

# GSLs 2023 WAVE Users Meeting

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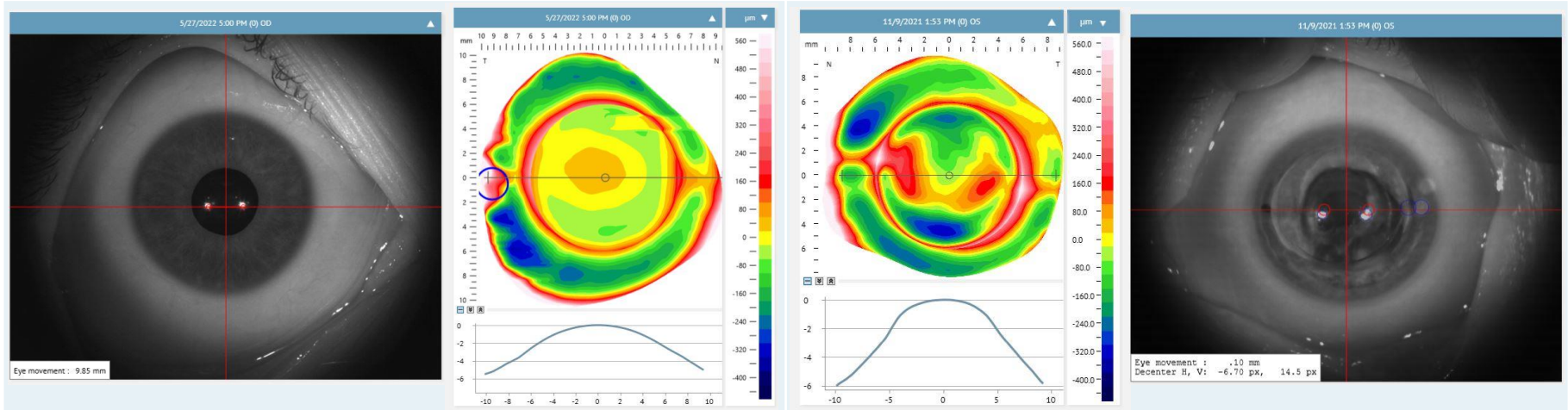
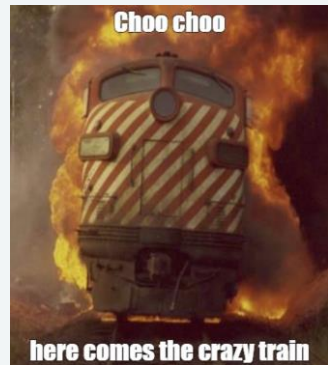


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Calgary, Alberta



# Case Series 1: Not JUST for the irregular...

Patient A: REGULAR SHAPE	Patient B: IRREGULAR SHAPE
<p>25yo female            OD: -2.75-1.25x170            OS: -4.50-1.25x170            Soft CL intolerance d/t dry eye            No glasses preferred            (+) autoimmune condition</p>	<p>49yo female            Keratoconus OU            PKP (2000) with ectatic tilt OS            IOL OS            Pupil dyscoria with implant OS            Glaucoma with LPIs OU</p>



# Patient A: REGULAR SHAPE

Map Quad View

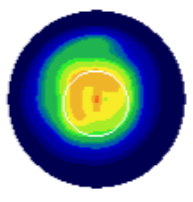
Fluorescein Map



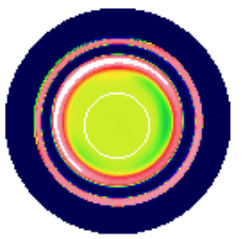
Curvature Front



Topography



Curvature Back



K = 7.48

1.39D x 170

Manual Modification

ALL 1/2 1/4

Modification Increments S (D) MB  
1x 0.00

Modification Area

✂ OR<sub>x</sub> MF

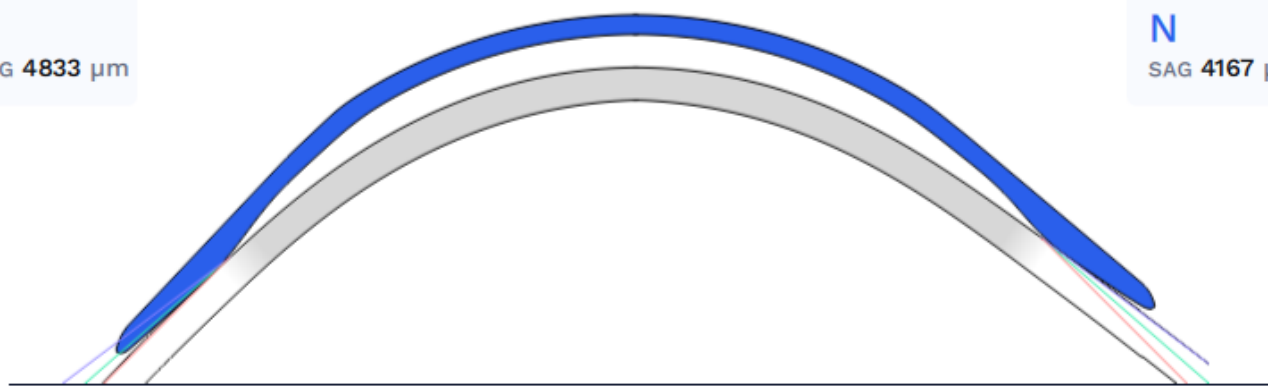
Lens Profile



CT (mm) 0.30 ET (mm) 0.30 OAD (mm) 16.00

T SAG 4833 μm

N SAG 4167 μm

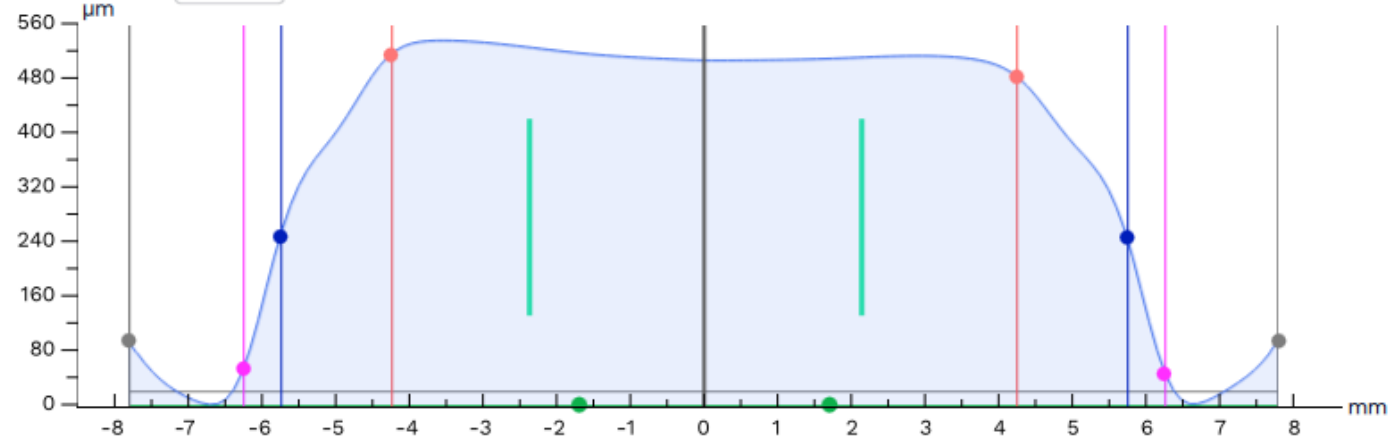


DEMAND 2.72 / 2.03D POWER -1.75D BASE CURVE 7.72mm

45° 41° 37°

Tearfilm

560 EDGE ANGLE 39.5° DEVIATION 42.0° LIFT ANGLE 33.8°



	Edge	PC	IC	OZ	Central Clearance	OZ	IC	PC	Edge
TL (μm)	94.6	53.2	247.1	514.3	506.1	482.4	245.4	51.8	93.9
SAG (μm)	4833	3358	2710	1291	0	1270	2502	3055	4167
DIA (mm)	15.62	12.50	11.50	8.50	0	8.50	11.50	12.50	15.62



- Biometric Data
- Lens Type and Material
- Markings
- Clinical Notes

Summary

Lens Geometry  
Free Form

Lens Power -1.74 +/- 0.03 Base Curve 7.72 +/- 0.00

OAD 16.00 CT 0.30 ET 0.30

Add MF Zone

Print Rx

Last saved on 08/11/2022 Ordered on 08/11/2022

# Patient B: IRREGULAR SHAPE

## Map

Quad View

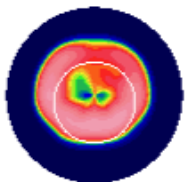
### Fluorescein Map



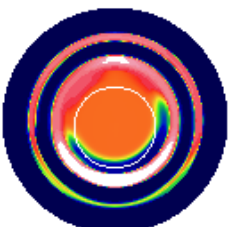
### Curvature Front



### Topography



### Curvature Back



K = 7.08

13.46D x 176

## Manual Modification

ALL 1/2 1/4

Modification Increments

S (D)

1x

0.00

MB

## Modification Area



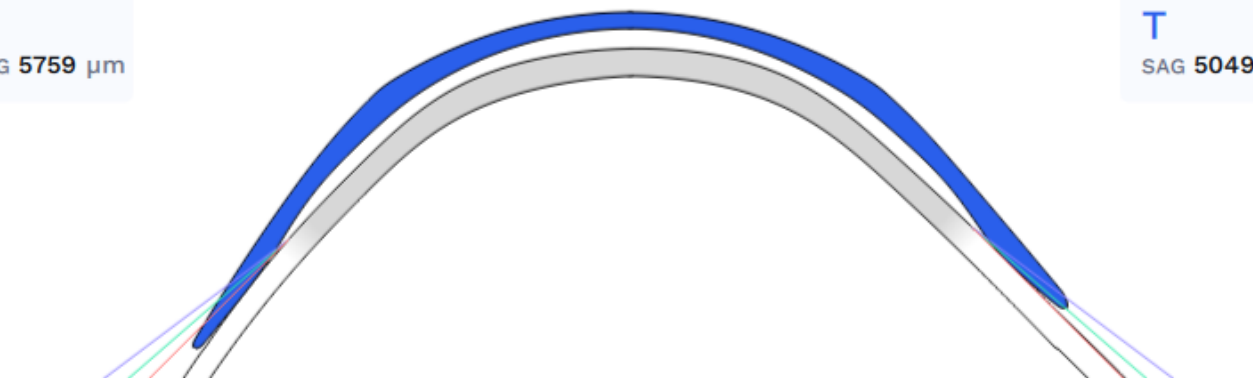
## Lens Profile



CT (mm) 0.30 ET (mm) 0.30 OAD (mm) 16.00

N SAG 5759 μm

T SAG 5049 μm

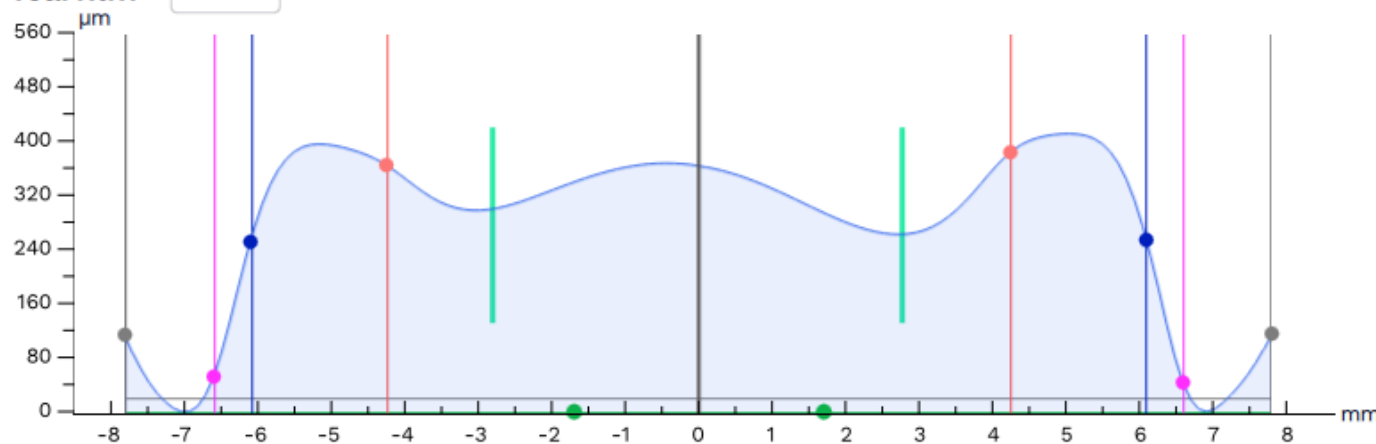


DEMAND -5.46 / -12.19D POWER -8.66D BASE CURVE 6.99mm

45° 41° 37°

## Tearfilm

560 EDGE ANGLE 48.2° DEVIATION 86.4° LIFT ANGLE 42.4°



	Edge	PC	IC	OZ	Central Clearance	OZ	IC	PC	Edge
TL (μm)	113.8	51.9	251.2	364.5	363.4	383.3	254.6	43.3	115.5
SAG (μm)	5759	4203	3423	1454	0	1402	3216	3912	5049
DIA (mm)	15.62	13.20	12.20	8.50	0	8.50	12.20	13.20	15.62



Biometric Data

Lens Type and Material

Markings

Clinical Notes

Summary

### Lens Geometry

Free Form

Lens Power -8.66 +/- 0.04 Base Curve 6.99 +/- 0.00

OAD 16.00 CT 0.30 ET 0.30

Add MF Zone -

Print Rx

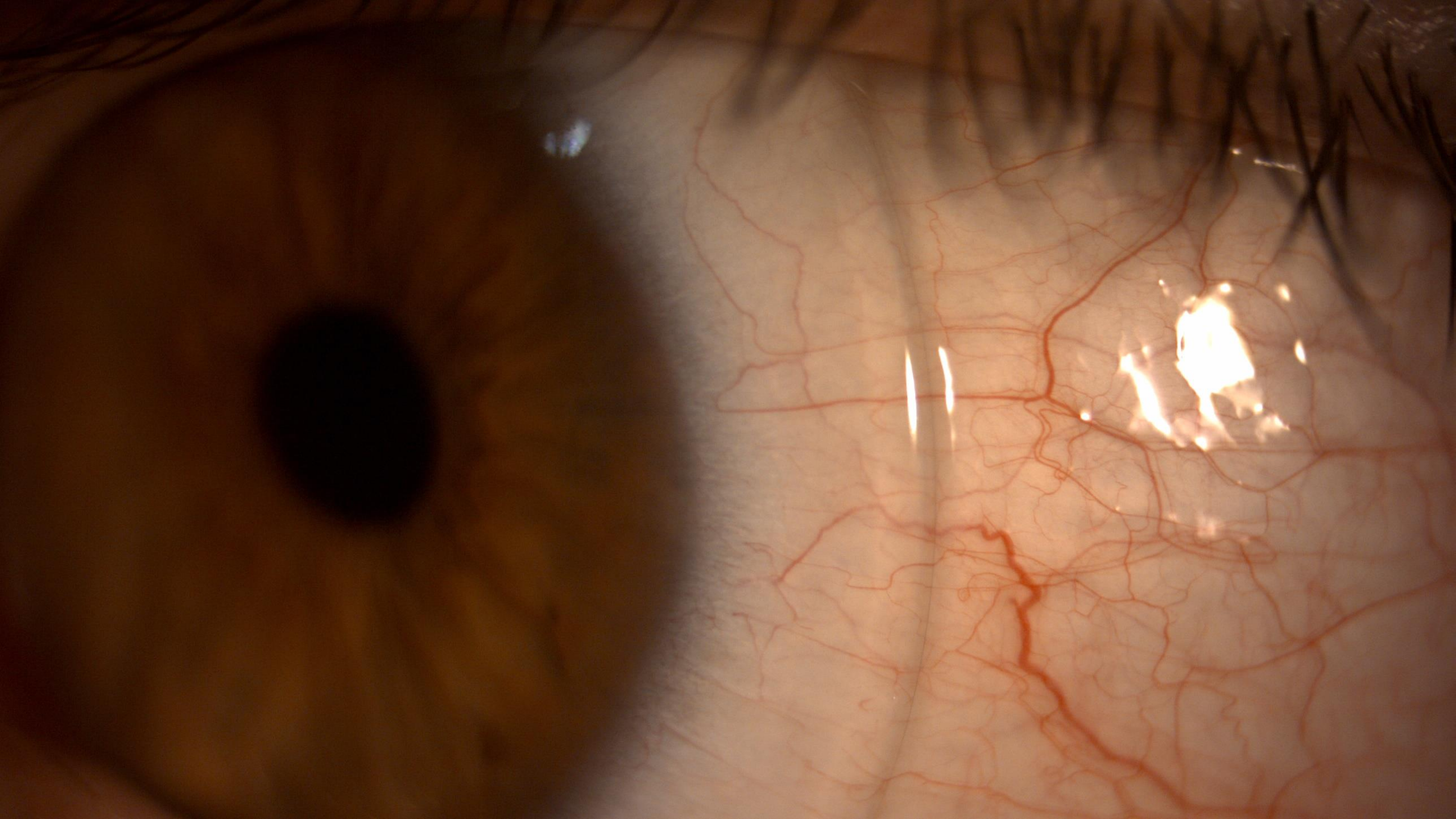
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# Patient A LENS 1: REGULAR SHAPE

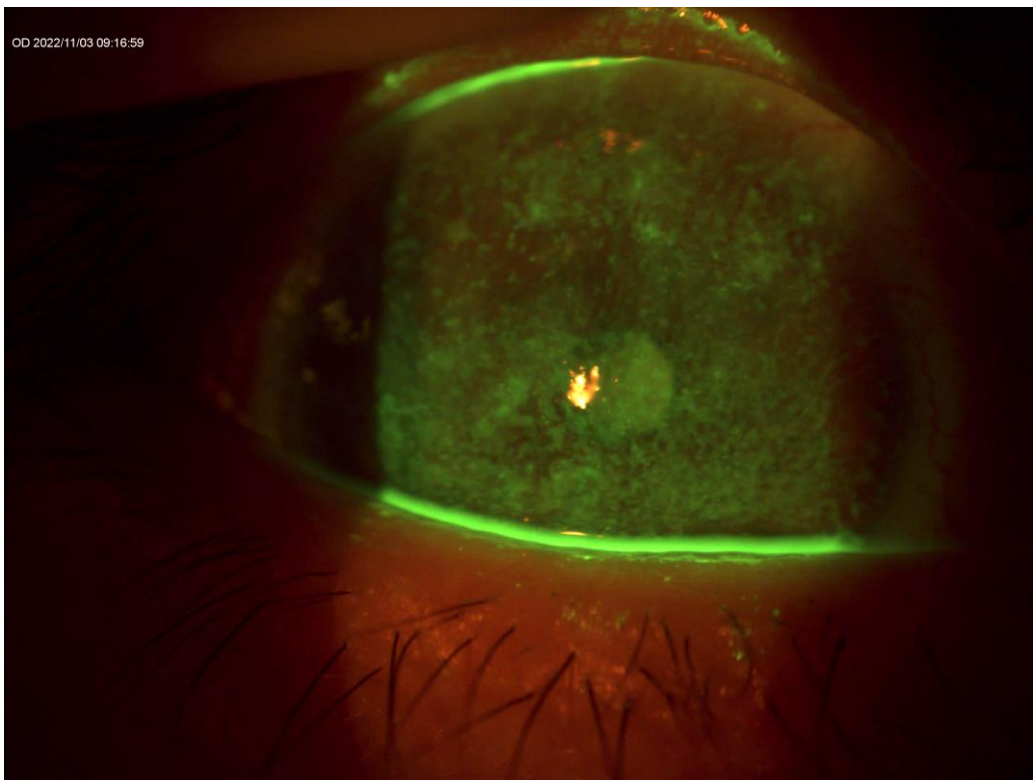


Nailed the Edges



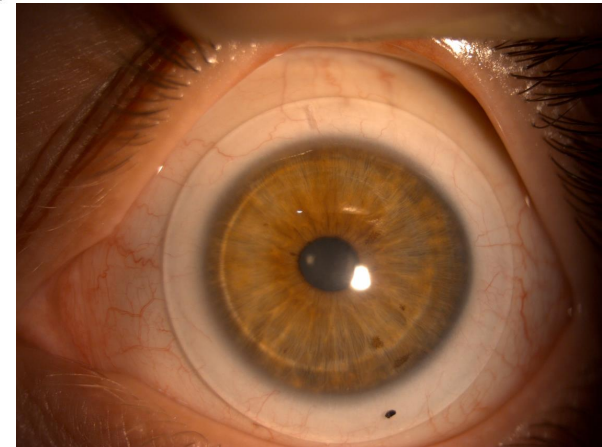
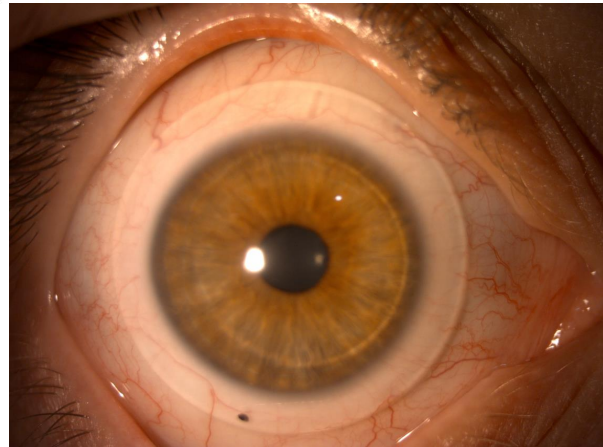
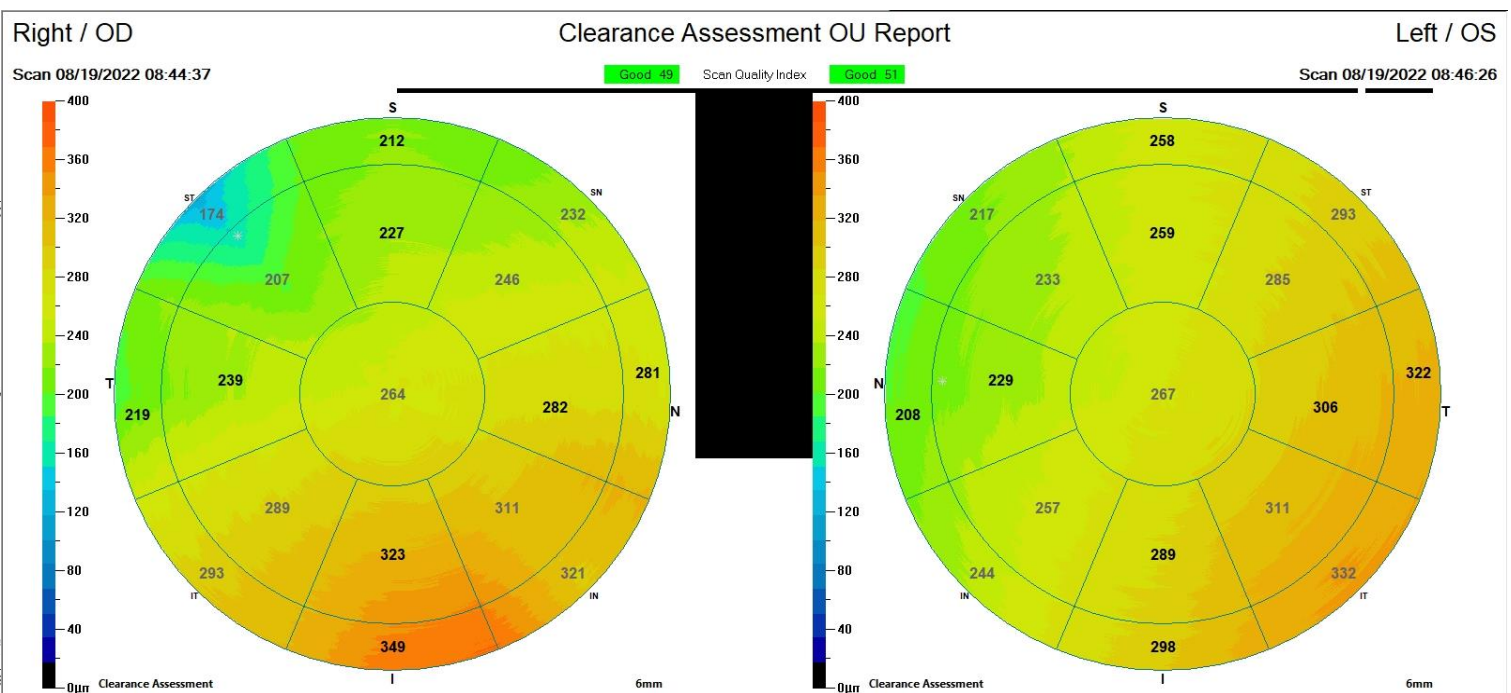
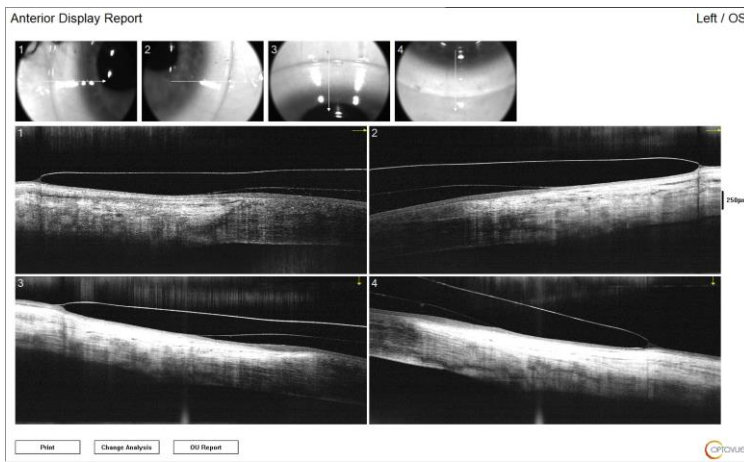
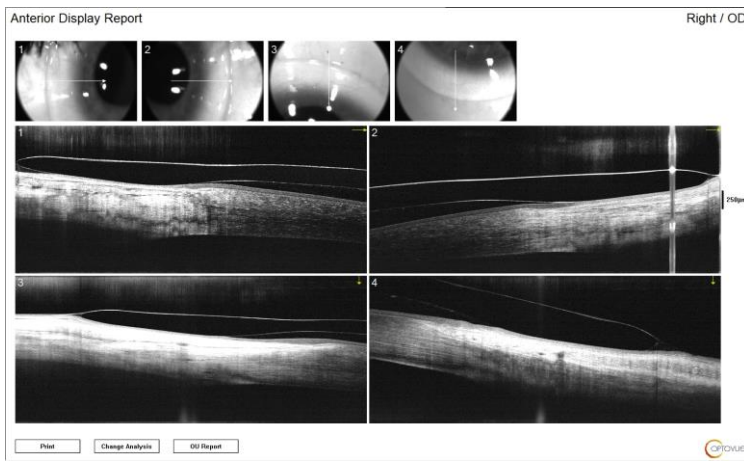


# Lens Removal... what is going on?



**SOLUTION TOXICITY!**

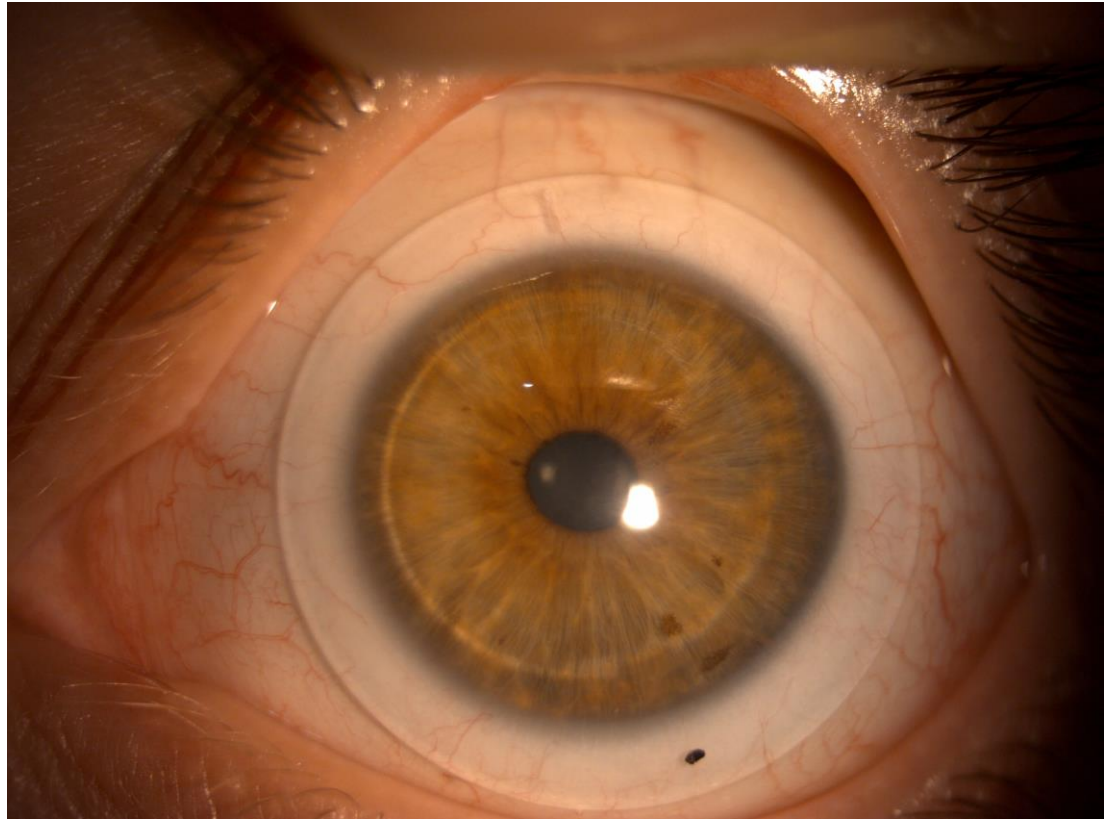
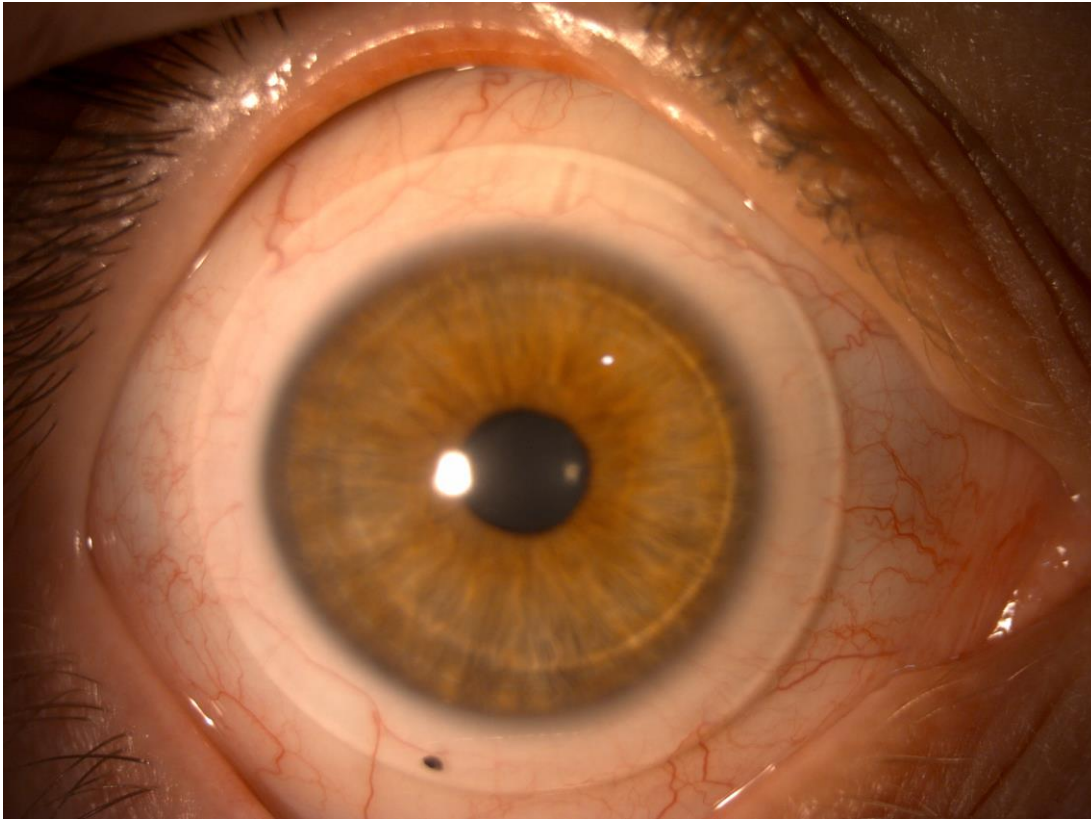
# Patient A LENS 2: REGULAR SHAPE



20/20 OD & OS



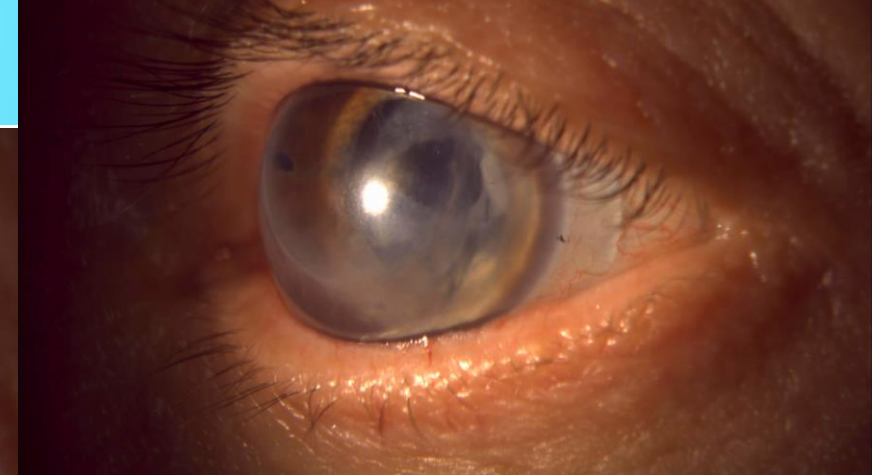
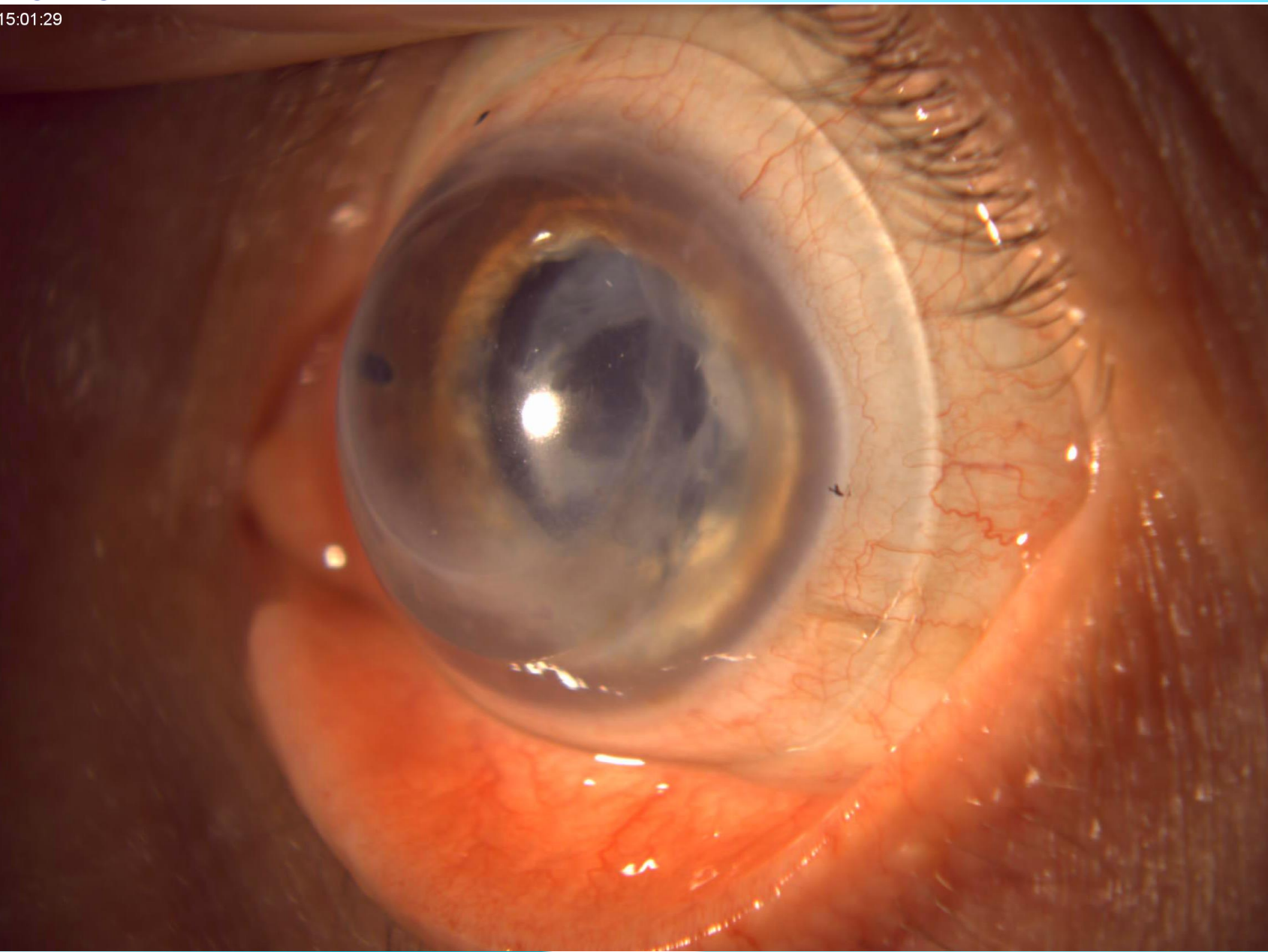
# Patient A LENS 2: REGULAR SHAPE



20/20 OD & OS

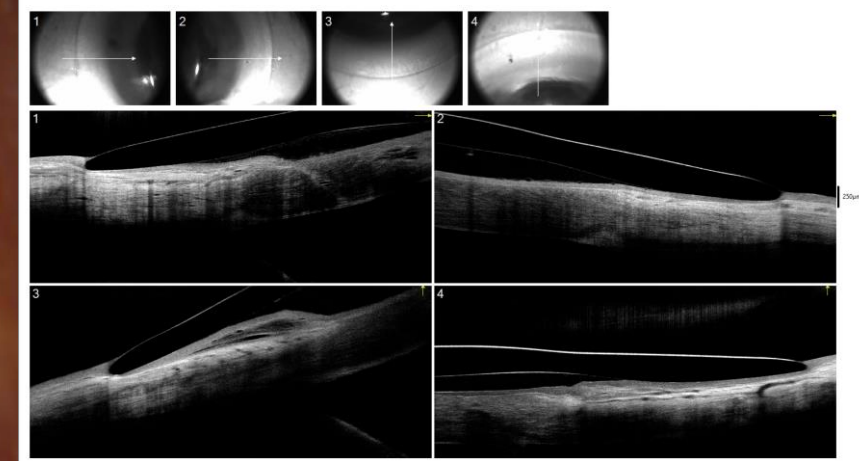
# Patient B LENS 2: IRREGULAR SHAPE

15:01:29



Anterior Display Report

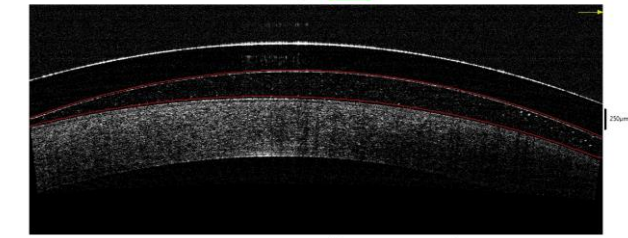
Left / OS



Vault Map

Scan Quality Index Good

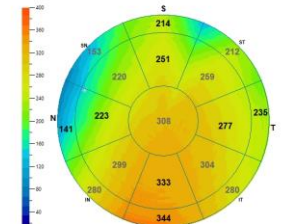
Left / OS



Clearance Assessment statistics within central 5 mm

SNIT(2-5mm)	54	S I2-5mm	82
Min	161	Location Y	367
Min Median	113	Min-Max	179

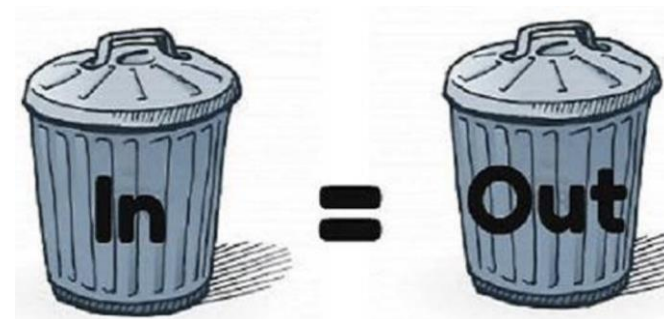
Min thickness (x, y): 2.215mm, 0.867mm shown as \*





# Clinical Tip: Utilizing Staff Effectively

- Triage for booking
- Quote all fees ahead of time with signed consent
- Spend the time on training to collect high quality data
- Use digital software to select starting diagnostic scleral lens
- Put diagnostic lens on-eye prior to doctor/fitter entering room
- All training, for all lens modalities
- Counselling and solution compliance
  - What solutions are you using and how are you using them AT EVERY VISIT





# Case 2: Eaglet ESP + WAVE ScleraLens Multifocal

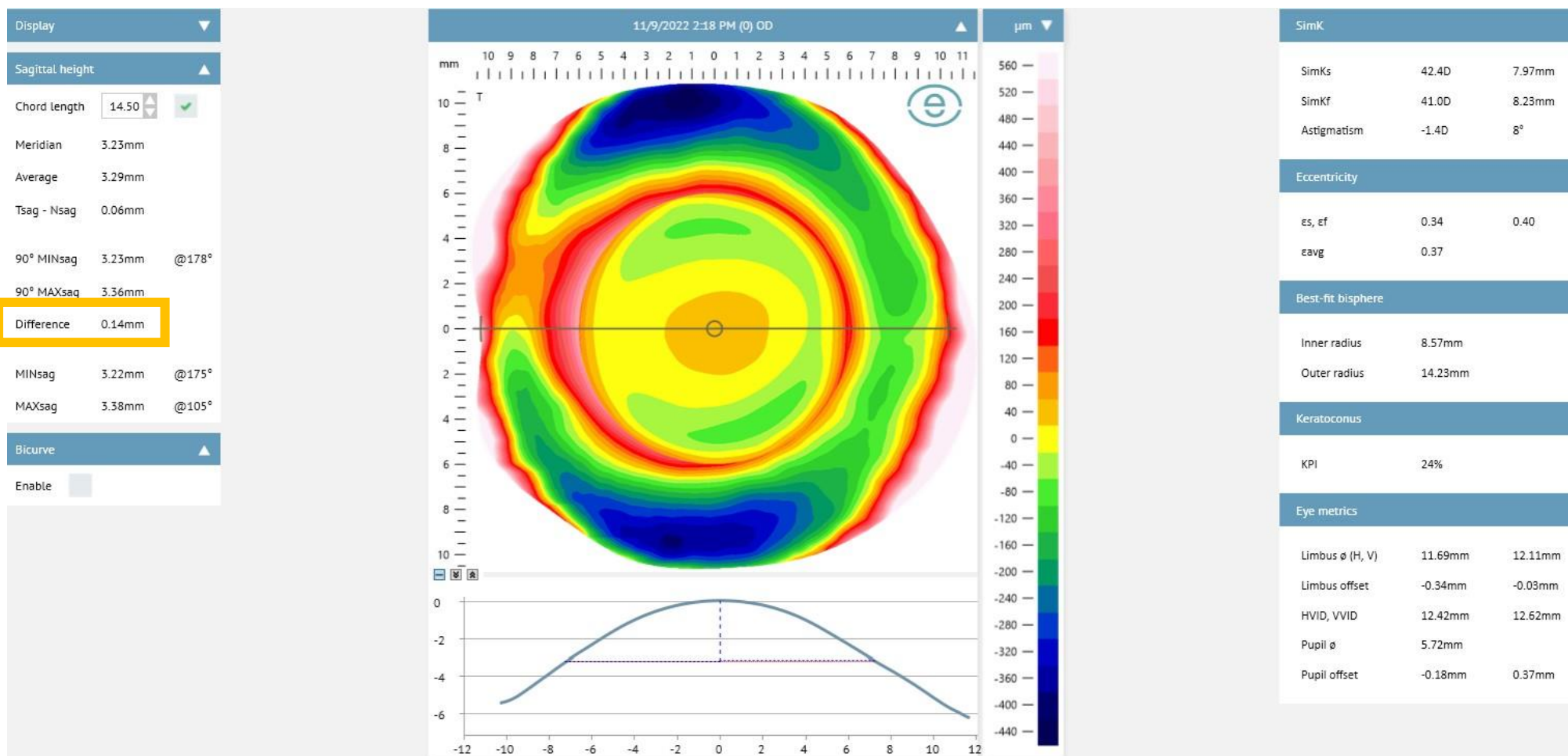
- 53WF, Severe myopia OU, regular corneas OU
- Many years of corneal lens wear. Wants to wear sclerals for improved comfort
- Switched to scleral lens for improved comfort and MF optics stability
- Selected WAVE MF Freeform ScleraLens due to robust MF customization options, freeform compatibility with Eaglet ESP for precise fit

# Eaglet ESP + WAVE ScleraLens Multifocal Baseline Data

- Spectacle MR:
  - OD -13.25-1.25x175, 20/40. Add +1.75.
  - OS -12.75-1.75x175, 20/30. Add +1.75. OS Dominant.
- Dx SL SCOR:
  - OD 20/30, OS 20/40. OD Dominant.
  - Unreliable acuities and dominance testing due to severe myopic SCOR
- Design 1<sup>st</sup> pair as SV Distance to confirm eye dominance and powers
- Scleral Toricity at HVID+2mm chord (if <120um = expect rotation. >150um = expect stability)
  - OD 140um. Expect decent rotational stability.
  - OS 130um. Expect decent rotational stability.

# Eaglet ESP + WAVE ScleraLens Multifocal

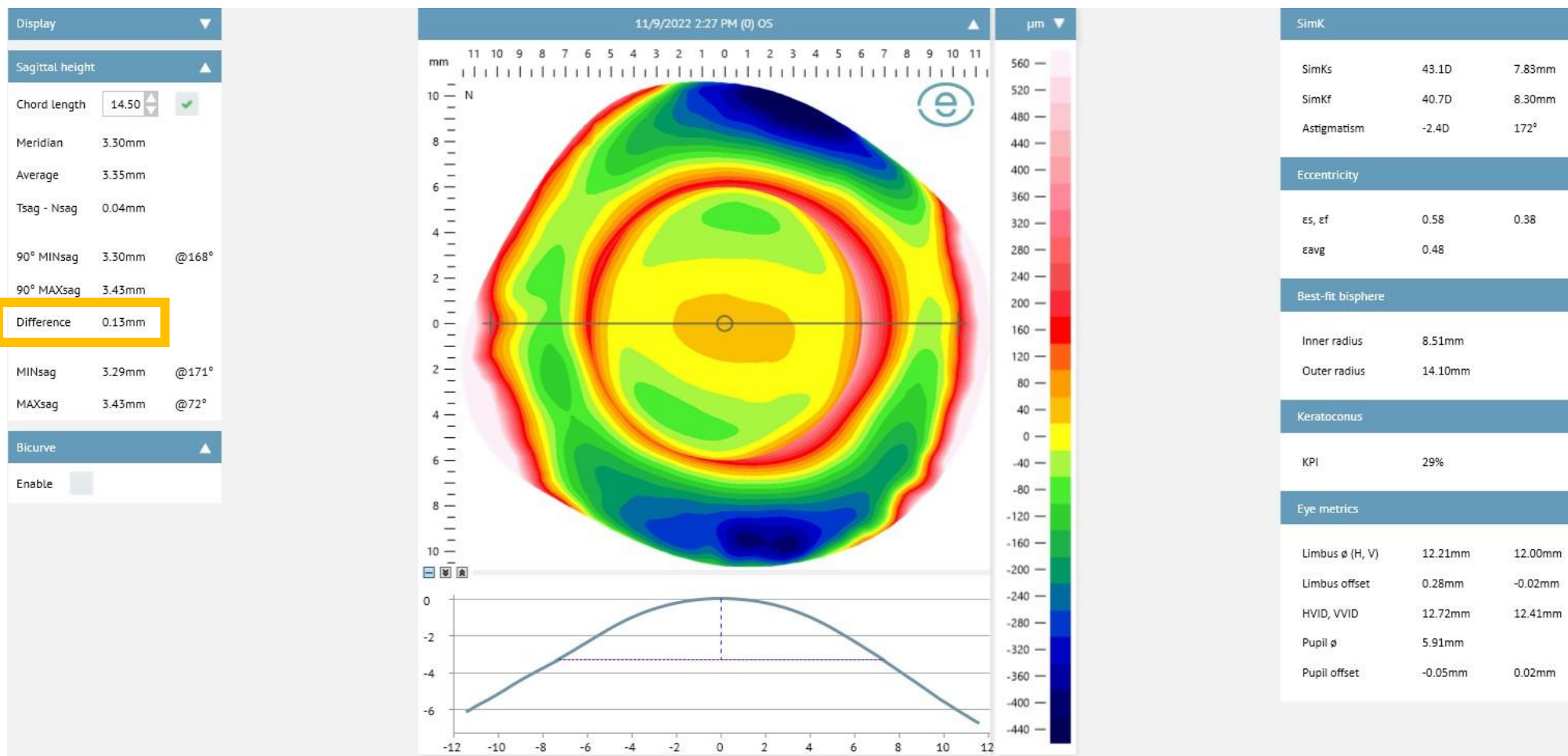
## Eaglet ESP Profilometry OD



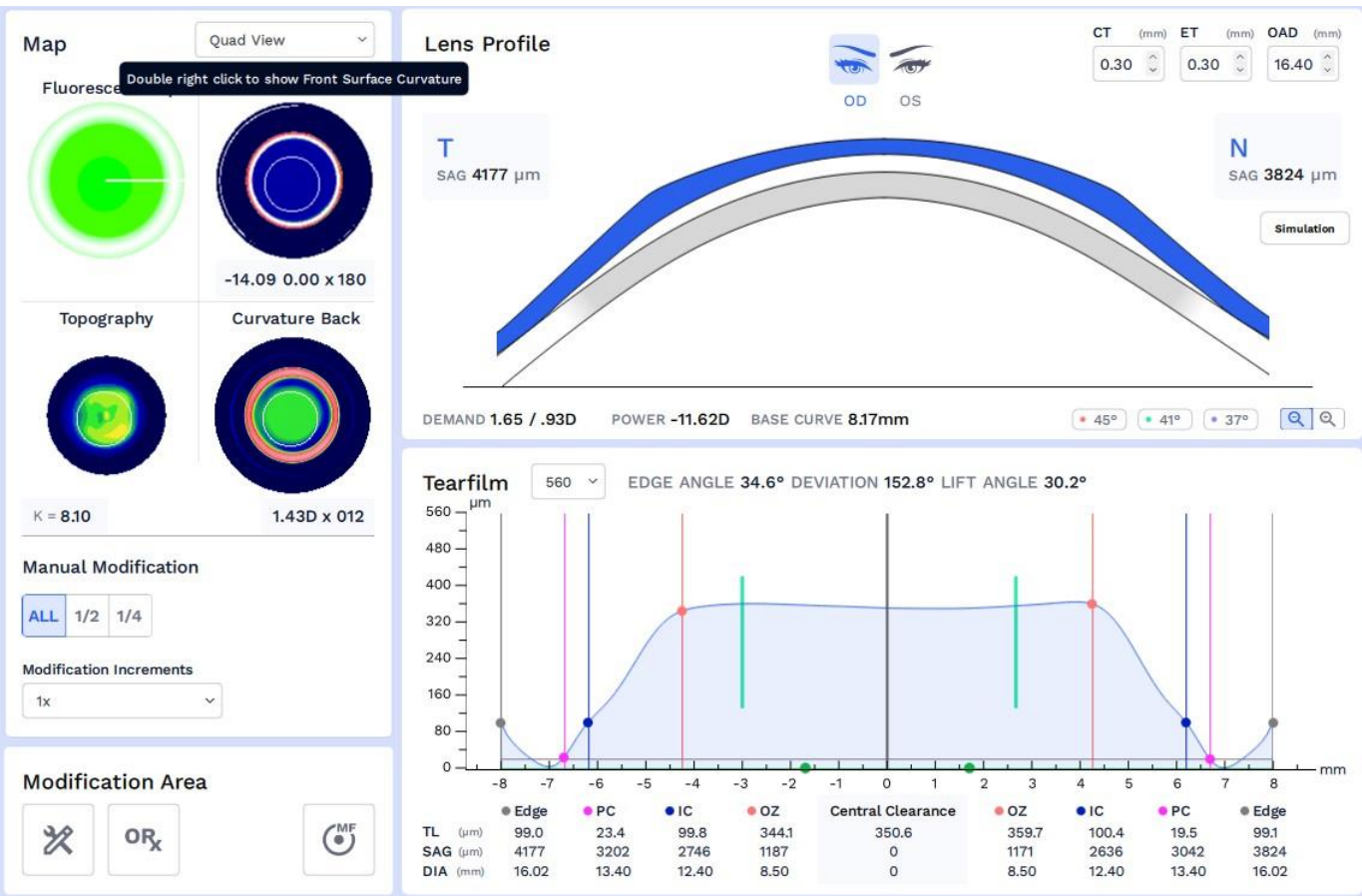


# Eaglet ESP + WAVE ScleraLens Multifocal

## Eaglet ESP Profilometry OS



# Eaglet ESP + WAVE ScleraLens Multifocal WAVE Initial Design OD



**ScleraLens**

- Biometric Data
- Lens Type and Material
- Markings
- Clinical Notes
- Summary

**Lens Geometry**  
Free Form

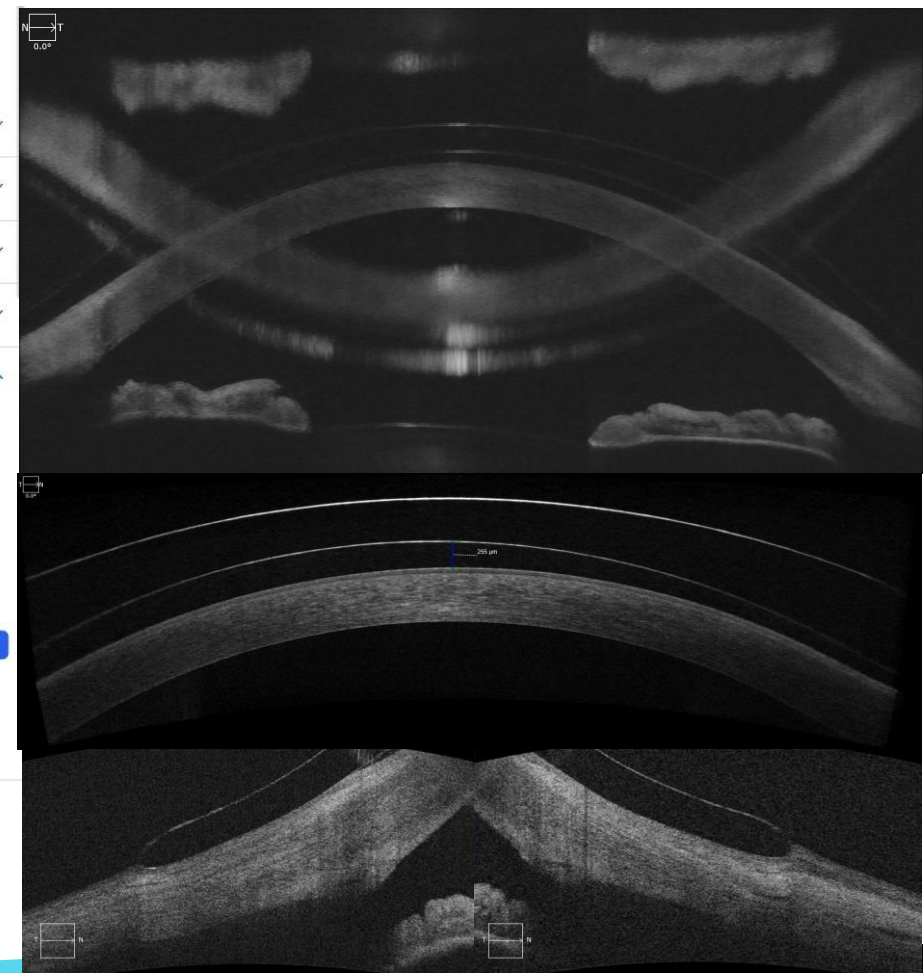
Lens Power	Base Curve
-11.63 +/- 0.03	8.17 +/- 0.00

OAD	CT	ET
16.40	0.30	0.30

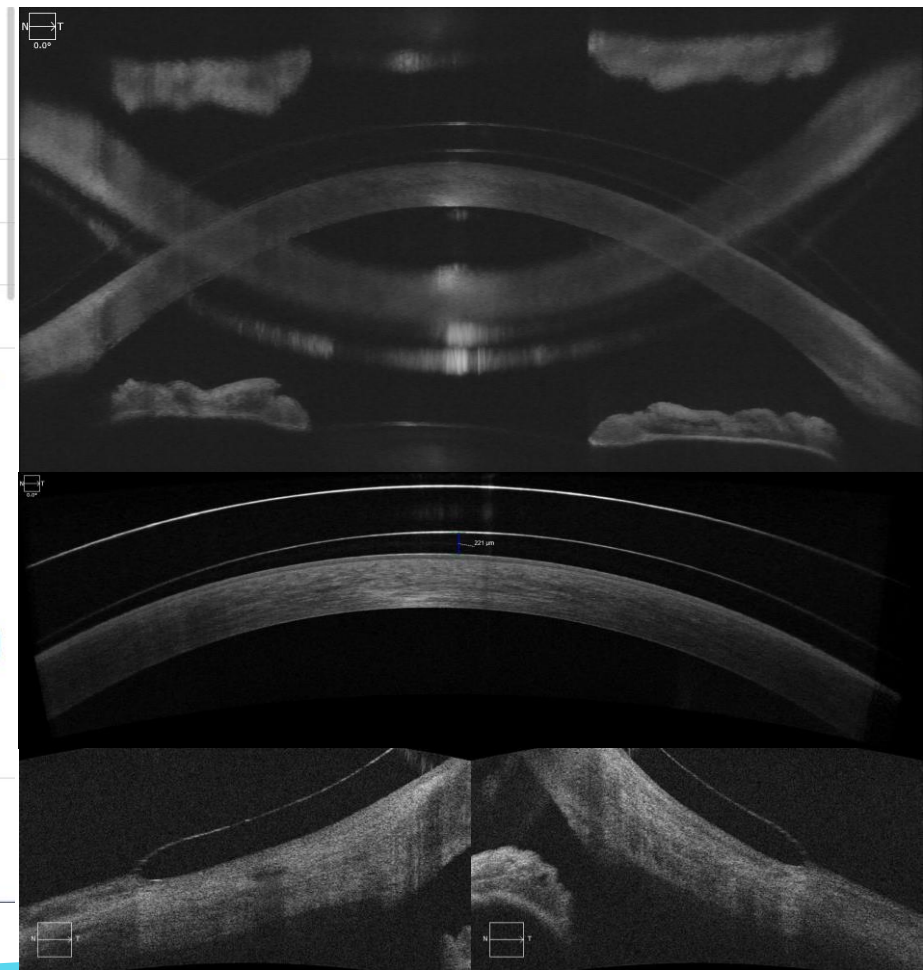
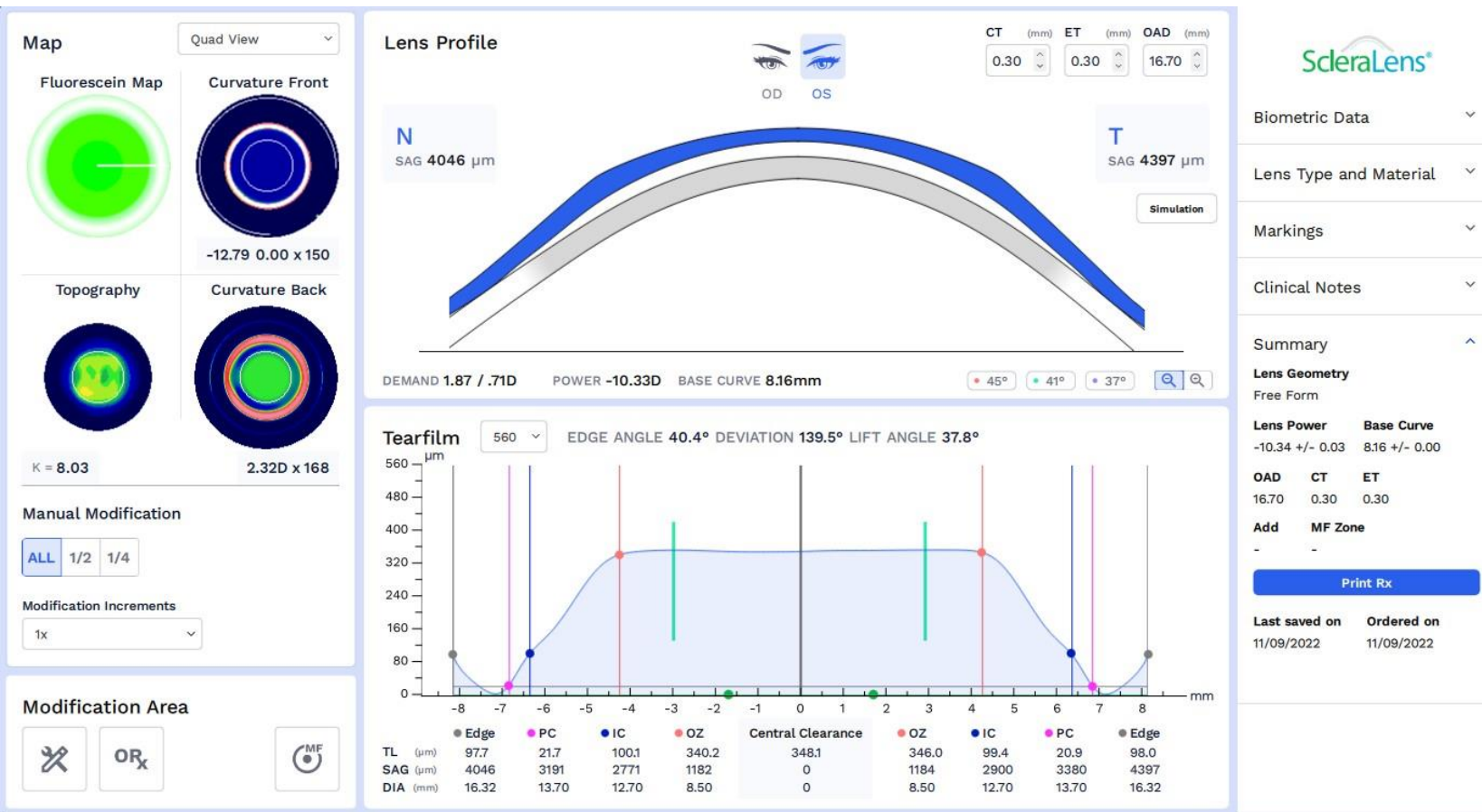
Add MF Zone

Print Rx

Last saved on 11/09/2022 Ordered on 11/09/2022

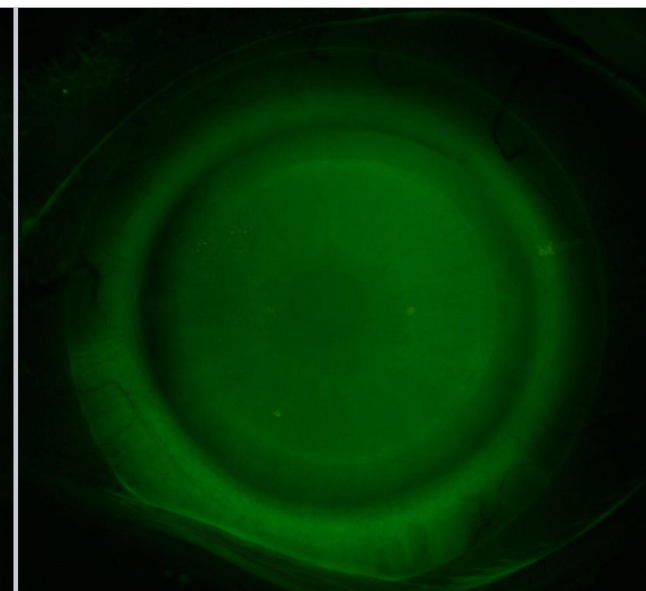
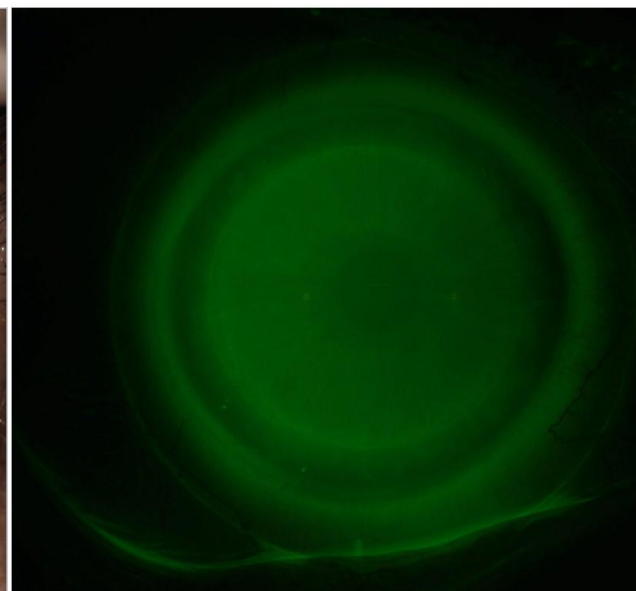
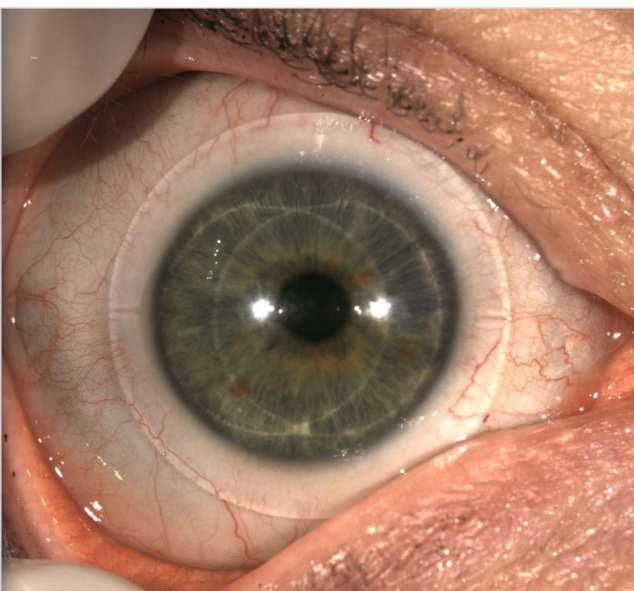


# Eaglet ESP + WAVE ScleraLens Multifocal WAVE Initial Design OS





# Eaglet ESP + WAVE ScleraLens Multifocal Initial Lenses SV Distance



# Eaglet ESP + WAVE ScleraLens Multifocal Initial Lens Results

- 1st pair SV Distance Freeform ScleraLens:
  - OD 16.4 OAD/8.5 BOZD/8.17 BC/-11.63
  - OS 16.7 OAD/8.5 BOZD/8.16 BC/-10.34
  - SCOR DVA: OD 20/25, OS 20/30. OD Dominant. Minimum Add +1.75.
  - Great comfort, fit, and stability.
  - @30min: FR 250um OD, 225um OS. Needs wider PFDL and limbal clearance OU.
- Revised pair Freeform ScleraLens w/initial MF optics:
  - Initial MF mixed design OD +1.75 Add CD, OS +1.75 Add CN
  - Increase OAD by 0.3mm OU to increase PFDL (PC 13.4mm -> 13.7mm & 13.7mm -> 14.0mm)

# Eaglet ESP + WAVE ScleraLens Multifocal WAVE 2nd Design OD

**Map** Quad View

Fluorescein Map

Curvature Front

-14.09 0.00 x 180

Topography

Curvature Back

1.43D x 012

K = 8.10

Manual Modification

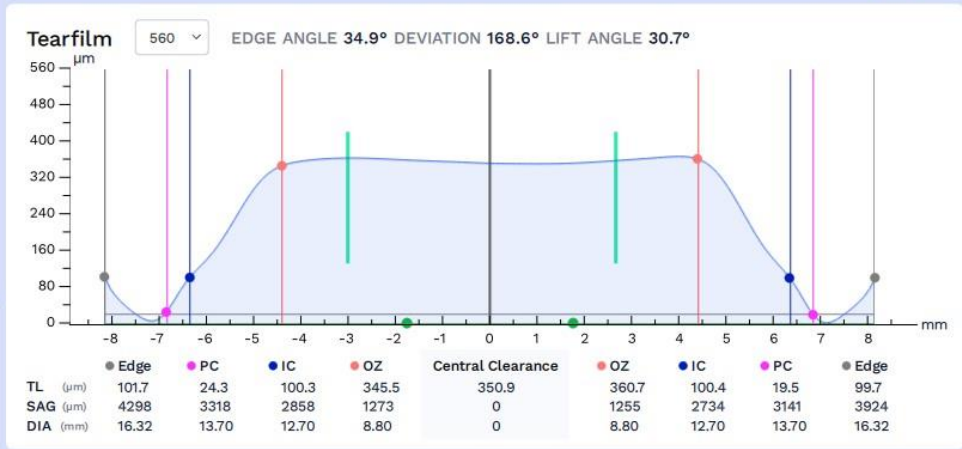
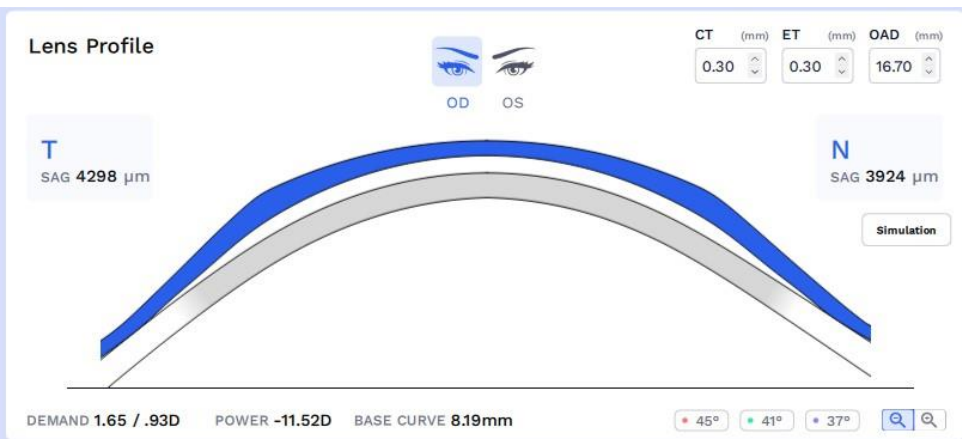
ALL 1/2 1/4

Modification Increments

1x

Modification Area

OR<sub>x</sub> MF



**ScleraLens<sup>®</sup>**

Biometric Data

Lens Type and Material

Markings

Clinical Notes

**Note**

Eaglet WAVE.  
Increase OAD to 16.7 (moves PFD from 13.4 to 13.7)  
Add CD MF 3.6MFZone

**Summary**

**Lens Geometry**

Free Form

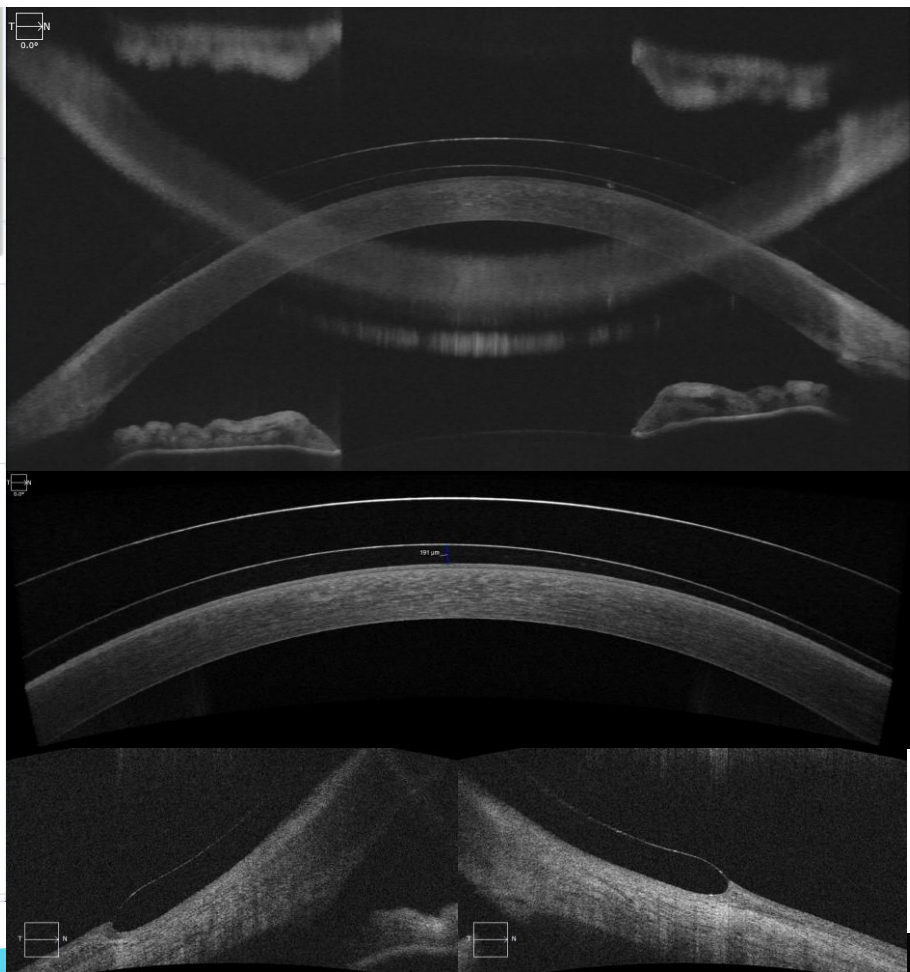
**Lens Power**    **Base Curve**  
-11.61 +/- 0.20    8.17 +/- 0.03

**OAD**    **CT**    **ET**  
16.70    0.30    0.30

**Add**    **MF Zone**  
+1.75    3.60 CENTER DISTANCE

Print Rx

Last saved on 11/21/2022    Ordered on 11/21/2022





# Eaglet ESP + WAVE ScleraLens Multifocal WAVE 2nd Design OS

**Map** Quad View

Fluorescein Map

Curvature Front

-12.79 0.00 x 150

Topography

Curvature Back

2.32D x 168

K = 8.03

Manual Modification

ALL 1/2 1/4

Modification Increments

1x

Modification Area

ORx MF

**Lens Profile**

OD OS

CT (mm) 0.30 ET (mm) 0.30 OAD (mm) 17.00

N SAG 4185 μm T SAG 4555 μm

Simulation

DEMAND 1.87 / .71D POWER -8.50D BASE CURVE 8.18mm

45° 41° 37°

**Tearfilm** 560 μm EDGE ANGLE 40.9° DEVIATION 166.5° LIFT ANGLE 38.3°

Point	TL (μm)	SAG (μm)	DIA (mm)
Edge	101.8	4185	16.62
PC	23.9	3326	14.00
IC	103.5	2903	13.00
OZ	373.1	1268	8.80
Central Clearance	380.0	0	0
OZ	377.0	1272	8.80
IC	100.6	3048	13.00
PC	20.4	3533	14.00
Edge	98.0	4555	16.62

**ScleraLens**

Biometric Data

Lens Type and Material

Markings

Clinical Notes

**Note**

Eaglet WAVE. Increase OAD from 16.7 to 17.0 (auto increases PFD 13.7 to 14.0). Inc CC 30μm. Add CN MFzone 3.6

**Summary**

**Lens Geometry**

Free Form

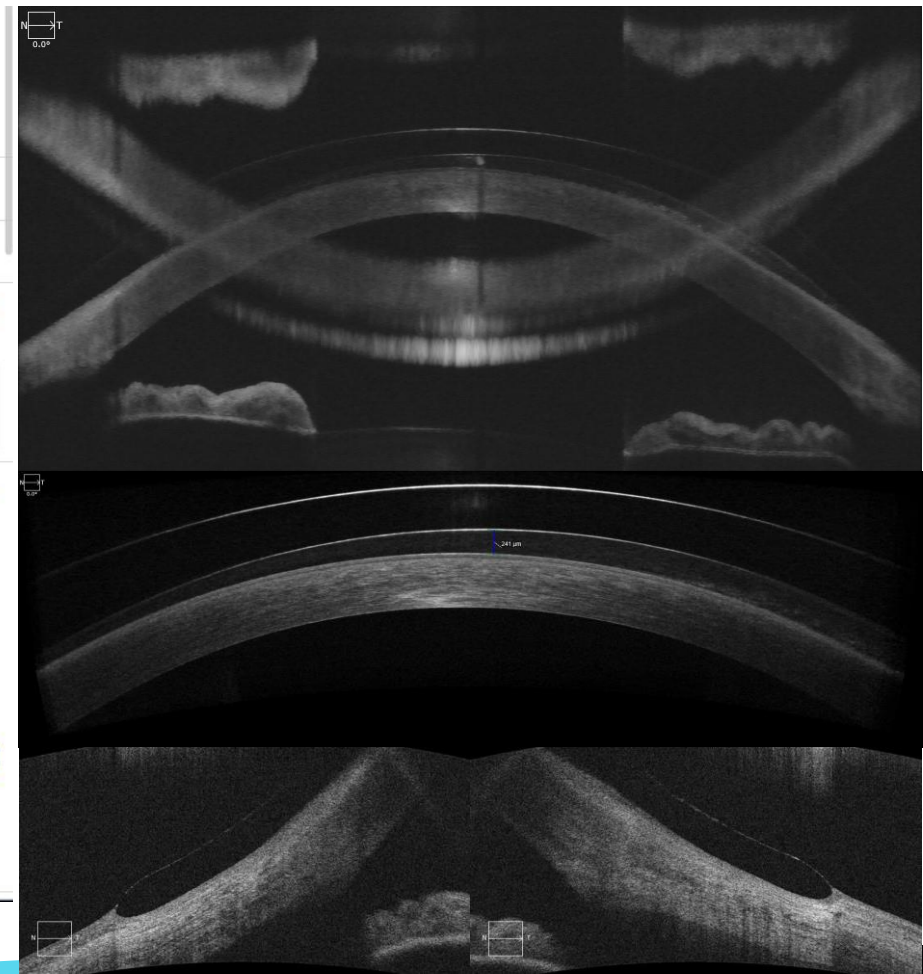
Lens Power	Base Curve
-8.60 +/- 0.23	8.16 +/- 0.03

OAD	CT	ET
17.00	0.30	0.30

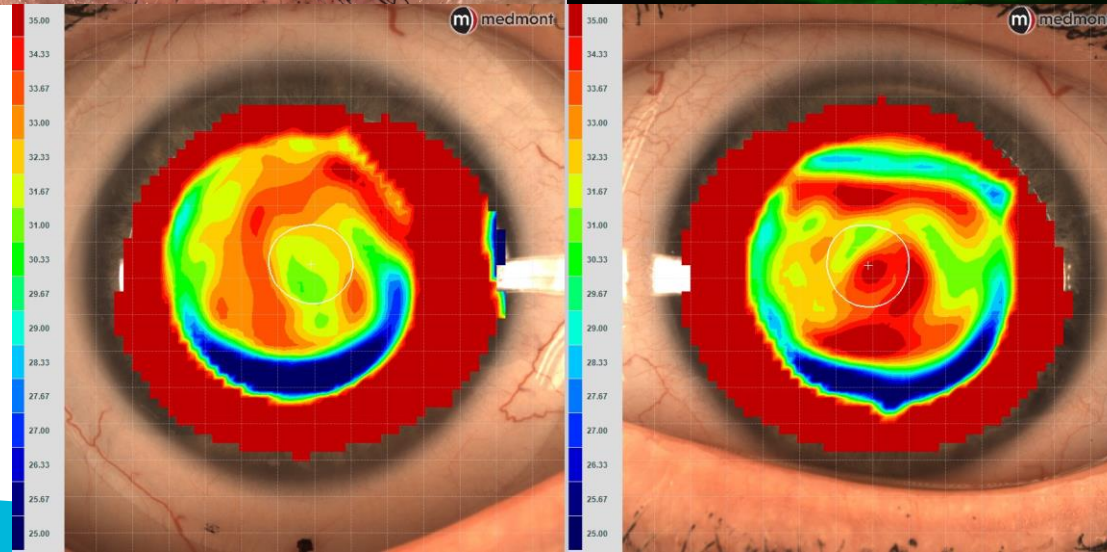
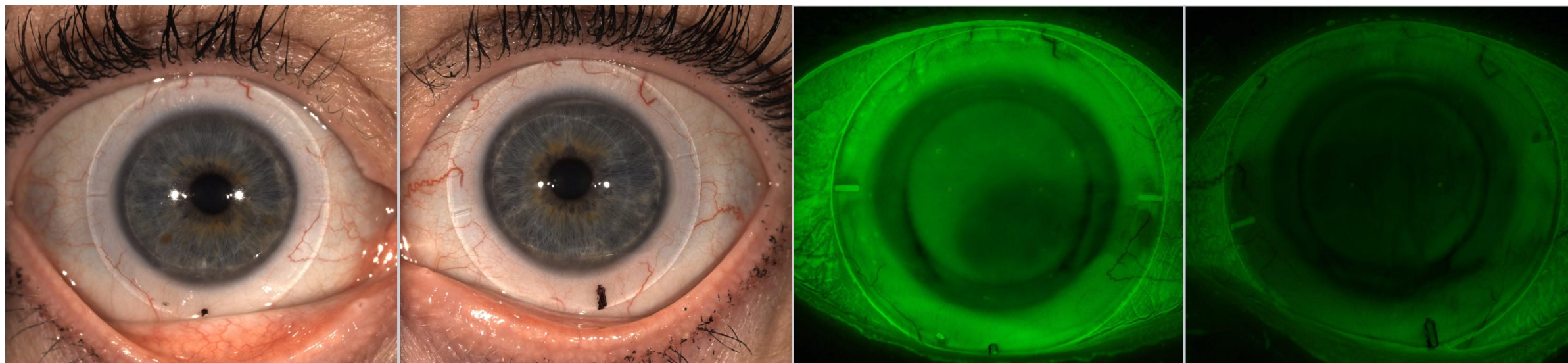
Add	MF Zone
+1.75	3.60 CENTER NEAR

Print Rx

Last saved on 11/21/2022 Ordered on 11/21/2022



# Eaglet ESP + WAVE ScleraLens Multifocal 2<sup>nd</sup> Design Results





# Eaglet ESP + WAVE ScleraLens Multifocal 2<sup>nd</sup> Design Results

- 2nd pair Freeform ScleraLens w/ initial MF optics:
  - OD 16.7 OAD/8.8 BOZD/8.17 BC/-11.61/+1.75 Add 3.6MFZ CD
  - OS 17.0 OAD/8.8 BOZD/8.16 BC/-8.60/+1.75 Add 3.6MFZ CN
  - DVA: OD 20/25, OS 20/80, OU 20/25. NVA: OD J2, OS J1, OU J1
  - Great comfort, fit, centration, and stability.
  - Great overall vision, but near > distance, and driving vision a priority.
  - @6hrs: FR 190um OD, 240um OS. Improved PFDL w/ sufficient limbal clearance OU.
- Revised pair MF Freeform ScleraLens:
  - No changes to mixed MF design
  - -0.50 over-refraction OU
  - Increase central SAG 30um OD, decrease central SAG 20um OS



# Eaglet ESP + WAVE ScleraLens Multifocal WAVE Final Design OD

**Map** Quad View

Fluorescein Map

Curvature Front

-14.78 0.00 x 091

Topography

Curvature Back

1.43D x 012

K = 8.10

Manual Modification

ALL 1/2 1/4

Modification Increments

1x

Modification Area

ORx MF

**Lens Profile**

CT (mm) ET (mm) OAD (mm)  
0.30 0.30 16.70

OD OS

T SAG 4327 μm

N SAG 3952 μm

Simulation

DEMAND 1.65 / .93D POWER -12.01D BASE CURVE 8.19mm

45° 41° 37°

**Tearfilm** 560 EDGE ANGLE 35.0° DEVIATION 175.6° LIFT ANGLE 30.6°

	Edge	PC	IC	OZ	Central Clearance	OZ	IC	PC	Edge
TL (μm)	104.3	24.4	102.1	376.0	382.2	391.2	102.1	19.5	102.3
SAG (μm)	4327	3349	2888	1274	0	1256	2763	3172	3952
DIA (mm)	16.32	13.70	12.70	8.80	0	8.80	12.70	13.70	16.32

**ScleraLens**

Biometric Data

Lens Type and Material

Markings

Clinical Notes

**Note**

Eaglet WAVE. Cont OAD 16.7 (PFD 13.7) and CD MF 3.6MFZone. Add SOR -0.50. Inc CC by 30um. Add THP.

Summary

**Lens Geometry**

Free Form

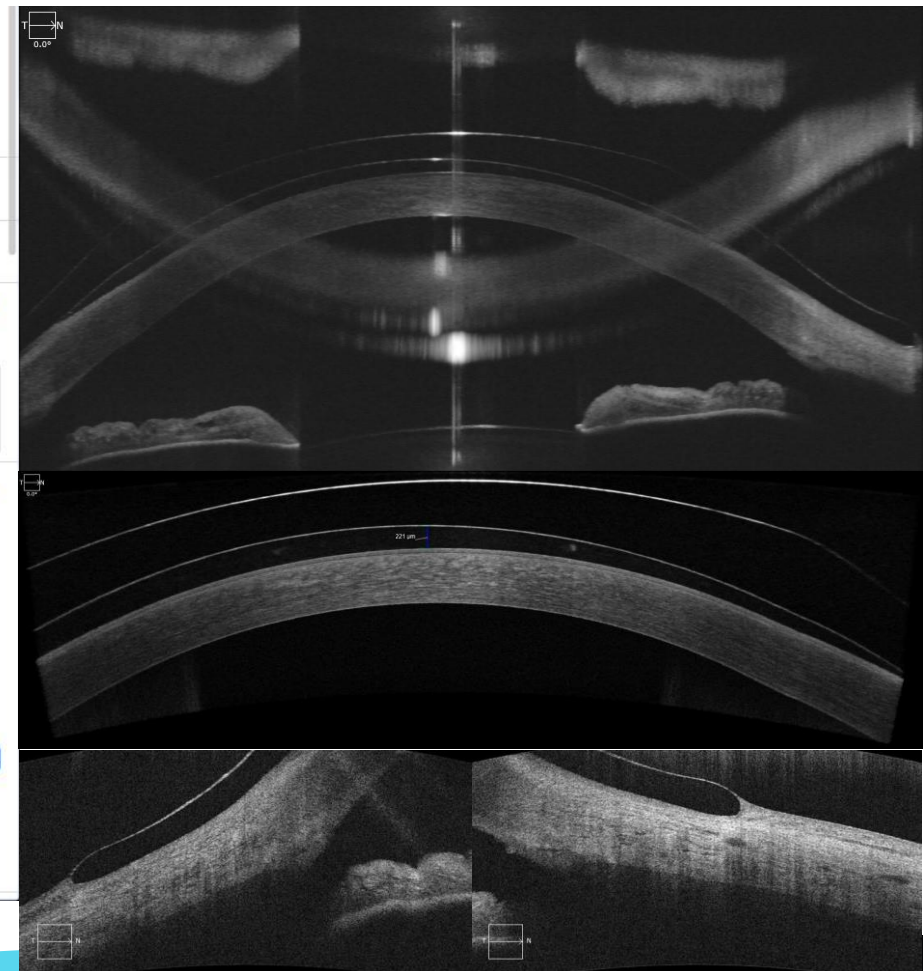
**Lens Power**    **Base Curve**  
-12.10 +/- 0.20    8.17 +/- 0.03

**OAD**    **CT**    **ET**  
16.70    0.30    0.30

**Add**    **MF Zone**  
+1.75    3.60 CENTER DISTANCE

Print Rx

Last saved on    Ordered on  
12/13/2022    12/13/2022



# Eaglet ESP + WAVE ScleraLens Multifocal WAVE Final Design OS

Map Quad View

right click to show Fluorescein Simulation

Surface Front

Topography Curvature Back

K = 8.03 2.32D x 168

Manual Modification

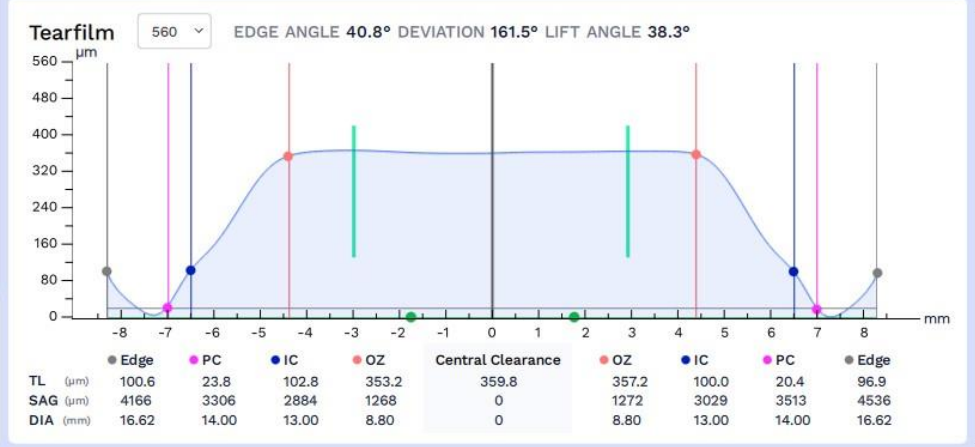
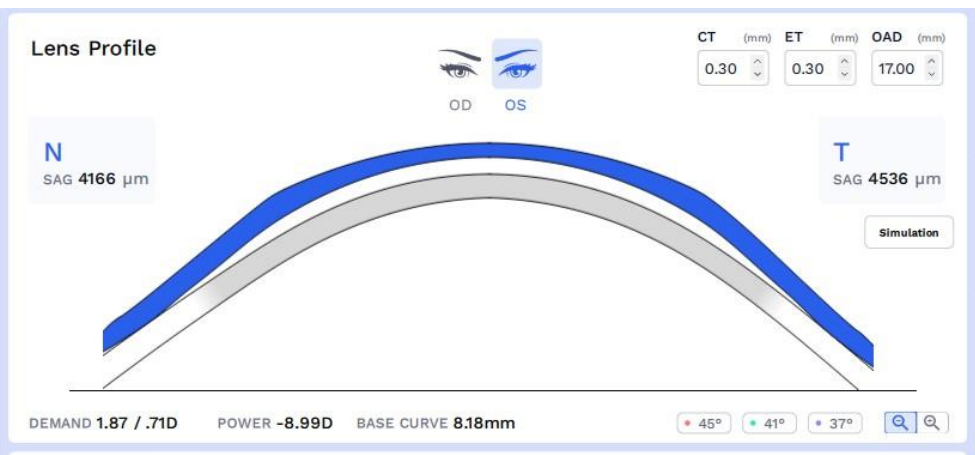
ALL 1/2 1/4

Modification Increments

1x

Modification Area

ORx MF



### ScleraLens

Biometric Data

Lens Type and Material

Markings

Clinical Notes

**Note**

Eaglet WAVE. Cont OAD 17.0 (PFD 14.0) and CN MFzone 3.6. Add SOR -0.50. Dec CC 20um.

Summary

**Lens Geometry**

Free Form

Lens Power	Base Curve
-9.09 +/- 0.23	8.16 +/- 0.03

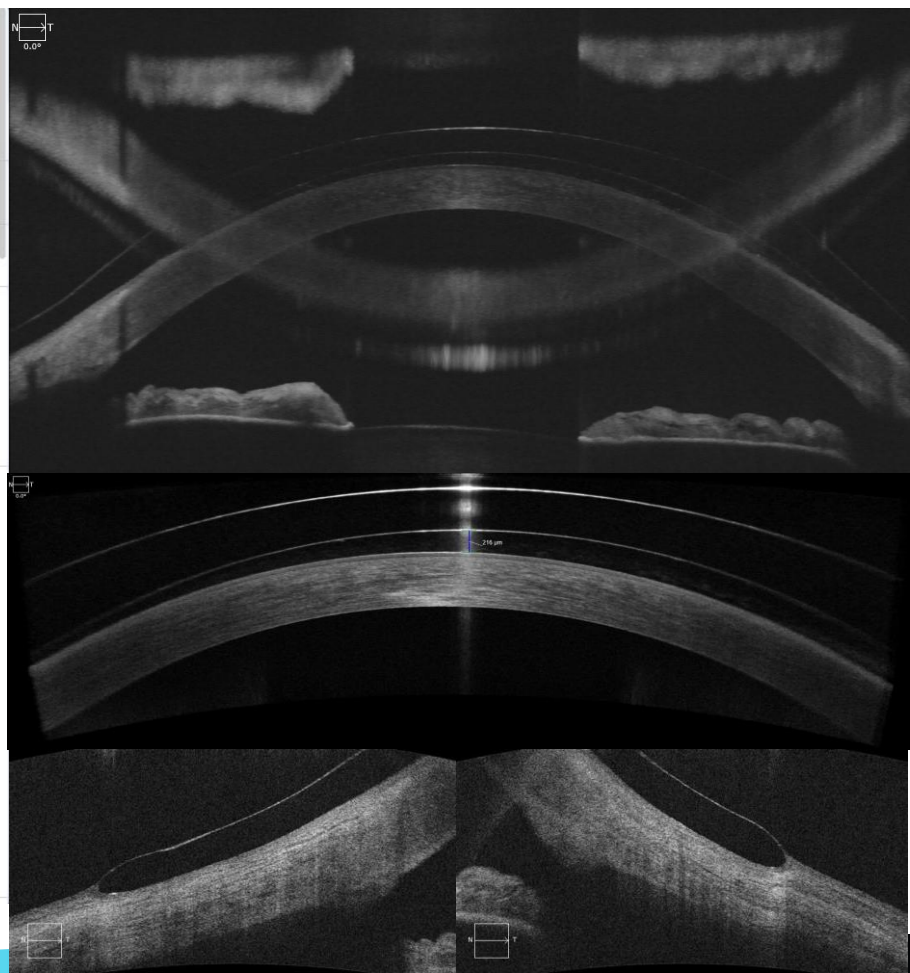
OAD	CT	ET
17.00	0.30	0.30

**Add MF Zone**

+1.75 3.60 CENTER NEAR

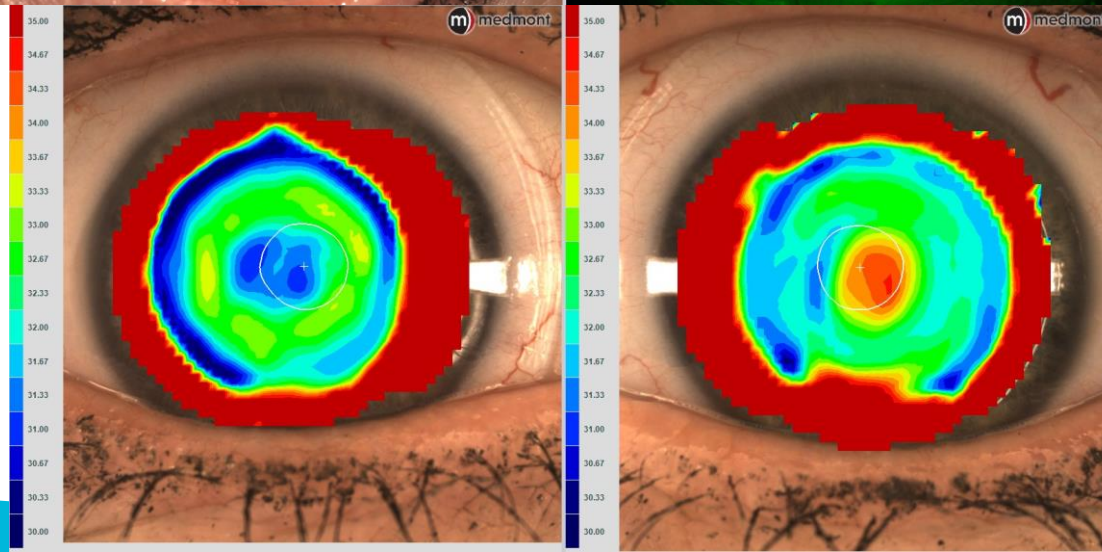
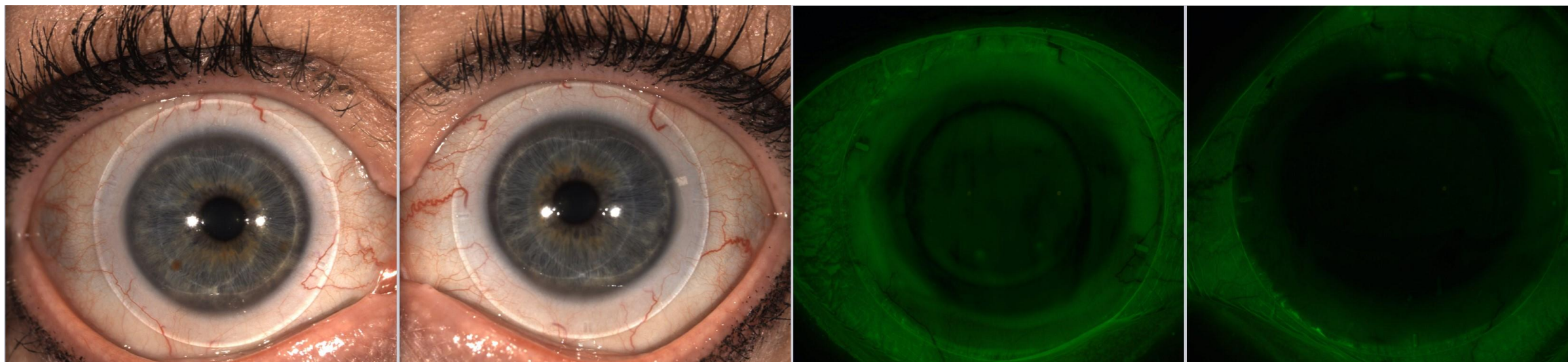
Print Rx

Last saved on 12/13/2022 Ordered on 12/13/2022





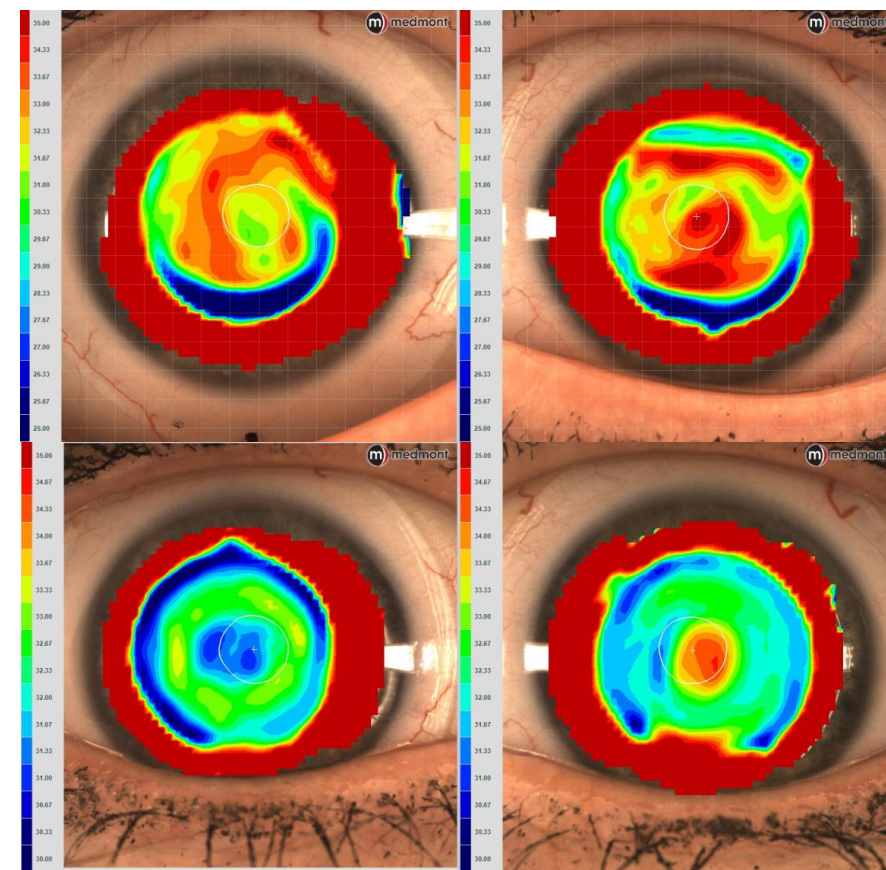
# Eaglet ESP + WAVE ScleraLens Multifocal Final Results





# Eaglet ESP + WAVE ScleraLens Multifocal Final Results

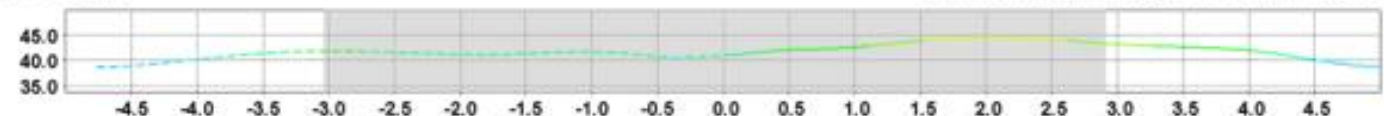
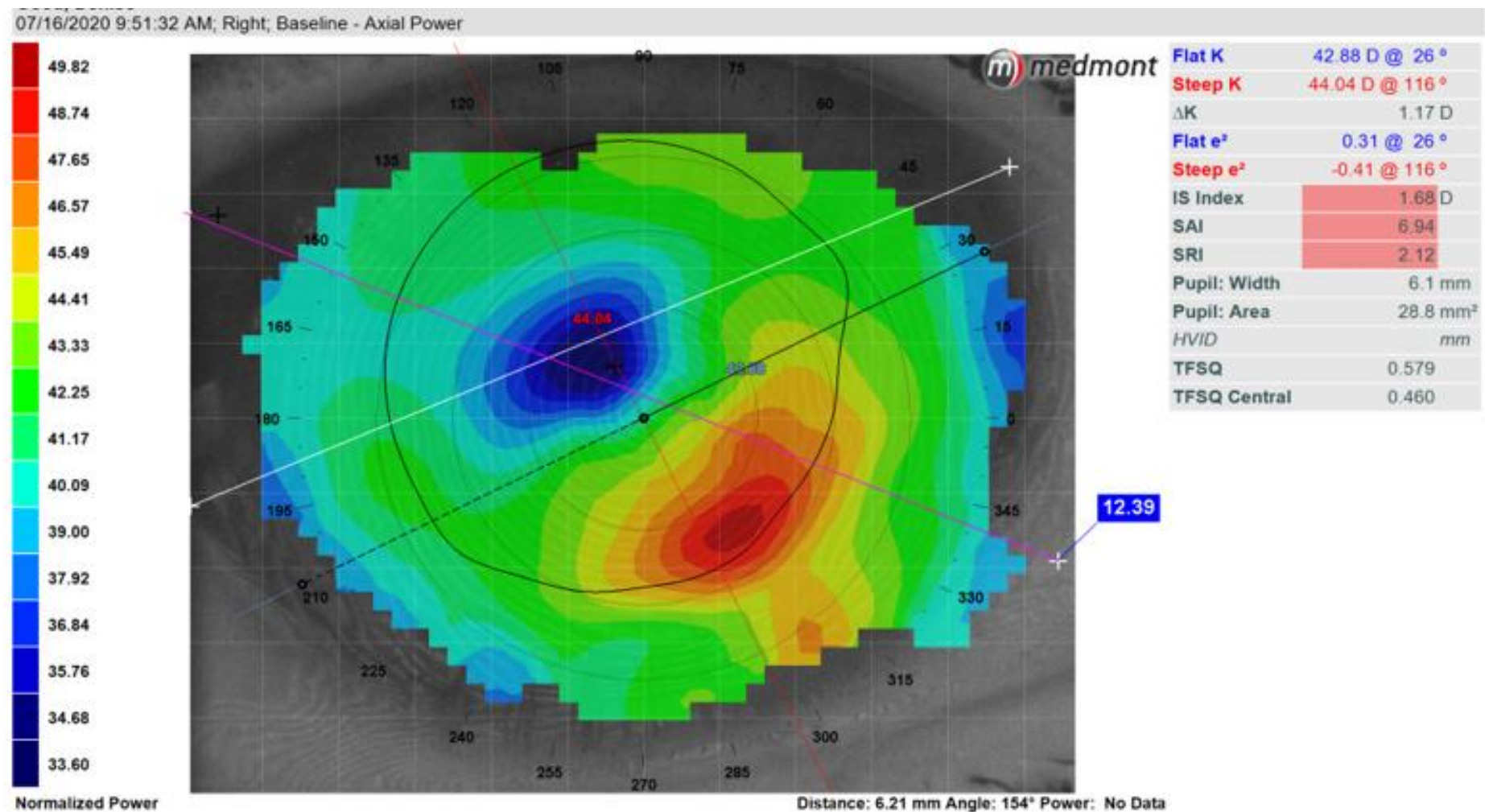
- Final pair MF Freeform ScleraLens:
  - OD 16.7 OAD/8.8 BOZD/8.17 BC/-12.10/+1.75 Add 3.6MFZ CD
  - OS 17.0 OAD/8.8 BOZD/8.16 BC/-9.09/+1.75 Add 3.6MFZ CN
  - DVA: OD 20/25, OS 20/40, OU 20/20. NVA: OU 20/25
  - Great comfort, fit, centration, and stability.
  - Excellent vision at all ranges.
  - @6hrs: FR ~220um OU.
- Pt very happy! Pt says “she’s never seen this well in her life!”



## Case 3 Perfectly Imperfect...

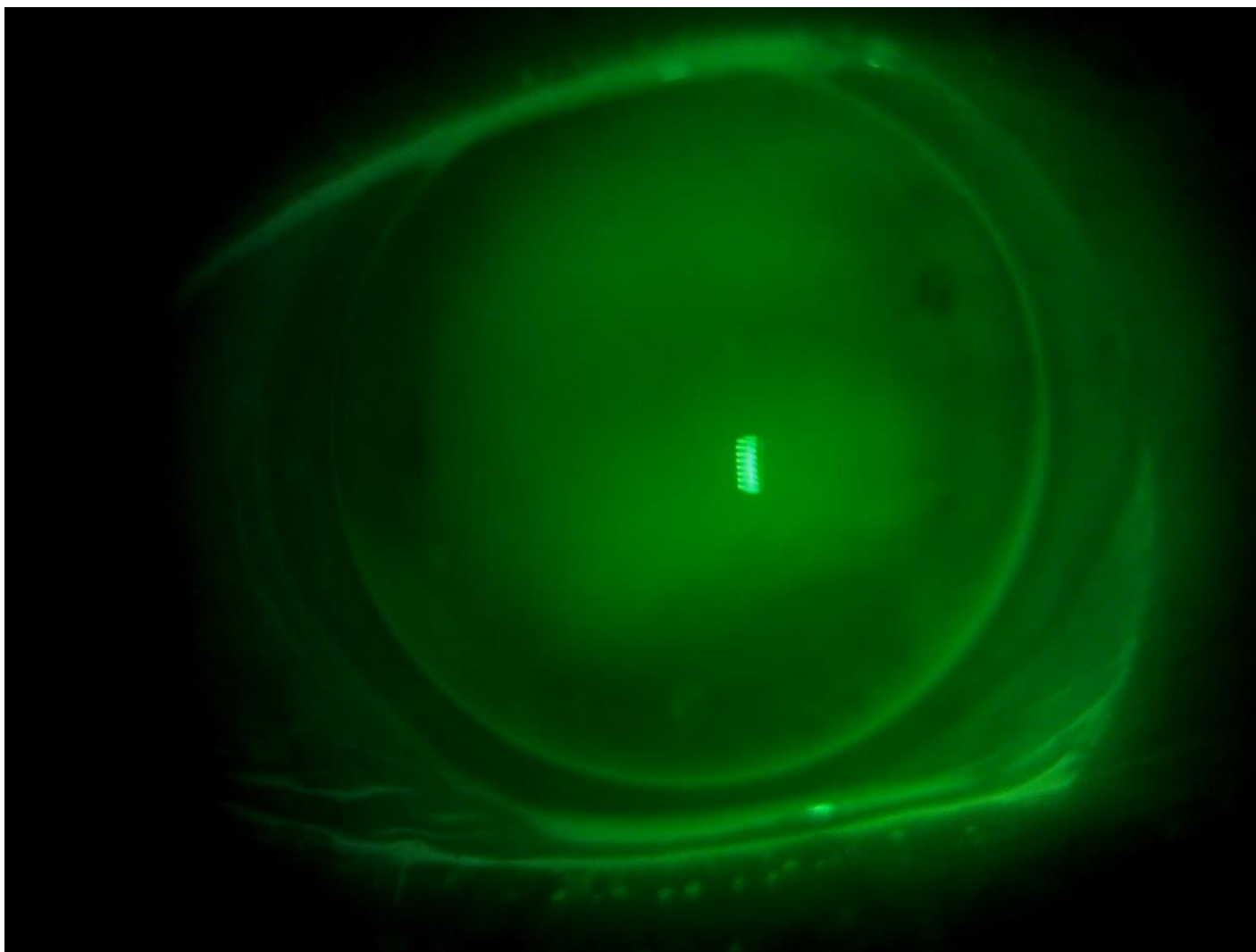
- 68yo female referred for a specialty lens consultation by OD
- OMD had recommended glasses but was open to CLs if safe
- Severe glaucoma OU
  - OS better central BCVA but more advanced glaucoma; microshunt
- PCIOL with toric implants OU
- Complications during cataract surgery led to PKP OD
- h/o graft rejection inferior/nasal quadrant, low endothelial count OD

# PKP: Corneal Topography Power Map



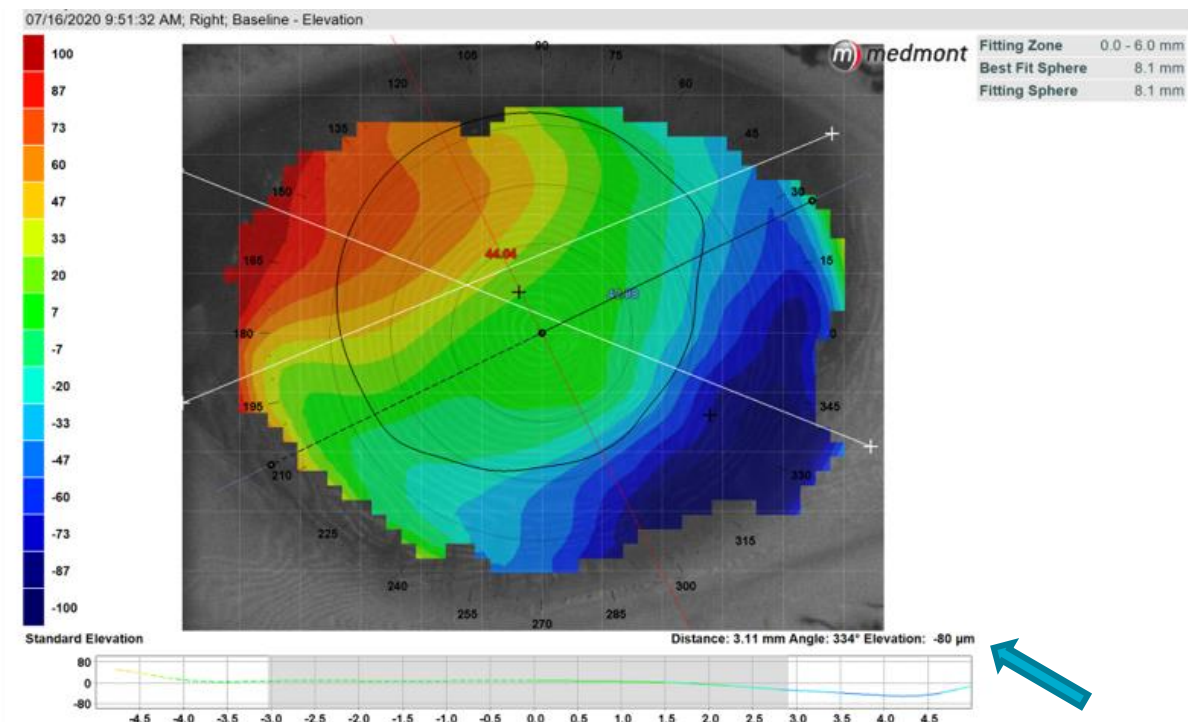


# 2020 spherical corneal GP lens

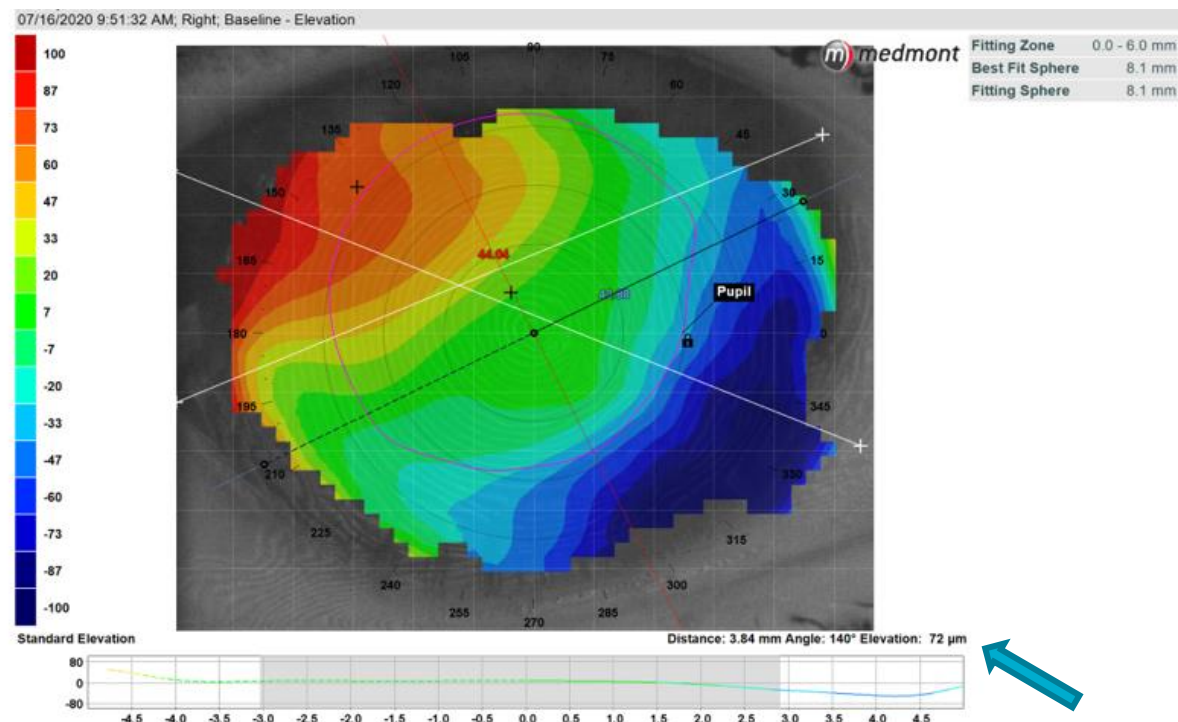


- BCVA ~20/30-- unsteady
- Intentionally fit steep to hang low and avoid problematic bleb
- Any flatter and lens moves more forcefully with blink into bleb
- Vision fluctuates with every blink... we settled

# PKP: Corneal Topography Elevation Map



-80 $\mu$ m

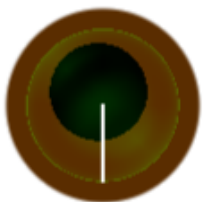


+72 $\mu$ m

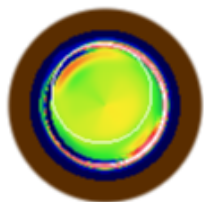
### Map

Quad View ▼

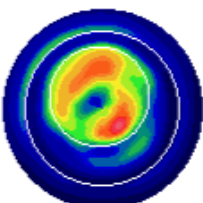
#### Fluorescein Map



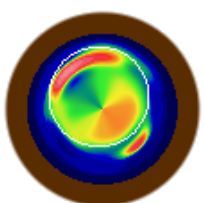
#### Curvature Front



#### Topography



#### Curvature Back



K = 7.77

1.17D x 026

### Manual Modification

ALL 1/2 1/4

Modification Increments

S (D)

1x

0.00

MB

### Modification Area



OR<sub>x</sub>



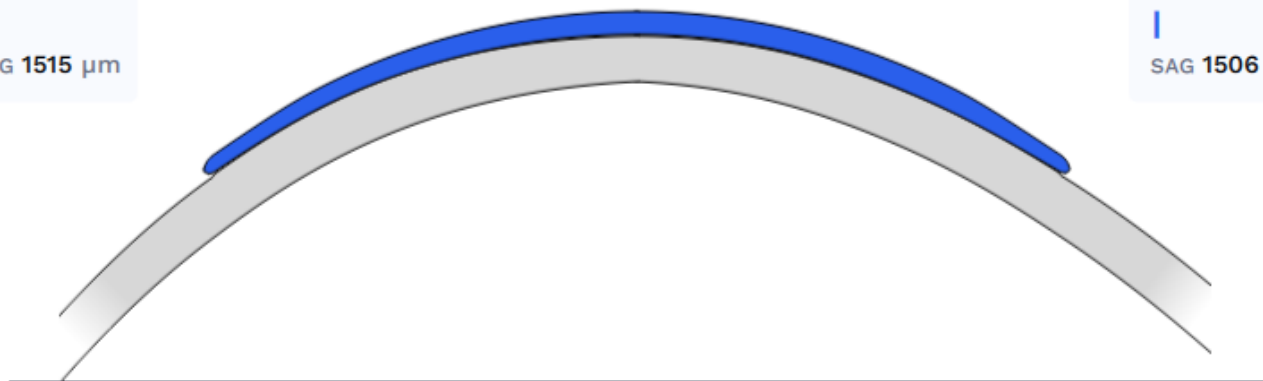
### Lens Profile



CT (mm) ET (mm) OAD (mm)  
0.25 0.16 9.60

S  
SAG 1515 μm

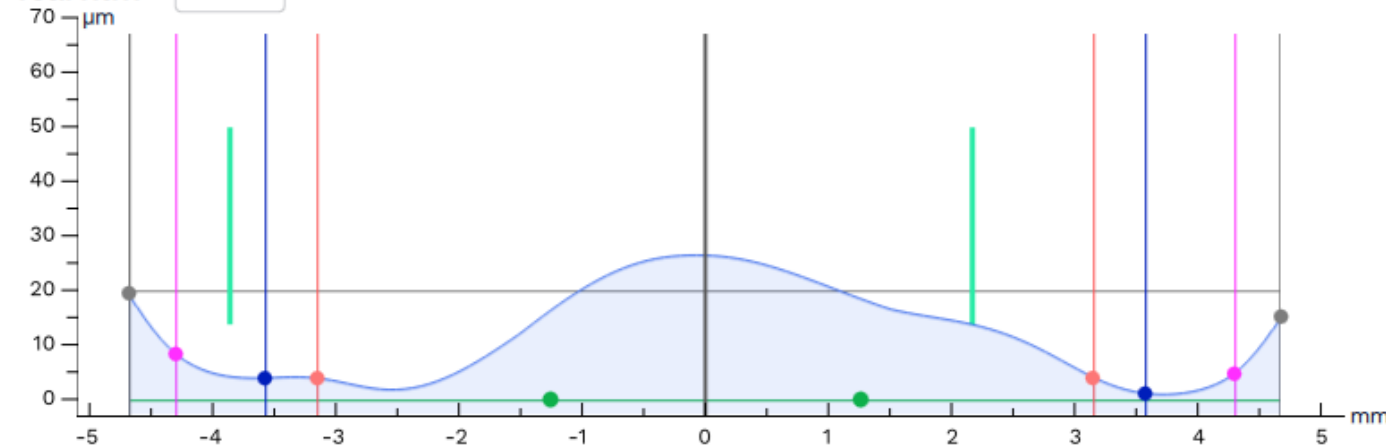
I  
SAG 1506 μm



DEMAND -2.28 / -2.87D POWER -1.83D BASE CURVE 7.29mm

### Tearfilm

70 ▼



	● Edge	● PC	● IC	● OZ	Central Clearance	● OZ	● IC	● PC	● Edge
TL (μm)	19.5	8.4	3.9	3.9	26.4	4.1	1.1	4.7	15.2
SAG (μm)	1515	1264	843	640	0	697	896	1285	1506
DIA (mm)	9.36	8.60	7.15	6.30	0	6.30	7.15	8.60	9.36

Biometric Data ▼

Lens Type and Material ▼

Markings ▼

Clinical Notes ▼

Summary ▲

#### Lens Geometry

Free Form

Lens Power +0.72 +/- 4.32 Base Curve 7.75 +/- 0.79

OAD 9.60 CT 0.25 ET 0.16

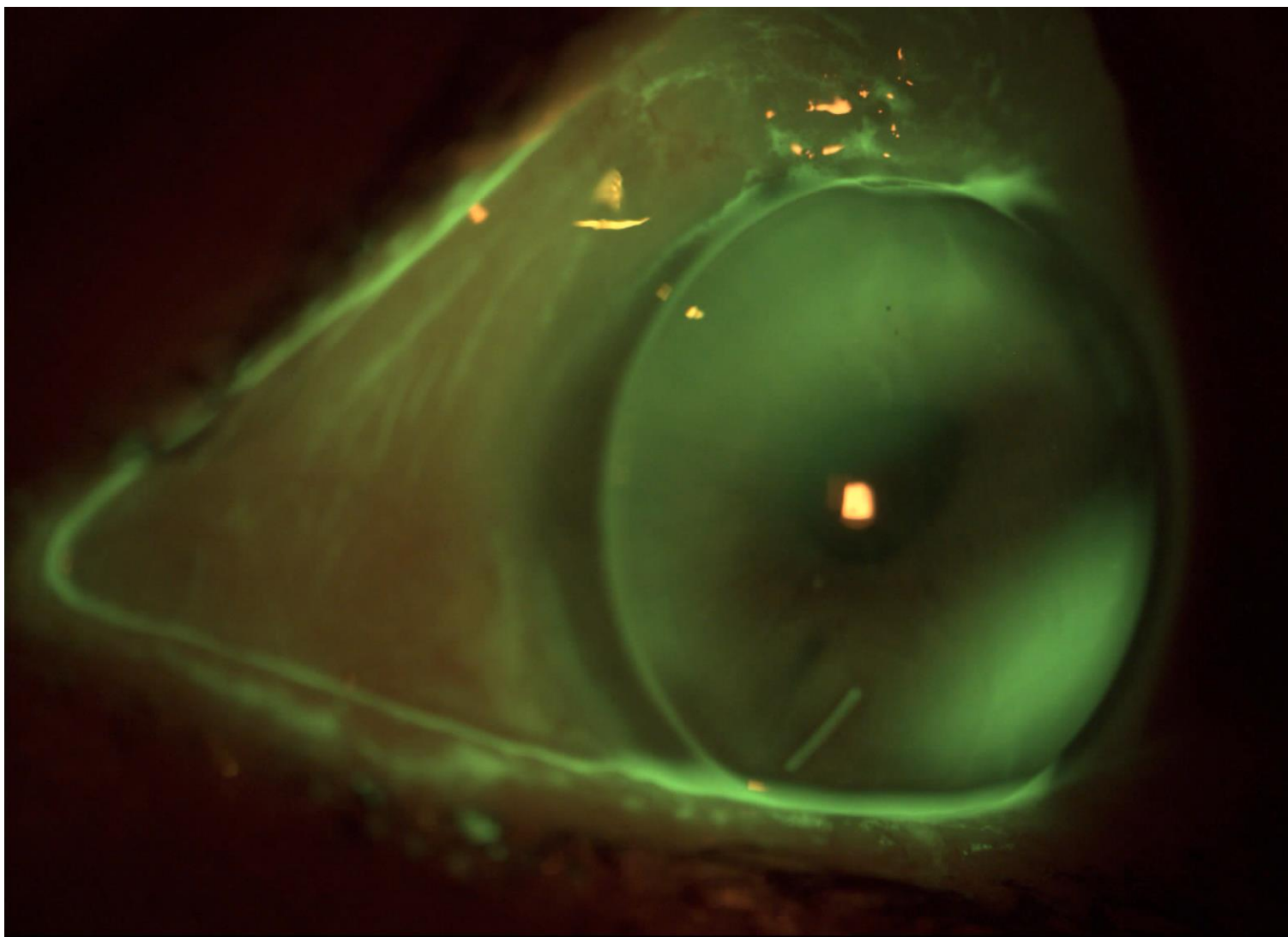
Add MF Zone

[Print Rx](#)

Last saved on 10/03/2022 Ordered on -



# 2022 WAVE freeform corneal GP lens



- BCVA ~20/30 steady
- Intentionally fit more aligned with less movement
- Lens does not move forcefully with blink
- No corneal adherence
- Could possibly achieve same thing with reverse curve or GSym corneal GP...
- Follow q3m

# Case 4: Eaglet ESP versus Medmont Meridia WAVE Freeform MF CorneaLens

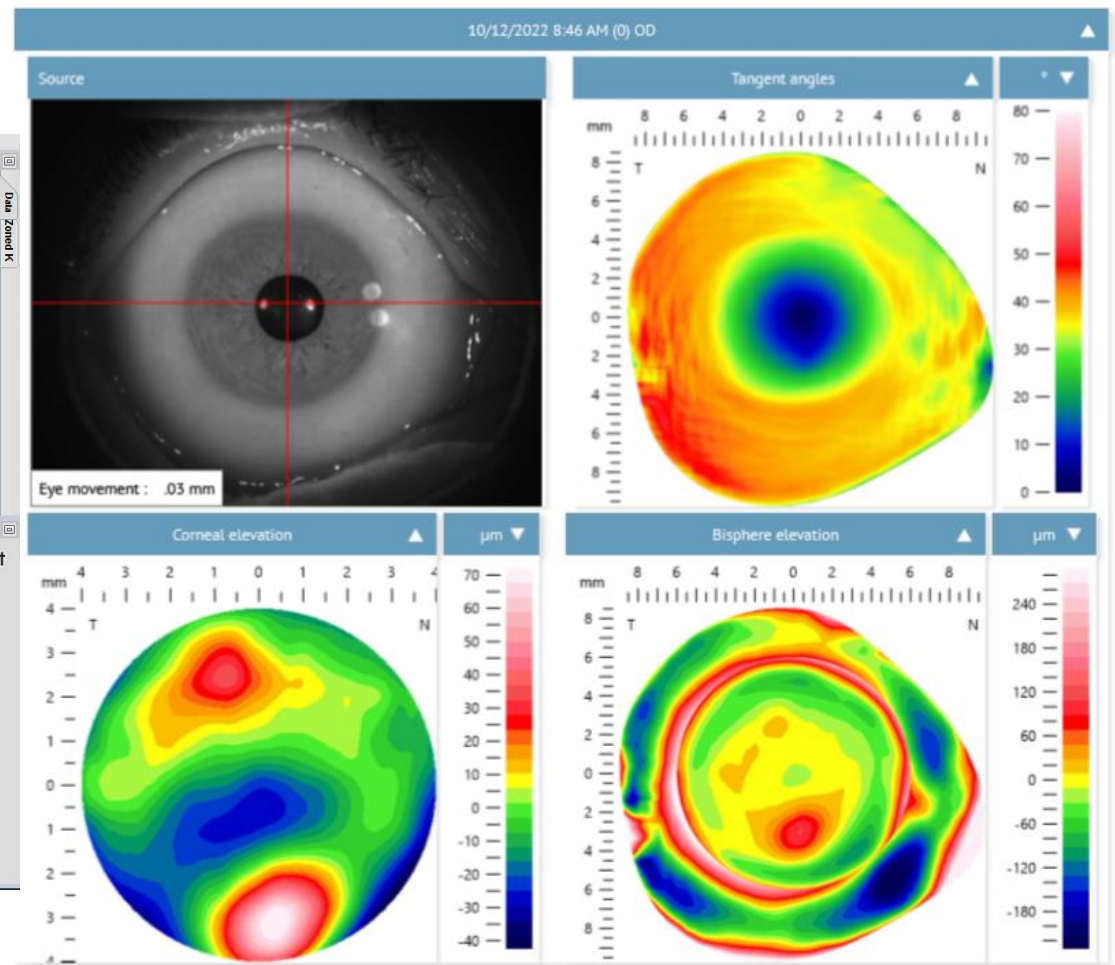
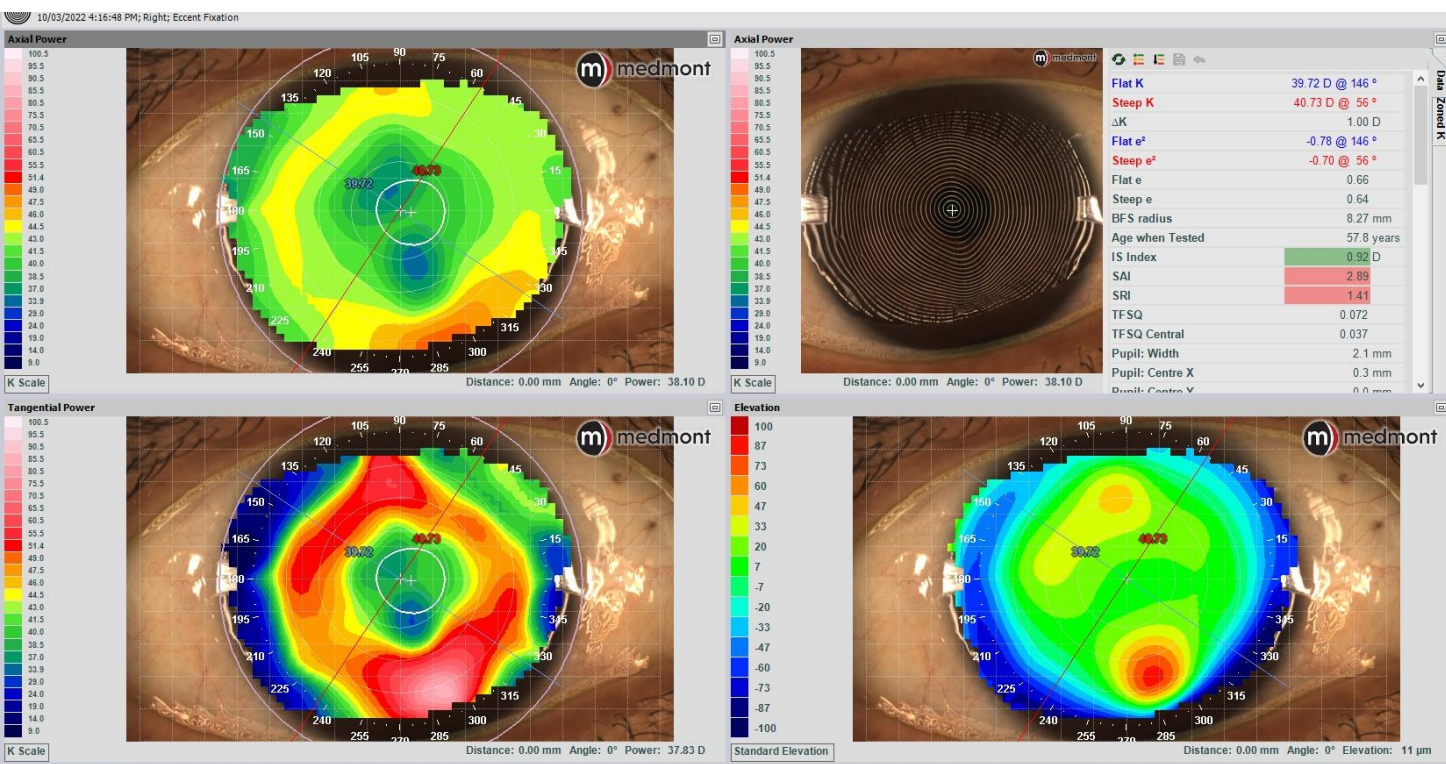
- 57 AF, Hx of corneal ectasia 2<sup>nd</sup> to RK (12 cuts) + AK (2 cuts) OU
- No prior CL wear experience
- Referred for scleral lenses. Successful design of scleral lenses from Eaglet profilometry but intimidation, frustration, and lack of motivation during A&R training.
- Pt wants to d/c scleral lens and convert to smaller lenses, easier A&R skills, less lens maintenance.
- Design WAVE Freeform Multifocal CorneaLenses from both Medmont Meridia and Eaglet Eye Surface Profiler for head-to-head comparison.

# Eaglet ESP versus Medmont Meridia Baseline Data

- Spectacle MR:
  - OD +2.75-3.25x105, 20/40-. Add +2.00.
  - OS +1.00-1.25x035, 20/30-. Add +2.00. OS Dominant.
- Dx SL SCOR:
  - OD 20/30. Minimum Add +1.75. OD Dominant
  - OS 20/30. Minimum Add +1.75.
- HVID
  - ~11.3mm OU Eaglet ESP
  - ~11.2mm OU Medmont Meridia
- Corneal Irregularity
  - Focal inferior ectasia OU @~3.5mm distance
  - ~100um meridional asymmetry at 7mm chord on both Meridia and Eaglet
  - ~100um toricity at 7mm chord on both Meridia and Eaglet

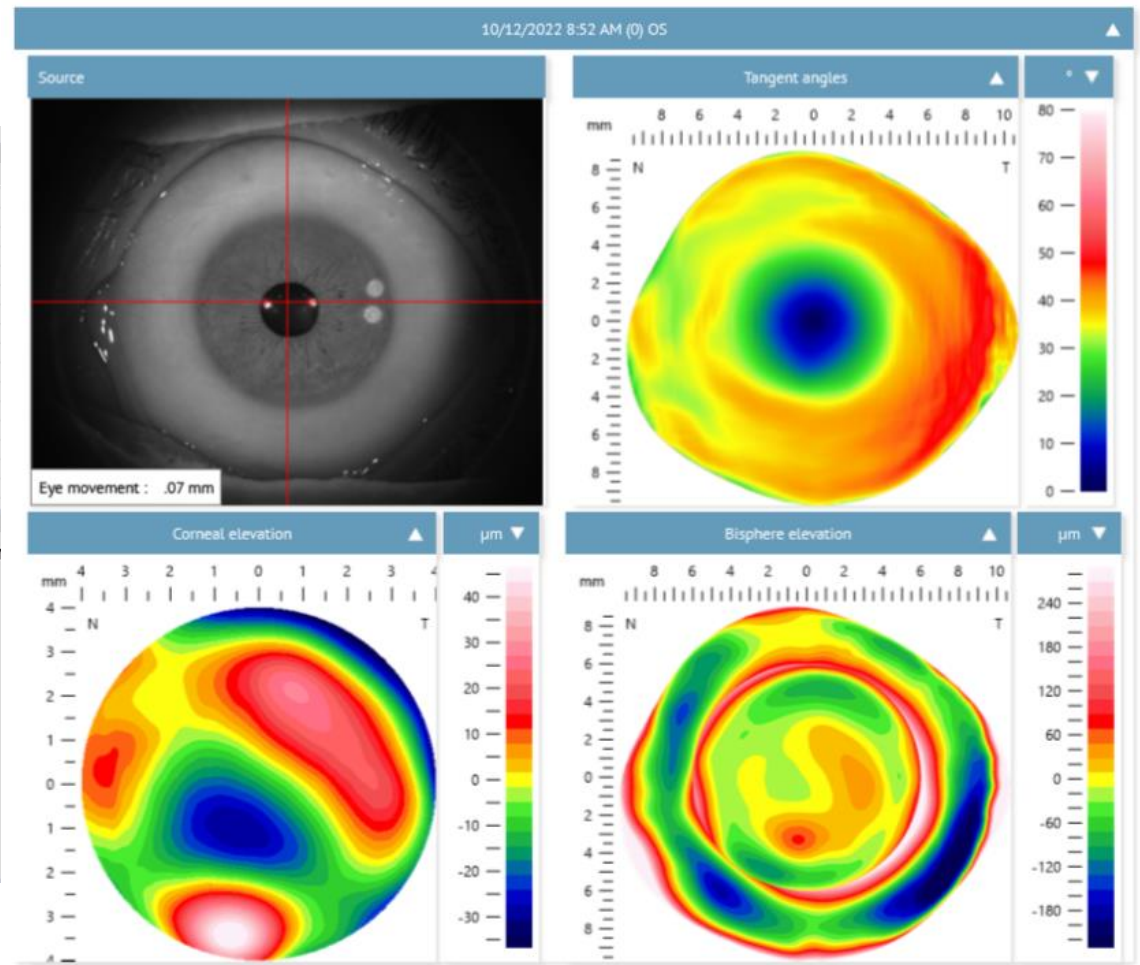
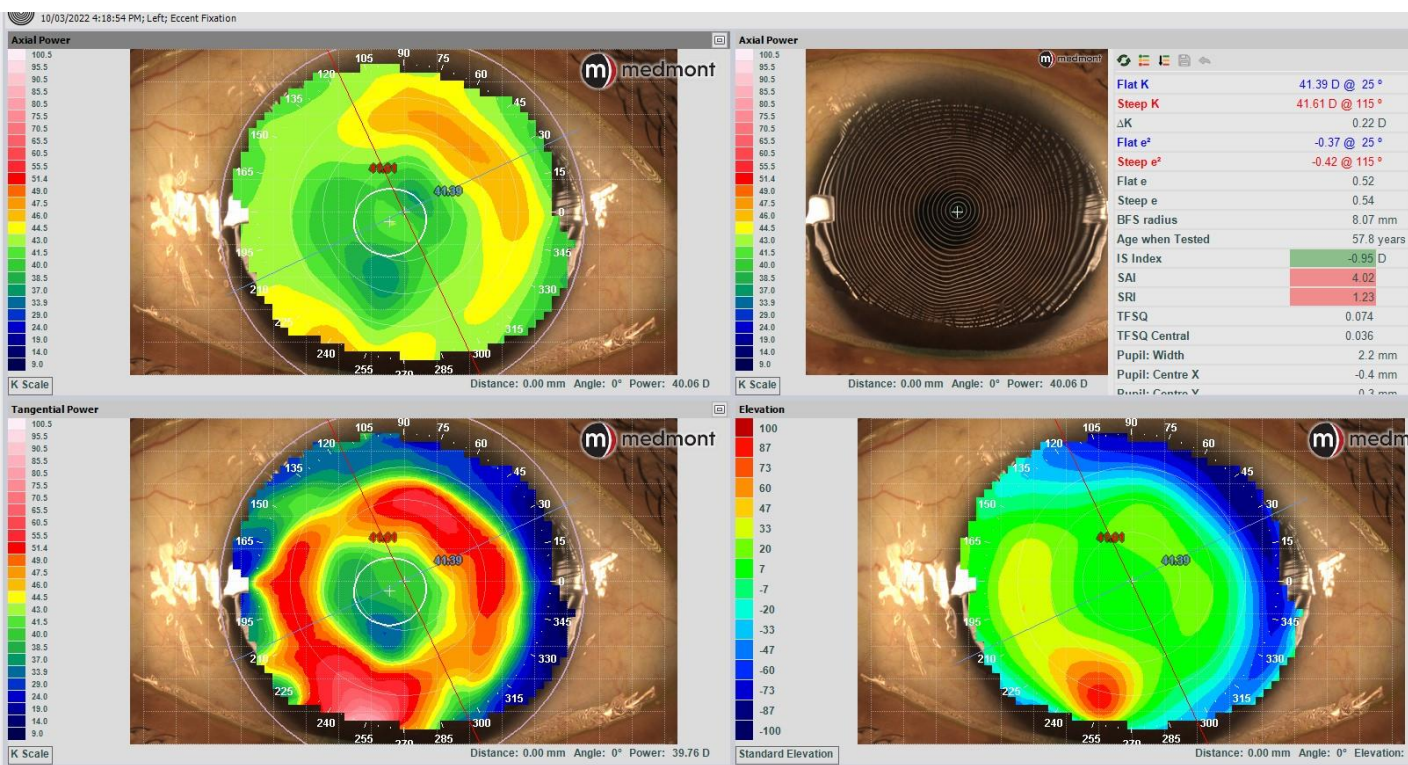


# Eaglet ESP versus Medmont Meridia Baseline Maps OD

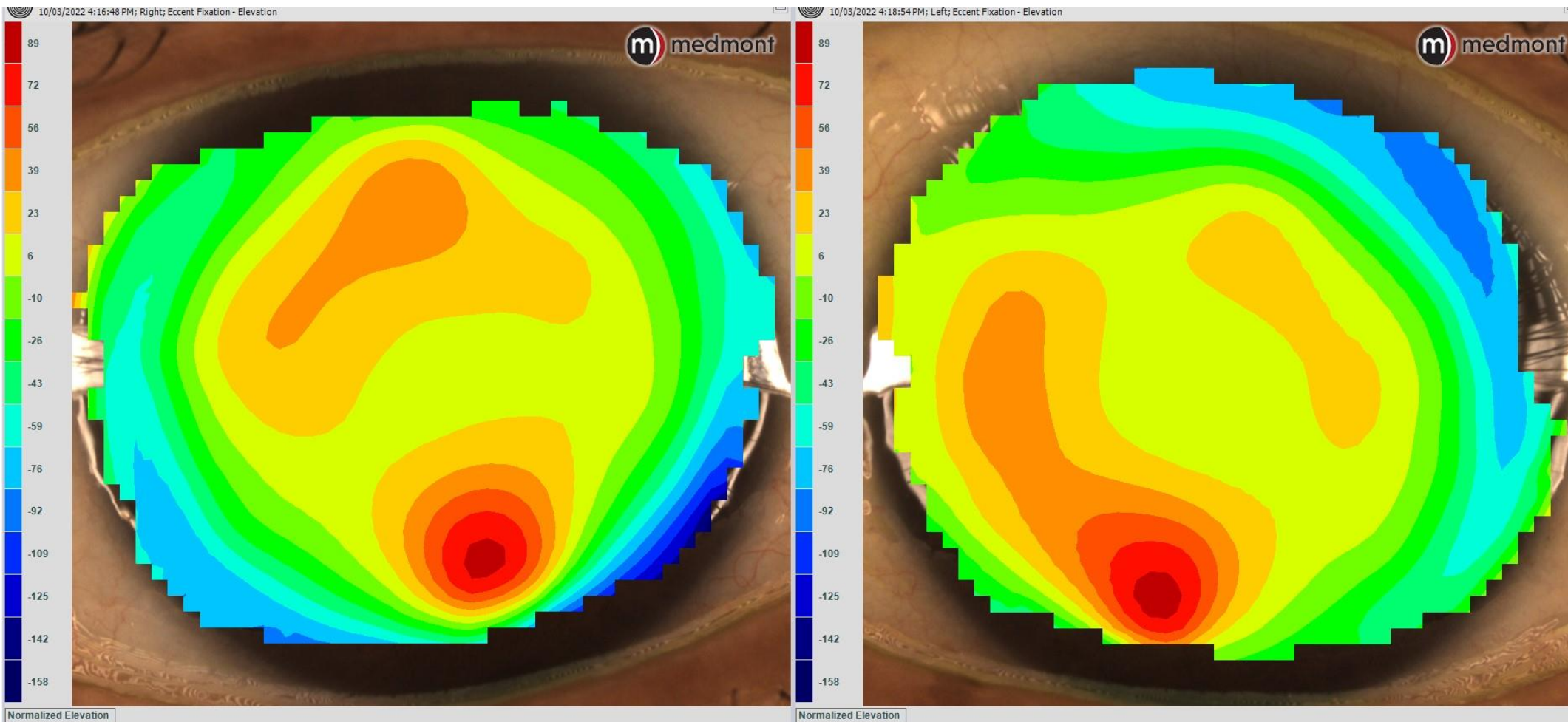




# Eaglet ESP versus Medmont Meridia Baseline Maps OS



# Eaglet ESP versus Medmont Meridia Gsym versus Freeform? Decided by elevation map symmetry.





# Eaglet ESP versus Medmont Meridia

## Eaglet WAVE FForm MF CorneaLens Design OD



**CorneaLens**

Biometric Data

Lens Type and Material

Markings

Clinical Notes

Note  
Meridia - s/p RK. Reduce OAD 10.9 to 10.6. OR +0.50. Add MF +1.75 C/D 3.8MFzone. Flatten PC 4um.

Summary

Lens Geometry  
Free Form

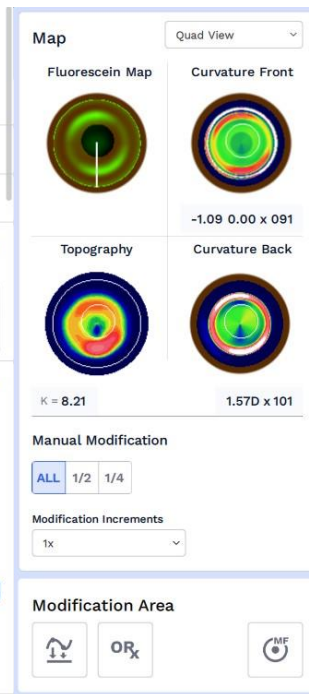
Lens Power	Base Curve
-0.50 +/- 2.77	8.44 +/- 0.59

OAD 10.60 CT 0.20 ET 0.16

Add MF Zone +1.75 3.60 CENTER DISTANCE

Print Rx

Last saved on 12/02/2022 Ordered on 12/02/2022



**CorneaLens**

Biometric Data

Lens Type and Material

Markings

Clinical Notes

Note  
Eaglet study - s/p RK. Reduced OAD from 11.0 to 10.6. Add OR +1.00. Add MF 1.75D/C 3.6MFzone. Flatten PC 4um.

Summary

Lens Geometry  
Free Form

Lens Power	Base Curve
-1.14 +/- 3.76	8.22 +/- 0.78

OAD 10.60 CT 0.22 ET 0.16

Add MF Zone +1.75 3.60 CENTER DISTANCE

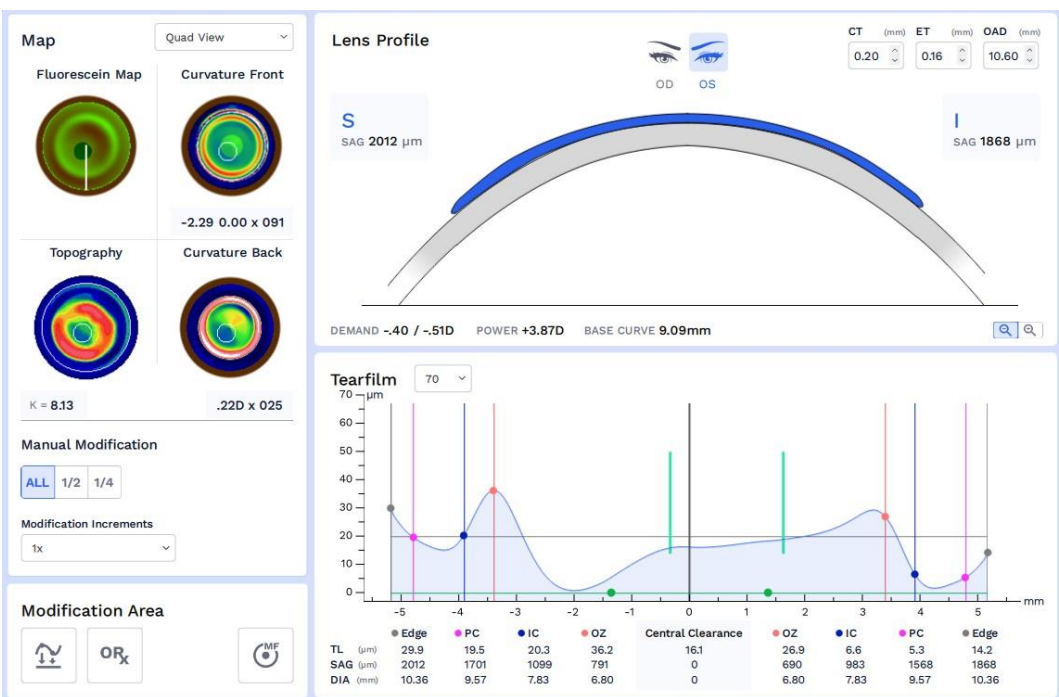
Print Rx

Last saved on 12/02/2022 Ordered on 12/02/2022



# Eaglet ESP versus Medmont Meridia

## Eaglet WAVE FForm MF CorneaLens Design OS



**CorneaLens**

Biometric Data

Lens Type and Material

Markings

Clinical Notes

Note  
Meridia - s/p RK. Reduce OAD 10.9 to 10.6. OR +0.25. Add MF +1.75 N/C 3.6MFZone. Flatten PC 4um. Opt Comf Blue.

Summary

Lens Geometry  
Free Form

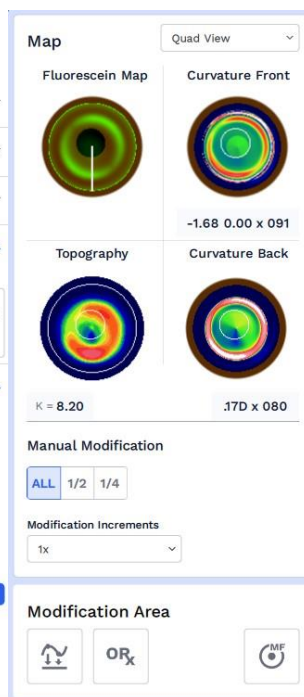
Lens Power	Base Curve
+0.00 +/- 4.40	8.28 +/- 0.86

OAD	CT	ET
10.60	0.20	0.16

Add MF Zone  
+1.75 3.60 CENTER NEAR

Print Rx

Last saved on 12/02/2022 Ordered on 12/02/2022



**CorneaLens**

Biometric Data

Lens Type and Material

Markings

Clinical Notes

Note  
Eaglet - s/p RK. Reduced OAD 11.0 to 10.6. Add OR +0.50. Add MF N/C +1.75 3.6MFZone. Flatten PC 4um. Opt Comf to Fluor60.

Summary

Lens Geometry  
Free Form

Lens Power	Base Curve
+0.71 +/- 3.83	8.36 +/- 0.79

OAD	CT	ET
10.60	0.22	0.16

Add MF Zone  
+1.75 3.60 CENTER NEAR

Print Rx

Last saved on 12/02/2022 Ordered on 12/02/2022

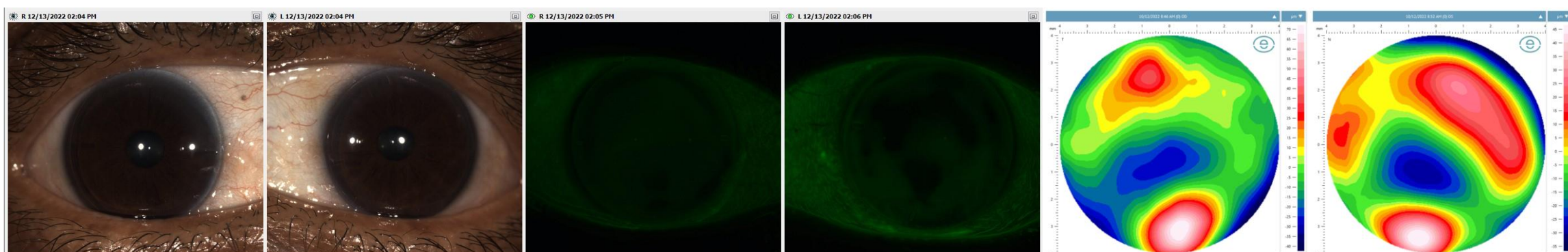
# Eaglet ESP versus Medmont Meridia WAVE FForm MF CorneaLens Results

- **Eaglet Eye Surface Profiler Design**
  - OD 10.6 OAD/6.8 BOZD/8.22 BC/-1.14/+1.75 Add 3.6MFZ CD
  - OS 10.6 OAD/6.8 BOZD/8.36 BC/+0.71/+1.75 Add 3.6MFZ CN
  - DVA: OD 20/30-, OS 20/50, OU 20/30. NVA: OU J2
  - Great comfort, fit, centration, and stability. OAD trace large but limbal clearance, no binding.
- **Medmont Meridia Design**
  - OD 10.6 OAD/6.8 BOZD/8.44 BC/-0.50/+1.75 Add 3.6MFZ CD
  - OS 10.6 OAD/6.8 BOZD/8.28 BC/Plano/+1.75 Add 3.6MFZ CN
  - DVA: OD 20/25-, OS 20/40+, OU 20/25-. NVA: OU J2
  - Great comfort, fit, centration, and stability. OAD trace large but limbal clearance, no binding.

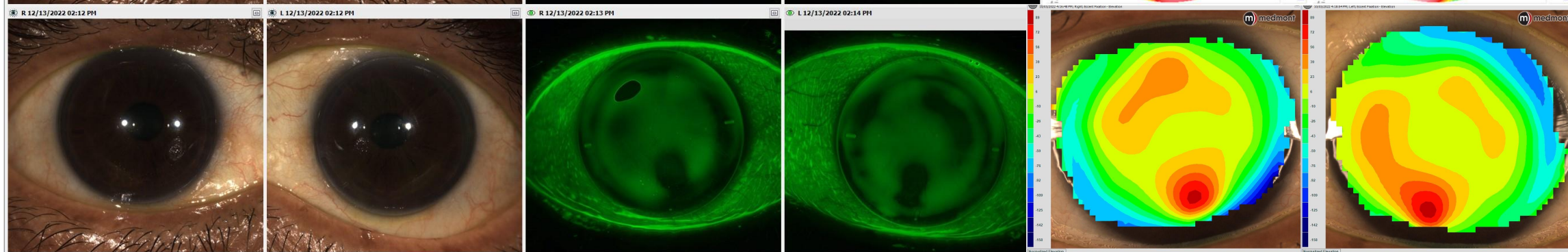


# Eaglet ESP versus Medmont Meridia WAVE FForm MF CorneaLens Results Both Are Fantastic!

Eaglet ESP Design



Medmont Meridia Design

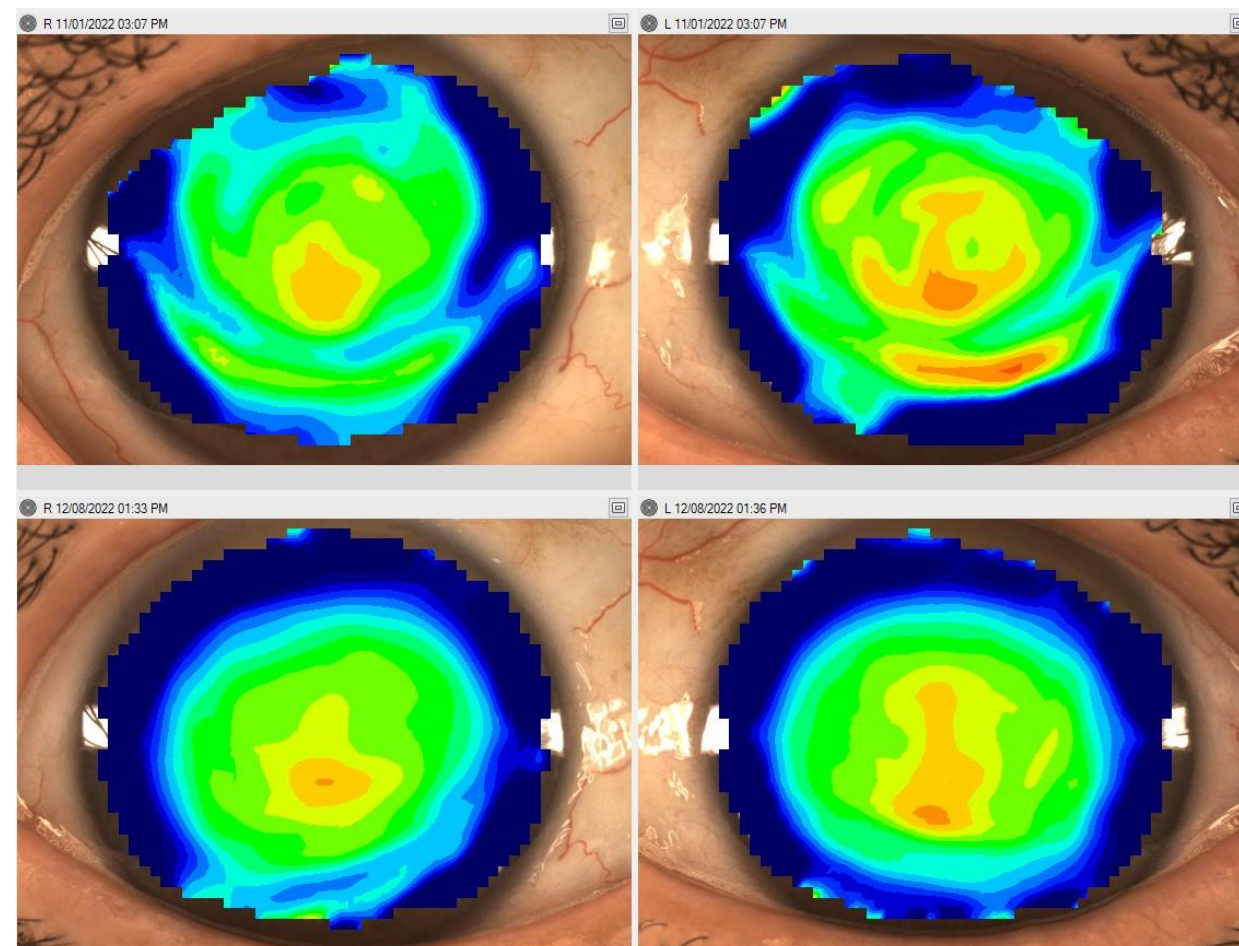


## Case 5: GSym CorneaLens Multifocal

- 65 WF, presented for second opinion on fitting of 9.3mm OAD Art Optical aspheric MF corneal lenses fit elsewhere
- Good VA's, but complaints of poor comfort, needs to squint while wearing lenses
- Significant corneal molding OU from prior lenses
- Washout x 1 month
- Refitted into WAVE GSym MF CorneaLens for robust customization of lens design and MF optics

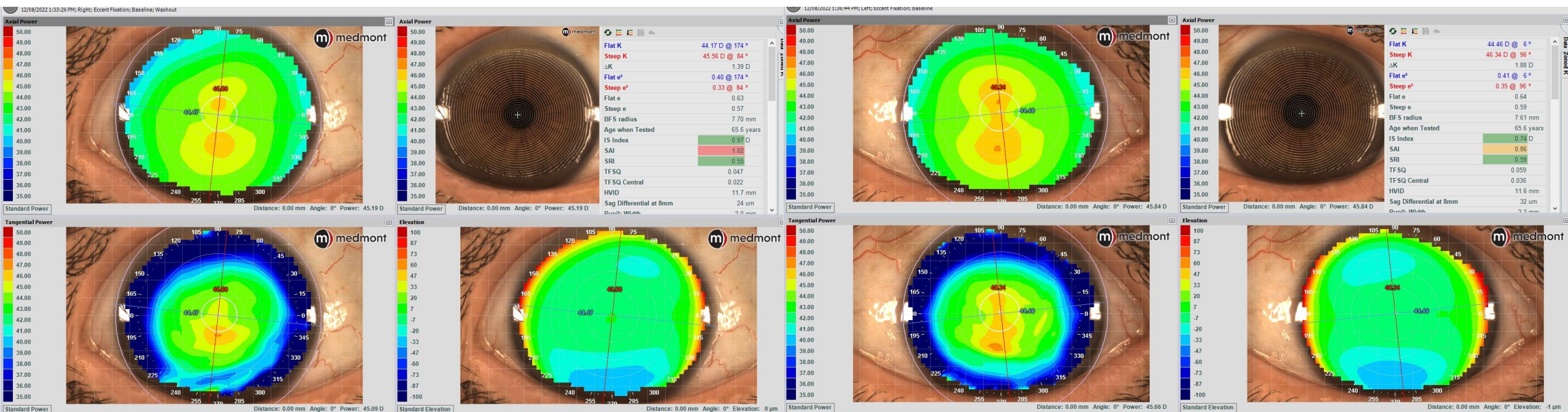
# GSym CorneaLens Multifocal Baseline Data After 1mo. Washout

- Presenting topo with corneal molding
- s/p 1mo. washout Spectacle MR:
  - OD -4.25-1.00x165, 20/20-1. Add +2.25. OD Dominant.
  - OS -4.25-1.25x007, 20/20-1. Add +2.25.





# GSym CorneaLens Multifocal Baseline Medmont Meridia

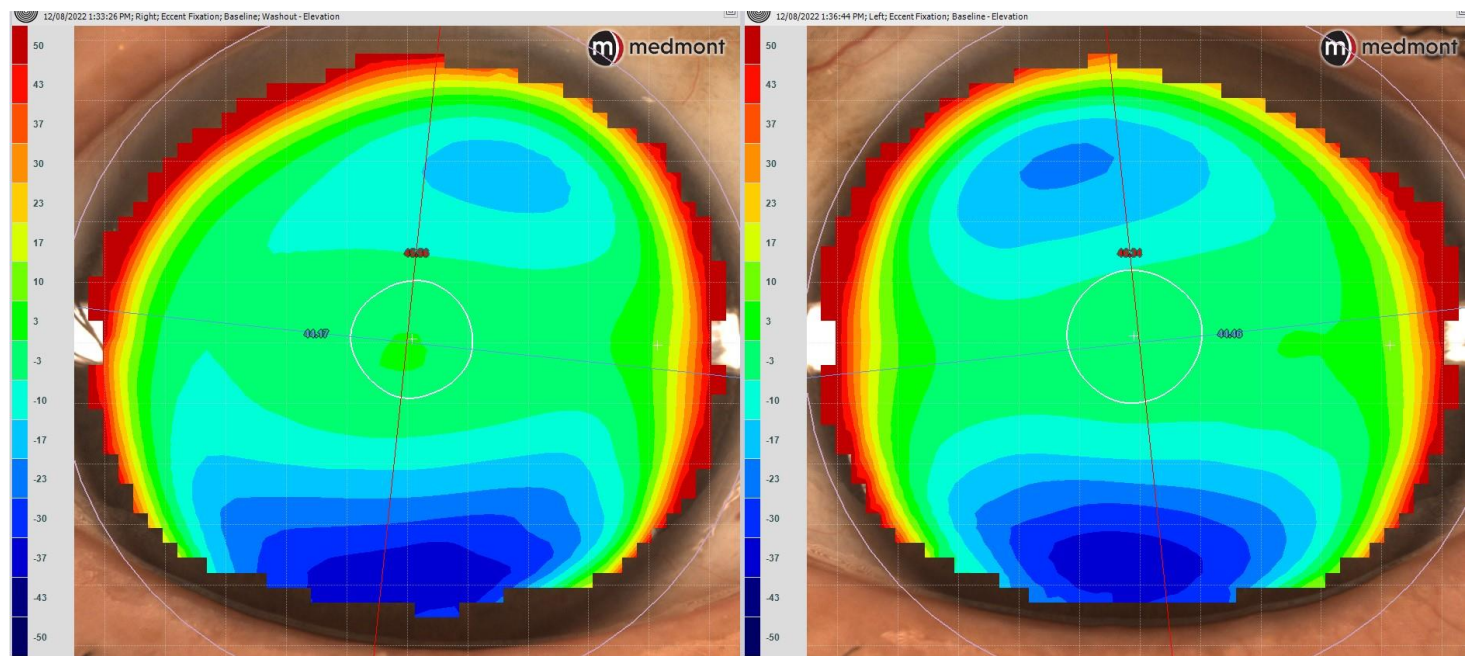


# GSym CorneaLens Multifocal

## GSym versus Freeform?

### Elevation Difference and Symmetry

- Medmont Meridia Corneal Topography
  - Good symmetry OU
  - SAG diff ~50-55um @ 9mm chord
  - HVID 11.7mm OD, 11.6mm OS





# GSym CorneaLens Multifocal WAVE 1<sup>st</sup> Design OU

**Map** Quad View

Fluorescein Map

Topography

Curvature Back

K = 7.52 1.39D x 173

Manual Modification

ALL 1/2 1/4

Modification Increments S 0.00

Modification Area

**Lens Profile**

CT (mm) ET (mm) OAD (mm)  
0.17 0.17 10.60

OD OS

T SAG 1895 μm N SAG 1895 μm

DEMAND .89 / .20D POWER -3.48D BASE CURVE 7.69mm

**Tearfilm** 70 μm Tear Layer Mode: Tangential

TL (μm)	26.5	18.3	18.2	18.0	Central Clearance	14.4	6.5	5.0	5.7	15.7
SAG (μm)	1895	1629	1084	815	0	815	1084	1629	1895	1895
DIA (mm)	10.35	9.60	7.90	6.90	0	6.90	7.90	9.60	10.35	10.35

**CorneaLens**

Biometric Data

Lens Type and Material

Markings

Clinical Notes

Note

GSym w/ 10um total diff.  
CD MF +2.00 Add, MFZone 3.60.

Summary

**Lens Geometry**  
GSym

Lens Power Base Curve  
-4.01 +/- 0.63 7.60 +/- 0.08

OAD CT ET  
10.60 0.17 0.17

Add MF Zone  
+2.00 3.60 CENTER DISTANCE

Print Rx

Last saved on 12/09/2022 Ordered on 12/09/2022

**Map** Quad View

Fluorescein Map

Curvature Front

Topography

Curvature Back

K = 7.43 1.88D x 006

Manual Modification

ALL 1/2 1/4

Modification Increments S 0.00

Modification Area

**Map** Quad View

Fluorescein Map

Topography

Curvature Back

K = 7.43 1.88D x 006

Manual Modification

ALL 1/2 1/4

Modification Increments S 0.00

Modification Area

**Lens Profile**

CT (mm) ET (mm) OAD (mm)  
0.17 0.16 10.60

OD OS

N SAG 1915 μm T SAG 1915 μm

DEMAND 1.05 / .11D POWER -1.25D BASE CURVE 7.66mm

**Tearfilm** 70 μm Tear Layer Mode: Tangential

TL (μm)	13.3	1.8	5.3	5.1	Central Clearance	10.2	13.3	16.6	19.2	33.7
SAG (μm)	1915	1627	963	700	0	700	963	1627	1915	1915
DIA (mm)	10.36	9.55	7.45	6.40	0	6.40	7.45	9.55	10.36	10.36

**CorneaLens**

Biometric Data

Lens Type and Material

Markings

Clinical Notes

Note

GSym w/ 10um total diff.  
NC MF +2.00 Add, MFZone 3.60.

Summary

**Lens Geometry**  
GSym

Lens Power Base Curve  
-2.06 +/- 0.97 7.53 +/- 0.13

OAD CT ET  
10.60 0.17 0.16

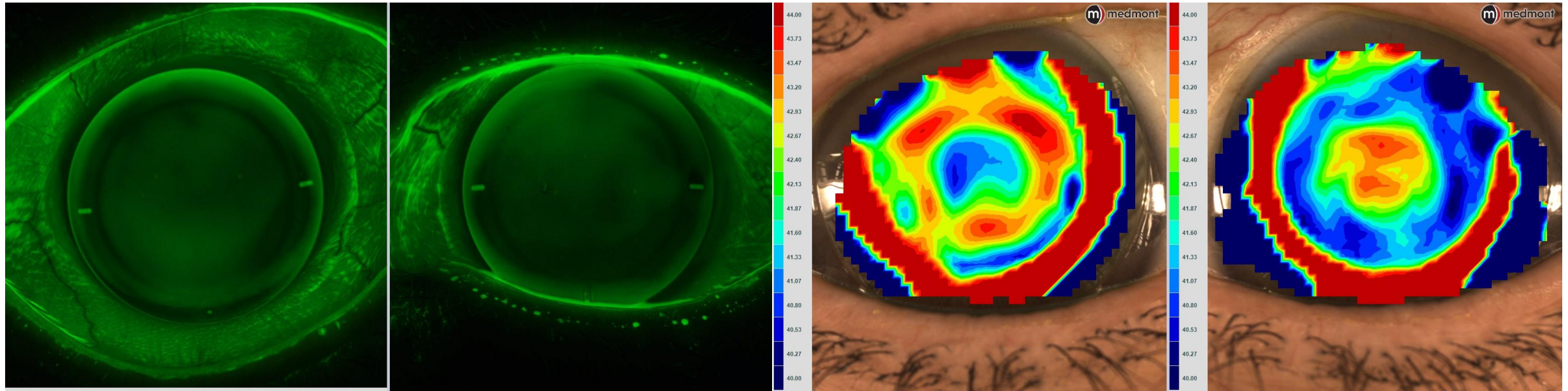
Add MF Zone  
+2.00 3.60 CENTER NEAR

Print Rx

Last saved on 12/08/2022 Ordered on 12/08/2022



# GSym CorneaLens Multifocal WAVE 1<sup>st</sup> Design Results



# GSym CorneaLens Multifocal WAVE 1<sup>st</sup> Design Results

- 1st pair MF GSym CorneaLens:
  - OD 10.6 OAD/6.4 BOZD/7.60 BC/-4.01/+2.00 Add 3.6MFZ CD
  - OS 10.6 OAD/6.9 BOZD/7.53 BC/-2.06/+2.00 Add 3.6MFZ CN
  - DVA: OD 20/20-2, OS 20/80, OU 20/20. NVA: OU J1
  - Great comfort, alignment fit, good centration, good edge lift OU.
  - Great overall vision, but near > distance, and distance vision feels inconsistent.
- Revised pair MF GSym CorneaLens:
  - Decrease Add to +1.75 OU
  - Increase CD optic zone from 3.6mm to 4.0mm
  - Decrease CN optic zone from 3.6mm to 3.0mm

# GSym CorneaLens Multifocal WAVE Revised Design OU

**Map** Quad View

Fluorescein Map Curvature Front

Topography Curvature Back

K = 7.52 1.39D x 173

Manual Modification

Modification Increments S (D)

1x 0.00

Modification Area

**Lens Profile**

CT (mm) ET (mm) OAD (mm)  
0.17 0.17 10.60

OD OS

T SAG 1895 μm N SAG 1895 μm

DEMAND .89 / .20D POWER -3.51D BASE CURVE 7.69mm

**Tearfilm** 70 μm Tear Layer Mode: Tangential

TL (μm)	PC	IC	OZ	Central Clearance	OZ	IC	PC	Edge
26.5	18.3	18.2	18.0	14.4	6.5	5.0	5.7	15.7
SAG (μm)	1895	1629	1084	815	815	1084	1629	1895
DIA (mm)	10.35	9.60	7.90	6.90	6.90	7.90	9.60	10.35

**CorneaLens**

Biometric Data

Lens Type and Material

Markings

Clinical Notes

Note

GSym w/ 10um total diff. Decr CD MF +2.00 to +1.75 Add, Incr MFzone 3.60 to 4.0.

Summary

Lens Geometry

GSym

Lens Power Base Curve

-4.03 +/- 0.48 7.60 +/- 0.08

OAD CT ET

10.60 0.17 0.17

Add MF Zone

+1.75 4.00 CENTER DISTANCE

Print Rx

Last saved on Ordered on

12/22/2022 12/22/2022

**Map** Quad View

Fluorescein Map Curvature Front

Topography Curvature Back

K = 7.43 1.88D x 006

Manual Modification

Modification Increments S (D)

1x 0.00

Modification Area

**Lens Profile**

CT (mm) ET (mm) OAD (mm)  
0.17 0.16 10.60

OD OS

N SAG 1915 μm T SAG 1915 μm

DEMAND 1.05 / .31D POWER -1.63D BASE CURVE 7.66mm

**Tearfilm** 70 μm Tear Layer Mode: Tangential

TL (μm)	PC	IC	OZ	Central Clearance	OZ	IC	PC	Edge
13.3	1.8	5.3	5.1	10.2	13.3	16.6	19.2	33.7
SAG (μm)	1915	1627	963	700	700	963	1627	1915
DIA (mm)	10.36	9.55	7.45	6.40	6.40	7.45	9.55	10.36

**CorneaLens**

Biometric Data

Lens Type and Material

Markings

Clinical Notes

Note

GSym w/ 10um total diff. Decr NC MF +2.00 to +1.75 Add, decr MFzone 3.60 to 3.0.

Summary

Lens Geometry

GSym

Lens Power Base Curve

-2.45 +/- 1.22 7.53 +/- 0.13

OAD CT ET

10.60 0.17 0.16

Add MF Zone

+1.75 3.00 CENTER NEAR

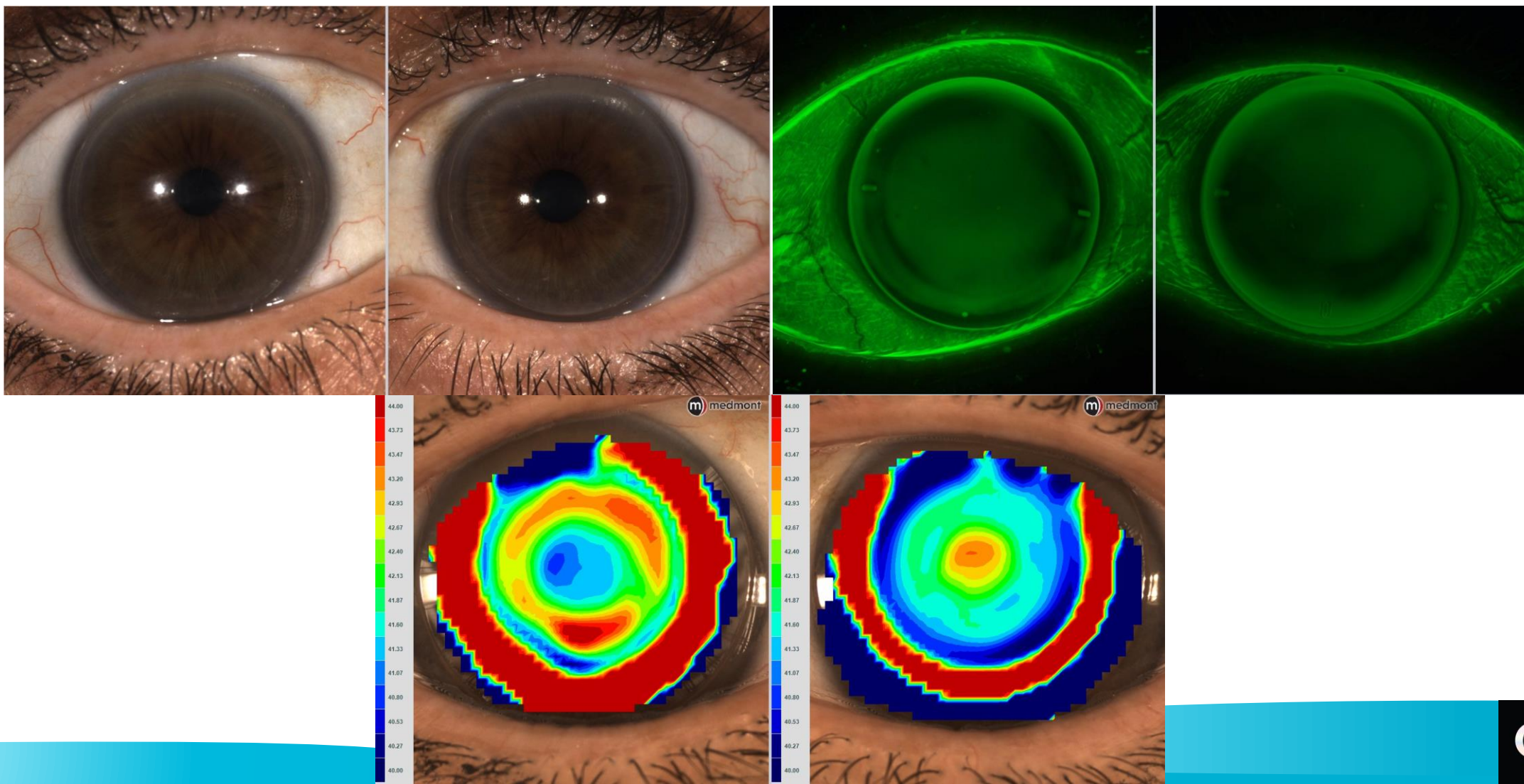
Print Rx

Last saved on Ordered on

12/22/2022 12/22/2022



# GSym CorneaLens Multifocal WAVE Final Design Results



# GSym CorneaLens Multifocal WAVE Final Design Results

- Revised pair MF GSym CorneaLens:
  - OD 10.6 OAD/6.4 BOZD/7.60 BC/-4.03/+1.75 Add 4.0MFZ CD
  - OS 10.6 OAD/6.9 BOZD/7.53 BC/-2.45/+1.75 Add 3.0MFZ CN
  - DVA: OD 20/20-2, OS 20/40, OU 20/20. NVA: OU J2
  - Great comfort, alignment fit, good edge lift OU.
  - Excellent vision at all ranges. Pt feels vision is consistent.
- Very happy! Says “these are the best lenses I’ve ever worn.”

