhering to the initial maximum wearing schedule. Maximum wearing time should be determined by the Eye Care Professional based upon the patient's physiological eye condition, because individual response to contact lenses varies.

MULTIFOCAL FITTING GUIDELINES

A. Presbyopic Needs Assessment & Patient Education

Multifocal contact lenses may produce compromises to vision under certain circumstances and the patient should understand that they might not find their vision acceptable in specific situations (i.e., reading a menu in a dim restaurant, driving at night in rainy/foggy conditions, etc). Therefore, caution should be exercised when the patient is wearing the correction for the first time until they are familiar with the vision provided in visually challenging environments. Occupational and environmental visual demands should be considered. If the patient requires critical visual acuity and stereopsis, it should be determined by trial whether this patient can function adequately with the ACUVUE OASYS® for PRESBYOPIA contact lenses. Wear may not be optimal for activities such as:

1. visually demanding situations such as operating potentially dangerous machinery or performing other potentially hazardous activities; and
2. driving automobiles (e.g., driving at night). Patients who cannot pass their state driver's license requirements with these lenses should be advised to not drive with this correction, OR may require that additional over-correction be prescribed.

These lenses are not recommended for patients who have –1.00 D or greater of refractive cylinder as this level of uncorrected cylinder may lead to additional visual compromise.

These lenses are available in the following ADD powers:

- Lens "LOW" = "low" near ADD lens (Max +1.25 ADD)
- Lens "MID" = "medium" near ADD lens (Max +1.75 ADD)
- Lens "HIGH" = "high" near ADD lens (Max +2.50 ADD)

B. Fitting Instructions

1. Determine the following:

- Eye dominance (the method described in MONOVISION FITTING GUIDELINES may be used)
- Spherical equivalent distance prescription (vertex corrected if necessary and rounded to less minus if between powers)
- Near ADD

2. Select the initial trial lens as follows:

- For each eye select the trial lens distance power that is closest to the patient's distance spherical equivalent.

The maximum suggested wearing time for these lenses is:

DAY	HOURS
1	6-8
2	8-10
3	10-12
4	12-14
5 and after	allwaking hours

For Extended Wear:

It is recommended that the contact lens wearer first be evaluated on a daily wear schedule. If successful, then a gradual introduc ion of extended wear can be followed as determined by the presc ibing Eye Care Professional.

These lenses have been approved for extended wear up to 6 nights/7 days of continuous wear. Not all patients can achieve the maximum wear time.

For Therapeutic lens wear, close supervision by the Eye Care Professional is necessary. These lenses can be worn for extended wear for up to 6 nights/7 days of continuous wear. The Eye Care Professional should determine the appropriate wearing time and provide specific instructions to the patient regarding lens care, insertion, and removal.

REPLACEMENT SCHEDULE

For Lenses Prescribed for Frequent Replacement:

When prescribed for daily wear (frequent replacement), it is recommended that the lenses be discarded and replaced with a new lens every 2 weeks. However, the Eye Care Professional is encouraged to determine an appropriate replacement schedule based upon the response of the patient.

For Lenses Prescribed for Disposable Wear:

When prescribed for disposable wear, the replacement schedule should be determined by the Eye Care Professional based upon the patient's history and their ocular examination, as well as the practition er's experience and clinical judgment.

Once removed, it is recommended that the lens remain out of the eye for a period of rest of overnight or longer and be discarded in accordance with the prescribed wearing schedule. The Eye Care Professional should examine the patient during the early stages of extended wear.

- Select the near power of the lens based on the patient's ADD range as follows:

  ADD: +0.75 to +1.25 use a "LOW" near ADD lens on each eye
  ADD: +1.50 to +1.75 use a "MID" near ADD lens on each eye
  ADD: +2.00 to +2.50 use a "HIGH" near ADD lens on each eye

3. Allow the lens to settle for a minimum 10 minutes.

4. Assess distance and near vision binocularly and monocularly.

- Demonstrate the vision under various lighting conditions (normal and decreased illumination) and at distance, intermediate and near.
- Make adjustments in power as necessary (see Multifocal Troubleshooting below). The use of hand-held trial lenses is recommended.
- If distance and near vision are acceptable, perform a slit lamp examination to assess adequate fit (centration and movement). If fit is acceptable, dispense the lenses instructing the patient to return in one week for reassessment (see dispensing and follow-up information in PATIENT MANAGEMENT).

C. Multifocal Troubleshooting

Unacceptable Near Vision:
Determine the amount of additional plus, or less minus, over one or both eyes that is acceptable, while checking the effect on distance and near vision. If vision is still not acceptable, change the non-dominant eye to the next highest ADD power.

Unacceptable Distance Vision:
Determine the amount of additional minus, or less plus, over one or both eyes that is acceptable while checking the effect on distance and near vision. If vision is still not acceptable, change the dominant eye to a spherical equivalent distance prescription.

Unacceptable Distance and Near Vision:
Determine the amount of additional plus and/or minus over one or both eyes that is acceptable while checking the effect on distance and near vision. If additional plus and/or minus is not required, change the lens power in the dominant eye to the next lowest ADD power and the lens power in the non-dominant eye to the next highest ADD power, if appropriate.

All patients should be supplied with a copy of the PATIENT INSTRUCTION GUIDE for these lenses. Copies are available for download at www.acuvue.com.

MONOVISION FITTING GUIDELINES

A. Patient Selection

Monovision Needs Assessment
For a good prognosis, the patient should have adequately corrected distance and near visual acuity in each eye. The amblyopic patient or the patient with significant astigmatism (greater than 1.00 D) in one eye may not be a good candidate for monovision correction with these lenses.

Occupational and environmental visual demands should be considered. If the patient requires critical vision (visual acuity and stereopsis), it should be determined by trial whether this patient can function adequately with monovision correction. Monovision contact lens wear may not be optimal for activities such as:

1. visually demanding situations such as operating potentially dangerous machinery or performing other potentially hazardous activities; and
2. driving automobiles (e.g., driving at night). Patients who cannot pass their state driver's license requirements with monovision correction should be advised to not drive with this correction, OR may require that additional over-correction be prescribed.

Patient Education
All patients do not function equally well with monovision correction. Patients may not perform as well for certain tasks with this correction as they have with spectacles (multifocal, bifocal, trifocal, readers, progressives). Each patient should understand that monovision, as well as other presbyopic alternatives, can create a vision compromise that may reduce visual acuity and depth perception for distance and near tasks. Therefore, caution should be exercised when the patient is wearing the correction for the first time until they are familiar with the vision provided in visually challenging environments (e.g., reading a menu in a dim restaurant, driving at night in rainy/foggy conditions, etc). During the fitting process, it is necessary for the patient to realize the disadvantages as well as the advantages of clear near vision and straight ahead and upward gaze that monovision contact lenses provide.

B. Eye Selection

Generally, the non-dominant eye is corrected for near vision. The following two methods for eye dominance can be used:

1. Ocular Preference Determination Methods

Method 1: Determine which eye is the "sighting eye." Have the patient point to an object at the far end of the room. Cover one eye. If the patient is still pointing directly at the object, the eye being used is the dominant (sighting) eye.

Method 2: Determine which eye will accept the added power with the least reduction in vision. Place a hand-held trial lens equal to the spectacle near ADD in front of one eye and then the other while the distance refractive error correction is in place for both eyes. Determine whether the patient functions best with the near ADD lens over the right or left eye.

Other methods include the refractive error method and the visual demands method.

2. Refractive Error Method
For anisometropic correction, it is generally best to fit the more hyperopic (less myopic) eye for distance and the more myopic (less hyperopic) eye for near.

3. Visual Demands Method
Consider the patient's occupation during the eye selection process to determine the critical vision requirements. If a patient's gaze for near tasks is usually in one direction, correct the eye on that side for near.

Example: A secretary who places copy to the left side of the desk will function best with the near lens on the left eye.

C. Special Fitting Characteristics

1. Unilateral Lens Correction
There are circumstances where only one contact lens is required. As an example, an emmetropic patient would only require a near lens while a bilateral myope may only require a distance lens.

Example: A presbyopic emmetropic patient who requires a +1.75 D ADD would have a +1.75 D lens on the near eye and the other eye left without a lens. A presbyopic patient requiring a +1.50 D ADD who is –2.50 D myopic in the right eye and –1.50 D myopic in the left eye may have the right eye corrected for distance and the left uncorrected for near.

2. Near ADD Determination
Always prescribe the lens power for the near eye that provides optimal near acuity at the mid-point of the patient's habitual reading distance. However, when more than one power provides optimal reading performance, prescribe the least plus (most minus) of the powers.

3. Trial Lens Fitting
A trial fitting is performed in the office to allow the patient to experience monovision correction. Lenses are fit according to the GENERAL FITTING GUIDELINES for base curve selection in this Package Insert.

Case history and standard clinical evaluation procedures should be used to determine the prognosis. Determine the distance correction and the near correction. Next determine the near ADD. With trial lenses of the proper power in place, observe the reaction to this mode of correction.

LENS CARE DIRECTIONS

When lenses are dispensed, the Eye Care Professional should provide the patient with appropriate and adequate warnings and instructions in accordance with the individual patient's lens type and wearing schedule. The Eye Care Professional should recommend an appropriate care system tailored to the patient's individual requirements.

For complete information concerning contact lens handling, care, cleaning, disinfecting and storage, refer to the Patient Instruction Guide for these lenses. Copies are available for download at www.acuvue.com.

For Lenses Prescribed for Frequent Replacement Wear:

The Eye Care Professional should review with the patient, lens care directions for cleaning, disinfecting and storing, including both basic lens care information and specific instructions on the lens care regimen recommended for the patient.

For Lenses Prescribed for Disposable Wear:

The Eye Care Professional should review with patients that no cleaning or disinfection is needed with disposable lenses. Patients should always dispose of lenses when they are removed and have replacement lenses or spectacles available. Lenses should only be cleaned, rinsed, and disinfected on an emergency basis when replacement lenses or spectacles are not available.

Care for a Dried Out (Dehydrated) Lens

If the frequent replacement lens is of the eye and exposed to air from 30 minutes to 1 hour or more, its surface will become dry and gradually become non-wetting. If this should occur, discard the lens and use a new one.

Care for Sticking (Non-Moving) Lenses

If the lens sticks (stops moving), the patient should be instructed to apply a few drops of the recommended lubricating or rewe ting solution directly to the eye and wait until the lens begins to move freely on the eye before removing it. If non-movement of the lens continues after a few minutes, the patient should **immediately** contact the Eye Care Professional.

EMERGENCIES

The patient should be informed that if chemicals of any kind (household products, gardening solutions, laboratory chemicals, etc.) are splashed into the eyes, the patient should: FLUSH EYES IMMEDIATELY WITH TAP WATER AND IMMEDIATELY CONTACT THE EYE CARE PROFESSIONAL OR VISIT A HOSPITAL EMERGENCY ROOM WITHOUT DELAY.

HOW SUPPLIED

Each start-e lens is supplied in a foil-sealed plastic package containing buffered saline solution with methyl ether cellulose. The plastic package is marked with the following:

- **ACUVUE OASYS®:** base curve, power, diameter, lot number, and expiration date
- **ACUVUE OASYS® for ASTIGMATISM:** base curve, power, diameter, cylinder, axis, lot number, and expiration date
- **ACUVUE OASYS® for PRESBYOPIA:** base curve, power, diameter, ADD, lot number, and expiration date

REPORTING OF ADVERSE REACTIONS

All serious adverse experiences and adverse reactions observed in patients wearing these lenses or experienced with the lenses should be reported to:

Johnson & Johnson Vision Care, Inc.
7500 Centurion Parkway
Jacksonville, FL 32256
USA
Tel: 1-800-843-2020
www.acuvue.com

20400606

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IMPORTANT: Please read carefully and keep this information for future use.

This Package Insert and Fitting Gu de is intended for the Eye Care Professional, but should be made available to patients upon request.

The Eye Care Professional should provide the patient with the appropriate instructions that pertain to the patient's prescribed lenses. Copies are available for download at www.acuvue.com.

ACUVUE® OASYS

BRAND CONTACT LENSES

ACUVUE OASYS® Brand Contact Lenses

ACUVUE OASYS® Brand Contact Lenses for ASTIGMATISM

ACUVUE OASYS® Brand Contact Lenses for PRESBYOPIA

senofilcon A Soft (hydrophilic) Contact Lenses
Visibility Tinted with UV Blocker
for Daily and Extended Wear

℞ Only CAUTION: U.S. Federal law restricts this device to sale by or on the order of a licensed practitioner.

SYMBOLS KEY

The following symbols may appear on the label or carton:

SYMBOL	DEFINITION
	Consult Instructions for Use
	Manufactured by or in
	Date of Manufacture
	Use By Date (expiration date)
LOT	Batch Code
STERILE	Sterile Using Steam or Dry Heat
DIA	Diameter
BC	Base Curve
D	Diopter (lens power)
CYL	Cylinder
AXIS	Axis
MAX ADD	Near ADD
LOW	"Low" Near ADD
MID	"Medium" Near ADD
HGH	"High" Near ADD
	Quality System Certification Symbol
	UV-Blocking
	Fee Paid for Waste Management
	CAUTION: U.S. Federal law restricts this device to sale by or on the order of a licensed practitioner
	Lens Orientation Correct
	Lens Orientation Incorrect (Lens Inside Out)

DESCRIPTION

The ACUVUE OASYS* Brand Contact Lenses, the ACUVUE OASYS* Brand Contact Lenses for ASTIGMATISM, and the ACUVUE OASYS* Brand Contact Lenses for PRESBYOPIA are soft (hydrophilic) contact lenses available as spherical, toric, or multifocal lenses and include HYDRACLEAR* PLUS Technology. The lenses are made of a silicone hydrogel material containing an internal wetting agent with visibility tinted UV absorbing monomer.

These lenses are tinted blue using Reactive Blue Dye #4 to make the lenses more visible for handling. A benzotriazole UV absorbing monomer is used to block UV radiation.

The transmittance characteristics are less than 1% in the UVB range of 280 nm to 315 nm and less than 10% in the UVA range of 316 nm to 380 nm for the entire power range.

Lens Properties:

- Specific Gravity (calculated): 0.98 – 1.12
- Refractive Index: 1.42
- Light Transmittance: 85% minimum
- Surface Character: Hydrophilic
- Water Content: 38%
- Oxygen Permeability

VALUE	METHOD
103 x 10^{-11} (cm²/sec) (ml O_2/ml x mm Hg) @ 35°C	Fatt (boundary corrected, edge corrected)
122 x 10^{-11} (cm²/sec) (ml O_2/ml x mm Hg) @ 35°C	Fatt (boundary corrected, non-edge corrected)

Lens Parameters:

- Diameter Range: 12.0 mm to 15.0 mm
- Center Thickness: varies with power
- Base Curve Range: 7.85 mm to 10.00 mm
- Spherical Power Range: Daily Wear: -20.00D to +20.00D; Extended Wear: -20.00D to +14.00D
- Multifocal ADD Power Range: +0.25D to +4.00D
- Cylinder Power Range: -0.25D to -10.00D
- Axis Range: 2.5° to 180°

AVAILABLE LENS PARAMETERS

The ACUVUE OASYS* Brand Contact Lenses are hemispherical shells of the following dimensions:

Diameter: 14.0 mm
Center Thickness: Minus Lens - varies with power (e.g. -4.00D: 0.070 mm); Plus Lens - varies with power (e.g. +4.00D: 0.168 mm)
Base Curve: 8.4 mm, 8.8 mm
Powers: -0.50D to -6.00D (in 0.25D increments); -6.50D to -12.00D (in 0.50D increments); +0.50D to +6.00D (in 0.25D increments); +6.50D to +8.00D (in 0.50D increments)

The ACUVUE OASYS* Brand Contact Lenses for ASTIGMATISM are hemitoric shells of the following dimensions:

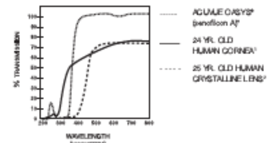
Diameter: 14.5 mm
Center Thickness: Minus Lens - varies with power (e.g. -4.00D: 0.080 mm); Plus Lens - varies with power (e.g. +4.00D: 0.172 mm)
Base Curve: 8.6 mm
Powers: plano to -6.00D (in 0.25D increments); -6.50D to -9.00D (in 0.50D increments); +0.25D to +6.00D (in 0.25D increments)
Cylinder: -0.75D, -1.25D, -1.75D, -2.25D, -2.75D
Axis: 10° to 180° (in 10° increments)

The ACUVUE OASYS* Brand Contact Lenses for PRESBYOPIA are hemispherical shells of the following dimensions:

Diameter: 14.3 mm
Center Thickness: Minus Lens - varies with power (e.g. -4.00D: 0.070 mm); Plus Lens - varies with power (e.g. +4.00D: 0.168 mm)
Base Curve: 8.4 mm
Powers: -9.00D to +6.00D (in 0.25D increments)
ADD Powers: +1.25 (LOW), +1.75 (MID), +2.50 (HGH)

TRANSMITTANCE CURVE

ACUVUE OASYS* Brand Contact Lenses vs. 24 yr. old human cornea vs. 25 yr. old human crystalline lens



*The data was obtained from measurements taken through the central 3-5 mm portion for the thinnest marketed lens (-1.00D lens, 0.070 mm center thickness).

1. Lerman, S., Radiant Energy and the Eye, MacMillan, New York, 1980, p.58, figure 2-21
2. Waxler, M., Hitchins, V.M., Optical Radiation and Visual Health, CRC Press, Boca Raton, Florida, 1986, p.19, figure 5

WARNING: UV absorbing contact lenses are NOT substitutes for protective UV absorbing eyewear, such as UV absorbing goggles or sunglasses because they do not completely cover the eye and surrounding area. The patient should continue to use UV absorbing eyewear as directed.

ACTIONS

In its hydrated state, the contact lens, when placed on the cornea, acts as a refracting medium to focus light rays on the retina. When hydrated and placed on the cornea for therapeutic use, the contact lens acts as a bandage to protect the cornea.

The transmittance characteristics are less than 1% in the UVB range of 280 nm to 315 nm and less than 10% in the UVA range of 316 nm to 380 nm for the entire power range.

NOTE: Long-term exposure to UV radiation is one of the risk factors associated with cataracts. Exposure is based on a number of factors such as environmental conditions (altitude, geography, cloud cover) and personal factors (extent and nature of outdoor activities). UV-Blocking contact lenses help provide protection against harmful UV radiation. However, clinical studies have not been done to demonstrate that wearing UV-Blocking contact lenses reduces the risk of developing cataracts or other eye disorders. The Eye Care Professional should be consulted for more information.

INDICATIONS (USES)

The ACUVUE OASYS* Brand Contact Lens is indicated for the optical correction of refractive ametropia (myopia and hyperopia) in phakic or aphakic persons with non-diseased eyes who have 1.00D or less of astigmatism.

The ACUVUE OASYS* Brand Contact Lens for ASTIGMATISM is indicated for the optical correction of visual acuity in phakic or aphakic persons with non-diseased eyes that are hyperopic or myopic and may have 10.00D or less of astigmatism.

The ACUVUE OASYS* Brand Contact Lens for PRESBYOPIA is indicated for the optical correction of distance and near vision in presbyopic, phakic or aphakic persons with non-diseased eyes who may have 0.75D or less of astigmatism.

These lenses contain a UV Blocker to help protect against transmission of harmful UV radiation to the cornea and into the eye.

Eye Care Professionals may prescribe the lenses either for single-use disposable wear or frequent/planned replacement wear with cleaning, disinfection and scheduled replacement (see "REPLACEMENT SCHEDULE"). When prescribed for frequent/planned replacement wear, the lenses may be cleaned and disinfected using a chemical disinfection system only.

These lenses have been approved for daily and extended wear for up to 6 nights/7 days of continuous wear. It is recommended that the contact lens wearer first be evaluated on a daily wear schedule. If successful, then a gradual introduction of extended wear can be followed as determined by the prescribing Eye Care Professional.

These lenses are also indicated for therapeutic use as a bandage lens for the following acute and chronic ocular conditions:

- For corneal protection in lid and corneal abnormalities such as entropion, trichiasis, tarsal scars, and recurrent corneal erosion. In addition, they are indicated for protection where sutures or ocular structure malformation, degeneration or paralysis may result in the need to protect the cornea from exposure or repeated irritation.
- For corneal pain relief in conditions such as bullous keratopathy, epithelial erosion and abrasion, filamentary keratitis, and post-keratoplasty.
- For use as a barrier during the healing process of epithelial defects such as chronic epithelial defects, corneal ulcer, neurotrophic and neuroparalytic keratitis, and chemical burns.
- For post surgical conditions where bandage lens use is indicated such as post refractive surgery, lamellar grafts, corneal flaps, and additional ocular surgical conditions.
- For structural stability and protection in piggyback lens fitting where the cornea and associated surfaces are too irregular to allow for corneal rigid gas permeable (RGP) lenses to be fit. In addition, the use of the lens can prevent irritation and abrasions in conditions where there are elevation differences in the host/graft junction or scar tissue.

Lenses prescribed for therapeutic use may be worn for daily or extended wearing periods.

CONTRAINDICATIONS (REASONS NOT TO USE)

When prescribing contact lens wear for REFRACTIVE AMETROPIA USE, DO NOT USE these lenses when any of the following conditions exist:

- Acute or subacute inflammation or infection of the anterior chamber of the eye
- Any eye disease, injury or abnormality that affects the cornea, conjunctiva or eyelids
- Severe insufficiency of lacrimal secretion (dry eye)
- Corneal hypoesthesia (reduced corneal sensitivity)
- Any systemic disease that may affect the eye or be exaggerated by wearing contact lenses
- Allergic reactions of ocular surfaces or adnexa that may be induced or exaggerated by wearing contact lenses or use of contact lens solutions
- Ocular irritation due to allergic reactions which may be caused by use of contact lens solutions (i.e., cleaning and disinfecting solutions, rewetting drops, etc.) that contain chemicals or preservatives (such as mercury or Thimerosal, etc.) to which some people may develop an allergic response
- Any active corneal infection (bacterial, fungal, protozoal or viral)
- If eyes become red or irritated

For THERAPEUTIC USE, the Eye Care Professional may prescribe these lenses to aid in the healing process of certain ocular conditions, which may include those cited above.

WARNINGS

Patients should be advised of the following warnings pertaining to contact lens wear:

EYE PROBLEMS, INCLUDING CORNEAL ULCERS, CAN DEVELOP RAPIDLY AND LEAD TO LOSS OF VISION; IF THE PATIENT EXPERIENCES:

- **Eye Discomfort,**
- **Excessive Tearing,**
- **Vision Changes,**
- **Loss of Vision,**
- **Eye Redness,**
- **Or Other Eye Problems,**

THE PATIENT SHOULD BE INSTRUCTED TO IMMEDIATELY REMOVE THE LENSES AND PROMPTLY CONTACT THE EYE CARE PROFESSIONAL.

- When prescribed for daily wear, patients should be instructed not to wear lenses while sleeping. Clinical studies have shown that the risk of serious adverse reactions is increased when lenses are worn overnight, and that the risk of ulcerative keratitis is greater for extended wear contact lens users than for daily wear users.[3]
- Studies have shown that contact lens wearers who are smokers have a higher incidence of adverse reactions than nonsmokers.
- Problems with contact lenses or lens care products could result in serious injury to the eye. Patients should be cautioned that proper use and care of contact lenses and lens care products, including lens cases, are essential for the safe use of these products.
- The overall risk of ulcerative keratitis may be reduced by carefully following directions for lens care, including cleaning the lens case.

[3] New England Journal of Medicine, September 21, 1989; 321 (12), pp. 773-783

Specific Instructions for Use and Warnings:

- **Water Activity**

  Instructions for Use

  Do not expose contact lenses to water while wearing them.

  WARNING:

  Water can harbor microorganisms that can lead to severe infection, vision loss or blindness. If lenses have been submersed in water when participating in water sports or swimming in pools, hot tubs, lakes or oceans, the patient should be instructed to discard them and replace them with a new pair. The Eye Care Professional should be consulted for recommendations regarding wearing lenses during any activity involving water.

- **Soaking and Storing Your Lenses**

  Instructions for Use

  Use only fresh multi-purpose (contact lens disinfecting) solution each time the lenses are soaked (stored).

  WARNING:

  Do not reuse or "top off" old solution left in the lens case since solution reuse reduces effective lens disinfection and could lead to severe infection, vision loss, or blindness.

  "Topping-Off" is the addition of fresh solution to solution that has been sitting the case.

- **Discard Date on Multi-Purpose Solution Bottle**

  Instructions for Use

  – Discard any remaining solution after the recommended time period indicated on the bottle of multi-purpose solution used for disinfecting and soaking the contact lenses.

  – The Discard Date refers to the time that the patient can safely use contact lens care product after the bottle has been opened. It is not the same as the expiration date, which is the last date that the product is still effective before it is opened.

  WARNING:

  Using multi-purpose solution beyond the discard date could result in contamination of the solution and can lead to severe infection, vision loss, or blindness.

  – To avoid contamination, DO NOT touch tip of container to any surface. Replace cap after using.

  – To avoid contaminating the solution, DO NOT transfer to other bottles or containers.

- **Rub and Rinse Time**

  Instructions for Use

  To adequately disinfect the lenses, the patient should rub and rinse the lenses according to the recommended lens rubbing and rinsing times in the labeling of the multi-purpose solution.

  WARNING:

  – Rub and rinse lenses for the recommended amount of time to help prevent serious eye infections.

  – Never use water, saline solution, or rewetting drops to disinfect the lenses. These solutions will not disinfect the lenses. Not using the recommended disinfectant can lead to severe infection, vision loss, or blindness.

- **Lens Case Care**

  Instructions for Use

  – Empty and clean contact lens cases with digital rubbing using fresh, sterile disinfecting solutions/contact lens cleaner. Never use water. Cleaning should be followed by rinsing with fresh, sterile disinfecting solutions (never use water) and wiping the lens cases with fresh, clean tissue is recommended. Never air dry or recap the lens case lids after use without any additional cleaning methods. If air drying, be sure that no residual solution remains in the case before allowing it to air dry.

  – Replace the lens case according to the directions provided by the Eye Care Professional or the manufacturer's labeling that accompanies the case.

  – Contact lens cases can be a source of bacterial growth.

  WARNING:

  Do not store lenses or rinse lens cases with water or any non-sterile solution. Only fresh multi-purpose solution should be used to prevent contamination of the lenses or lens case. Use of non-sterile solution can lead to severe infection, vision loss, or blindness.

PRECAUTIONS

Special Precautions for Eye Care Professionals:

- Due to the small number of patients enrolled in clinical investigation of lenses, all refractive powers, design configurations, or lens parameters available in the lens material are not evaluated in significant numbers. Consequently, when selecting an appropriate lens design and parameters, the Eye Care Professional should consider all characteristics of the lens that can affect lens performance and ocular health, including oxygen permeability, wettability, central and peripheral thickness, and optic zone diameter.

  The potential impact of these factors on the patient's ocular health should be carefully weighed against the patient's need for refractive correction; therefore, the continuing ocular health of the patient and lens performance on the eye should be carefully monitored by the prescribing Eye Care Professional.
- Patients who wear these lenses to correct presbyopia using monovision may not achieve the best corrected visual acuity for either far or near vision. Visual requirements vary with the individual and should be considered when selecting the most appropriate type of lens for each patient.
- Fluorescein, a yellow dye, should not be used while the lenses are on the eyes. The lenses absorb this dye and become discolored. Whenever fluorescein is used in eyes, the eyes should be flushed with a sterile saline solution that is recommended for in-eye use.
- Eye Care Professionals should instruct the patient to remove lenses immediately if the eyes become red or irritated.

Eye Care Professionals should carefully instruct patients about the following care regimen and safety precautions:

Handling Precautions:

- Before leaving the Eye Care Professional's office, the patient should be able to promptly remove the lenses or should have someone else available who can remove the lenses for him or her.
- DO NOT use if the sterile blister package is opened or damaged.
- Always wash and rinse hands before handling lenses. Do not get cosmetics, lotions, soaps, creams, deodorants, or sprays in the eyes or on the lenses. It is best to put on lenses before putting on makeup. Water-based cosmetics are less likely to damage lenses than oil-based products.
- DO NOT touch contact lenses with the fingers or hands if the hands are not free of foreign materials, as microscopic scratches of the lenses may occur, causing distorted vision and/or injury to the eye.
- Carefully follow the handling, insertion, removal, and wearing instructions in the Patient Instruction Guide for these lenses and those prescribed by the Eye Care Professional.
- Always handle lenses carefully and avoid dropping them.
- Never use tweezers or other tools to remove lenses from the lens container unless specifically indicated for that use. Slide the lens up the side of the bowl until it is free of the container.
- Do not touch the lens with fingernails.
- Close supervision is necessary for the Therapeutic use of these lenses. Ocular medications used during treatment with a bandage lens should be closely monitored by the Eye Care Professional. In certain ocular conditions, only the Eye Care Professional will insert and remove the lenses. In these cases, patients should be instructed not to handle the lenses themselves.

Lens Wearing Precautions:

- If the lens sticks (stops moving) on the eye, follow the recommended directions in "Care for Sticking (Non-Moving) Lenses". The lens should move freely on the eye for the continued health of the eye. If non-movement of the lens continues, the patient should be instructed to immediately consult his or her Eye Care Professional.
- Never wear lenses beyond the period recommended by the Eye Care Professional.
- The patient should be advised to never allow anyone else to wear their lenses. They have been prescribed to fit their eyes and to correct their vision to the degree necessary. Sharing lenses greatly increases the chance of eye infections.
- If aerosol products, such as hair spray, are used while wearing lenses, exercise caution and keep eyes closed until the spray has settled.
- Avoid all harmful or irritating vapors and fumes while wearing lenses.

Lens Care Precautions:

- Different solutions cannot always be used together and not all solutions are safe for use with all lenses. Use only recommended solutions.
- Never use solutions recommended for conventional hard contact lenses only.
- Chemical disinfection solutions should not be used with heat unless specifically indicated on product labeling for use in both heat and chemical disinfection.
- Always use fresh, unexpired lens care solutions and lenses.
- Do not change solution without consulting with your Eye Care Professional.
- Always follow directions in the package inserts for the use of contact lens solutions.
- Use only a chemical (not heat) lens care system. Use of a heat (thermal) care system can damage these lenses.
- Sterile unpreserved solutions, when used, should be discarded after the time specified in the directions.
- Do not use saliva or anything other than the recommended solutions for lubricating or wetting lenses.
- Always keep the lenses completely immersed in the recommended storage solution when the lenses are not being worn (stored). Prolonged periods of drying will reduce the ability of the lens surface to return to a wettable state. Follow the lens care directions in "Care For A Dried Out (Dehydrated) Lens" if lens surface does become dried out.

Other Topics to Discuss with Patients:

- Always contact the Eye Care Professional before using any medicine in the eyes.
- Certain medications, such as antihistamines, decongestants, diuretics, muscle relaxants, tranquilizers, and those for motion sickness may cause dryness of the eye, increased lens awareness, or blurred vision. Should such conditions exist, proper remedial measures should be prescribed. Depending on the severity, this could include the use of lubricating drops that are indicated for use with soft contact lenses or the temporary discontinuance of contact lens wear while such medication is being used.
- Oral contraceptive users could develop visual changes or changes in lens tolerance when using contact lenses. Patients should be cautioned accordingly.
- As with any contact lens, follow-up visits are necessary to assure the continuing health of the patient's eyes. The patient should be instructed as to a recommended follow-up schedule.

Who Should Know That the Patient is Wearing Contact Lenses?

- Patients should inform all doctors (Health Care Professionals) about being a contact lens wearer.
- Patients should always inform their employer of being a contact lens wearer. Some jobs may require use of eye protection equipment or may require that the patient not wear contact lenses.

ADVERSE REACTIONS

The patient should be informed that the following problems may occur when wearing contact lenses:

- The eye may burn, sting and/or itch.
- There may be less comfort than when the lens was first placed on the eye.
- There may be a feeling of something in the eye (foreign body, scratched area).
- There may be the potential for some temporary impairment due to peripheral infiltrates, peripheral corneal ulcers, and corneal erosion. There may be the potential for other physiological observations, such as local or generalized edema, corneal neovascularization, corneal staining, injection, tarsal abnormalities, iritis and conjunctivitis, some of which are clinically acceptable in low amounts.
- There may be excessive watering, unusual eye secretions or redness of the eye.
- Poor visual acuity, blurred vision, rainbows or halos around objects, photophobia, or dry eyes may also occur if the lenses are worn continuously or for too long a time.
- The patient should be instructed to conduct a simple 3-part self-examination at least once a day. They should ask themselves:
  - How do the lenses feel on my eyes?
  - How do my eyes look?
  - Have I noticed a change in my vision?

If the patient reports any problems, he or she should be instructed to IMMEDIATELY REMOVE THE LENS. If the problem or discomfort stops, the patient should discard the lens and place a new fresh lens on the eye.

If after inserting the new lens, the problem continues, the patient should be directed to IMMEDIATELY REMOVE THE LENS AND CONTACT HIS OR HER EYE CARE PROFESSIONAL.

The patient should be instructed NOT to use a new lens as self-treatment for the problem.

The patient should be advised that when any of the above symptoms occur, a serious condition such as infection, corneal ulcer, neovascularization or iritis may be present. He or she should be instructed to seek immediate professional identification of the problem and prompt treatment to avoid serious eye damage.

GENERAL FITTING GUIDELINES

A. Patient Selection:

Patients selected to wear these lenses should be chosen based on:

- Motivation to wear lenses
- Ability to follow instructions regarding lens wear care
- General health
- Ability to adequately handle and care for the lenses
- Ability to understand the risk and benefits of lens wear

Patients who do not meet the above criteria should not be provided with contact lenses.

B. Pre-fitting Examination:

Initial evaluation of the patient should begin with a thorough case history to determine if there are any contraindications to contact lens wear. During the case history, the patient's visual needs and expectations should be determined as well as an assessment of their overall ocular, physical, and mental health.

Preceding the initial selection of trial contact lenses, a comprehensive ocular evaluation should be performed that includes, but is not limited to, the measurement of distance and near visual acuity, distance and near refractive prescription (including determining the preferred reading distance for presbyopes), keratometry and biomicroscopic evaluation.

Based on this evaluation, if it is determined that the patient is eligible to wear these lenses, the Eye Care Professional should proceed to the appropriate lens fitting instruction outlined below.

C. Initial Power Determination

A spectacle refraction should be performed to establish the patient's baseline refractive status and to guide in the selection of the appropriate lens power. Remember to compensate for vertex distance if the refraction is greater than ±4.00D.

D. Base Curve Selection (Trial Lens Fitting)

The following trial lenses should be selected for patients regardless of keratometry readings. However, corneal curvature measurements should be performed to establish the patient's baseline ocular status.

- **ACUVUE OASYS*:** 8.4 mm/14.0 mm
- **ACUVUE OASYS* for ASTIGMATISM:** 8.6mm/14.5 mm
- **ACUVUE OASYS* for PRESBYOPIA:** 8.4 mm/14.3 mm

The trial lenses should be placed on each of the patient's eyes and evaluated after the patient has adjusted to the lenses.

1. Criteria of a Properly Fit Lens

A properly fit lens will center and completely cover the cornea (i.e., no limbal exposure), have sufficient movement to provide tear exchange under the contact lens with the blink, and be comfortable. The lens should move freely when manipulated digitally with the lower lid, and then return to its properly centered position when released.

2. Criteria of a Flat Fitting Lens

A flat fitting lens may exhibit one or more of the following characteristics: decentration, incomplete corneal coverage (i.e., limbal exposure), excessive movement with the blink and/or edge standoff. If the lens is judged to be flat fitting, it should not be dispensed to the patient.

3. Criteria of a Steep Fitting Lens

A steep fitting lens may exhibit one or more of the following characteristics: insufficient movement with the blink, conjunctival indentation, and resistance when pushing the lens up digitally with the lower lid. If the lens is judged to be steep fitting, it should not be dispensed to the patient.

If the initial trial base curve is judged to be flat or steep fitting, the alternate base curve, if available, should be trial fit and evaluated after the patient has adjusted to the lens. The lens should move freely when manipulated digitally with lower lid, and then return to a properly centered position when released. If resistance is encountered when pushing the lens up, the lens is fitting tightly and should not be dispensed to the patient.

E. Final Lens Power (Spherical)

A spherical over-refraction should be performed to determine the final lens power after the lens fit is judged acceptable. The spherical over-refraction should be combined with the trial lens power to determine the final lens prescription. The patient should experience good visual acuity with the correct lens power unless there is excessive residual astigmatism.

Example 1	
Diagnostic lens:	-2.00D
Spherical over-refraction:	-0.25D
Final lens power:	-2.25D

Example 2	
Diagnostic lens:	-2.00D
Spherical over-refraction:	+0.25D
Final lens power:	-1.75D

APPENDIX D: [redacted]

[redacted]		Lens Fitting Characteristics
		Subject Reported Ocular Symptoms/Problems
		Determination of Distance Spherocylindrical Refractions
		Biomicroscopy Scale
		Distance and Near Visual Acuity Evaluation
		Patient Reported Outcomes

[redacted] LENS FITTING CHARACTERISTICS

[redacted]

Lens Fitting Characteristics

[redacted]

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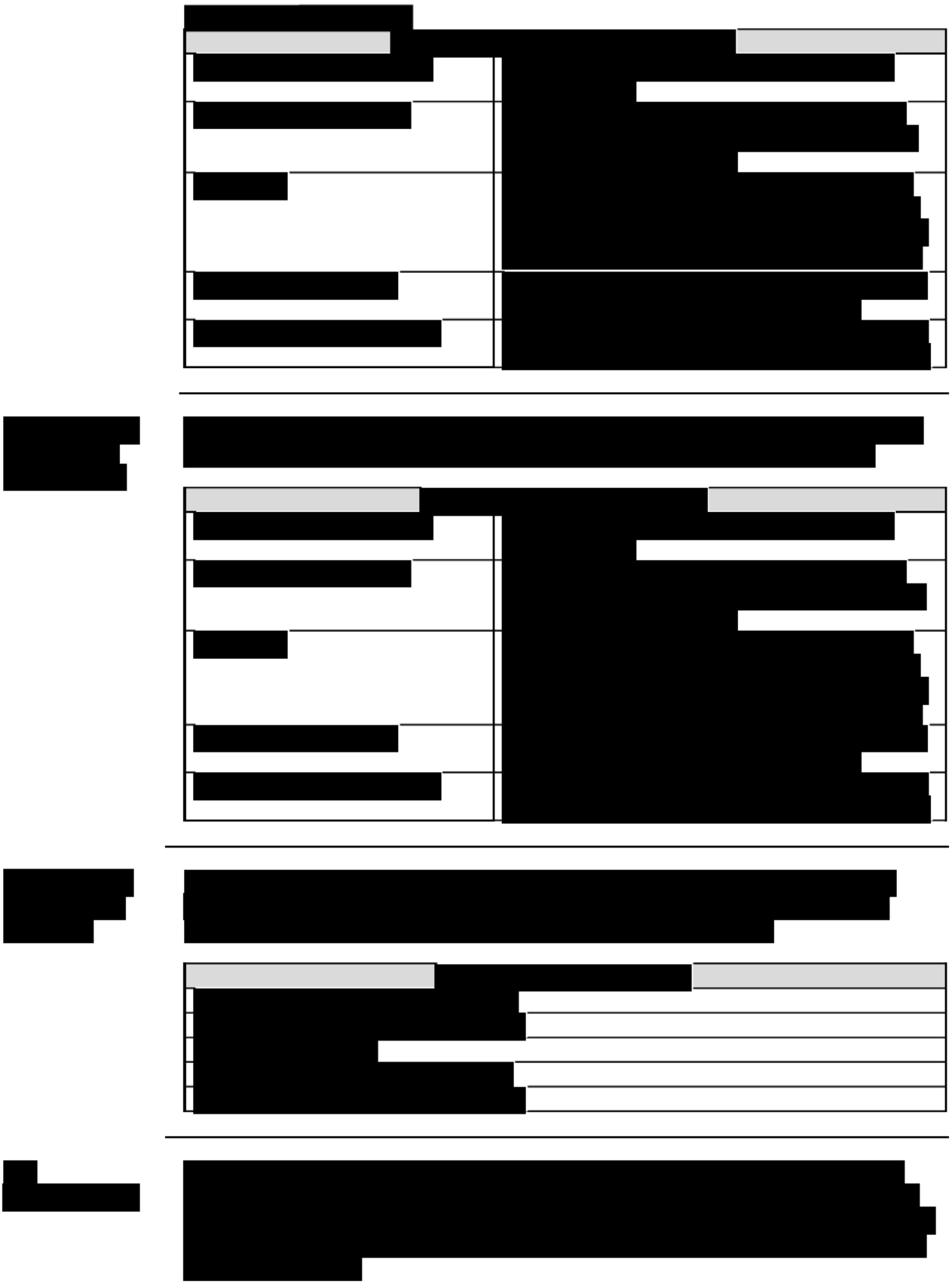

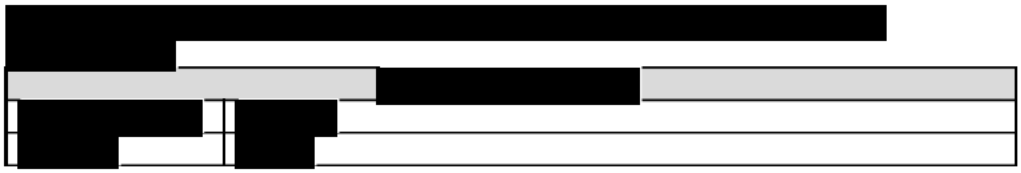

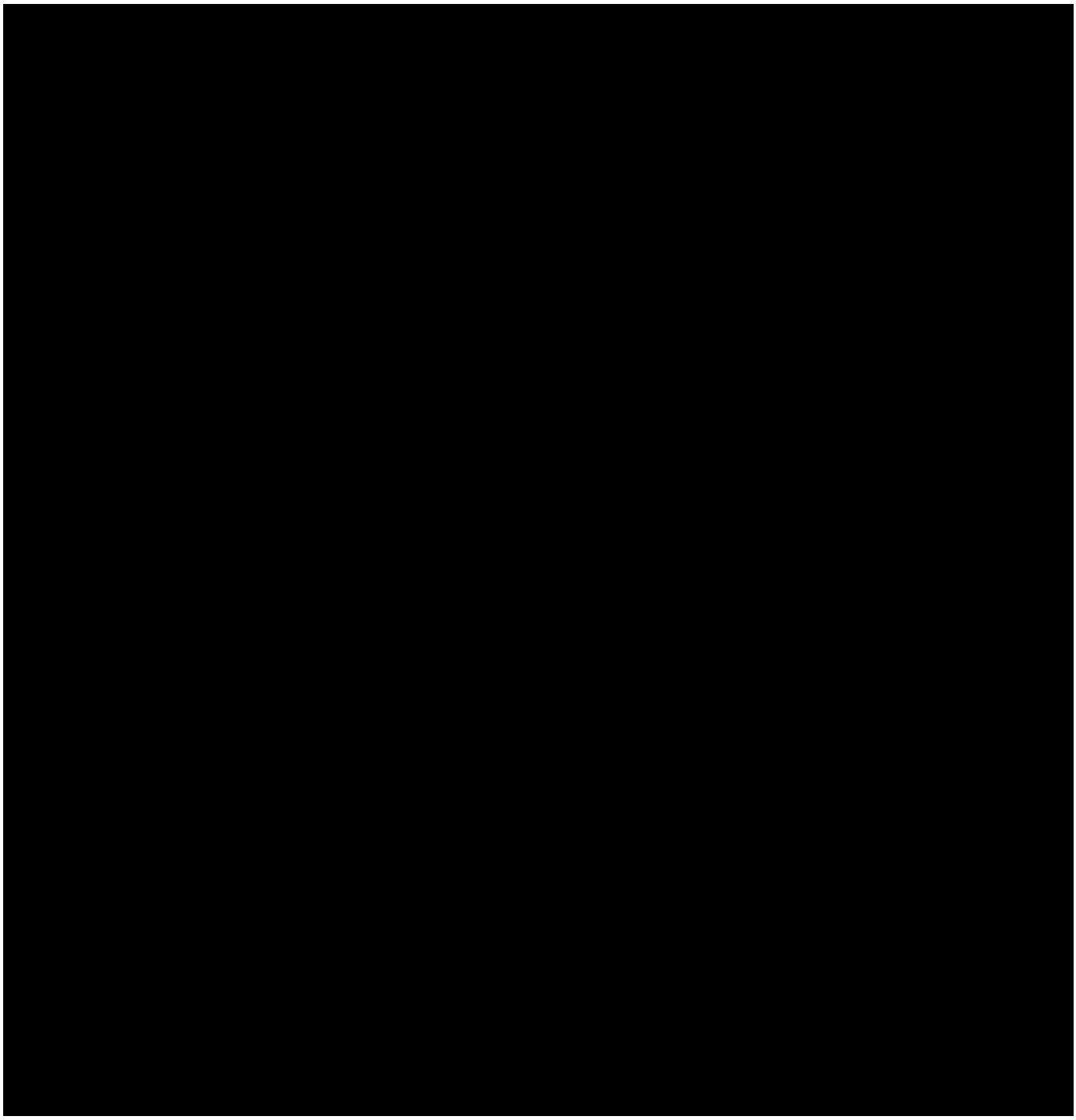

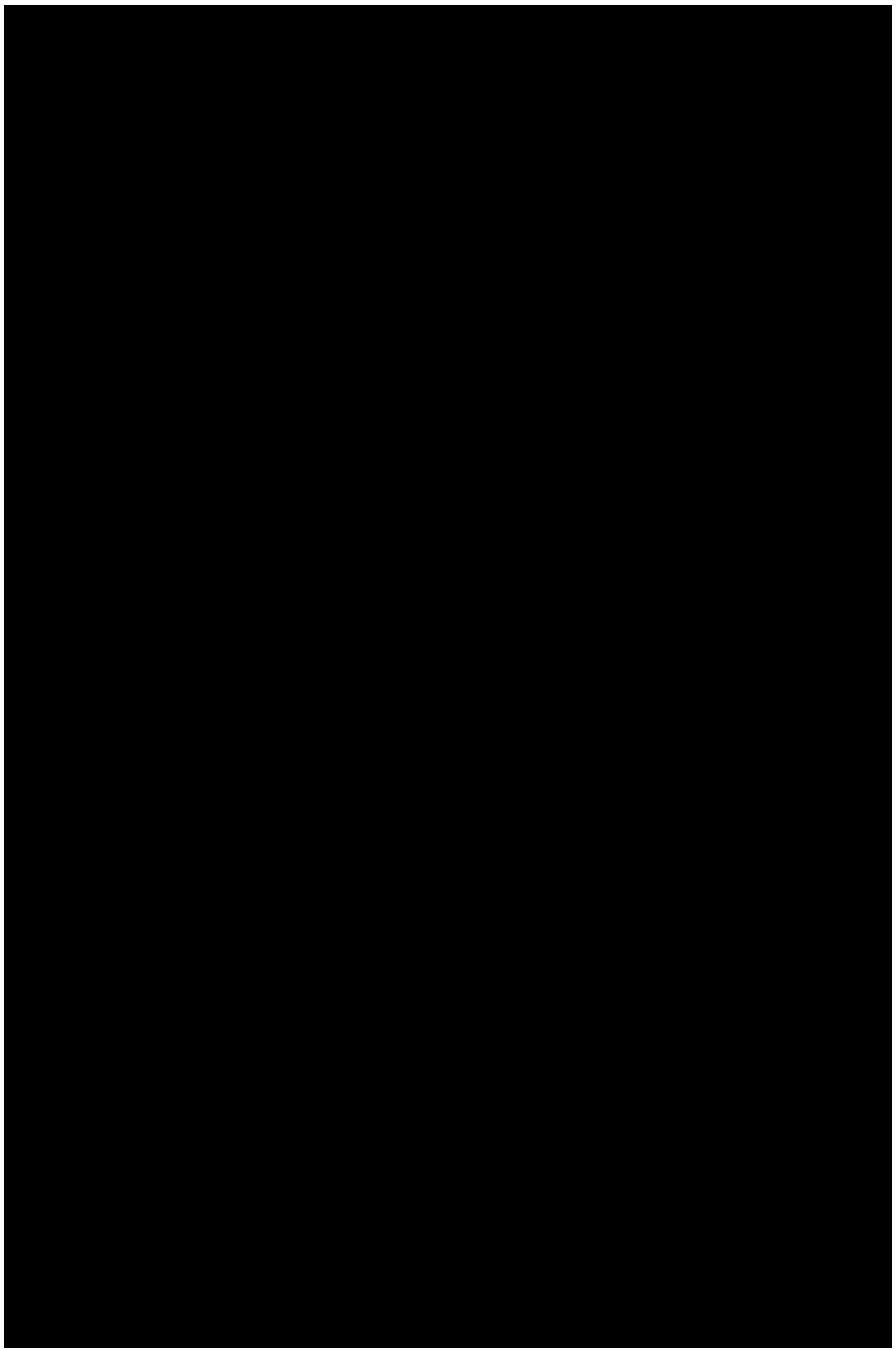

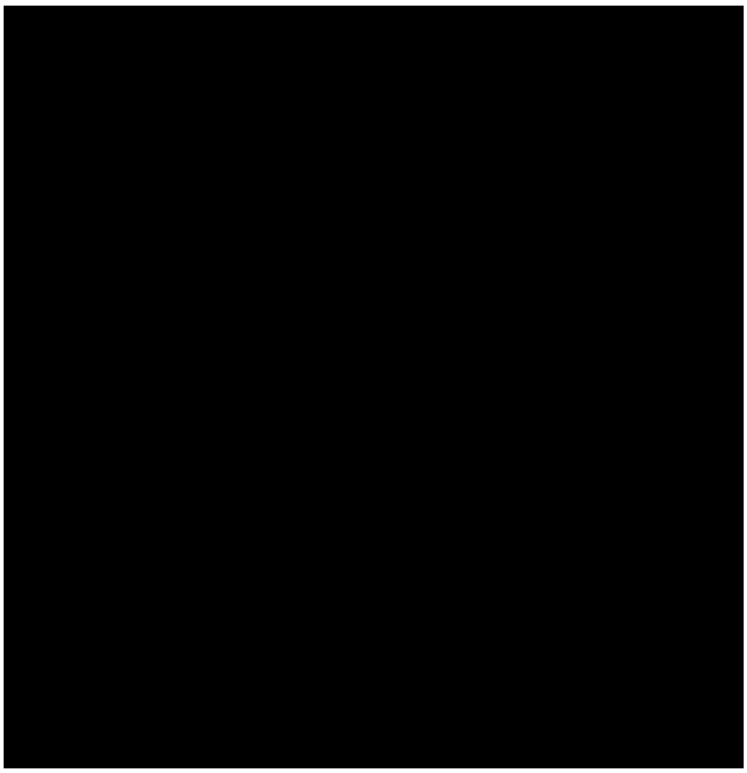

[redacted] **SUBJECT REPORTED OCULAR SYMPTOMS/PROBLEMS**

[redacted] **Subject Reported Ocular Symptoms/Problems**

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[redacted] DETERMINATION OF DISTANCE SPHEROCYLINDRICAL REFRACTIONS

[redacted] **Determination of Distance Spherocylindrical Refractions**

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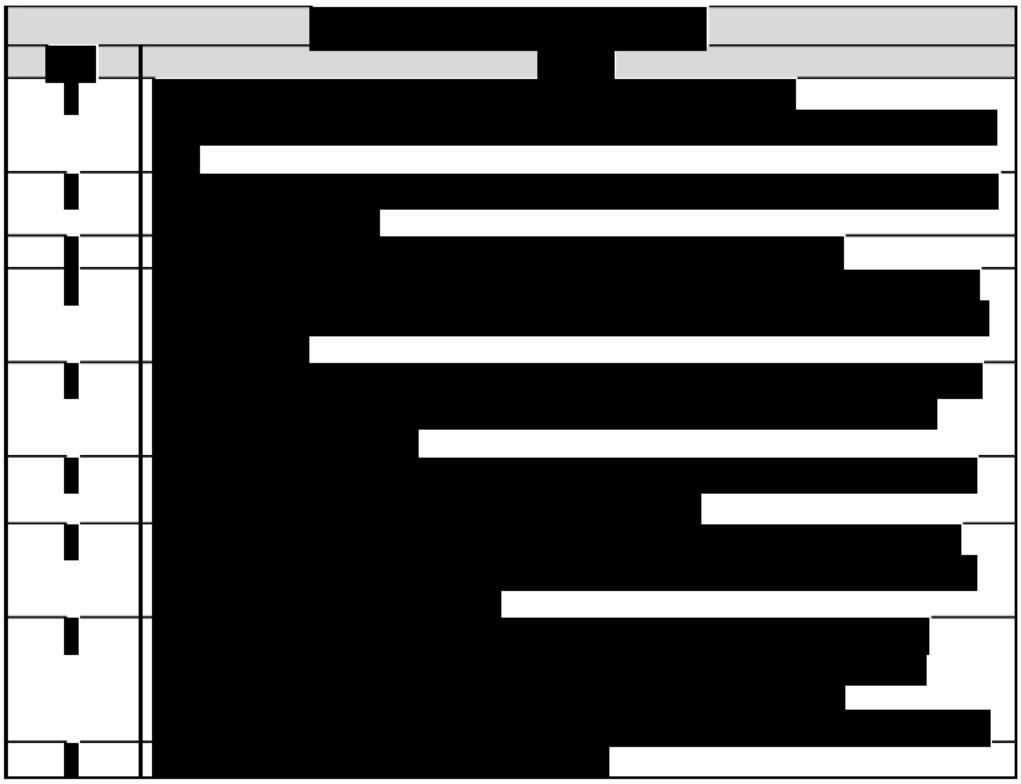

[redacted] **BIOMICROSCOPY SCALE**

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Biomicroscopy Scale

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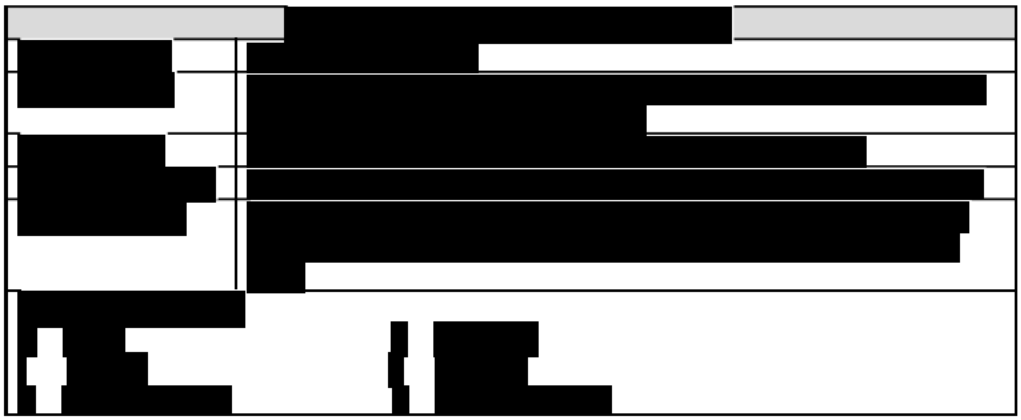

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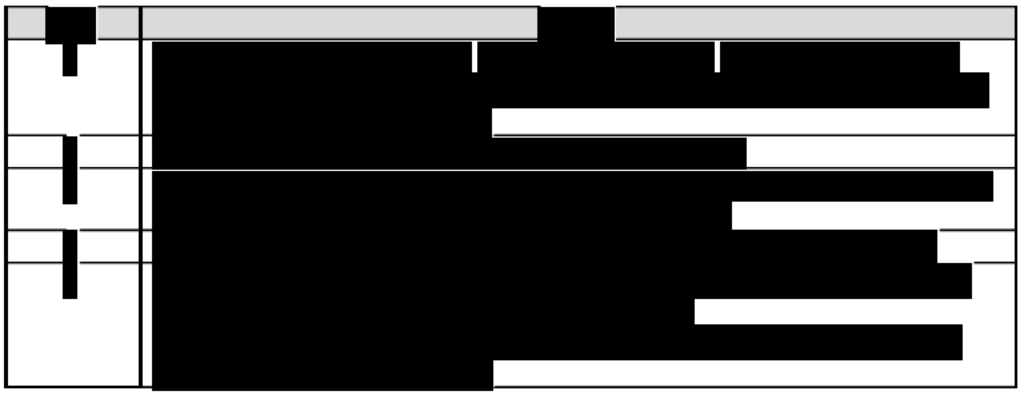


Grade

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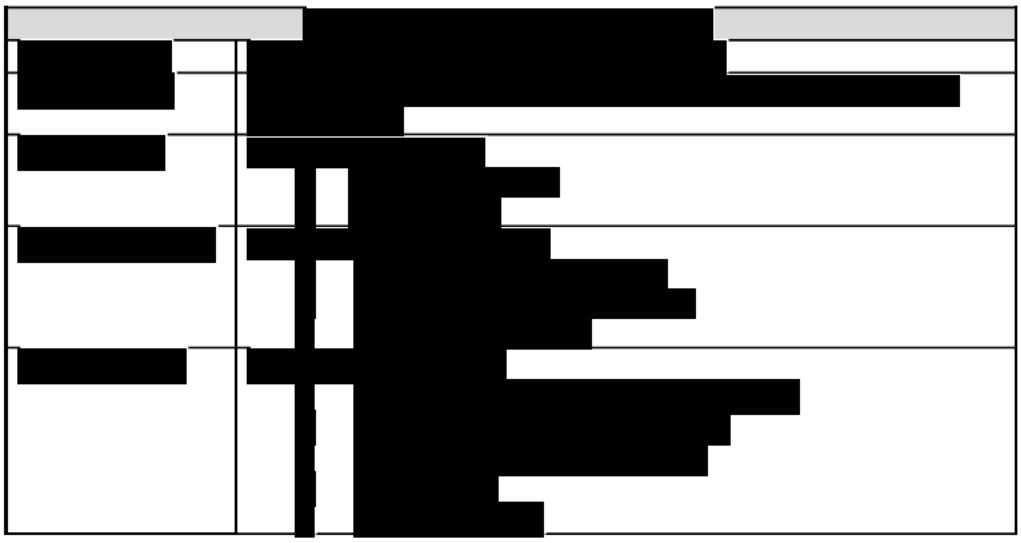

[redacted] **DISTANCE AND NEAR VISUAL ACUITY EVALUATION**

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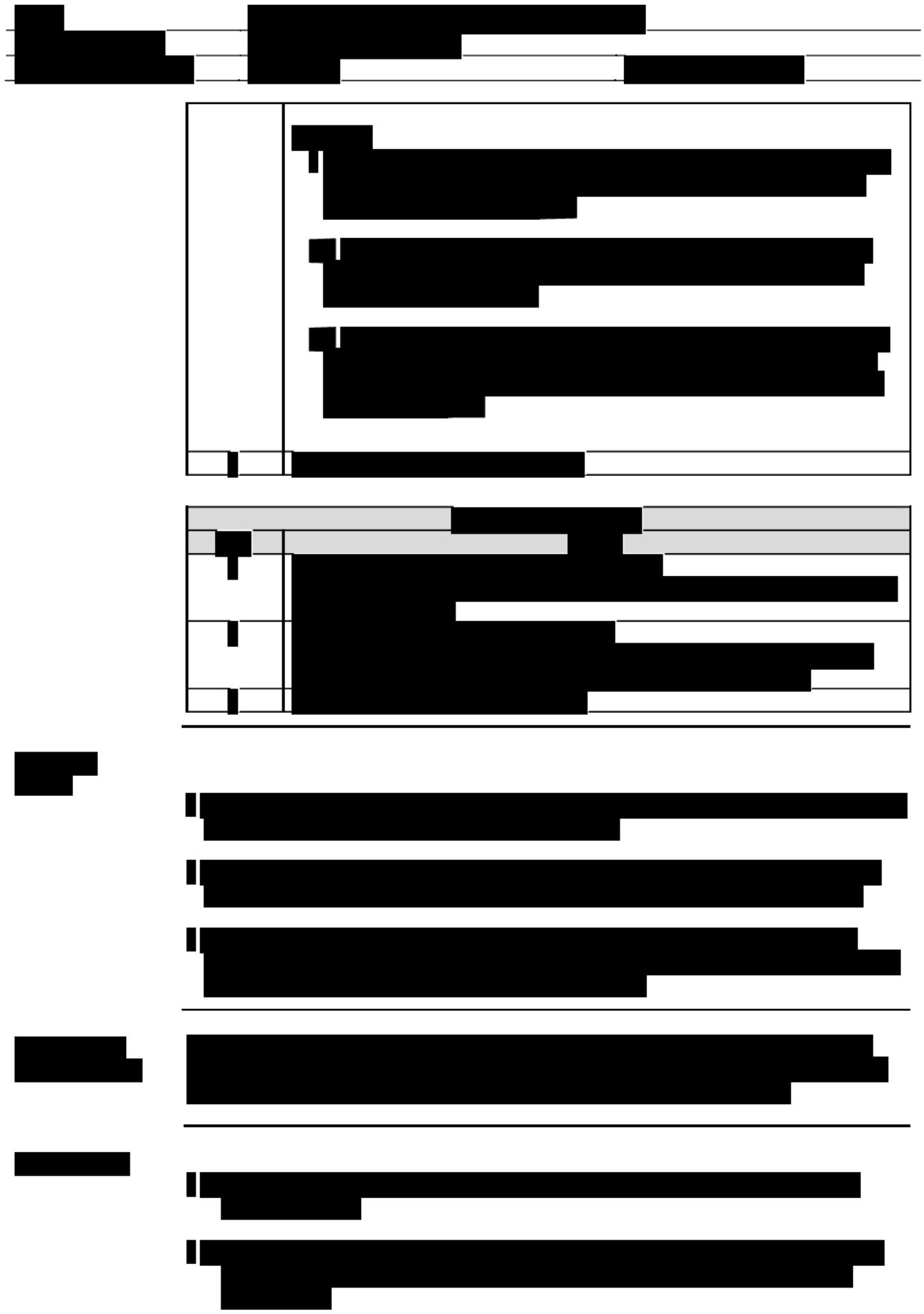

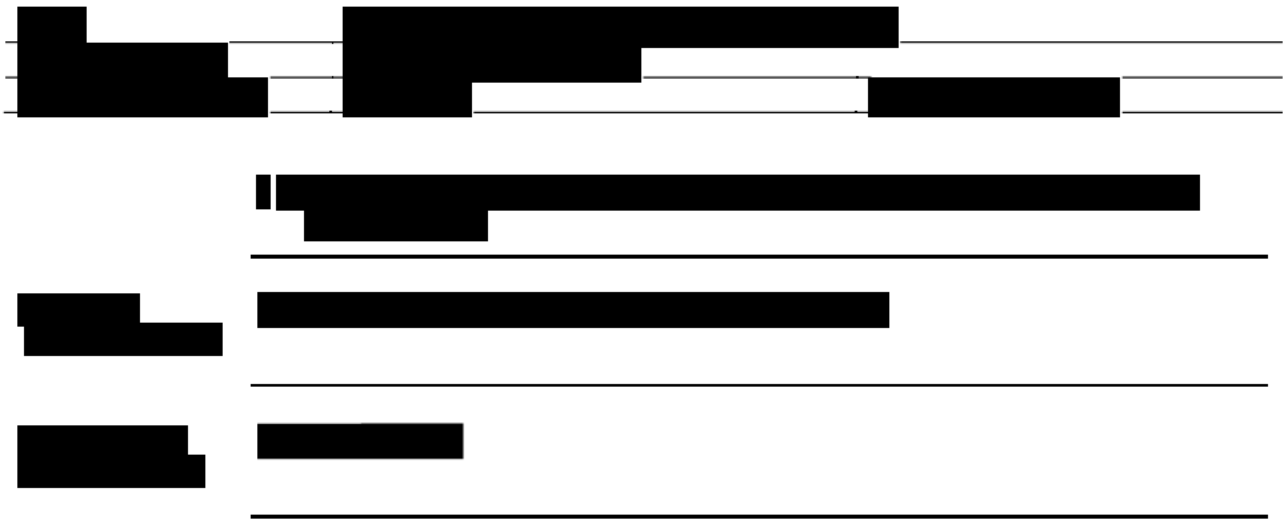

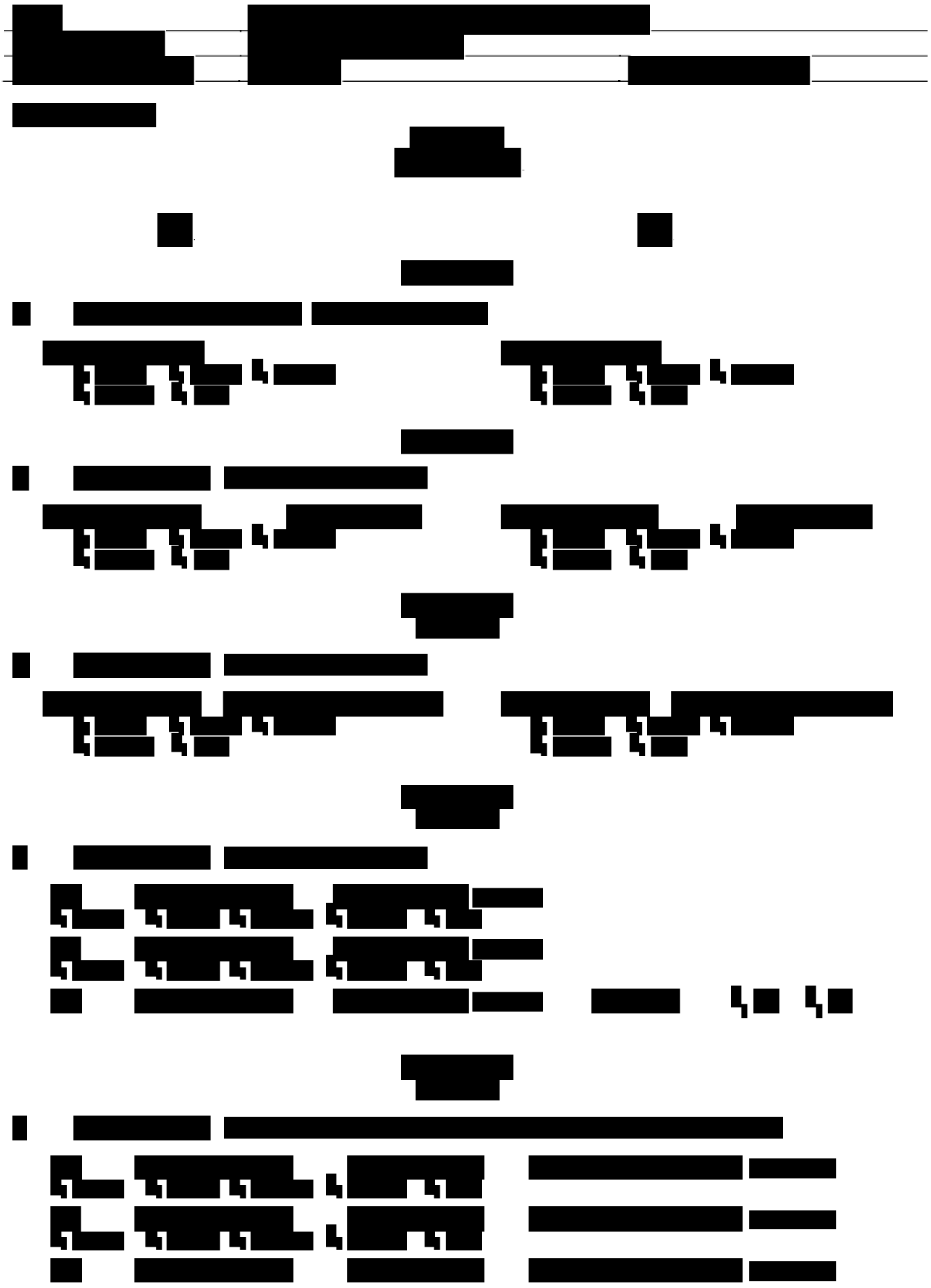

[redacted] **PATIENT REPORTED OUTCOMES**

[redacted] **Patient Reported Outcomes**

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APPENDIX E: DETERMINATION OF EYE DOMINANCY

+1.00 D LENS TEST

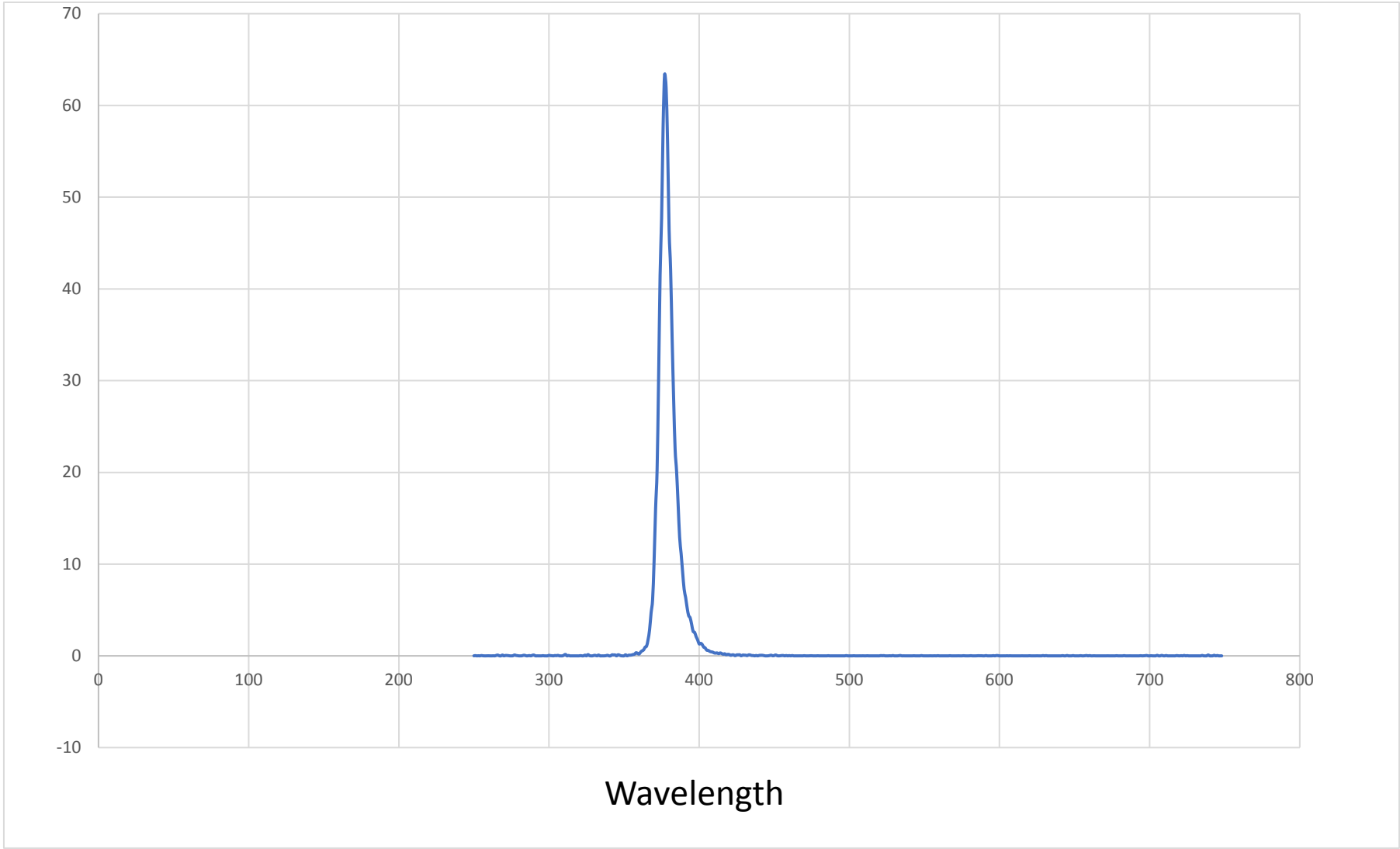
Step	Procedure
1	Place the subjects best sphero-cylindrical distance refraction in a trial frame
2	Have the subject view a BVA line of letters
3	With both eyes open alternate a +1.00 D trial lens between the right and left eye and ask the subject to indicate over which eye does the lens cause the line of letters to appear more blurred. The eye that the greatest blur is reported is the distance dominant eye. If the subject indicates that the amount of blur is about the same between the two eyes then record as neither eye dominant.

SIGHTING OCULAR DOMINANCE

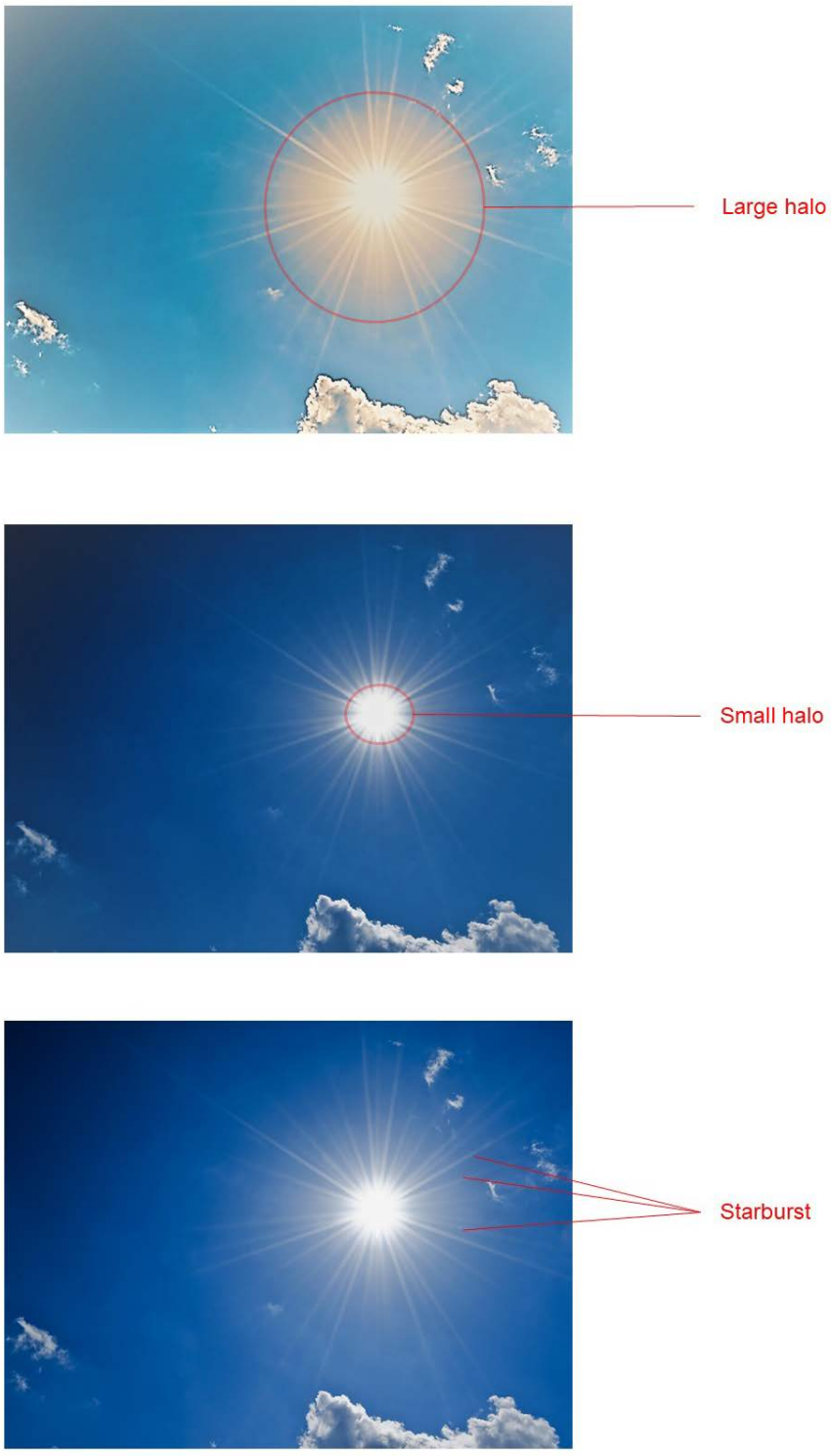
Step	Procedure
1	Ask the subject to extend both arms out and use his/her hands to form a triangle. The subject will be asked to keep both eyes open, and look through the triangle at a small object on the wall (e.g., a light switch or doorknob).
2	Occlude the subject's left eye, then right eye. While alternating the occluder from the subject's eyes, ask the subject when they see the object. A. If the subject sees the object when the left eye is covered, the subject is *right eye* dominant. B. If the subject sees the object when the right eye is covered, the subject is *left eye* dominant. C. If the subject sees the object with both eyes, the opening between the hands may be too large. Therefore, ask the subject to make a smaller opening and repeat the procedure

APPENDIX F: IRIS COLOR

APPENDIX G: SPECTRUM OF THE UV ACTUATOR



APPENDIX H: STARBURST AND HALO IMAGES



PROTOCOL COMPLIANCE INVESTIGATOR(S) SIGNATURE PAGE

Protocol Number and Title: CR-6100 The effects of contact lenses with experimental dye on visual function

Version and Date: v2.0 07 June 2018

I have read and understand the protocol specified above and agree on its content.

I agree to conduct this study according to ISO 14155,[1] GCP and ICH guidelines,[2] the Declaration of Helsinki,[3] United States (US) Code of Federal Regulations (CFR),[4] and the pertinent individual country laws/regulations and to comply with its obligations, subject to ethical and safety considerations. The Principal Investigator is responsible for ensuring that all clinical site personnel, including Sub-Investigators adhere to all ICH[2] regulations and GCP guidelines regarding clinical trials during and after study completion.

I will assure that no deviation from, or changes to the protocol will take place without prior agreement from the Sponsor and documented approval from the Institutional Review Board (IRB), except where necessary to eliminate an immediate hazard(s) to the trial participants.

I am responsible for ensuring that all clinical site personnel including Sub-Investigators adhere to all ICH[2] regulations and GCP guidelines regarding clinical trials during and after study completion.

All clinical site personnel involved in the conduct of this study have completed Human Subjects Protection Training.

I agree to ensure that all clinical site personnel involved in the conduct of this study are informed about their obligations in meeting the above commitments.

I shall not disclose the information contained in this protocol or any results obtained from this study without written authorization.

Principal Investigator:

_____ _____

Signature Date

_____

Name and Professional Position (Printed)

Institution/Site:

_____

Institution/Site Name

_____

Institution/Site Address