

# Evaluation of the Use of an Automated Photo-Ophthalmic Device (APOD) for Assisting the Fitting of Custom Toric Contact Lenses

Natalie E Corey<sup>1</sup>, Alex Levit<sup>2</sup> and Simon Barnard<sup>3</sup>

## Introduction

When fitting contact lenses, there are multiple measurements that should be taken to ensure the optimum design is being used. The most common measurements are horizontal/diagonal visible iris diameter (HVID/DVID) and corneal curvature, but others, such as pupil size and eccentricity are very important when fitting multifocal contact lenses. There are various instruments that can be used to take these measurements but they often require subjective assessment which potentially introduces error. The *Volk Eye Check Contact Lens (VEC CL)* device (APOD)(Figure 1) eliminates subjectivity by taking accurate, repeatable and objective measurements producing results very close to the average of major devices (*Rosen et al, 2015*) and has been described as a tool to improve presbyopic lens fitting (Norman 2015)



Figure 1 The Volk Eye Check device

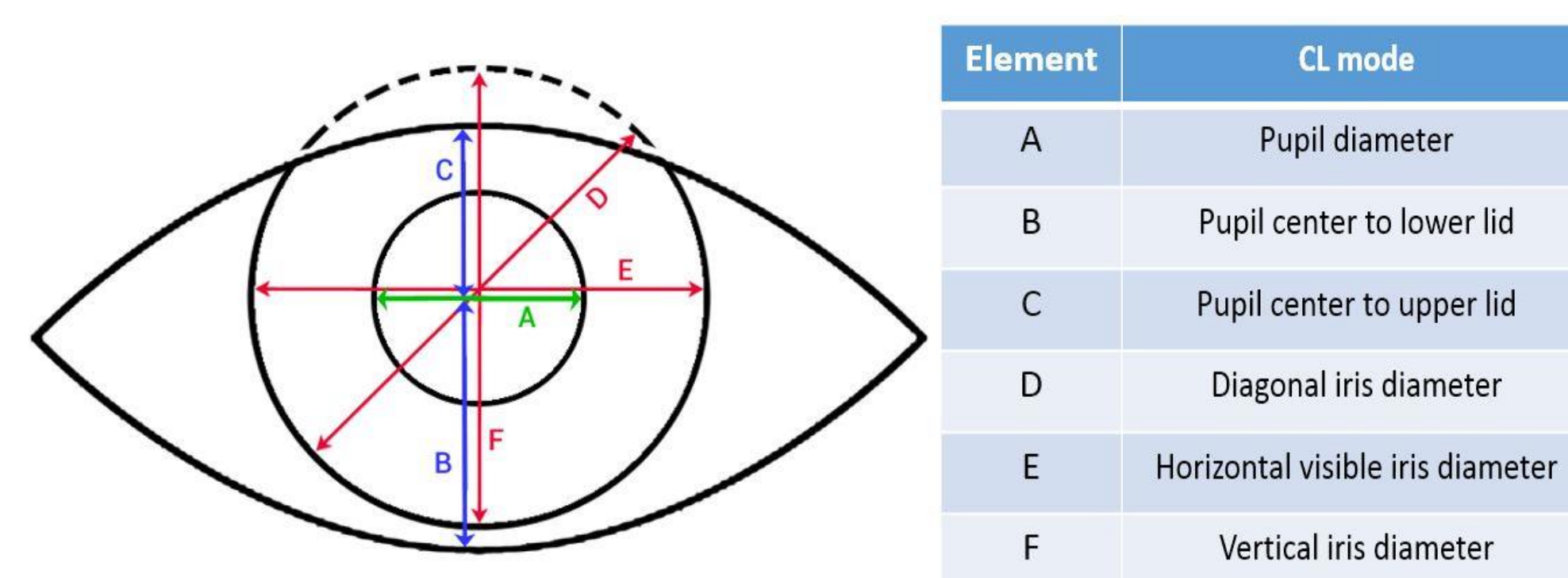


Figure 2 Objective data automatically measured by the Volk Eye Check CL mode

## PURPOSE

The aim of this study was to evaluate the use of an APOD (*Volk Eye Check*) to determine whether this technology assists the fitting process of custom soft multifocal toric lenses and, if it does, how the technology can benefit the optometrist and patient.

## Method

Three patients who previously had experienced limited success with other multifocal lenses underwent refitting with utilising automated data collection from the APOD in addition to refraction. For each patient the data from the APOD is seamlessly used by the *Best Fit Analysis*® to automatically design the lenses utilising proprietary algorithms. The lenses were ordered entirely on the basis of the automated *Best Fit Analysis*® recommendations without the need for trial lens evaluation.

## Results

Clinical findings for each patient are shown below.

**Case 1:** JE, a 56 YO WF Previously worn another soft toric MF CL with limited success to do instability in VA.  
OD 42.25/42.75 @ 162; +0.25/-1.25 x 85; Add +2.25DS  
OS 42.50/43.00 @ 159; +0.75/-1.50 x 90; Add +2.25DS  
Final BCVA in ASTERA MFT 20/20 OU with acceptable near vision with P2 lenses OU. Lenses rotated 5 degrees nasally OD, OS with good centration and sufficient movement.

**Case 2:** JC, 52 YO WF with corneal astigmatism > spectacle astigmatism . Previously worn a hybrid MF CL design.  
OD 44.00/46.00 @ 091; -7.50/-0.75 x180; Add +2.00DS  
OS 44.00/45.25 @ 089; -6.25/-1.00 x165; Add +2.00DS  
Final BCVA in ASTERA MFT 20/25 OU with acceptable near vision with P2 lenses OU. Lenses rotated five degrees nasally OD, zero degrees OS with good centration and sufficient movement.

**Case 3:** DK, 63 YO MF, S/P RK OU. Previously worn another soft toric MF CL with limited success secondary to unpredictable rotation causing vision fluctuation.  
OD 42.50/43.25 @ 005; +2.75/-1.50 x 090; Add +2.50DS  
OS 41.00/42.50 @ 178; +4.50/-2.25 x 090; Add +2.50DS  
Final BCVA in ASTERA MFT 20/25 OU with acceptable near vision with P2 OD and P3 OS. Lenses rotated 5 degrees temporally OD, OS with good centration and sufficient movement.

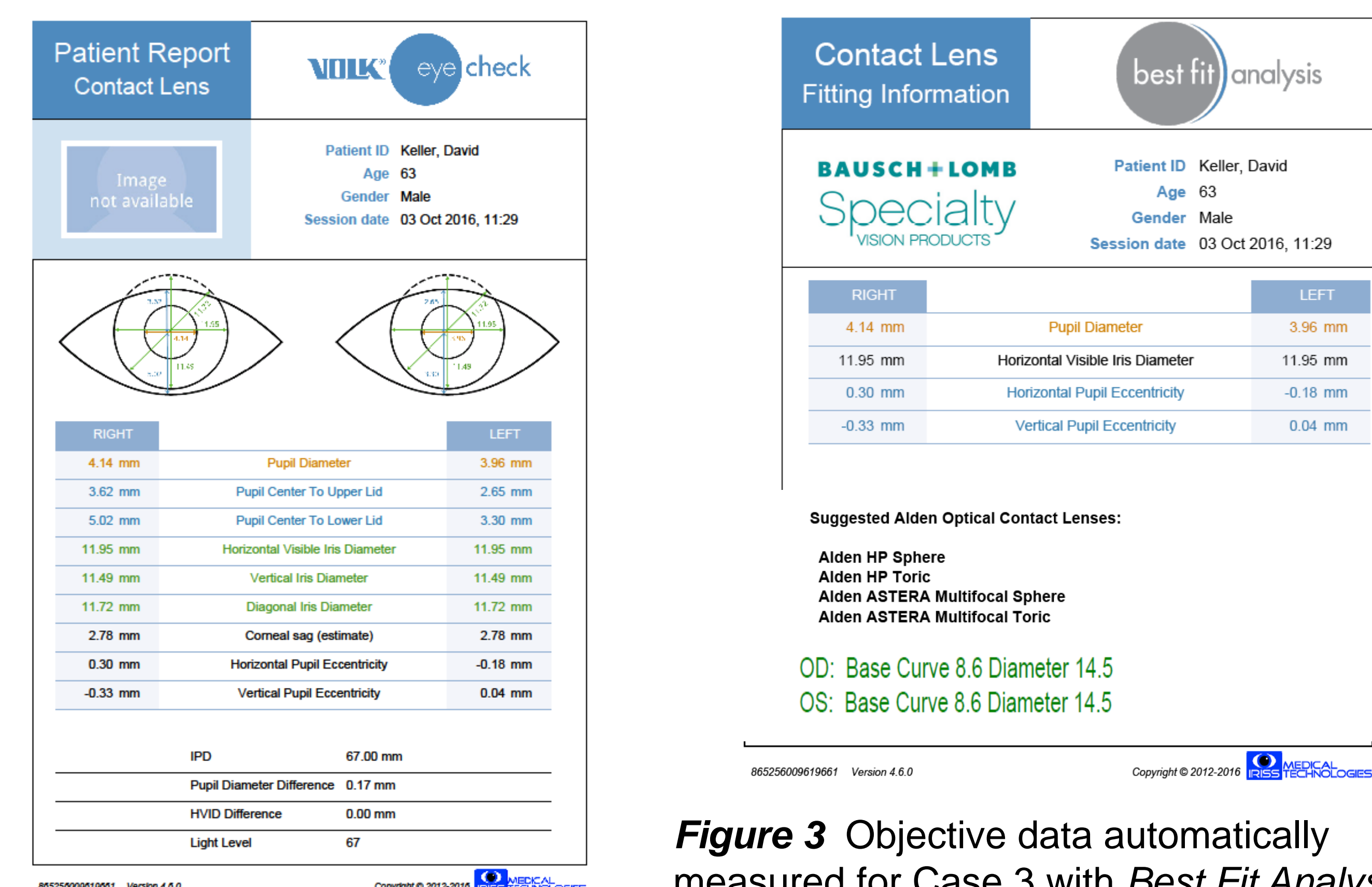


Figure 3 Objective data automatically measured for Case 3 with *Best Fit Analysis*

## Conclusions

- A benefit of using the APOD to fit these patients was in establishing the correct fit for the patients upfront. This reduced the number of follow up visits required and therefore saved chair time.
- In every one of these cases no changes were required to base curve or diameter to reduce rotation or change centration from what was ordered initially.
- Using the APOD gave an accurate measure of HVID which in conjunction with K readings enabled optimum base curve and diameter to be ordered for each patient.
- The automated measurement of pupil size enabled the appropriate size of the reading area in each lens to be calculated.
- The use of the instrument on each patient took no more than 90 seconds.
- Typically, with traditional custom torics, a practitioner can expect to use one follow up visit to make adjustments to the lenses based on movement or rotation. However, with the APOD chair time was saved as changes to the fit did not have to be made by adjusting base curve and diameter.
- In each case, the rotation of the lens on each eye was minimal and did not fluctuate.
- **In summary, use of the APOD facilitated ordering lenses for patients that fit without the need for modification, reducing both fitting time and the number of follow up visits each patient required. In each case this resulted in successful refitting with improved lens performance.**

## References

- Norman C (2015) Prescribing for Presbyopia: A New Measurement Tool to Improve Presbyopic Lens Fitting. *Contact Lens Spectrum*, September 1st.
- Rosen C, Ramdass S, Norman C, Buckingham R. (2015) Visible Iris Diameter with the Volk Eye Check Device. *British Contact Lens Association Annual Conference*, Birmingham UK 12-13<sup>th</sup> June 2015

## Disclosures

- 1 OD FAAO; Sponsored by Bausch + Lomb to carry out this study
- 2 FCOptom; Contact Lens Consultant to IRISS Medical Technologies
- 3 PhD FAAO FCOptom; Chief Medical Officer, IRISS Medical Technologies, London, UK