Newsletter 2020 Jan
for HOCT-1F

From Huvitz

HOCT-1F

Ver 1.2.0 Jan 15. 2020

Huvitz Re:define, Re+create

HOCT-1F

How are you? We're very pleased to get in touch with you again.
We're sincerely appreciated all your interests and treatment with our HOCT.

HOCT support Angiography map at last, this document is including the usage for angiography and the sample of a clinical test.
A wide scanning lens for an anterior is added, which can measure up to 16mm. So White to white can be measured in B-scan.
Accuracy and repeatability are improved thank to a upgraded segmentation, a projected enface technology, etc.
Voice guide is supported with English and Korean.
Stand alone fundus device, Model HFC-1 is released from Jan. 2020.

Angiography (optional)
- Angiography functions can be tested with free of charge for 1 month.
- Usage for angiography map, several representative maps for typical diseases are presented.

Wide anterior lens (optional)
- can measure a cornea up to 16mm.
- Contact lens' fitness can be checked with this wide anterior lens.

It is the newsletter summarizing all improvements included into the latest Version 1.2.0 and we are constantly working on other improvements carefully listening to your advices.

Thank you again for your sincere interest in HOCT. We'll keep going to be with you and your expectation.
I hope that you will enjoy playing with our OCT.

HOCT-1F

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- Evaluation

(Additional document provided)

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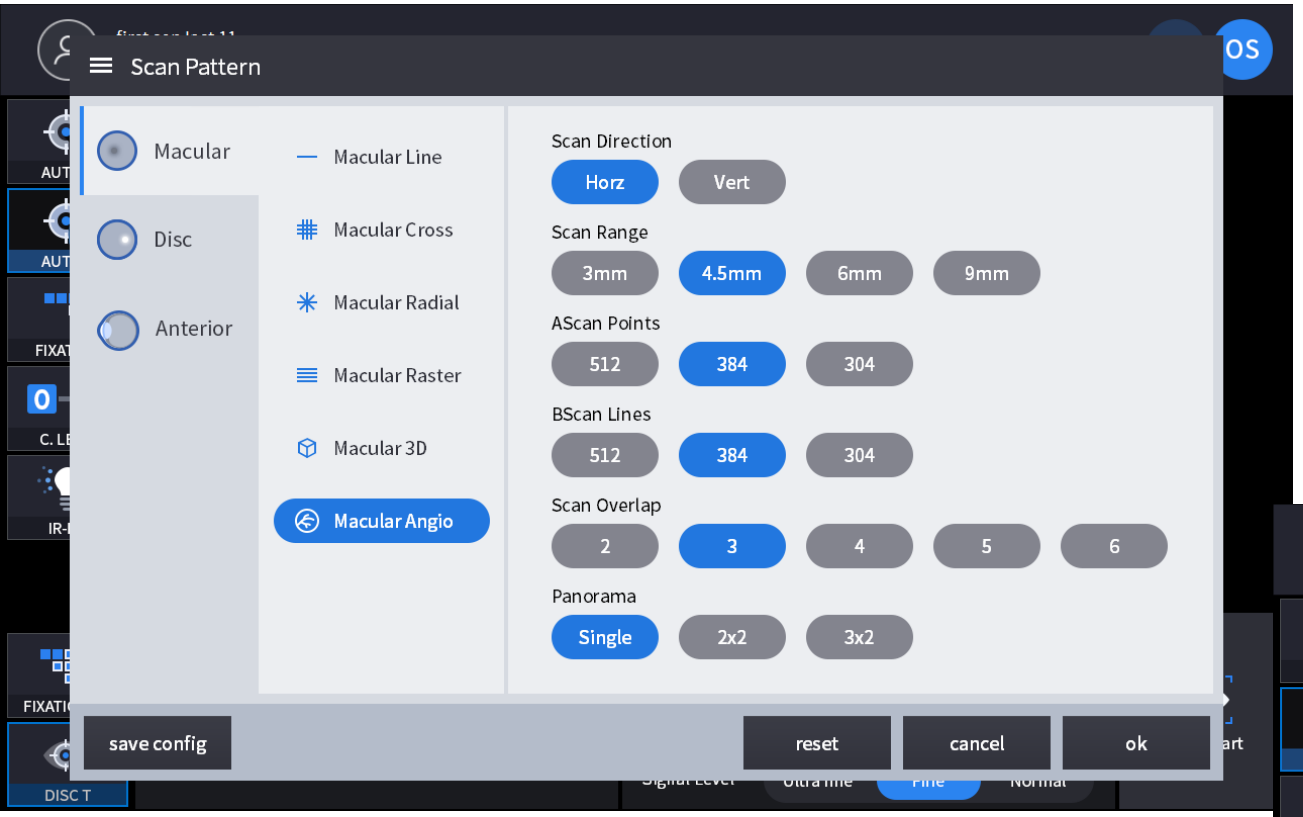
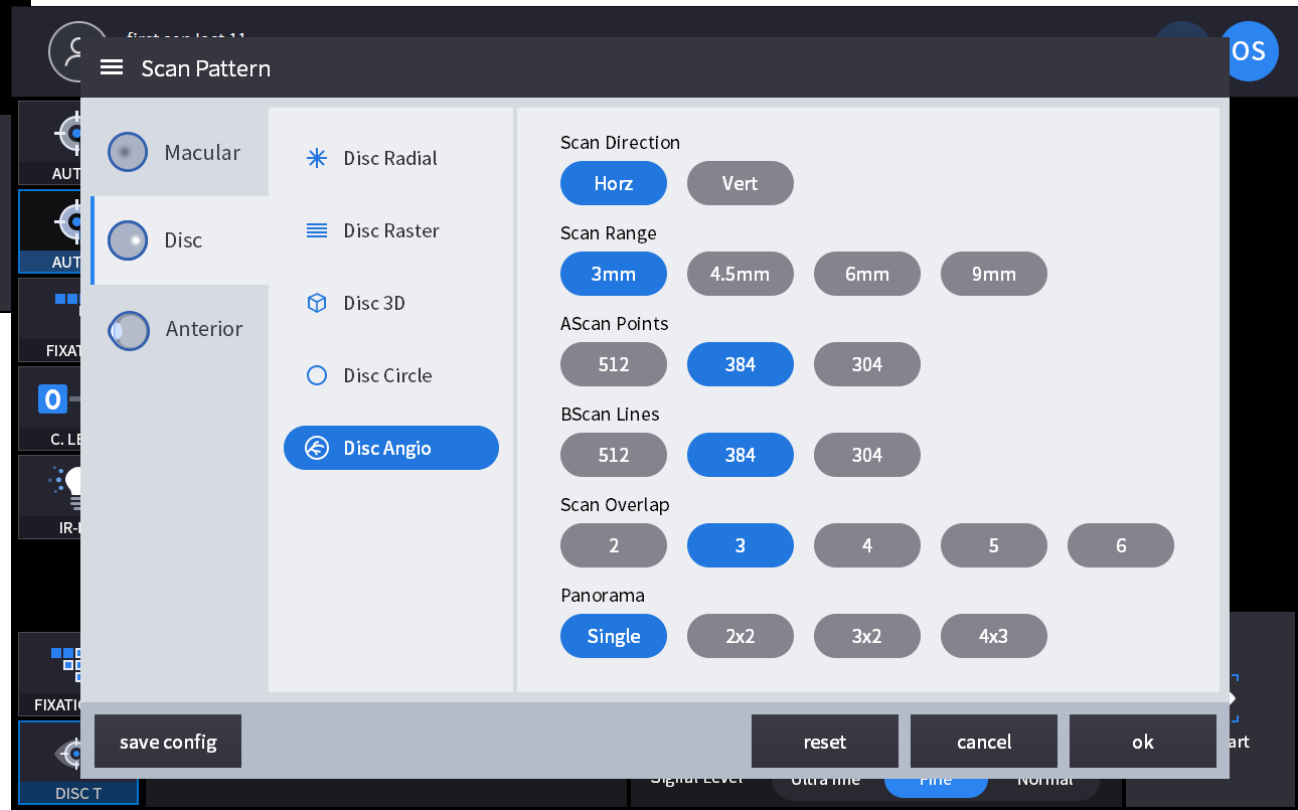
Angiography

- Components in Measurement Display
- How to get an angiography map well

Angiography Options



.- For macular angiography,
Range, Number of scan, Overlaps can be set.



.- For Optic disc angiography,
Range, Number of scan, Overlaps can be set.

Components in measurement(I):

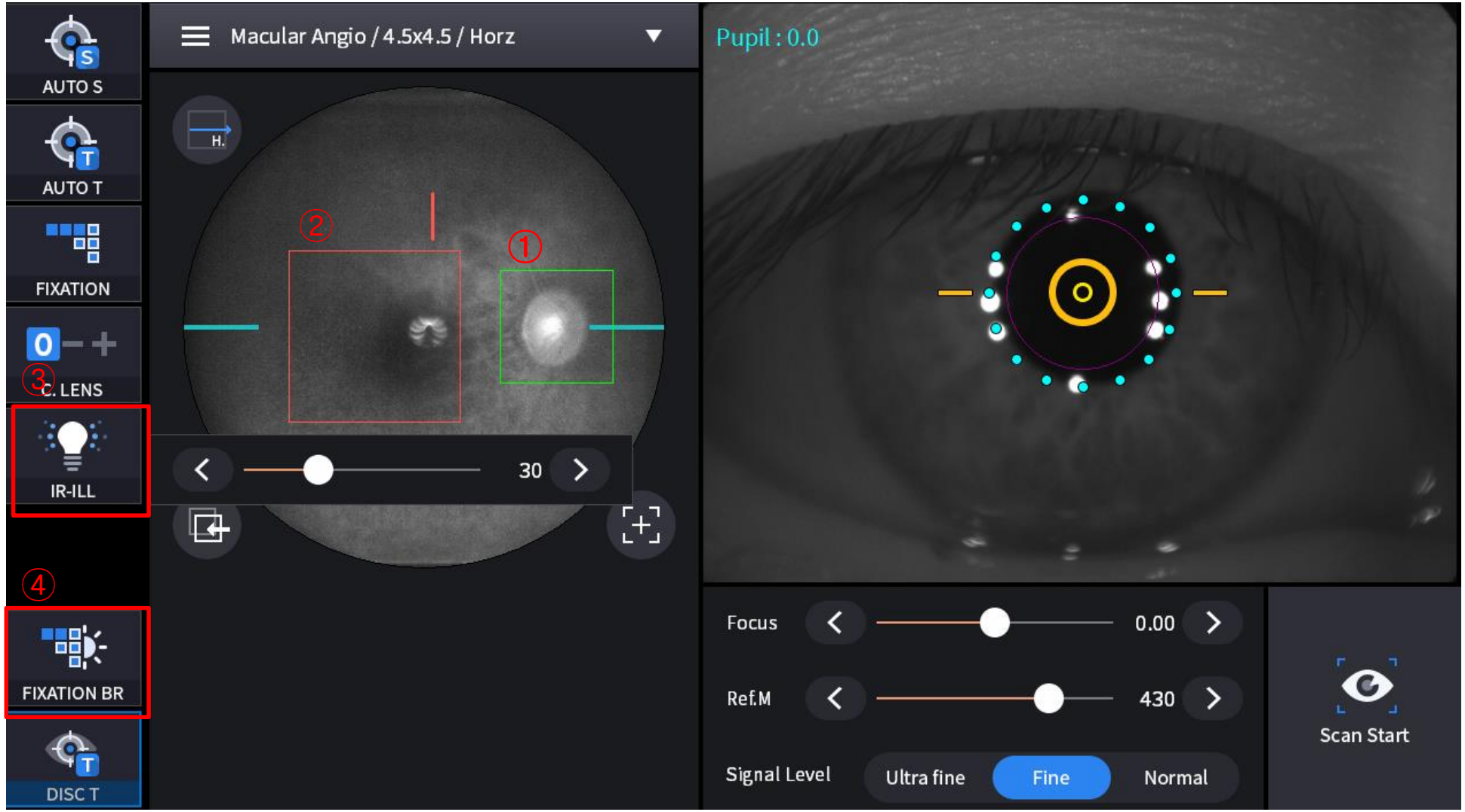
① Green Box
Tracking Feature

② Red Box
Scanned Area

③ IR-ILL
IR illumination

④ FIXATION DR
Adjust a fixation

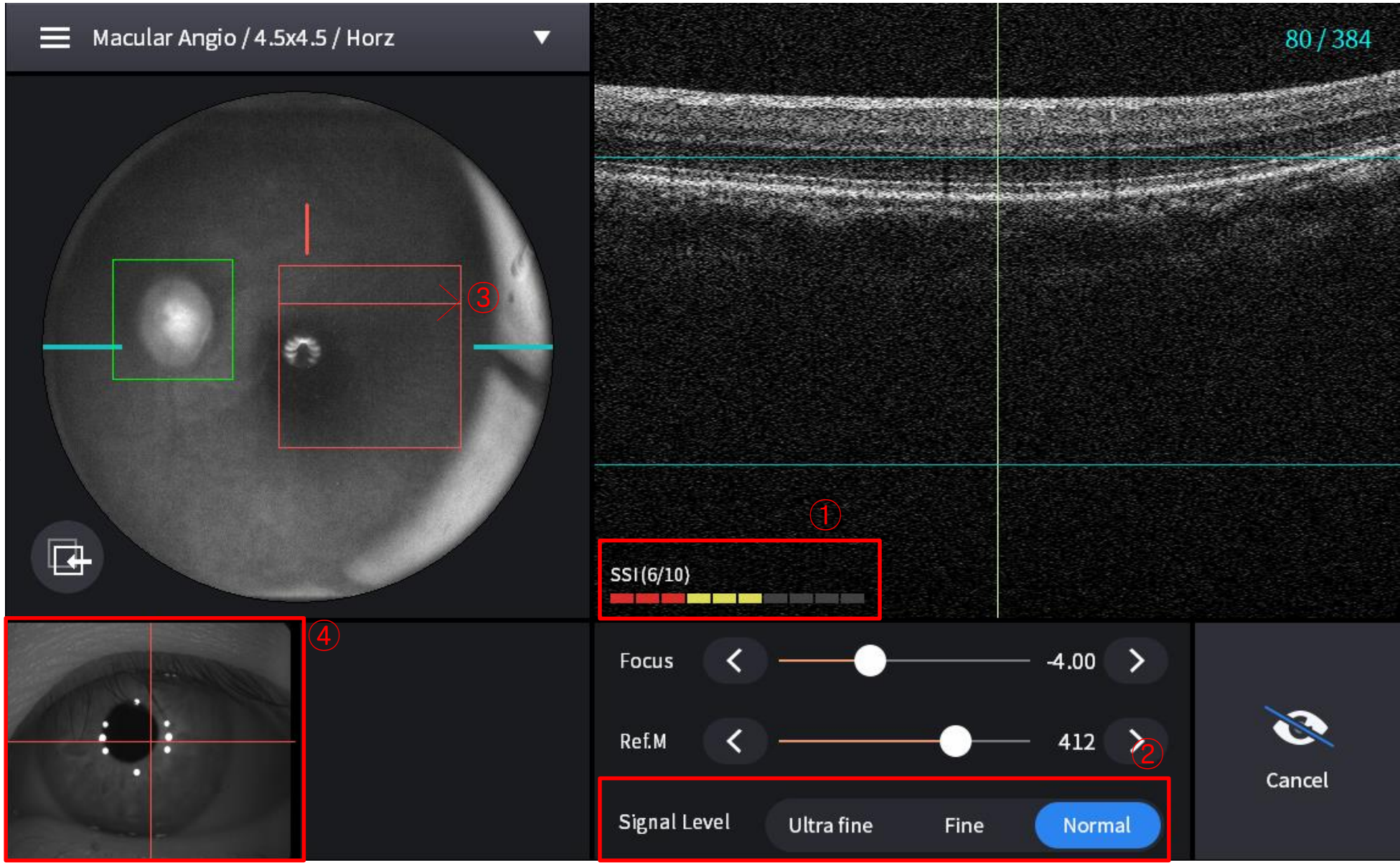
④ Tracking
Turn On/Off
a realtime tracking



Components in measurement(II):

① Signal Level
Strength of Normal
② SSI
more than level 4.
③ Arrow
current scan position
④ Anterior view
check pupil's position

※Put a chin on a chinrest
※Lean a brow on its supporter
※Open both eyes, Look the center of a green circle
※Keep looking at the center of a green circle & don't follow a red signal.



Measurement(I): StandBy -> Fixation

Step 1. Posture

Put a chin on a chinrest, stick to its forehead on a headrest and open both eyes.

.- Angiography measurement takes more than 10 seconds generally, so a proper posture is critical.

.- In case that a patient doesn't put on its chin on the chinrest, its eyes moves too much to upside or downside.

.- If a patient's forehead detaches from the headrest, the signal of B-scan becomes weak.

.- With a improper posture, HOCT lost the tracking feature, SSI of a scanning signal falls down dramatically during a measurement.

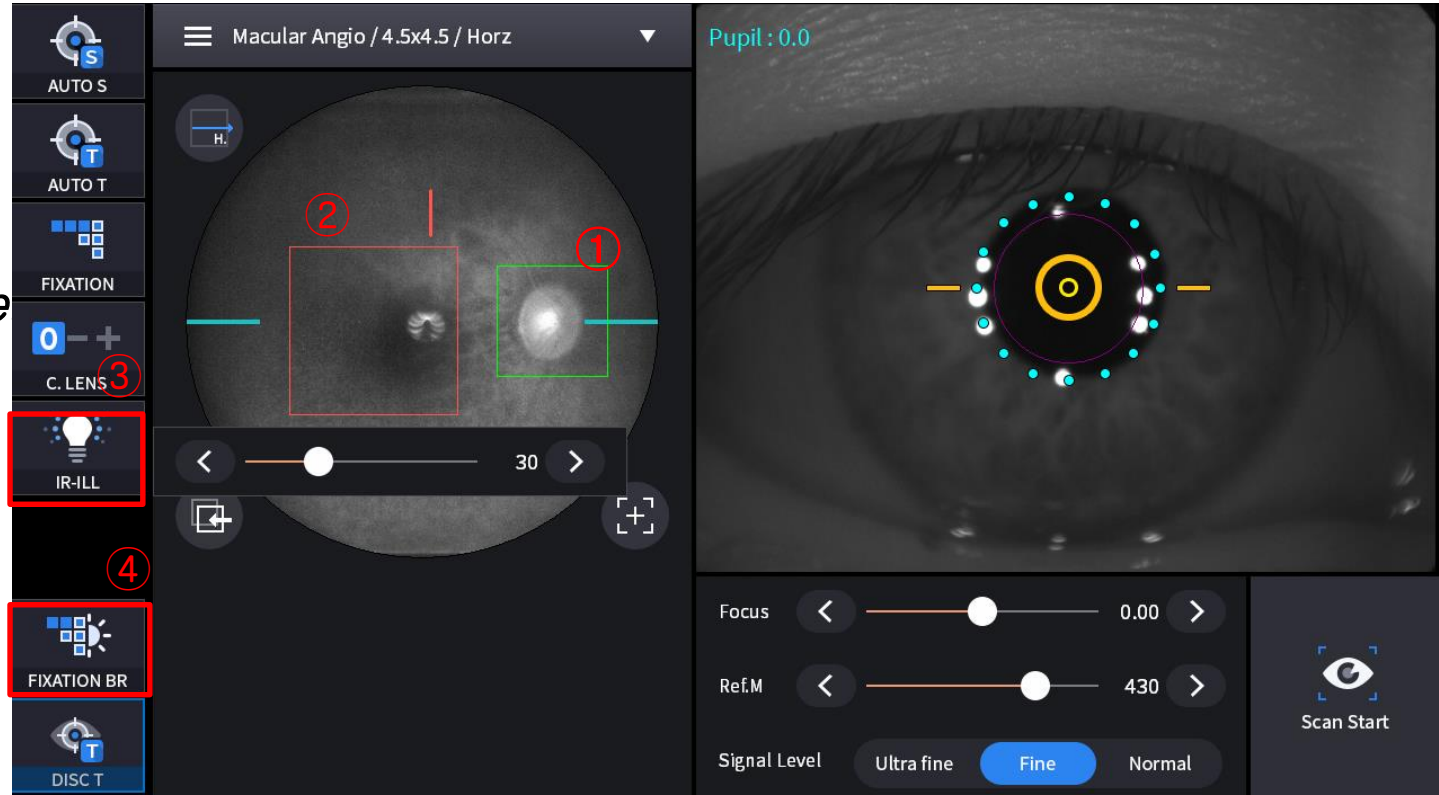
.- A operator should check the posture of a patient not only before pressing a joystick but also during a measurement.

Step 2. Fixation

Ask a patient to look at the center of a green circular target(=①), don't follow a red light or don't be distracted by a red light.

.- In case that a patient can't see a green targe increase its intensity using the button 4.

.- If a patient with a heavy cataract can't see a green target, please use the external fixation LED.



Measurement(2): Optimize -> Measurement

Step 3. Start measuring

Press a joystick in case that the tracking feature is clear and the level SSI is enough to measure.

.- Make sure that the SSI signal is higher than level 4 (=①).

.- If an operator moves a B-scan upward, then the level of B-scan is increased, but check not to be out of range.

.- An operator can check the current eye position at Box ②.

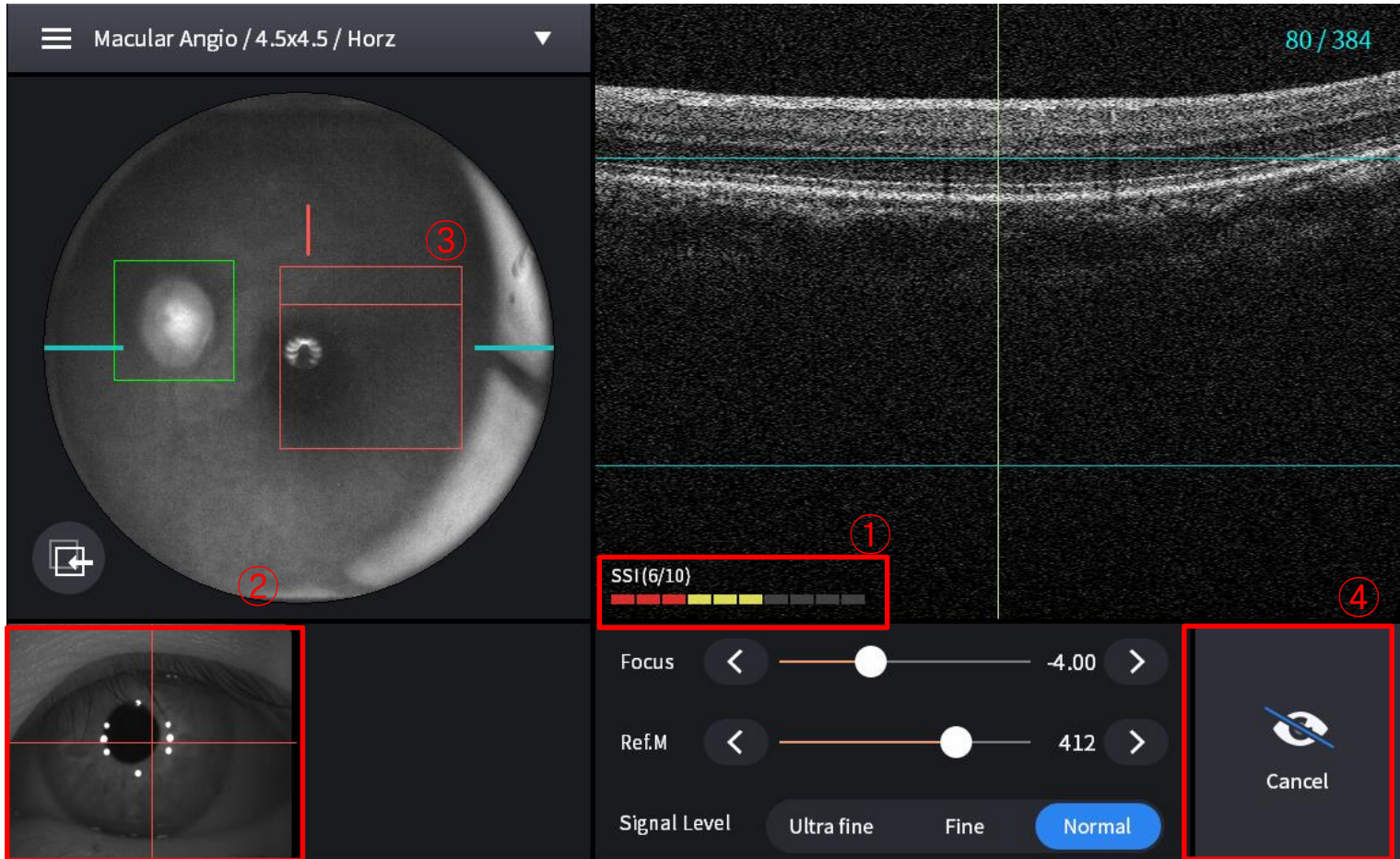
Step 4. During a measurement

Using a joystick or device's body, keep the tracking feature to stay around its original position.

.- If the tracking feature disappeared, watch a live retia view, move a joystick, or a body to restore the tracking feature.

.- In case that B-scan goes up too much, is out of window, scroll down a B-scan by wheeling a mouse.

.- An operator stop a measurement by pressing button ④.

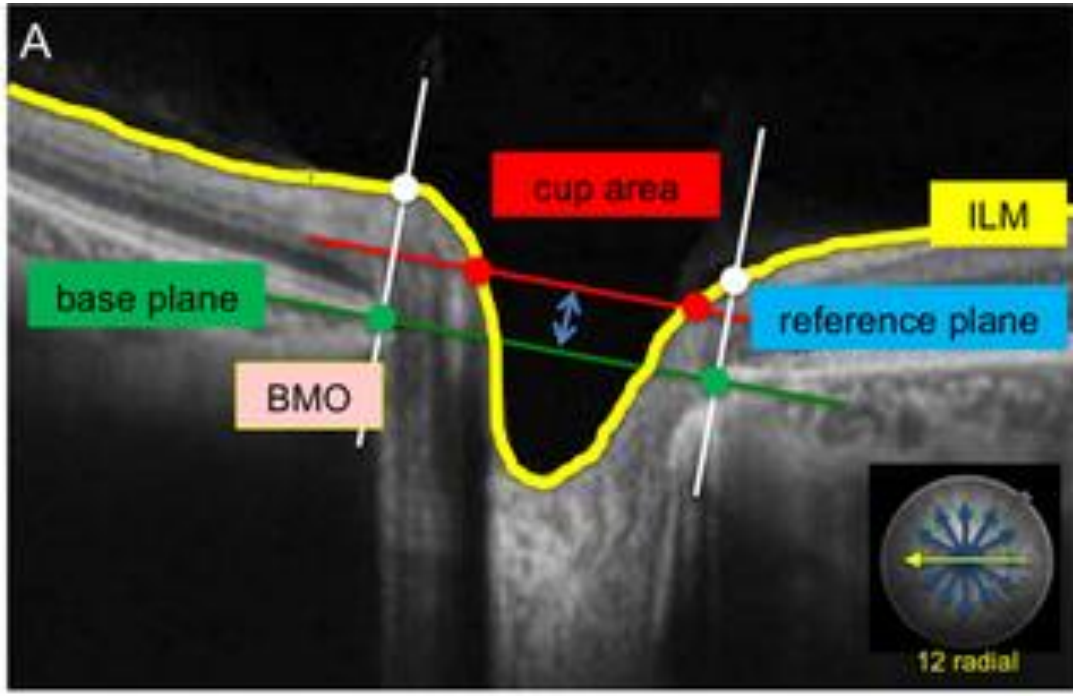


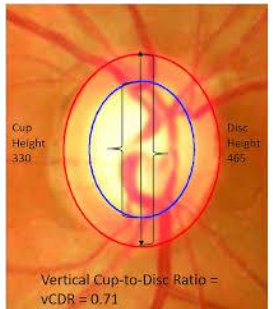
Accuracy & Repeatability of ONH metric

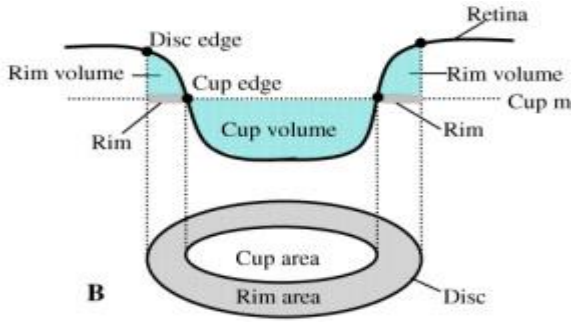
- Test conditions
- Summarized table

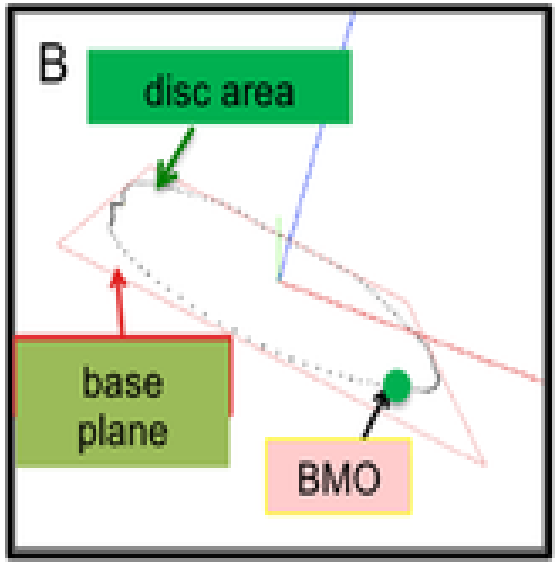
Test Condition

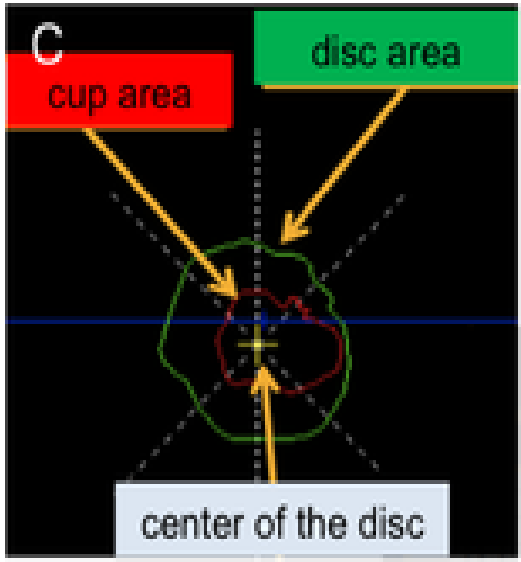
Category	Contents
Test Equipment	HOCT-1F(H_B:2019, H_N:2020), Zeiss Cirrus, Topcon 3D-OCT1, Optovue Avanti
Tested Eyes	Optic disc -. 10 eyes, 3 measurements
Test Items	ONH of an optic disc -. Vertical C/D ratio -. Area C/D ratio -. Rim area -. Disc Area -. Cup Vol
New Technology	- More precise segmentation - 256A x 256B scanning is applied - Projected enface makes more smooth contour.











Result

Vertical C/D

	H_B	H-N	Topcon	Zeiss	Optovue	Average
Mean	0.6323	0.5657	0.5540	0.5463	0.5620	0.5721
Repeatability	0.0257	0.0156	0.0256	0.0125	0.0284	0.0216

Area C/D

	H_B	H-N	Topcon	Zeiss	Optovue	Average
Mean	0.4330	0.3963	0.4103	0.3691	0.4000	0.4018
Repeatability	0.0199	0.0122	0.0251	0.0113	0.0207	0.0178

Rim Area

	H_B	H-N	Topcon	Zeiss	Optovue	Average
Mean	1.2230	1.1307	1.2940	1.1533	1.1647	1.1931
Repeatability	0.0471	0.0388	0.1028	0.0281	0.0374	0.0508

Disc

	H_B	H-N	Topcon	Zeiss	Optovue	Average
Mean	2.2077	1.9257	2.2397	1.8840	1.9727	2.0459
Repeatability	0.0577	0.0368	0.0907	0.0308	0.0145	0.0461

Cup Volume

	H_B	H-N	Topcon	Zeiss	Optovue	Average
Mean	0.3333	0.2537	0.2810	0.3146	0.2061	0.2777
Repeatability	0.0080	0.0073	0.0237	0.0099	0.0526	0.0203

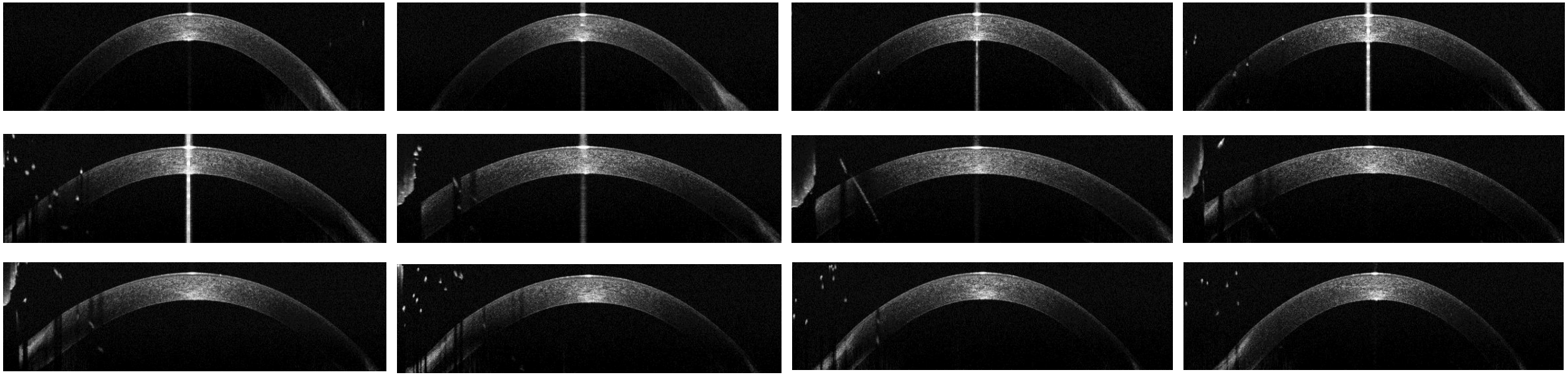
- **Each value of improved HOCT is shifted to the average of all devices.**
- **New algorithm's repeatability is much better than the average of all devices.**

Wide Anterior Lens

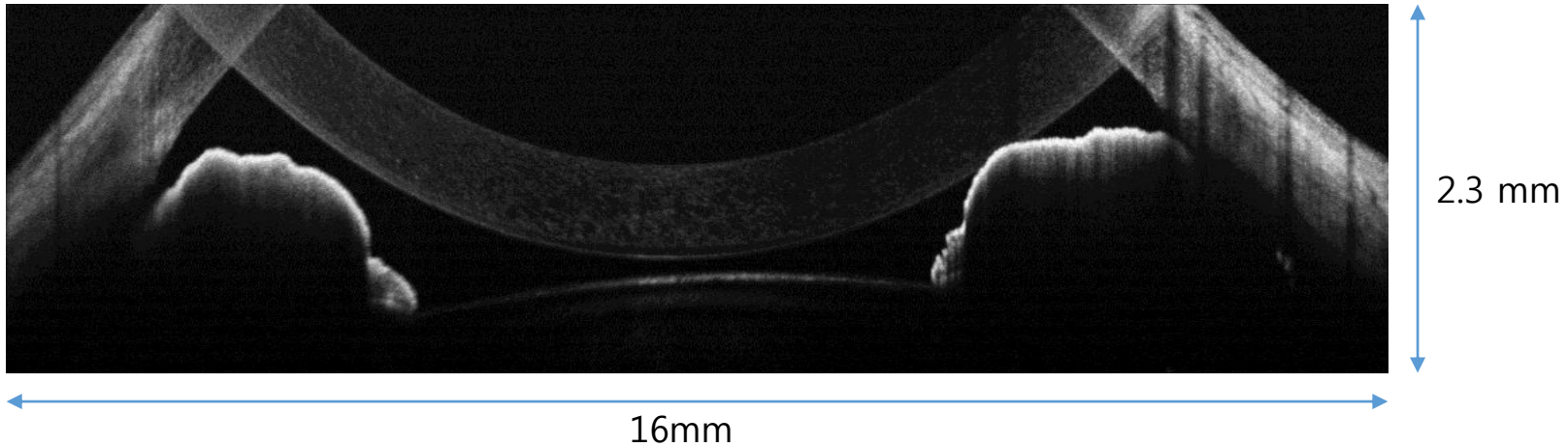
- Images with a wide anterior lens
- Checking the fitness of a contact lens

16mm Scan, WtoW

Wide cornea lens - radial scan / 16mm(16mm*3mm) / overlap 5

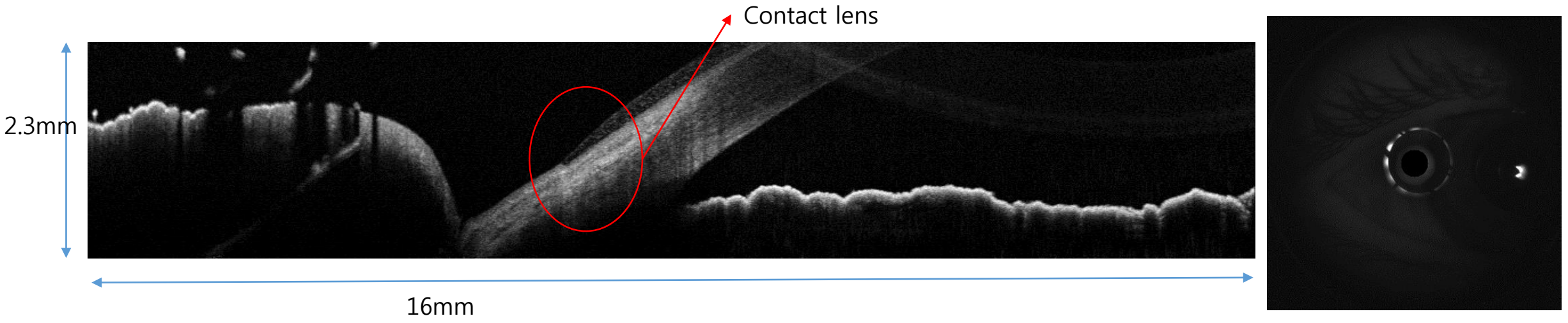


Wide cornea lens - line scan / 16mm / overlap 30

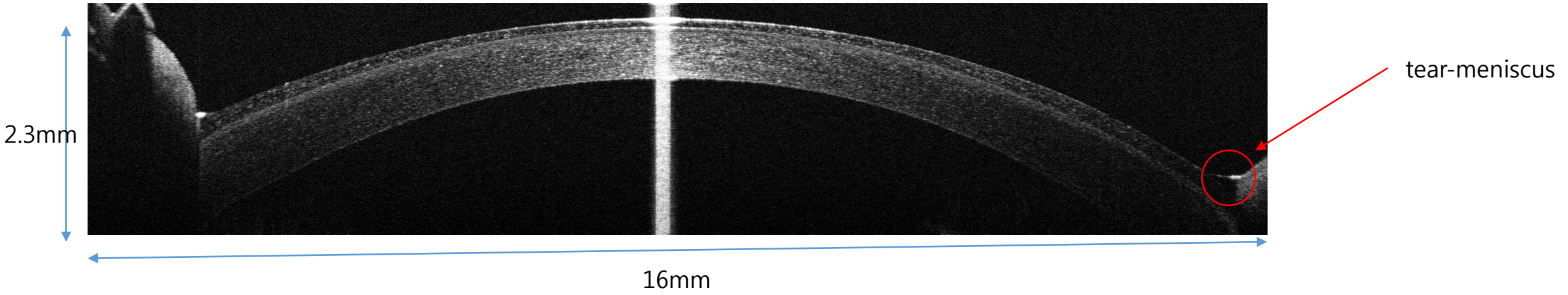


Fitness with a soft contact lens(I)

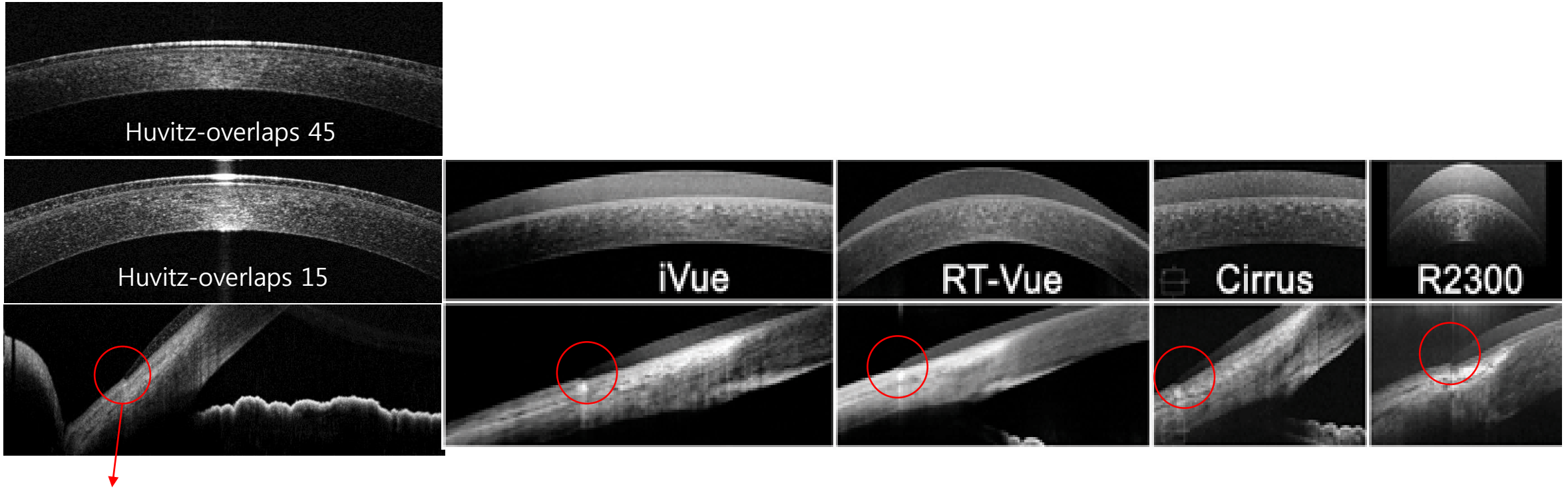
Soft lens – X axis / 16mm / overlap 5



Soft lens – Y axis / 16mm(16mm*3mm) /overlap 5



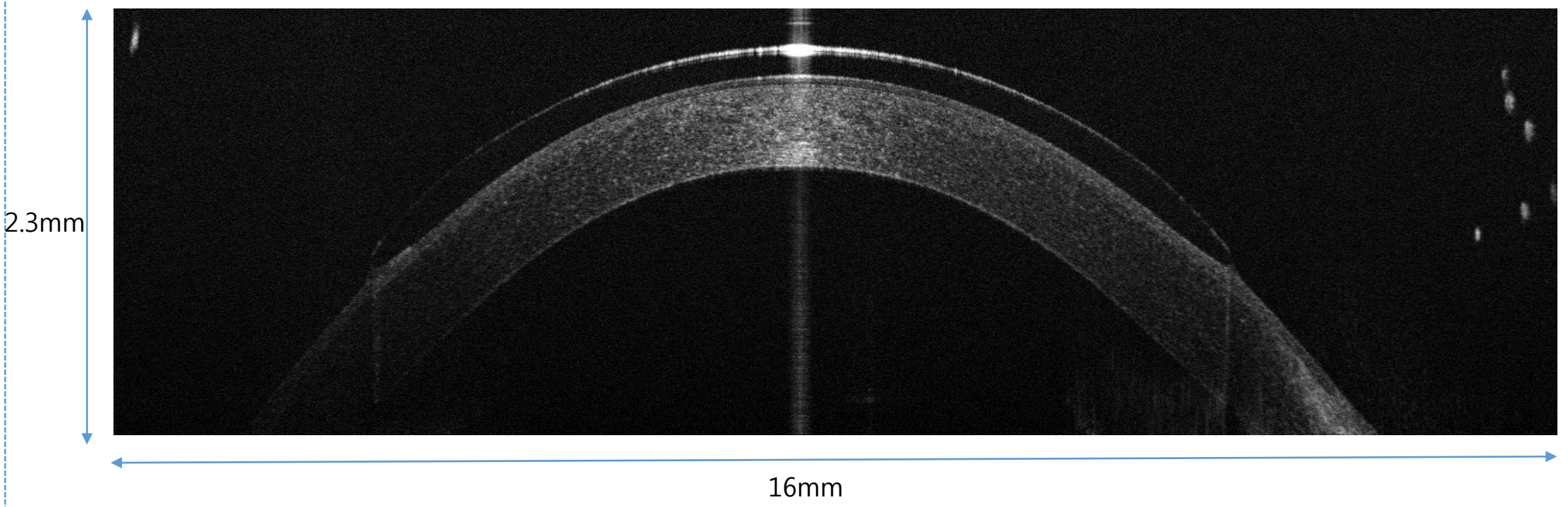
Fitness with a soft contact lens(II)



Reference : view of cornea & contact lenses Apr. 2012

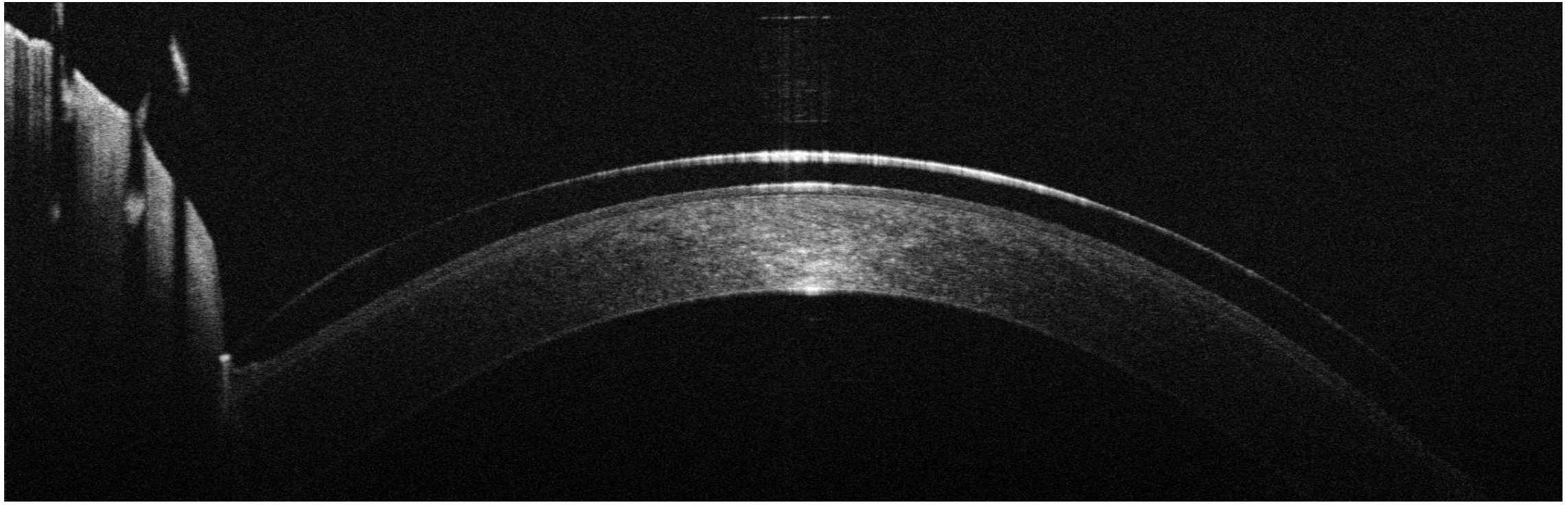
Fitness with a hard contact lens(I)

Hard contact lens – X axis / 16mm /overlap15



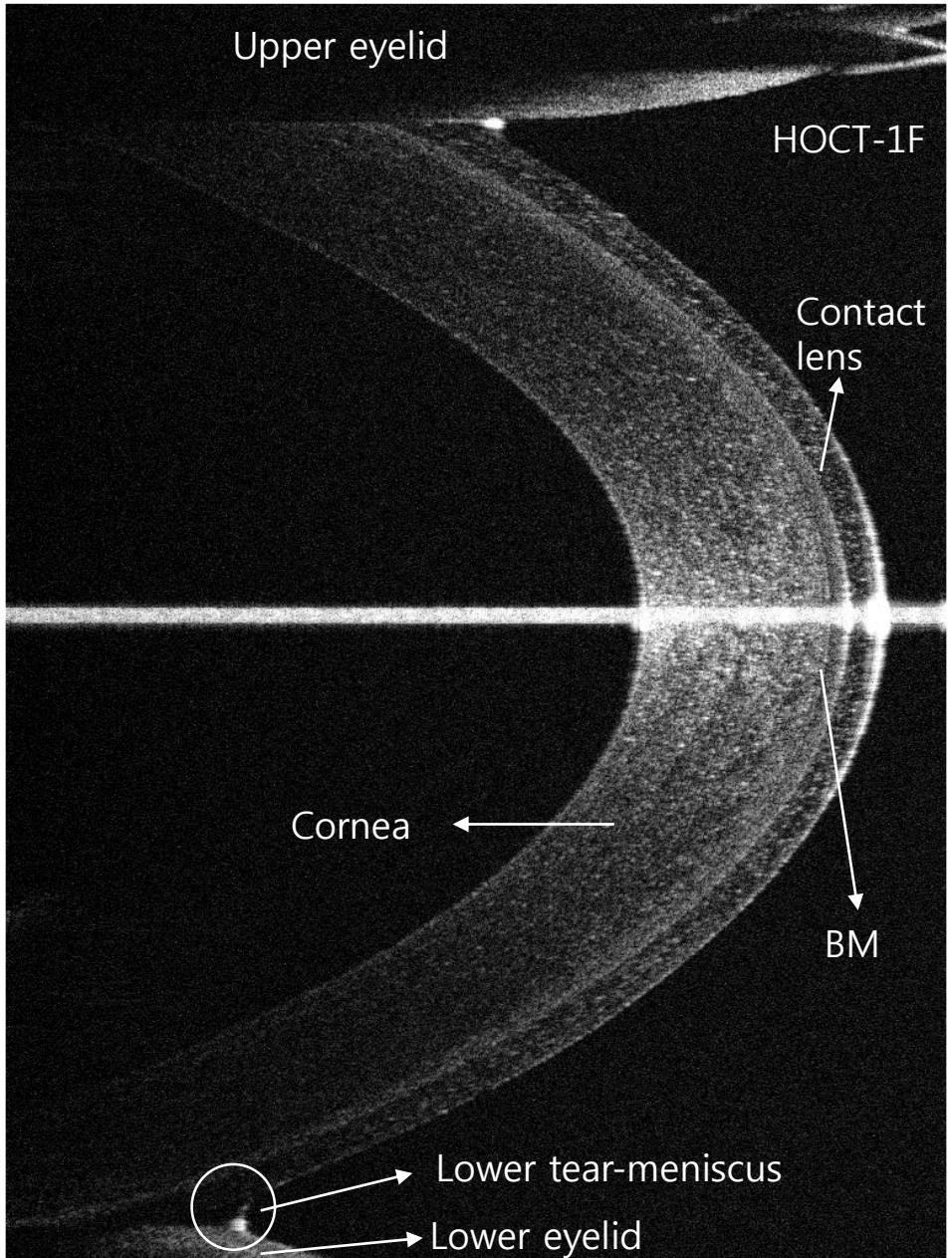
Fitness with a hard contact lens(II)

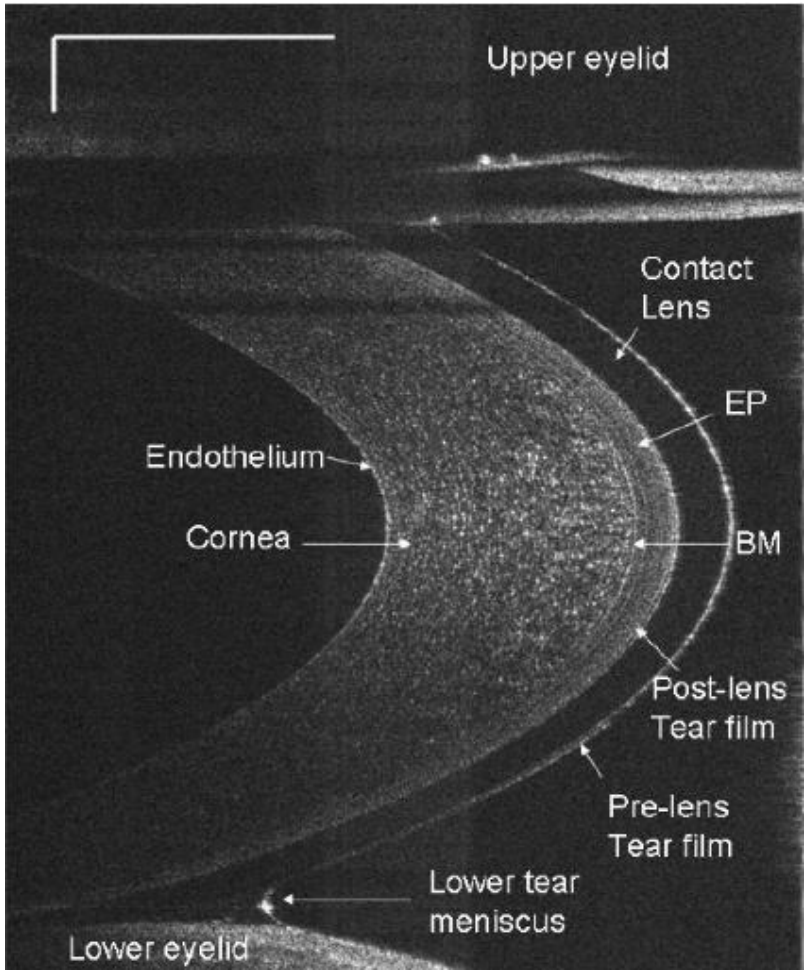
Hard contact lens – y axis / 16mm /overlap 5



Structure of a cornea

Soft lens – Y axis / 16mm(16mm*3mm) /overlap 5



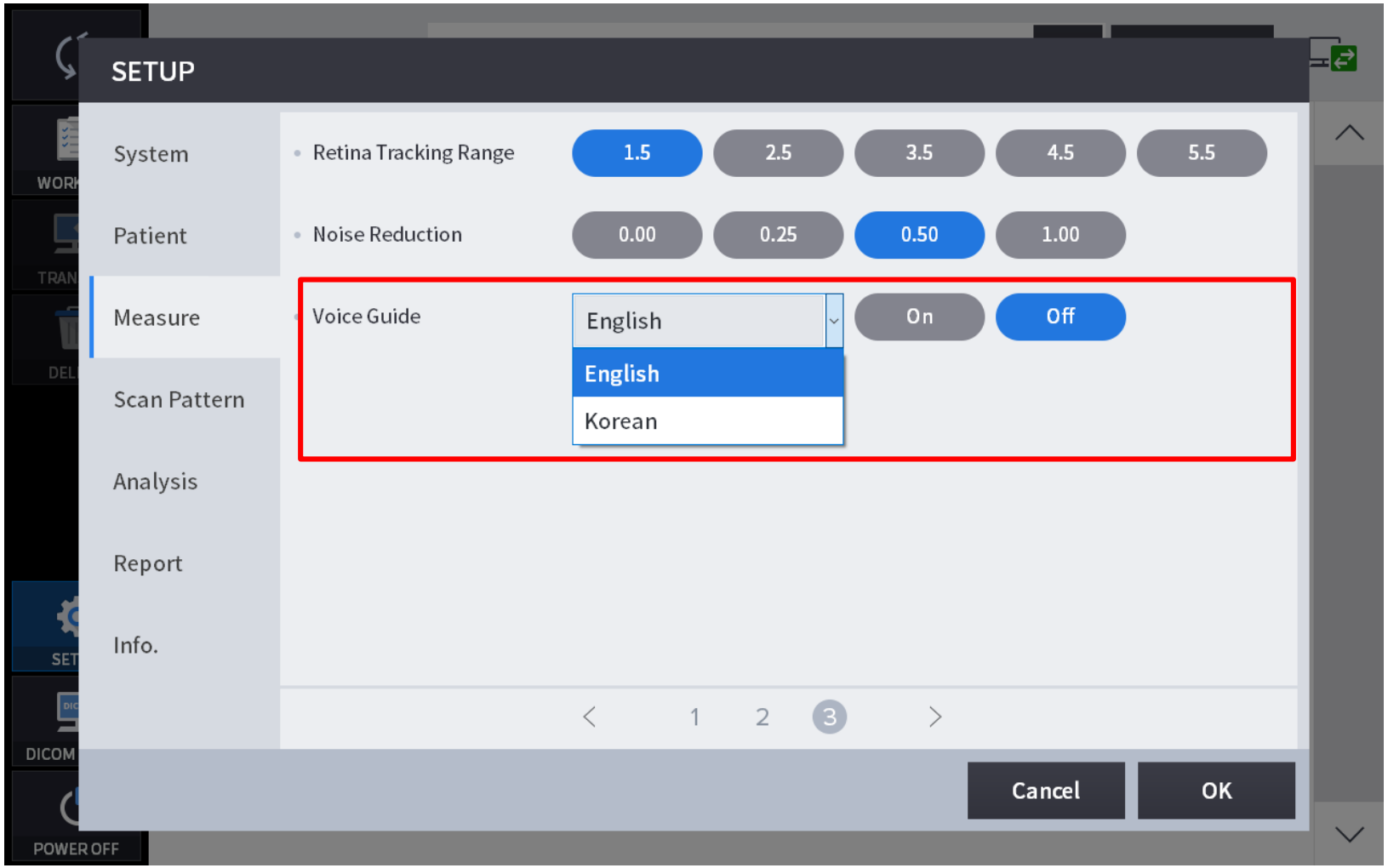


Proc. of SPIE Vol. 6844 68441E-3

The others

- Voice guide
- Angiography in Webviewer
- Enhancement a fundus image in Webviewer

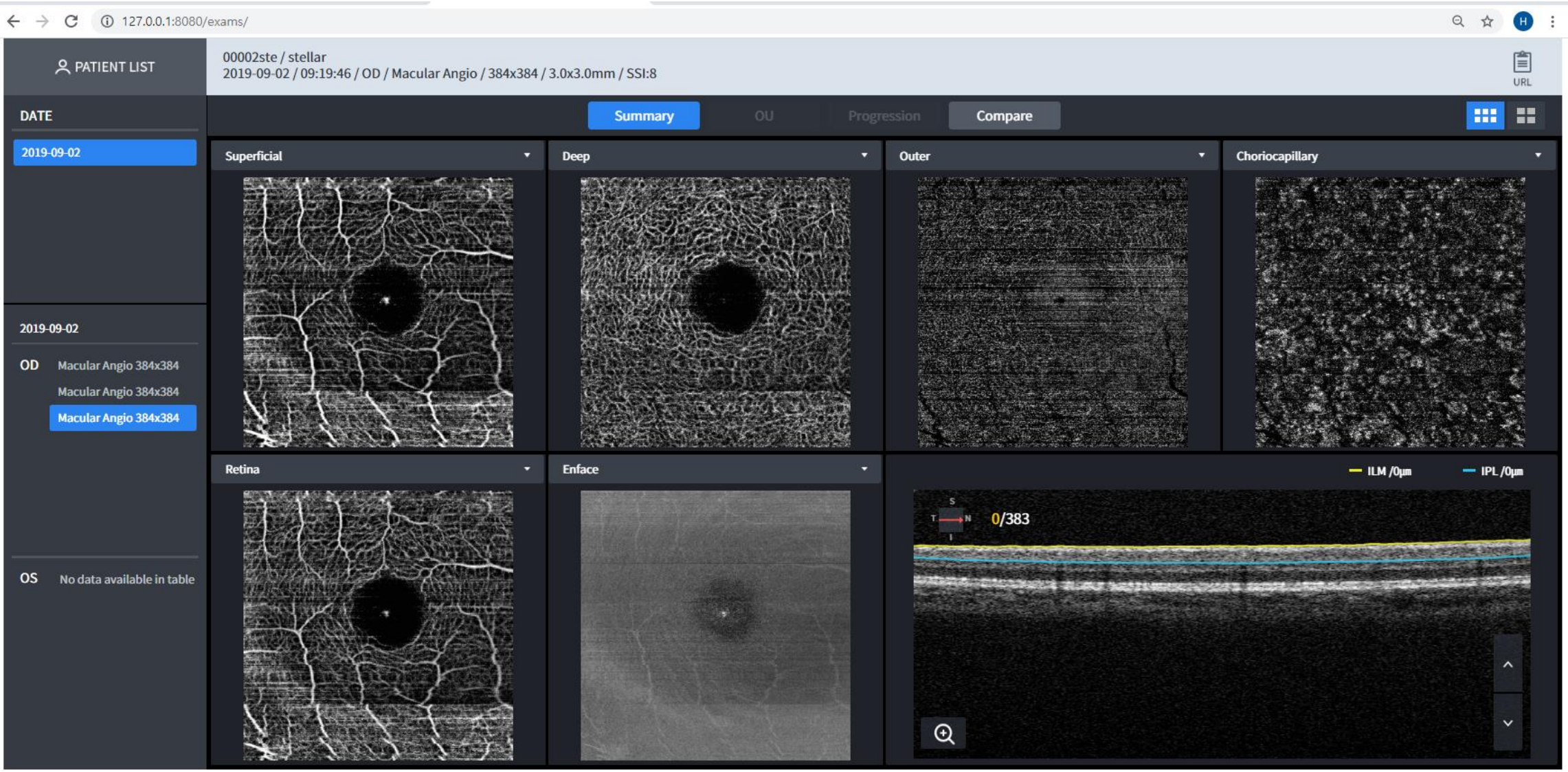
Voice Guide



.- Set a language in User option.

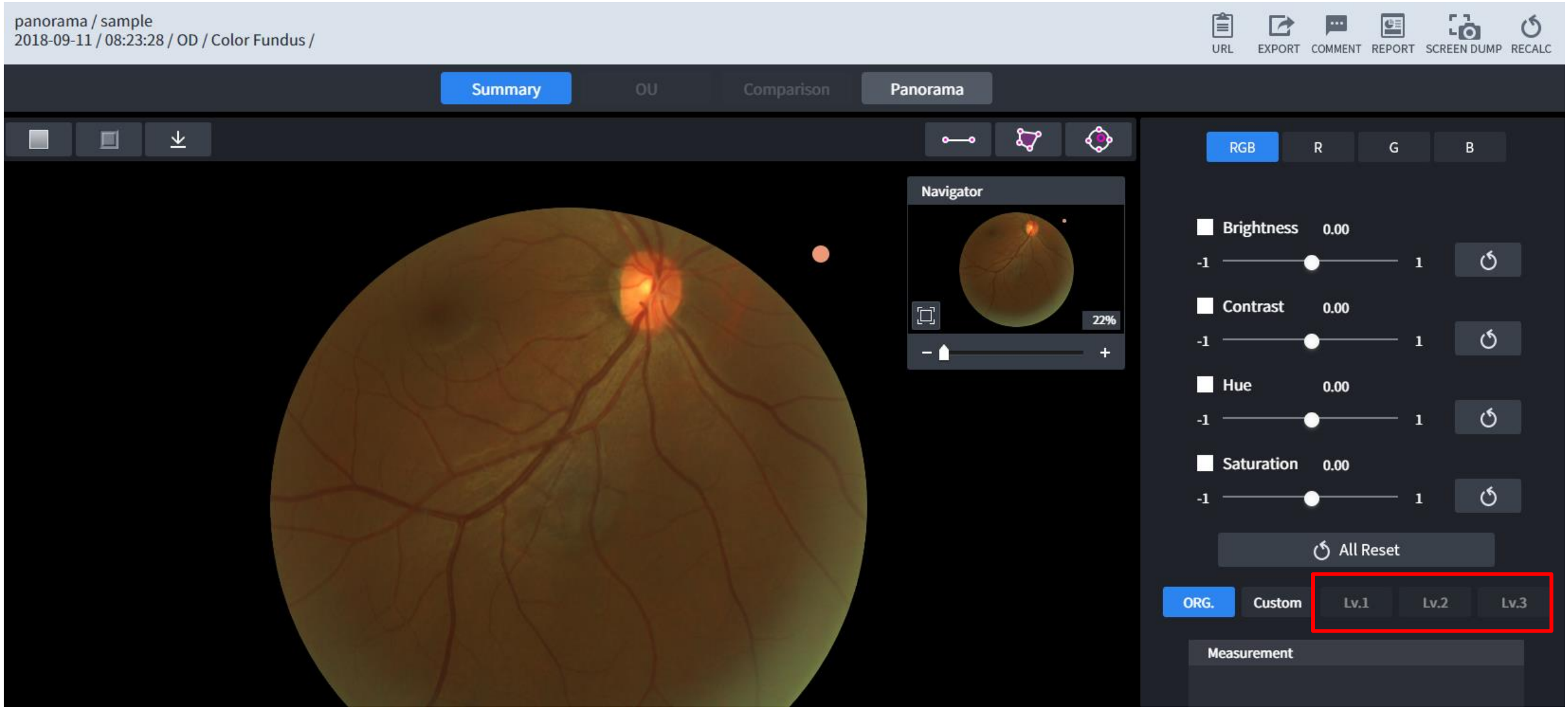
.- A patient can listen to Voide guide during a measurement.

Angiography viewer in Webviewer



.- Analysis of Angiography can be transferred to Webviewer.

Enhancement a fundus image in Webviewer



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Beginning is half done.
Endless beginnings are a life itself.

Thank you

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