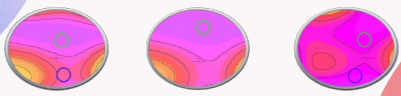


## Demystifying Near Task Specific Lenses for Today's Work Environment




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## Disclosures

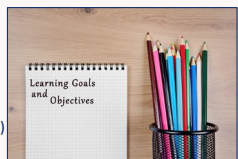


- The content of this course was developed independently without commercial bias or influence
- Consulting
  - Visionix
  - Essilor Instruments, USA
- We are 2 of the founding partners of SightLine Ophthalmic Consulting

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## Learning Objectives




- Technology Timeline
- Trends and Demographics
- Ergonomics
- Lens Analysis and Contour Plots
- Task Specific Lens Solutions
- Understanding Near Task Specific Lens Designs
  - Near Variable Focus (Computer, Occupational)
    - Full Range
    - Intermediate/Near
  - Powerboost
- Product Portfolios
- Case Presentations



3

## Technology Timeline

1920's + 1930's - Radio  
1940's + 1950's - Television  
1950's + 1960's - Color TV

4

## Technology Timeline

1970's Apple Computer, Atari 2600  
1980's Personal Computer (PC): IBM PC, Microsoft DOS, McIntosh,  
 • Atari, Nintendo NES, Sega  
 • Nintendo GameBoy,  
 • calculator watch

1990's Laptops, Cell Phones, Sony PlayStation, Sega Dreamcast....then  
**INTERNET ACCESS!**



5

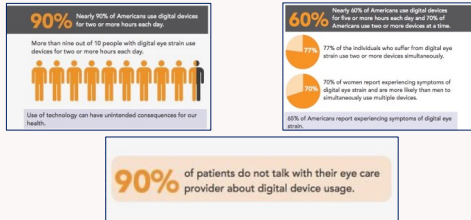
## Technology Timeline

Early 2000's eMail, Microsoft Xbox/360, Sony PlayStation 2/3, Nintendo, Wii  
 2003 - 2005 Texting  
 2006 - 2007 eBooks, Smartphones, iPhone, Twitter  
 2010 Tablets, iPad  
 2013 - 2018 Wearable technology - Google Glass, smartwatch



6

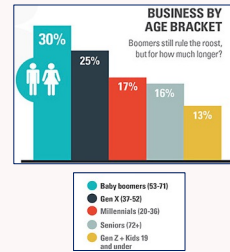
## Why and what does it mean?



The Vision Council 2016 Digital Eye Strain Report, EYES OVERPOSED: THE DIGITAL DEVICE DILEMMA

7

## Who are our Patients?



Vision Monday, June 2022, Millennials are the New Emerging Presbyopes

- Baby Boomers + Gen X = largest segments of most practices
- Purchasing half of premium lenses
- Computer, anti-fatigue, PAL's sales are increasing.

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## Technology User Ergonomics



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### Digital Eye Strain – Symptoms

- Red, Dry, Irritated, Sore Eyes
- Blurred Vision at Distance and/or Near
- Eye Fatigue
- Neck and Back Pain
- Headaches
- Double Vision



### Digital Eye Strain – Areas of Concern

- Refractive Errors
- Accommodative Disorders
- Binocular Vision Dysfunctions
- Presbyopia



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## Eyes Overexposed: The Digital Device Dilemma MESSAGE TO YOUR PATIENTS

Discuss with your eyecare provider

- Your digital device habits
- Time you spend in front of a digital screen
- Distance between you and your screen
- Type of work you are doing

Solutions your provider can offer

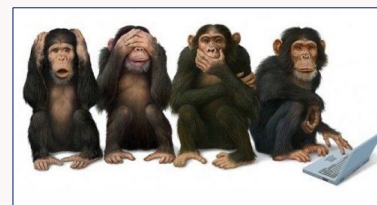
- Lenses ideal for sustained computer work
- Lenses that offer good computer and surrounding vision



The Vision Council 2016 Digital Eye Strain Report, EYES OVERPOSED: THE DIGITAL DEVICE DILEMMA

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## ARE YOU READY TO HAVE THIS DISCUSSION?



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## Why Use A Computer Lens?

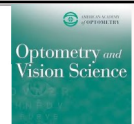
PAL	Computer Lens
• Narrow corridor	• Wide corridor
• Intermediate positioned low	• Intermediate positioned at straight gaze and/or below
• Small near zone	• Large near zone

<p>Small, narrow Intermediate</p> <p>Classic PAL</p>	<p>Intermediate + Near w/small distance</p> <p>Full Range NVFL</p>	<p>Intermediate + Near No distance</p> <p>Intermediate/Near</p>
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## Presbyopic Personal Computer Work: A Comparison of Progressive Addition Lenses for General Purpose and Personal Computer Work

Kolbe, Oliver, MEng<sup>1</sup>; Dagle, Stephan, MSc, PhD<sup>1</sup>

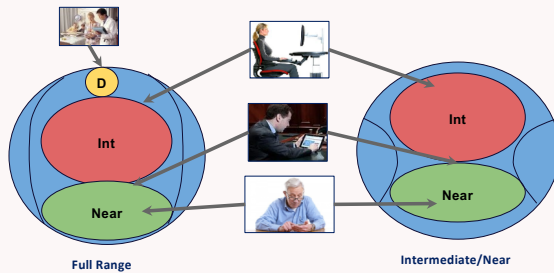
**RESULTS** Computer vision syndrome was perceived approximately seven times more often with GP-PALs compared with PC-PALs. Eighty-four percent of subjects preferred PC-PALs for their VDU work. Computer-specific progressive addition lenses ratings were statistically and clinically significantly better than GP-PALs.

Only 14.2% of subjects had received information about specific VDU eyewear from their optician or optometrist, whereas 79% expressed the wish to be informed about these products.

**SIGNIFICANCE** Computer-specific progressive addition lenses (PC-PALs) are shown to reduce computer vision syndrome (CVS) symptoms, increase visual comfort and tolerance, and improve body posture at the personal computer.

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## Technology User Visual Ergonomics



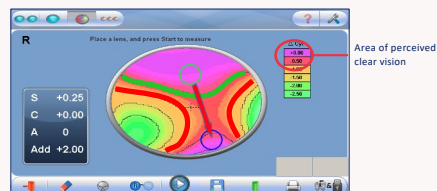
15

## Lens Analyzer for the Office



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## What Can We Measure?

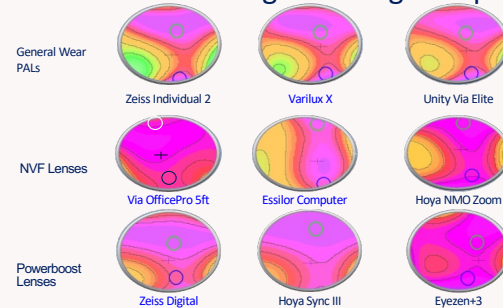


Cylinder Aberration Contour Plot

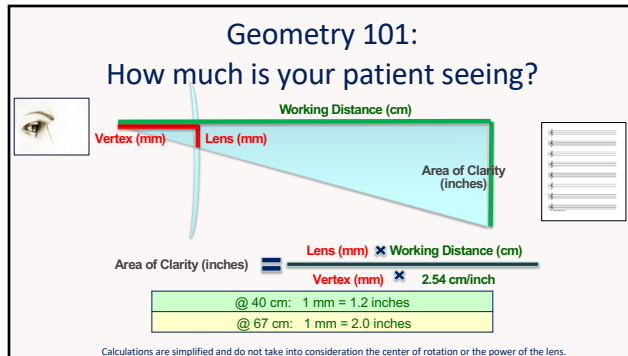
- Perceived clear vision
- Isometric contour lines (unwanted cylinder)

17

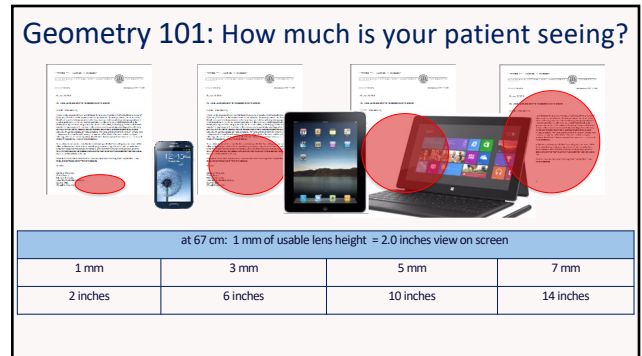
## Understanding the Design Shape



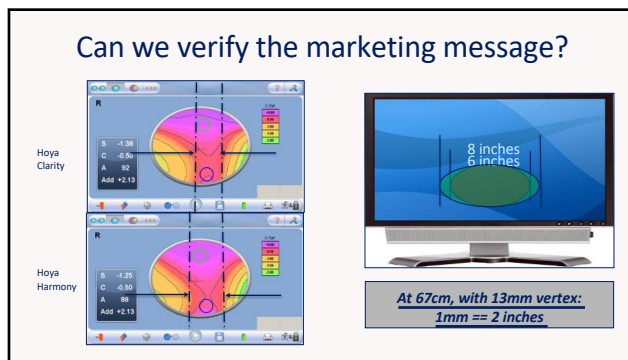
18



19



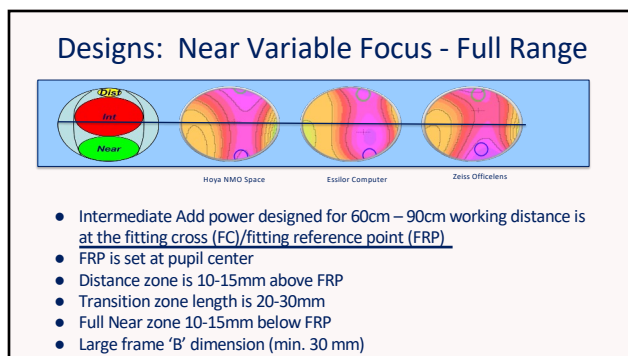
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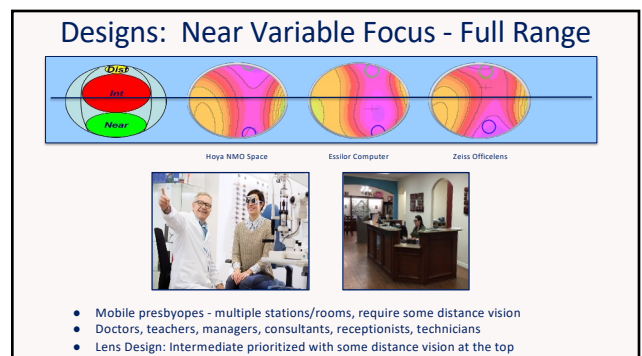
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22



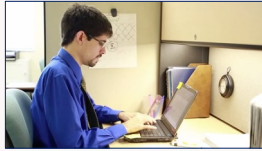
23



24

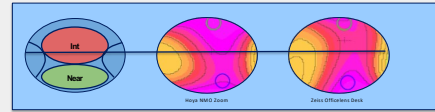
## Understanding Computer Lenses

### Near Variable Focus for Intermediate/Near



25

## Design: NVF Int/Near

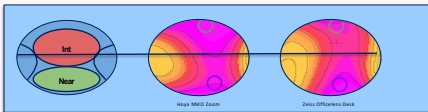


- Add Power for 60cm – 90cm (24-36 inch ) working distance is centered around fitting reference point
- +0.50 to +1.00 EA at “distance”
- Full Near zone 10-15mm below FRP
- FRP is set at pupil center
- Large frame ‘B’ dimension (min. 30 mm)



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## Designs: NVF - Intermediate/Near

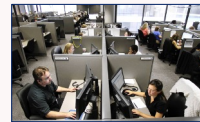


- Stationary Presbyopes – Intermediate to Near with wide FOV
- Multiple computer screens, cubicle workspace, multiple OTC readers

27

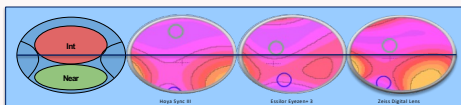
## Understanding Computer Lenses

### Powerboost as Intermediate/Near



28

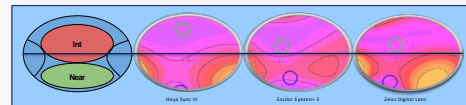
## Design: Powerboost as Intermediate/Near



- “Powerboost”: designed and marketed to pre-presbyopes
- Can be designed for intermediate/near use for presbyopes
- Wide, large, stable “top” half of lens: Minimal peripheral aberration, edge-to-edge clarity at FRP
- Transition zone is 3-4 mm below FRP
- Corridor to full near 9-10 mm
- Can use smaller frame ‘B’ dimension (min. 20mm)

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## Designs: Powerboost as Intermediate/Near



- Stationary Presbyopes – Intermediate to Near with wide FOV (no distance)
- Multiple computer screens, cubicle workspace, multiple OTC readers

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## Product Portfolio Summary NVF Lens Designs

Effective add at Fitting Reference Point (FRP)		Effective add at Top of lens
<b>ZEISS</b> OfficeLens: Room, Desk, Book	Room +0.50 Desk +0.75 Book +1.25	Room +0.25 Desk +0.50 Book +1.00
<b>ESSILOR</b> COMPUTER LENS	50% of Back off	0.00 to +0.25 (max back off -2.50)
<b>HOYA</b> New Media Optics: Space, Screen, Zoom	Space/Screen: 50% add @2.5mm below FRP Zoom: 50% of Add	Space +0.00 Screen +0.50 Zoom +1.00
<b>SHAMIR</b> Workspace/Computer	Workspace: 50% of Add Computer: 50% of Add plus +0.25D	Workspace +0.25 Computer +0.75
<b>SHAMIR</b> Autograph II Office	50% of Backoff	Add minus Backoff (max -2.25)
<b>UNITY</b> Via OfficePro: 10ft., 5 ft.	range of vision for: 10ft @110cm 5ft @80cm	10ft +0.33 5ft +0.67

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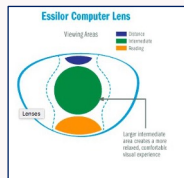
## OfficeLens: ROOM, DESK, BOOK



- Fixed intermediate add at FRP  
Book +1.25D add  
Desk +0.75D add  
Room +0.50D add
- 0.25 reduction 4mm above FRP
- Full add 10-15mm below FRP

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## Essilor COMPUTER LENS



ADD Power	Engraving	Back Off
+1.00 to +1.25	10	1.00
+1.50 to +1.75	15	1.50
+2.00 to +2.25	20	2.00
+2.50 to +3.50	25	2.50

- Traditional surfacing
- Poly only
- Full back off 10mm above FRP
- Near 14mm below FRP
- 50% of back off at FRP
- Lab selects back off, max 2.50

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## Example: NVF - Full Range

### Essilor Computer 2.00 w/50% backoff

- Rx: Plano Add +2.00
- Essilor recommends Computer 2.00 (2.00D Backoff)



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## New Media Optics: iD Space, iD Screen, iD Zoom



- Far point/distance 11-14mm above FRP
- Near 15-18mm below FRP
- Intermediate EA is 50% of patient's full Add

Design	EA @ Far point/Distance	Intermediate EA placement
iD Space	plano	2.5mm below FRP
iD Screen	+0.50 D	2.5mm below FRP
iD Zoom	+1.00 D	at FRP

35

## Example: NVF - Int/Near

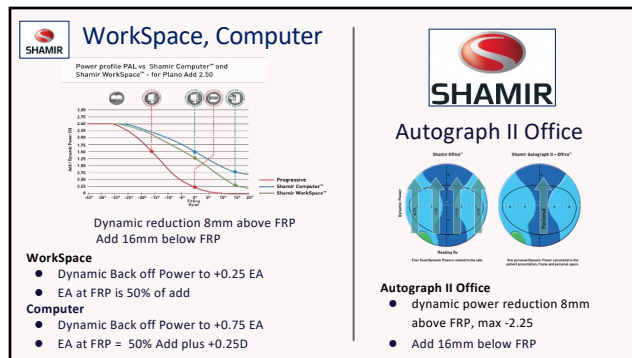
### Hoya NMO Screen and Zoom

- Rx: Plano DS +2.50 Add
- Desktop Computer at 70 cm (+1.25D); near work at 40cm, no distance visual requirements

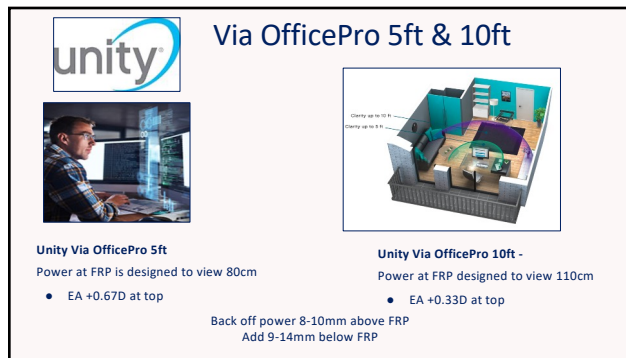
Hoya NMO	Corridor Length (mm)	"Distance" (above FRP)	Effective Add at "Distance"	Near (mm below FRP)	Power at FRP ("2.5mm below)
Screen	18-24mm	7-10mm	+0.50D	11-14mm	50% ADD*
Zoom	18-24mm	7-10mm	+1.00D	11-14mm	50% ADD

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### Product Portfolio Summary - Powerboost Lenses

Power Boost Lenses		Boost at the bottom
<b>Eyezen</b>	Essilor Eyezen +1, 2, 3, 4	+0.40, +0.60, +0.85, +1.10
<b>HOYA SYNC III</b>	Hoya Sync 5 Hoya Sync 9 Hoya Sync 13	+0.57, +0.95, +1.32
<b>UNITY</b>	Relieve 50 Relieve 70	+0.50, +0.70
<b>ZEISS CARL ZEISS VISION</b>	Zeiss Digital Lens Digital 500 Digital 750 Digital 1000 Digital 1250	+0.50, +0.75 +1.00, +1.25

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### How to Design a Powerboost as Intermediate/Near

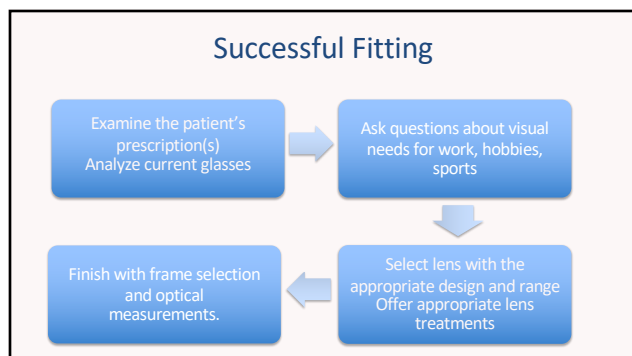
#### EXAMPLE RX

**Plano with +2.25, Intermediate effective ADD is +1.25**

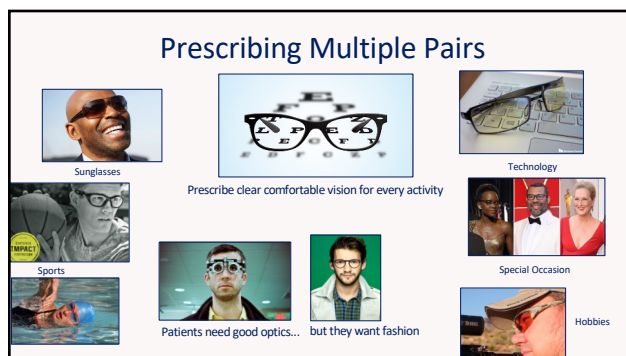
- Determine the EA at intermediate distance
- Select the appropriate Powerboost lens design

Powerboost Lens	Boost	Fit	EA Int/Near
Sync5/Sync9/Sync13	0.55 / 0.95 1.32	Pupil	+1.25 / +1.80 +1.25 / +2.57
Zeiss Digital Lens	0.50 / 0.75 1.00 / 1.25	Pupil	+1.25 / +1.75 +1.25 / +2.00
Eyezen+ 1/2/3/4	0.40 / 0.60 / 0.85 / 1.10	Pupil	+1.25 / +1.65 +1.25 / +1.85
Unity Relieve 50, 70	0.50 / 0.70	Pupil	+1.25 / +1.75 +1.27 / +1.95

40



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42

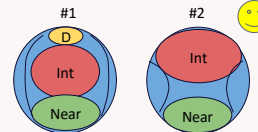
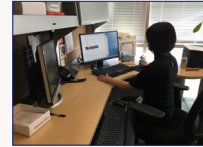
## Case Presentations



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## Case #1

- 58 YO Female
- MR = -2.25 DS OU Add +2.50
- Int. EA = +1.25
- Administrator, lots of computer and paperwork
- CC: Not using any glasses for reading and computer



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## Product Portfolio Summary NVF Lens Designs

Effective add at Fitting Reference Point (FRP)		Effective add at Top of lens
<b>ZEISS</b> CARL ZEISS VISION OfficeLens: Room, Desk, Book	Room +0.50 Desk +0.75 Book +1.25	Room +0.25 Desk +0.50 Book +1.00
	50% of Back off	0.00 to +0.25 (max back off -2.50)
<b>HOYA</b> New Media Optics: Space, Screen, Zoom	Space/Screen: 50% add @2.5mm below FRP Zoom: 50% of Add	Space +0.00 Screen +0.50 Zoom +1.00
	Workspace/Computer	Workspace +0.25 Computer +0.75
<b>SHAMIR</b> Autograph II Office	50% of Backoff	Add minus Backoff (max -2.25)
	range of vision for: 5ft @80cm 10ft @110cm	5ft +0.67 10ft +0.33
<b>UNITY</b> Via OfficePro: 5ft, 10ft		

45

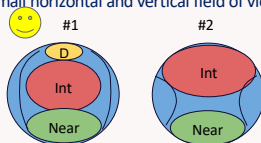
## Product Portfolio Summary - Powerboost Lenses

Power Boost Lenses		Boost at the bottom
<b>Eyezen</b>	Essilor Eyezen +1, 2, 3, 4	+0.40, +0.60, +0.85, +1.10
<b>HOYA SYNC III</b>	Hoya Sync 5 Hoya Sync 9 Hoya Sync 13	+0.57, +0.95, +1.32
<b>UNITY</b>	Relieve 50, 70	+0.50, +0.70
<b>ZEISS</b> CARL ZEISS VISION	Zeiss Digital Lens Digital 500 Digital 750 Digital 1000 Digital 1250	+0.50, +0.75 +1.00, +1.25

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## Case #2

- 55 YO Male
- MR = +1.00 DS OU Add +2.00
- Intermediate add +1.00
- Receptionist; moderate computer work
- CC: GW PAL is not working
  - Upward head tilt creates neck pain
  - Small horizontal and vertical field of view



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## Product Portfolio Summary NVF Lens Designs

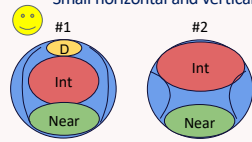
Effective add at Fitting Reference Point (FRP)		Effective add at Top of lens
<b>ZEISS</b> CARL ZEISS VISION OfficeLens: Room, Desk, Book	Room +0.50 Desk +0.75 Book +1.25	Room +0.25 Desk +0.50 Book +1.00
	50% of Back off IN THIS CASE BACK OFF IS 2.00	0.00 to +0.25 (max back off -2.50)
<b>HOYA</b> New Media Optics: Space, Screen, Zoom	Space/Screen: 50% add @2.5mm below FRP Zoom: 50% of Add	Space +0.00 Screen +0.50 Zoom +1.00
	Workspace/Computer	Workspace +0.25 Computer +0.75
<b>SHAMIR</b> Autograph II Office	50% of Back off IN THIS CASE BACK OFF IS -2.00	Add minus Backoff (max -2.25)
	range of vision for: 10ft @10cm 5ft @80cm	10ft +0.33 5ft +0.67
<b>UNITY</b> Via OfficePro: 10ft, 5ft		

48



## Case #2

- 55 YO Male
- MR = +1.00 DS OU Add +2.00
- Intermediate add +1.00
- Receptionist; moderate computer work
- CC: GW PAL is not working
  - Upward head tilt creates neck pain
  - Small horizontal and vertical field of view

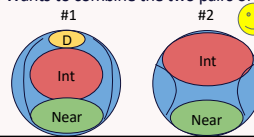
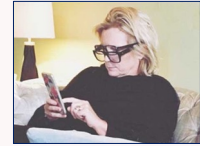


	EA @Distance
Essilor Computer	0.00
Hoya NMO iD Space	0.00
Shamir Autograph II Office	0.00
Shamir Workspace	+0.25
Unity Via OfficePro 10ft	+0.33

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## Case #3

- 48 YO Female
- Homemaker
- MR = Plano with +1.75ADD
- Uses +0.75 OTC at computer
- +1.00 OTC at near on top of computer readers
- CC: Wants to combine the two pairs of OTCs into a single pair of glasses



50

## Product Portfolio Summary NVF Lens Designs

	Effective add at Fitting Reference Point (FRP)	Effective add at Top of lens
<b>ZEISS</b> CARL ZEISS VISION OfficeLens: Room, Desk, Book	Room +0.50 Desk +0.75 Book +1.25	Room +0.25 Desk +0.50 Book +1.00
<b>ESSILOR</b> COMPUTER LENS	50% of Back off	0.00 to +0.25 (max back off -2.50)
<b>HOYA</b> New Media Optics: Space, Screen, Zoom	Space/Screen: 50% add @2.5mm below FRP Zoom: 50% of Add	Space +0.00 Screen +0.50 Zoom +1.00
<b>SHAMIR</b> Workspace/Computer	Workspace: 50% of Add Computer: 50% of Add plus +0.25D	Workspace +0.25 Computer +0.75
<b>SHAMIR</b> Autograph II Office	50% of Backoff	Add minus Backoff (max -2.25)
<b>UNITY</b> Via OfficePro: 10ft, 5ft	range of vision for: 10ft @110cm 5ft @80cm	10ft +0.33 5ft +0.67

51

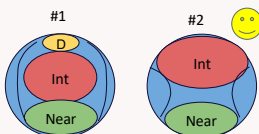
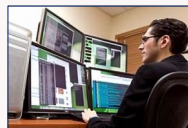
## Product Portfolio Summary - Powerboost Lenses

Power Boost Lenses	Boost at the bottom
<b>Eyezen</b> Essilor Eyezen +1, 2, 3, 4	+0.40, +0.60, <b>+0.85, +1.10</b>
<b>HOYA</b> SYNC III Hoya Sync 5 Hoya Sync 9 Hoya Sync 13	+0.57, <b>+0.95</b> , +1.32
<b>UNITY</b> Relieve 50, 70	+0.50, +0.70
<b>ZEISS</b> CARL ZEISS VISION Digital 500 Digital 750 Digital 1000 Digital 1250	+0.50, +0.75 <b>+1.00</b> , +1.25

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## Case #4

- 52 YO Male
- MR = -6.25 DS OU Add +2.00
- Intermediate add +1.25 - using SVN
- Daytrader – 4 screens at 75cm
- CC: Current -5.00DS OU SVN Rx is not clear for reading/paperwork







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## Product Portfolio Summary NVF Lens Designs

	Effective add at Fitting Reference Point (FRP)	Effective add at Top of lens
<b>ZEISS</b> CARL ZEISS VISION OfficeLens: Room, Desk, Book	Room +0.50 Desk +0.75 Book +1.25	Room +0.25 Desk +0.50 Book +1.00
<b>ESSILOR</b> COMPUTER LENS	50% of Back off	0.00 to +0.25 (max back off -2.50)
<b>HOYA</b> New Media Optics: Space, Screen, Zoom	Space/Screen: 50% add @2.5mm below FRP Zoom: 50% of Add	Space +0.00 Screen +0.50 Zoom +1.00
<b>SHAMIR</b> Workspace/Computer	Workspace: 50% of Add Computer: 50% of Add plus +0.25D	Workspace +0.25 Computer +0.75
<b>SHAMIR</b> Autograph II Office	50% of Backoff	Add minus Backoff (max -2.25)
<b>UNITY</b> Via OfficePro: 10ft, 5ft	Range of vision for: 10ft @110cm 5ft @80cm	10ft +0.33 5ft +0.67

54

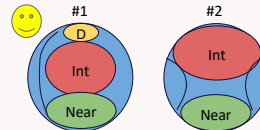
## Product Portfolio Summary - Powerboost Lenses

Power Boost Lenses		Boost at the bottom
 Eyezen	Essilor Eyezen +1, 2, 3, 4	+0.40, +0.60, <b>+0.85</b> , +1.10
 HOYA SYNC III	Hoya Sync 5 Hoya Sync 9 Hoya Sync 13	+0.57, +0.95, +1.32
 UNITY	Relieve 50 <b>Relieve 70</b>	+0.50, <b>+0.70</b>
 ZEISS CARL ZEISS VISION	Zeiss Digital Lens Digital 500 <b>Digital 750</b> Digital 1000 Digital 1250	+0.50, <b>+0.75</b> +1.00, +1.25

55







## Case #5

- 59 YO Female
- MR = -4.50 DS OU Add +2.50
- Violin player, first chair, SF Symphony
- CC: PAL not ideal to see music
- Needs to see music @ 80 cm (+1.25D) and the conductor



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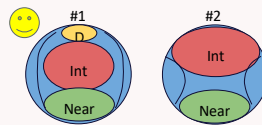
## Product Portfolio Summary NVF Lens Designs

Effective add at Fitting Reference Point (FRP)			Effective add at Top of lens
 ZEISS	CARL ZEISS VISION  OfficeLens: Room, Desk, Book	Room +0.50 Desk +0.75 Book +1.25	Room +0.25 Desk +0.50 Book +1.00
 ESSILOR COMPUTER LENSES		50% of Back off IN THIS CASE BACK OFF IS 2.50	0.00 to +0.25 (max back off -2.50)
 HOYA  New Media Optics: Space, Screen, Zoom		Space/Screen: 50% add @2.5mm below FRP Zoom: 50% of Add	Space +0.00 Screen +0.50 Zoom +1.00
 SHAMIR  Workspace/Computer		Workspace: 50% of Add Computer: 50% of Add plus +0.25D	Workspace +0.25 Computer +0.75
 SHAMIR  Autograph II Office		50% of Back off IN THIS CASE BACK OFF IS -2.25	Add minus Backoff (max -2.25)
 UNITY  Via OfficePro: 10ft, 5ft		range of vision for: 10ft @110cm 5ft @80cm	10ft +0.33 5ft +0.67

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## Case #5

- 59 YO Female
- MR = -4.50 DS OU Add +2.50
- Violin player, first chair, SF Symphony
- CC: PAL not ideal to see music
- Needs to see music @ 80 cm (+1.25D) and the conductor



EA @Distance	
Essilor Computer	0.00
Hoya NMO ID Space	0.00
Shamir Autograph II Office	+0.25
Shamir Workspace	+0.25

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## Final Written Rx Examples

Master Rx including  
Near Variable Focus Lens Design

University of California  
300 Hearst Hall  
Berkeley, CA 94720-0001

PATIENT NAME: DO: NAME: GOLDENBERG, DOB: 10/14/1967  
Address: DIGITAL WORLD, BUCKINGHAM VALLEY, CA 94599

Print Date: 10/18/2018 Expiration Date: 10/17/2019

Distance	SPH	CYL	AXIS	ADD
Distance	-4.50	-0.50	180	
Near	-4.50	-0.50	180	+2.50

Recommendations:  
Intermittent use +1.50  
Only via OfficePro 10ft

Master Rx  
with Int. ADD

University of California  
300 Hearst Hall  
Berkeley, CA 94720-0001

PATIENT NAME: DO: NAME: GOLDENBERG, DOB: 10/14/1967  
Address: DIGITAL WORLD, BUCKINGHAM VALLEY, CA 94599

Print Date: 10/18/2018 Expiration Date: 10/17/2019

Distance	SPH	CYL	AXIS	ADD
Distance	-4.50	-0.50	180	
Near	-4.50	-0.50	180	+2.50

Recommendations:  
Intermittent use +1.50  
Only via OfficePro 10ft

Powerboost Rx for  
Int./ Near use

University of California  
300 Hearst Hall  
Berkeley, CA 94720-0001

PATIENT NAME: DO: NAME: GOLDENBERG, DOB: 10/14/1967  
Address: DIGITAL WORLD, BUCKINGHAM VALLEY, CA 94599

Print Date: 10/18/2018 Expiration Date: 10/17/2019

Distance	SPH	CYL	AXIS	ADD
Distance	-4.50	-0.50	180	
Near	-4.50	-0.50	180	+2.50

Recommendations:  
Intermittent use +1.50  
Only via OfficePro 10ft

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## THANK YOU!



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