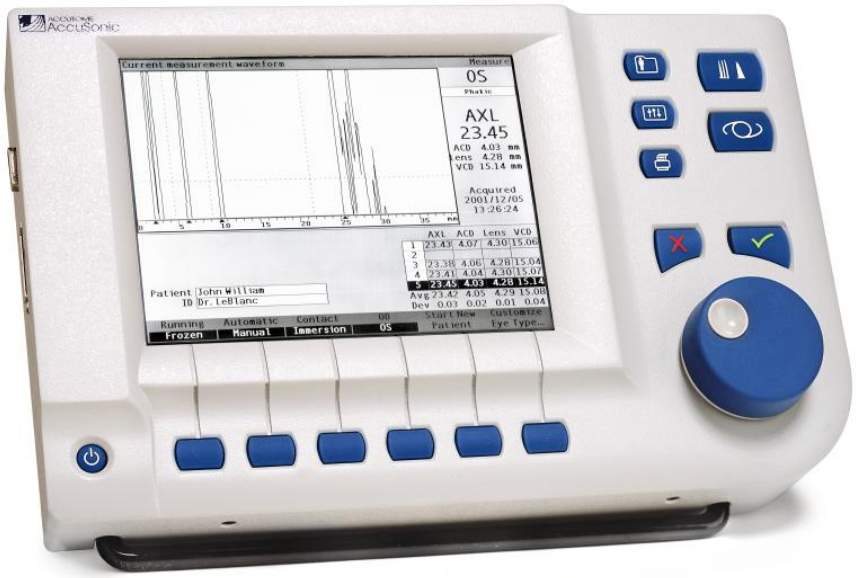
Accutome A-scan Plus® Visual Aid



Accutome A-scan Plus® Quick Reference Guide

The **Knob** is the centerpiece of the user interface. **Turn** it to navigate screen objects, select list items, or modify numeric data fields. **Press** it to activate or deactivate screen objects.

Selects the **Measure** screen where ultrasound waveforms are captured, reviewed, analyzed, and anatomical features are measured.

Selects the **Calculate IOL** screen where IOL powers are calculated, lens lists are maintained, and lens constants are entered and personalized.

Context sensitive **Print.** Produces a printout appropriate for the current screen.

Selects the **Patient Records** screen where patient data records are saved, recalled, and selected for batch printing.

Selects the **Preferences** screen where Eye Types, Materials, and ultrasound velocities are customized. Default settings, configurations, time and date are also setup here.

The **Check** button always performs the same action a pressing the Knob.

The **X** button is used to delete waveforms, patient data, numeric or alphanumeric data.

How to Measure

1. Push the **power** button
2. Within Measure screen turn the knob and select **Patient** field
3. Type the patient name and press the Check button
4. Select ID field, enter **patient ID** and press the Check button
5. Check the options on the bottom of the screen (Running/Frozen, Auto/Manual, Contact/Immersion, OD/OS)
6. Select the **Eye Type** and if necessary change the Eye Type
7. Press Ctrl + G to highlight **Gain** (to adjust the Gain turn the Knob)
8. Prepare by following the **immersion shell / probe setup** guidelines
9. When in auto mode, begin with **foot pedal pressed**
10. **Insert shell** into eye and **fill shell with BSS** past probe tip until waveforms are displayed onscreen
11. **Release foot pedal** when spikes are acceptable and machine will auto-capture
12. Ensure all wave forms are within **.1mm** (immersion) and .2mm (contact) and that the spikes are of sufficient amplitude and exhibit proper pattern
13. When all five measurements are captured press **Done** (bottom right corner of the screen)
14. Switch to the fellow eye and repeat sections 6-13
15. **Compare Axial lengths** of each eye (difference should be no more than 0.3mm unless clinical history suggests otherwise)
16. Push **print** button to print all five waveforms. Repeat for fellow eye.

How to Calculate IOL Power

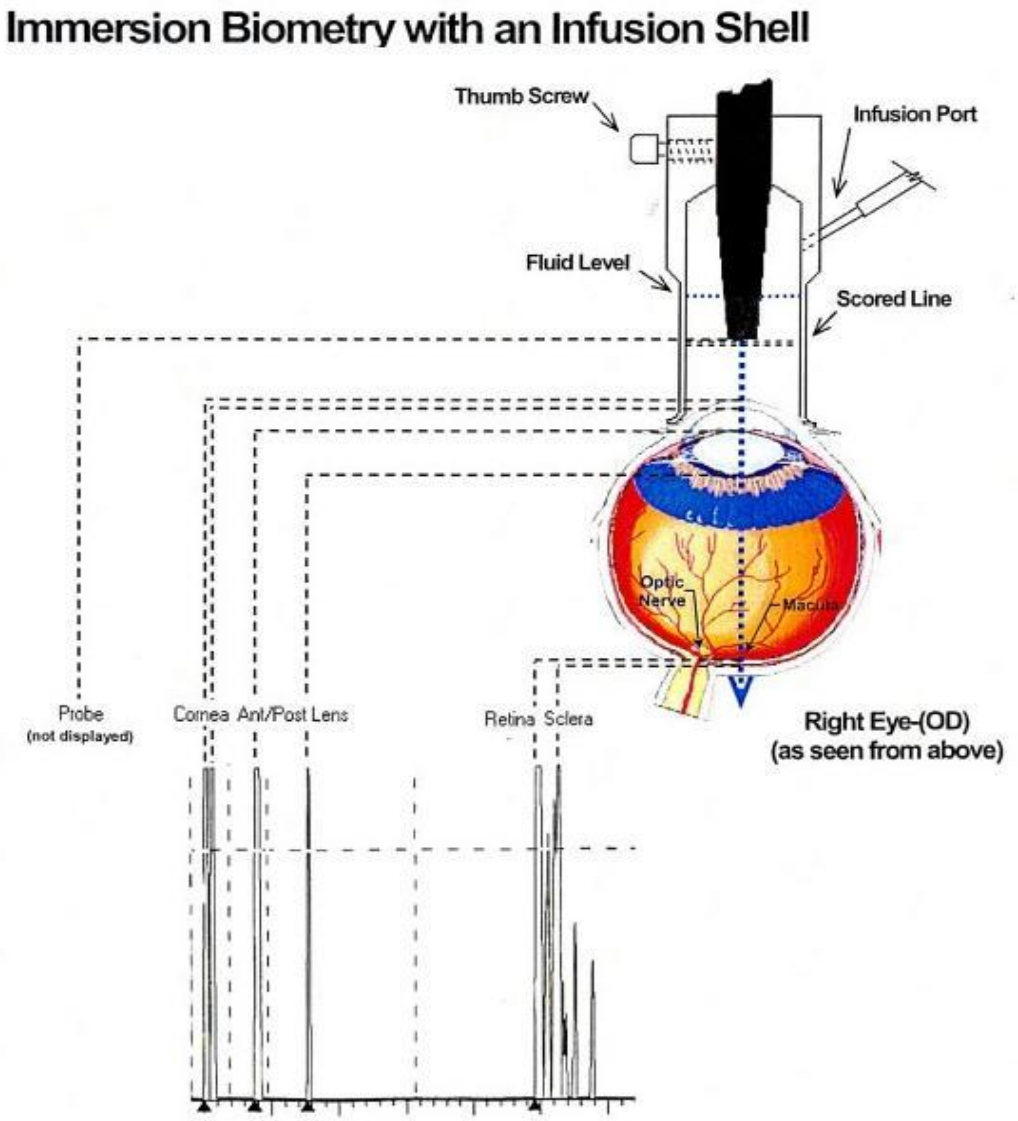
1. Push the **IOL** button
2. Select eye (OD/OS)
3. Highlight **K1**, enter the value and press the Check button
4. Highlight **K2**, enter the value and press the Check button
5. Highlight **Target** and if necessary change from defaulted plano (0.00)
6. Push the soft key labeled **'Select IOL Group'** to scroll through and choose the IOL Group
7. Push the soft key labeled **'Select Formula'** to scroll through and choose proper formula
8. Switch to fellow eye and repeat sections 3-7
9. Push the **print** button once to print calculations for both eyes on one page

How to Save

1. Push the **Patient Folder** button
2. Push the soft key labeled **'Save Patient'** to save the current patient
3. To start a new patient, push soft key labeled 'Start New Patient'
4. Push the Waveform button to bring you back to the Measure screen

For assistance, please call one of Accutome's Product Specialists at 1.800.979.2020

Probe Placement



1. Insert probe through the hole on the top of the immersion shell. Do not extend the probe past the scored line.

2. Twist the screw on the side of the shell, locking the probe into position. Do not over tighten.

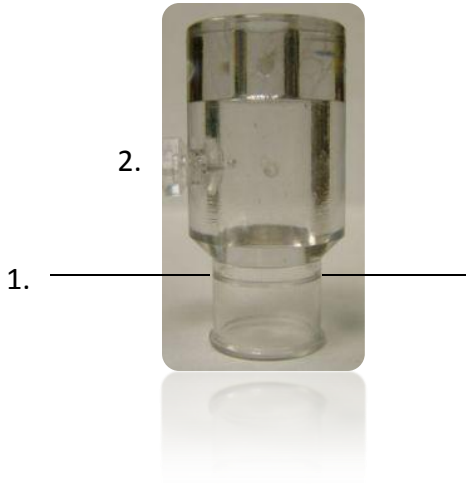
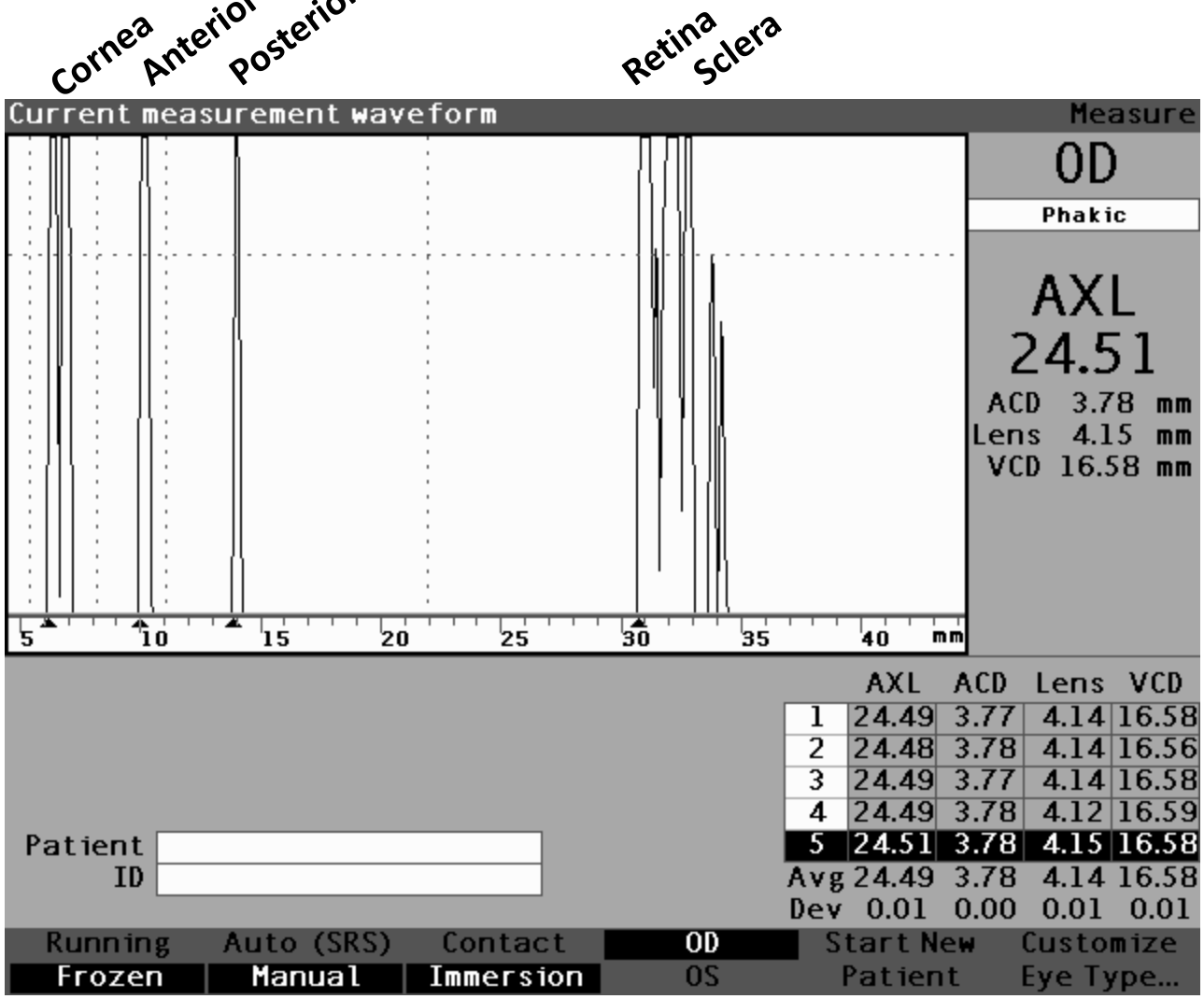


Image Credit: Rhonda G. Waldron, Eye Scan Consulting

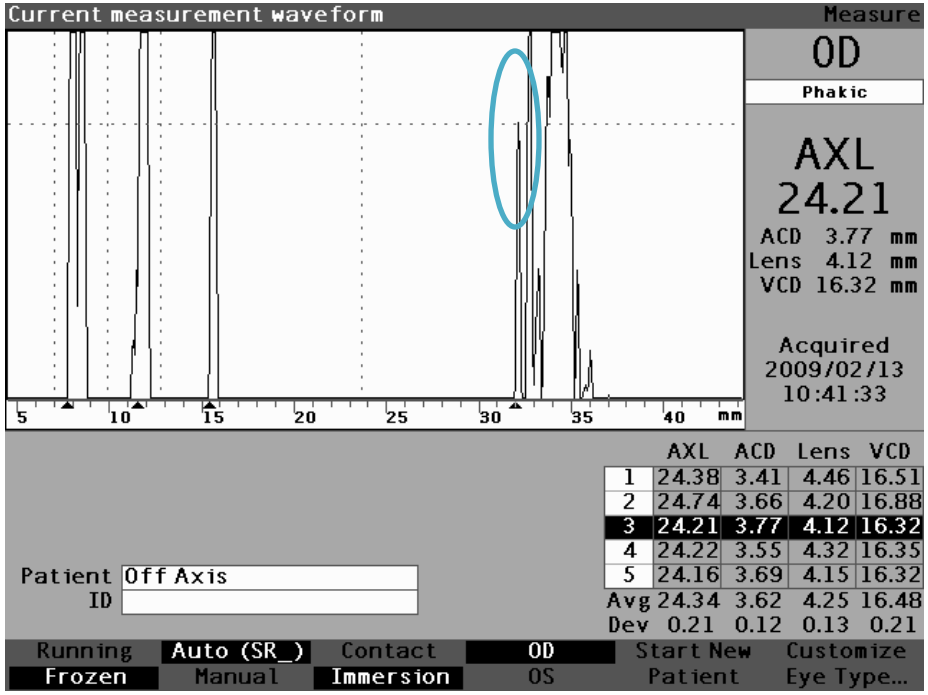
Aligned (good) Scan



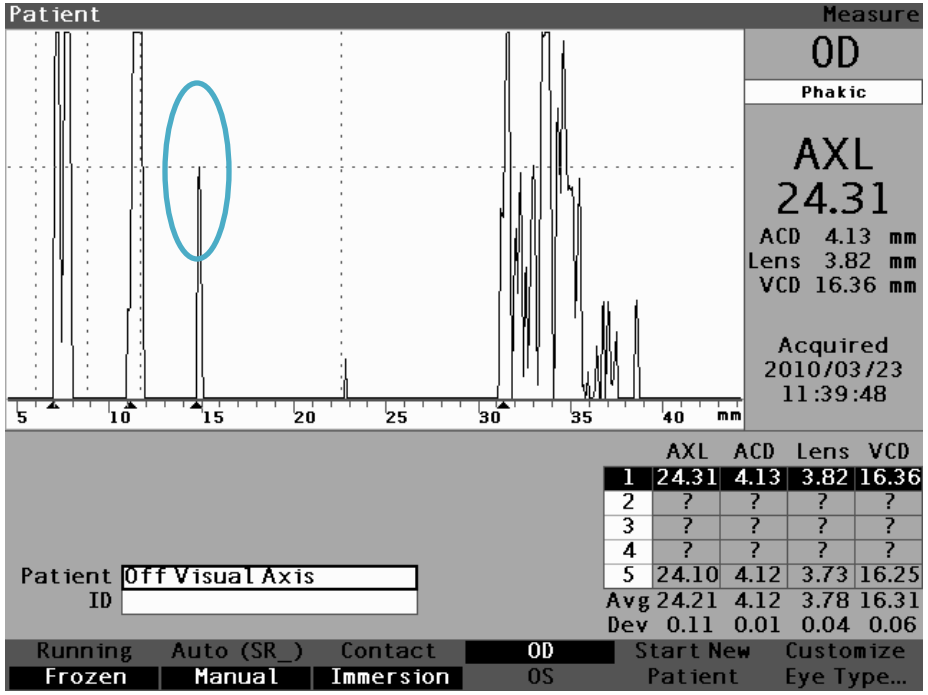
Check:

- ☑ **5 clear spikes**
- ☑ **Leading edge of spike rises at 90°**
- ☑ **All 5 spikes reach maximum height and are clearly separated**

Misaligned (Bad) Scans



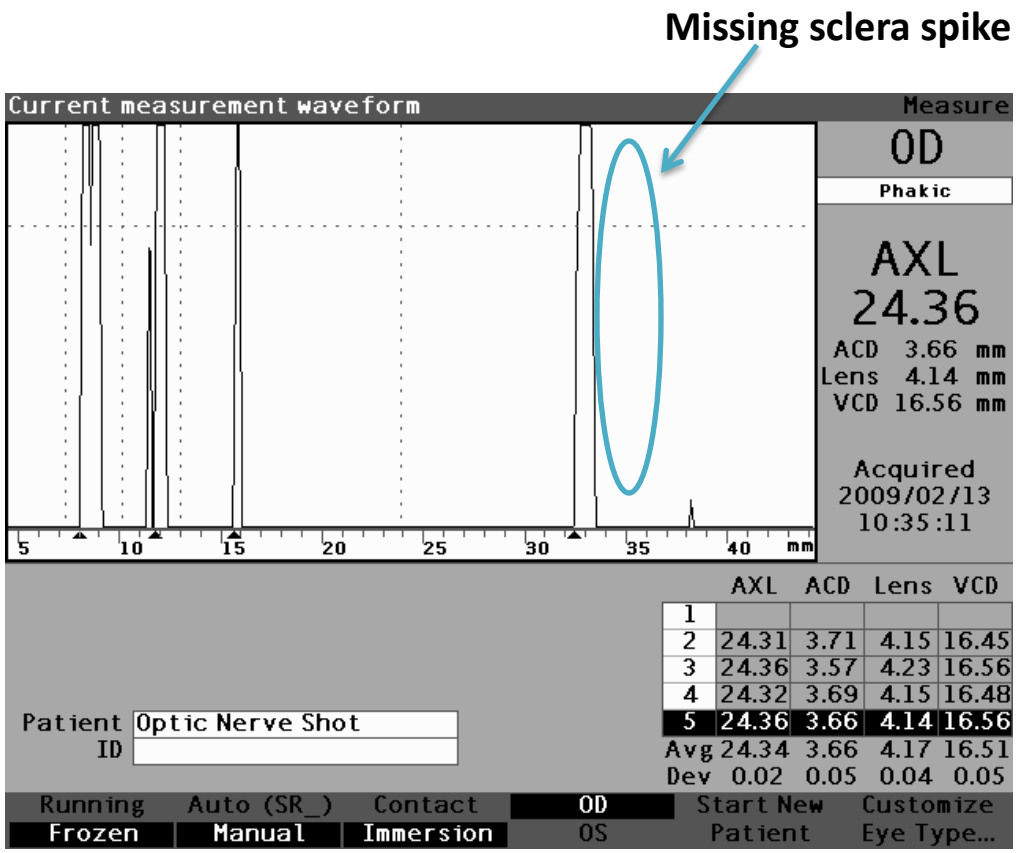
Poor Retina Spike



Poor Posterior Lens Spike

To fix misalignment errors, adjust the shell on the eye moving it superior, inferior, nasal, and temporal until the proper waveform is displayed.

Misaligned (Bad) Scans

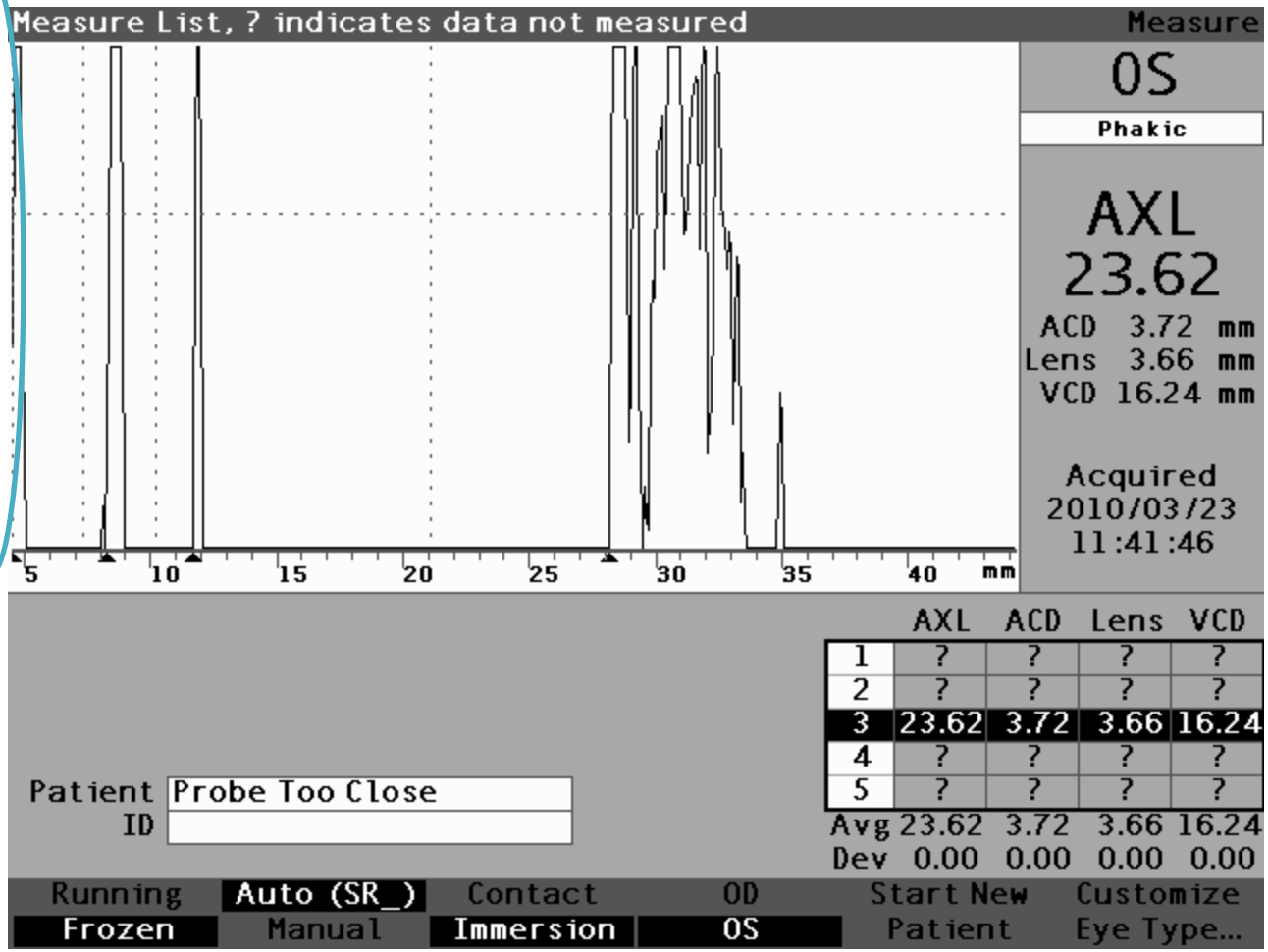


Optic Nerve Shot

The A-scan measures from the Corneal Epithelium to the Macula. A sclera spike must be present to ensure you are not measuring to the optic nerve.

An optic nerve shot will result in a longer than actual axial length.

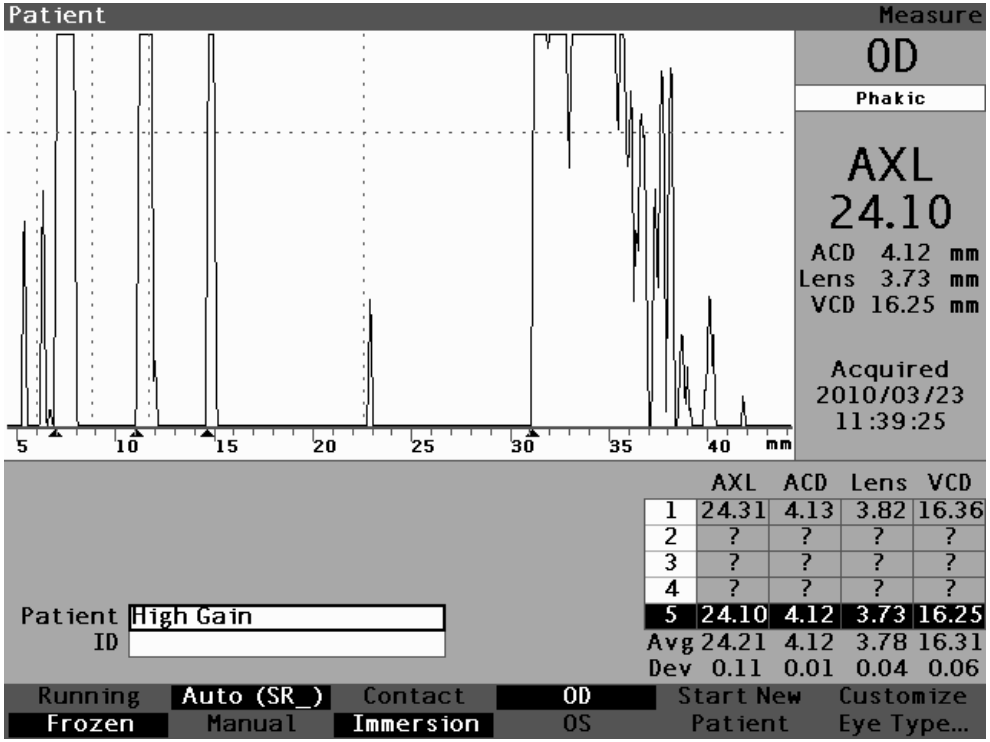
Probe Placement Error



Check:

- ☑ **If probe is placed too close to the eye, the front layer of the cornea is eliminated shortening the axial length.**

Gain



Gain too High; Resolution is lost

Gain shortcut: Ctrl + G

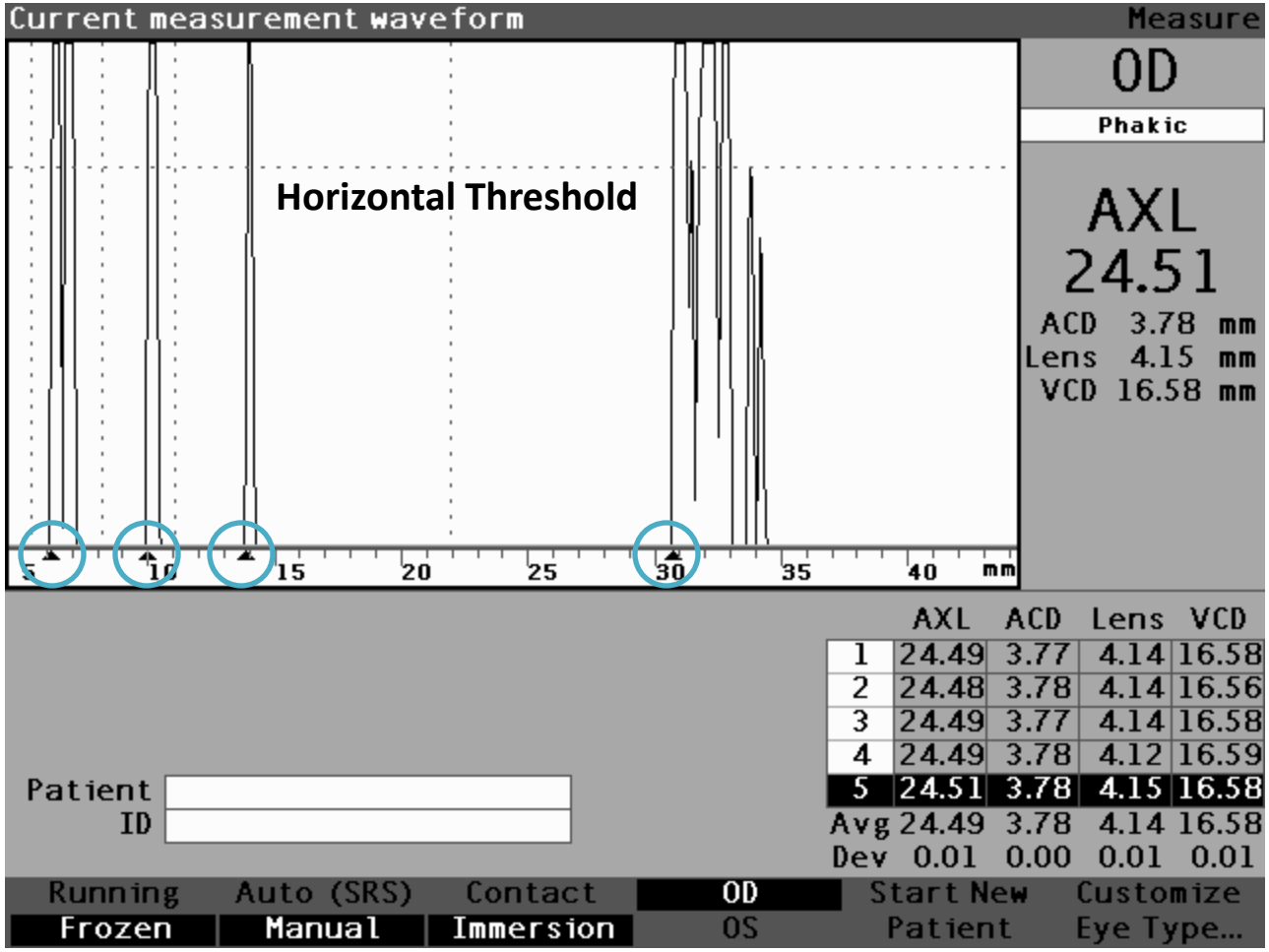
Increasing the gain amplifies the echoes on the display screen. More gain is required for denser cataracts.

When gain is too high, the scan becomes oversaturated resulting in a shorter than actual axial length.

Gates

Cornea Gate
Anterior Lens Gate
Posterior Lens Gate
Retina Gate

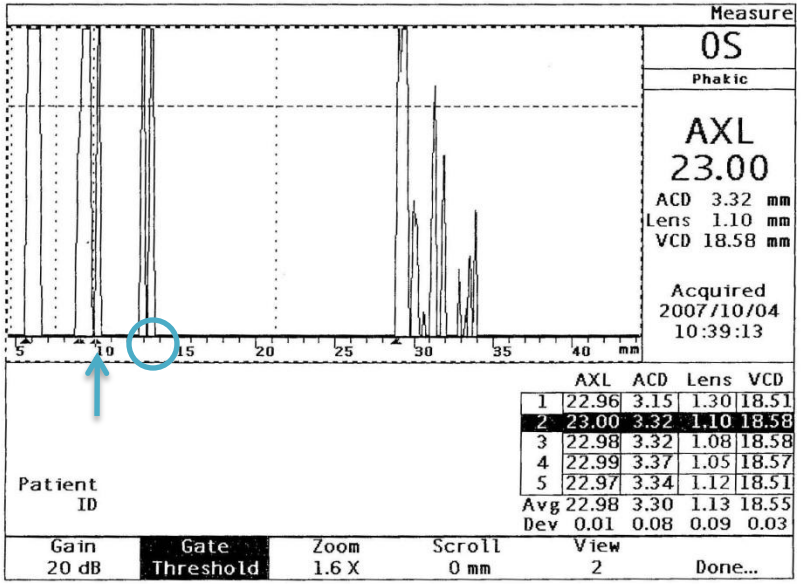
Gates tell the A-scan when to start looking for different events in the waveform. Events are detected to the right of the gate and above the threshold.

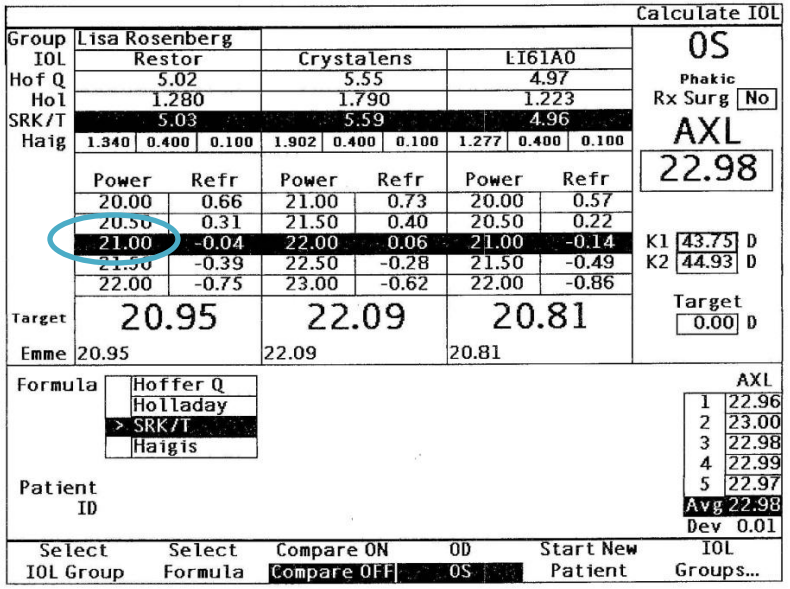


Check:

- ☑ **Solid black triangles indicate the events from which the A-scan is measuring**
- ☑ **Should be under the first 4 key spikes. There is no sclera gate.**

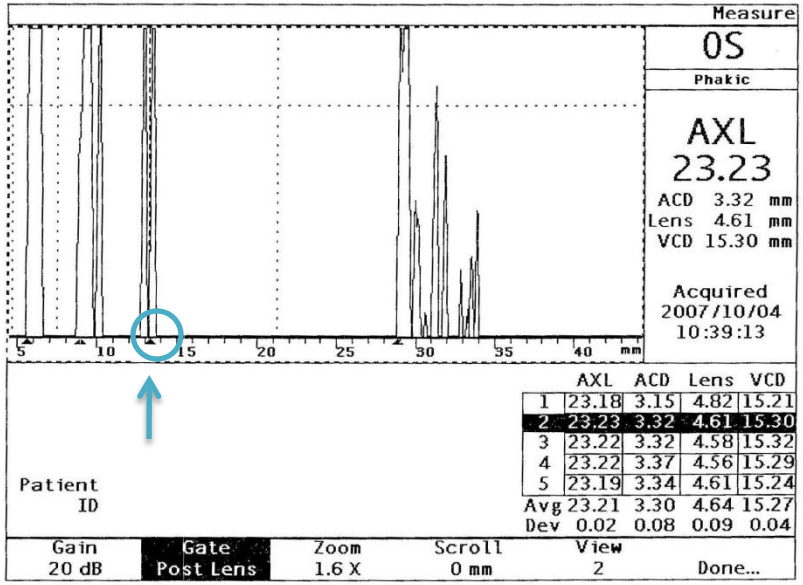
Gates

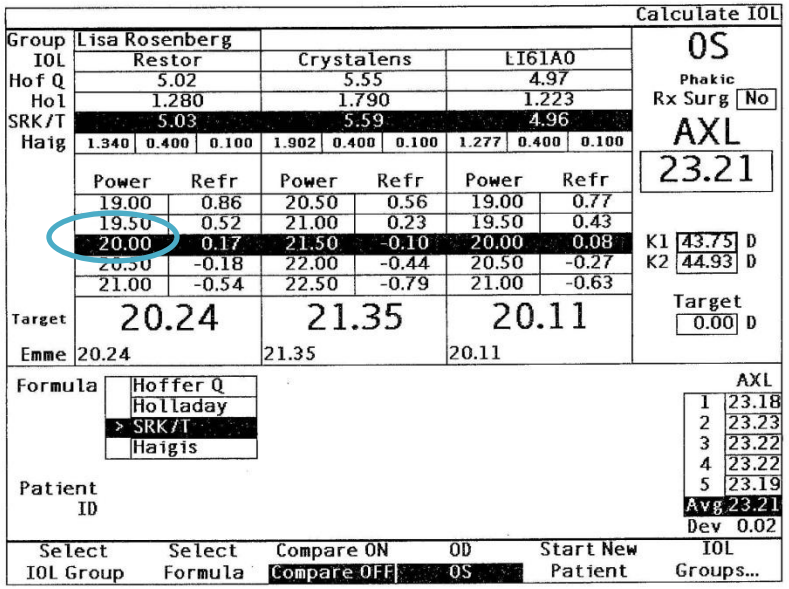




Error: Machine assumes a cataract spike is the posterior lens. An erroneously thin lens and long VCD is a giveaway of this. The average lens is between 4-6mm.

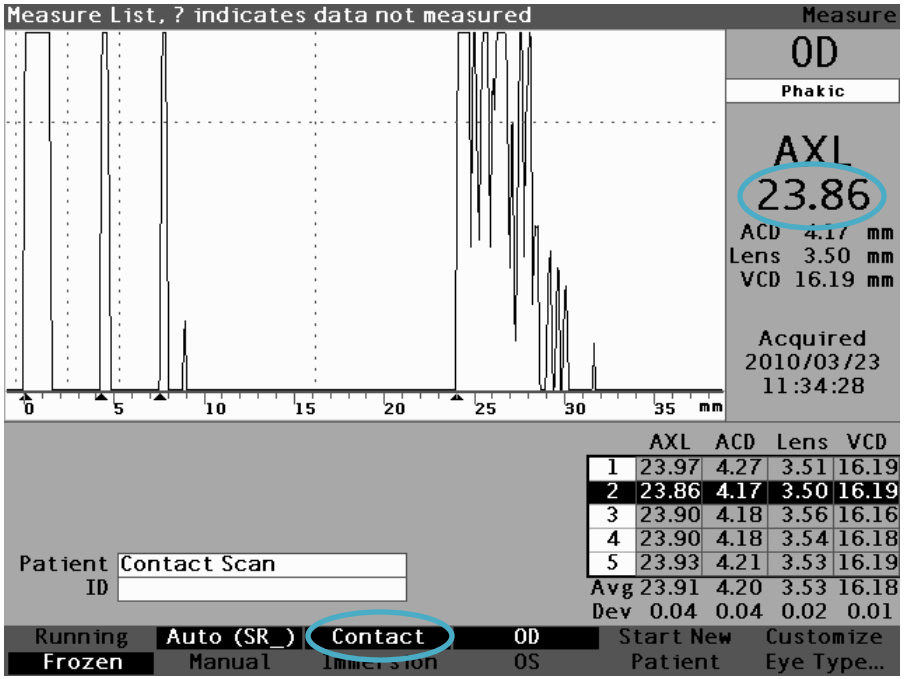
Gates

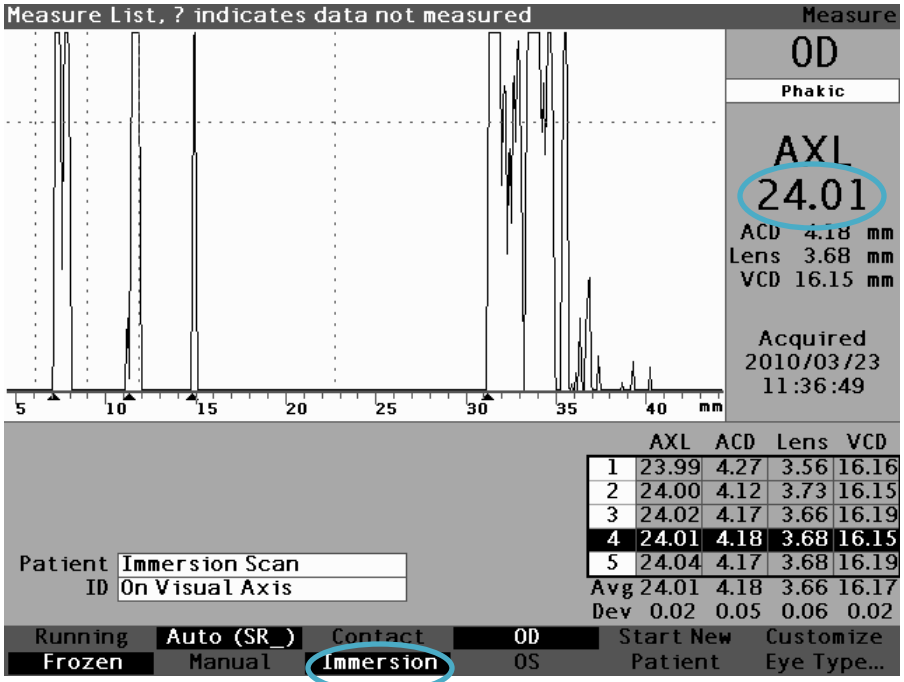




Fix: Hit **Ctrl + P** on keyboard to select the Posterior lens gate. Spin wheel to the right until the gate moves immediately to the left of the posterior lens spike (always the last spike before vitreous chamber). The third black marker along the ruler should jump to the right beneath the posterior lens spike and your measurements will update automatically.

Contact Vs. Immersion





On average, a contact scan will result in .2mm shorter axial length due to corneal compression. A contact scan does not show a split cornea spike because the probe comes in contact with the eye.

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