OPTICAL COHERENCE TOMOGRAPHY
RS-330

Frequently Asked Questions

Clinicians

Q - Why have an OCT?
A - OCT is now recognised as one of the primary diagnostic tools in Ophthalmology and Optometry. The changing landscape of Optometry indicate it will become increasingly obligatory to use OCT in general optometric practice.

Q - How easy is the RSD to use?
A - The fully automated system allows anyone to capture great scans with limited training. Auto alignment, auto tracking, auto optimisation and auto capture ensure very easy scan acquisition. It can also be used in manual mode or situations where scan capture may prove difficult.

Q - What are the best scans to capture in a busy practice?
A - There are 8 posterior scans to choose from, but the most valuable would be the Macula Map, the Disc Map and the colour fundus image. These can be taken in quick succession as a 'Combo' Scan.

Q - How long do scans take?
A - Combo mode speeds things up and with good patient direction it can be done on both eyes in around 2 minutes.

Q - Will cataracts affect the OCT scan?
A - Like any imaging device, if something blocks the OCT signal (infrared light source) from reaching the retina, the image quality will be poorer. It is common for OCT scan quality to be less in patients with cataracts (i.e. Reduced SSI score).

Q - Will vitreous floaters affect the OCT scan?
A - Large floaters can block the infra-red light reaching the retina Get the patient to move their eyes around to try and move them out of position for capture. Often it can't be avoided.

Q - Will small pupils affect the OCT scan?
A - Pupil size is generally not too critical when capturing OCT data. The RSD can work down to a 2.5mm pupil size and uses infra-red light which doesn't affect pupil size.
Generally, if you can view the eye undilated during normal fundus examination, you should be able to get good OCT data.

Q - Will the OCT increase the number of referrals?
A - In general, no. With the extensive ongoing training we provide, and the clinical support available, false positive referral rates should not change (maybe reduce) and false negative referrals should drop.
It would be advisable to speak to your local Ophthalmology hospital department to see if they have any existing protocols regarding OCT.

Q - Will Ophthalmologists accept referrals from OCT images or data?
A - Absolutely. OCT is now part and parcel of everyday ophthalmology and is used widely in retinal clinics, glaucoma clinics and in anterior eye departments too. Very often, the data can help identify glaucoma patients much earlier than conventional methods and most consultants will treat from this evidence in many.

Q - I've never heard of some of the race categories….?!
A - NAVIS-EX is a global software product and therefore covers races from all over the world. In the UK the most commonly used categories would be '*Caucasian*', '*African origin*' and '*Asian*'.
NB – Please be aware the '*Asian*' category refers to far east Asia. Anyone from near Asia (Middle East, Indian sub-continent) should be categorised under '*Caucasian*'.

Q - Can the data from the OCT be exported?
A - It is possible to export any of the image or OCT data using the '*Export*' function (see separate guide).

Q - Can reports be generated by the OCT?
A - There are many in built reports which can be customised, or new reports designed (see separate guide).

Q - How do I access the in-built demo example scans?
A - The demo example cases have been pre-loaded into your database. Use the search box 'Patient ID' field and type the name of a pathology to filter the database.

Q - The scans are performed by shop floor staff in my practice. How do I know if a scan is good quality?
A - Before interpreting the charts or scans it is important to check
  1) **Check the SSI (Signal Strength Index) score?**
     In a good scan, the SSI score should be 7 or over (at least 1 green bar).
  2) **Is the scan in the correct position?**
     The data will only make sense if it is aligned with the graphs. The easiest way to ensure everything is aligned on a Macula map scan is to ensure the central circle of the graph is over the foveal pit on a thickness map.
  3) **Is the data complete?**
     On the full retinal thickness map, there should be colours all over indicating there is data. If there are any areas of grey, there is a lack of data in that area (eg. blinks, out of range, etc). (NB see separate guide for more information).

Q - When would I alter the OCT sensitivity?
A -
  * REGULAR - If your priority is speed of capture and good scan resolution
  * FINE - If your priority is a balance of speed and quality of image
  * ULTRA-FINE - If your priority is the high quality of the image but it is slower.

Q - What is the most useful scan to view?
A - The most useful scan by far is the Macula Map scan. It covers a 12mm by 9mm area and includes the macula area and the optic nerve head area. The data will display thickness information, normative comparison information, OCT b-scan information and en-face OCT information of the macula area.

Q - Are disc scans just as reliable as macula scans?
A - Generally, macula scans are easier to obtain and more reliable, but both are highly useful when used in conjunction.

Q - When should I review the OCT data?
A - When you choose to review the OCT data is entirely your choice. Generally, practitioners review the data towards the end of the test because then you have all the other 'normal' examination data to use. The OCT is not a replacement for any existing test, it is in addition to all the tests you would currently normally perform.

Q - How do I display a RE and LE scan at the same time?
A - In the Px file select the same type of scan for RE and LE then double click to open both scans together. This is an important feature as one of the most important aspects of OCT analysis is to look for symmetry or asymmetry between the two eyes.

The RE or LE data can then be accessed by the icons towards the top of the screen.

**Q - How can I overlay the coloured layers onto the b-scan?**
A - On the image tab of a scan, in the bottom LHS corner is the icon to overlay the segmented layers of the retina. All or individual layers can be applied.
Alternatively, right click on the b-scan and select '*layer*'.

Q - Is it possible to make measurements on the b-scans?
A - Yes. If you right click on the OCT b-scan, there is the option to place a measurement calliper on the scan. It can then be positioned to measure whatever you wish.

Q - How can I change the setting, so I have the colour fundus image behind the OCT thickness data on a Macula Map?
A - On the thickness map, R click on the mouse. Select COLOUR FUNDUS IMAGE.
Use the scroll bar at the bottom to phase between colour fundus photo and the thickness map.
This allows you to view the colour fundus photo, overlay the thickness map and cross reference with the b-scan alongside it.
To set as a default so this configuration occurs for every Px, click the orange floppy disc icon.
(NB. This can only be performed when the photo is captured at the same time as the OCT scan)
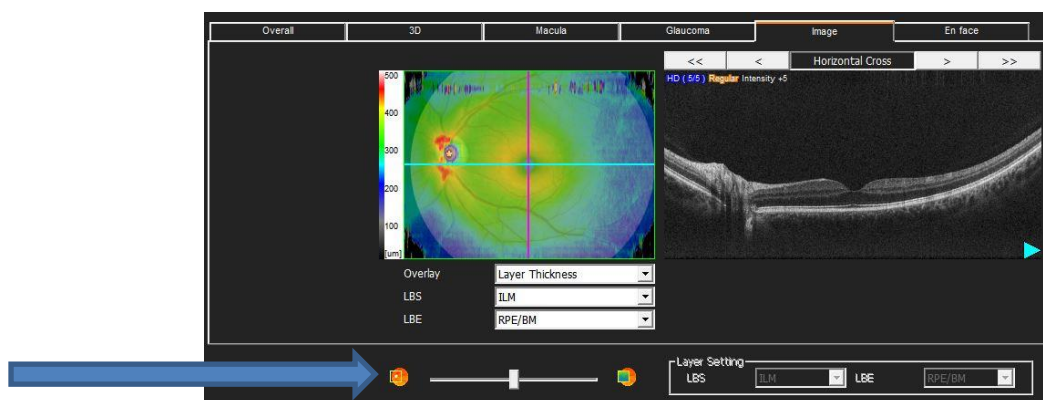
Q - How do I play the 'movie' in the Macula map scan?
A - On the image tab of the macula map, if you right click on the blue scan line on the thickness map, there is the option to 'AutoPlay from upper' or 'AutoPlay from down'. This will quickly auto play through all of the b-scans.

Q - On the image tab of a Macula map scan, the b-scan looks grainy when moved off centre, can I get a better image?
A - A Macula map scan is a combination of two sets of data – a Macula cross and the macula mapping data.
The Macula cross image will always be higher resolution than the mapping data. The mapping data is of lower resolution to be able to capture data on a large area in just a few seconds.
To get a higher resolution scan of a specific area, try performing a Macula radial scan.
The scan quality can also be improved by increasing the scan sensitivity (REGULAR / FINE / ULTRA-FINE).
The downside of this is the scan takes longer to capture.
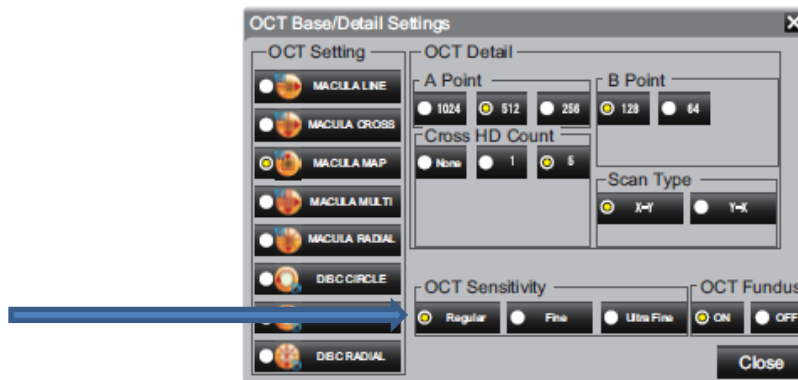
Q - Why are the normative charts white for some Px?
A - Once the scan has been captured, the NAVIS-EX software compares the data to a Normative Database (NDB) from 20 to 80-year olds. Any Px below 20 will have scan data, but no comparison to the normative database.
Similarly, if the Px age has not been input the charts will also appear white.
To allow this comparison the gender, age and race of the patient must be entered.

Q - What's the difference between the Normative database and Deviation Map?
A - The normative database will give a comparison of whether a Px retinal scan is thicker or thinner than a normal distribution.
The Deviation map will then say how much thicker or thinner the data is (up to ±50% of the norm).

**Q - I never look at en-face data. Is that a problem?**
A - The information and scans you choose to review is entirely your choice. The en-face data is the same OCT data, but unlike the b-scans which give you a '*slice*' through the retina, en-face data views the OCT data from above and allows you to sink down through the depth of the retina.
The real benefit of the en-face data is it is very easy to spot any lesions on the scanned area as you can display the whole of the scanned area in one (see separate guide).

Q - Why are some scans captured in an X-Y direction and others in a Y-X direction?
A - The map scans are set to default which direction the scan captures. It is possible to alter the direction by adjusting the scan detail, but it is not recommended.

- Y-X is recommended for Glaucoma, PACG best for disorders needing observations with Superior / Inferior comparison
- X-Y is recommended for AMD or macular disorders
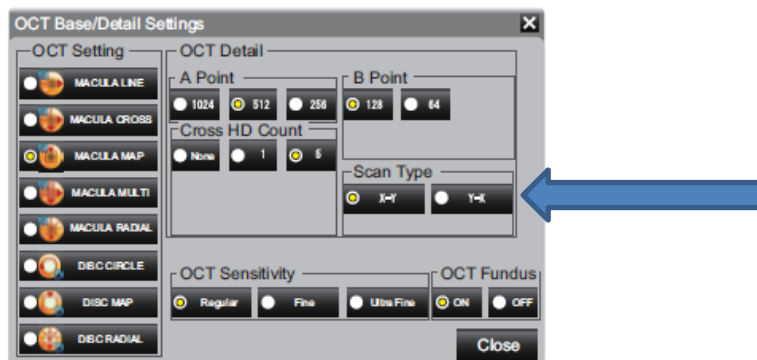
Q - Why should I view the Macula map scan for Glaucoma analysis rather than the Disc scans?
A - The Macula map scan will display data on the ganglion cell complex. These layers are most susceptible to the earliest changes in glaucoma. Glaucomatous changes are far more likely to be more apparent here earlier than on disc scans. It is still advisable to perform disc scans on Px as part of your OCT examination.

Q - Why are there Disc Circle and Disc Map modes? Can they both be used for glaucoma diagnosis?
A - Yes. The most common scan on the optic nerve head is the Disc Map – it contains the disc circle information as well.
Disc Circle can be captured quicker and is easy to use so it's suited for glaucoma screening.
The best scan to use to detect the earliest glaucomatous changes is the Macula map scan.

Q - Are the OCT C:D ratios accurate?
A - Yes, highly accurate, but different to what you may assess them to be when performing fundus examination. Due to the difference in measurement, the C:D ratios displayed on the Disc Map scan are approximately 0.1 bigger.

Q - Why can't I set a scan to baseline scan when trying to perform progression analysis?
A - The most likely reason is NAVIS-EX hasn't been closed the day before. Closing the NAVIS-EX software at the end of each day and opening it the next day will ensure the database remains updated. Some time sensitive functions, such as progression analysis, need the most up to date data (see separate guide).

Q - Why does the progression analysis function not work?
A - To allow the progression analysis to take place, scans must have *identical* parameters. Check parameters for each scan and try again. (See separate guide).

Q - How many OCT scans do I need for progression analysis?
A - The more scans, the better. A minimum of three scans is recommended (see separate guide).

Q - How do I perform progression analysis?
A - (See separate guide).

Q - I cannot find an export folder on my desktop.
A - If the export function or the export folder is not accessible, please contact your IT provider to rectify.

Q - Is it possible to scan a more peripheral area of the retina?
A - Yes. The most useful scan to use is a radial scan. A Macula radial scan is initially positioned centrally, but it can be moved to allow the scanning of other retinal areas (see separate guide).

Q - Does my RSD have FAF capabilities?
A - FAF – Fundus autofluorescence. Fundus images can be captured using the characteristic reaction of lipofuscin in the retinal pigment epithelium to auto fluoresce. With the system, green light is used for excitation.

There are two models of the RSD, one with FAF capability and one without. There are hardware differences, so if you cannot see the FAF icon on the RSD touchscreen, your model cannot perform FAF imaging.
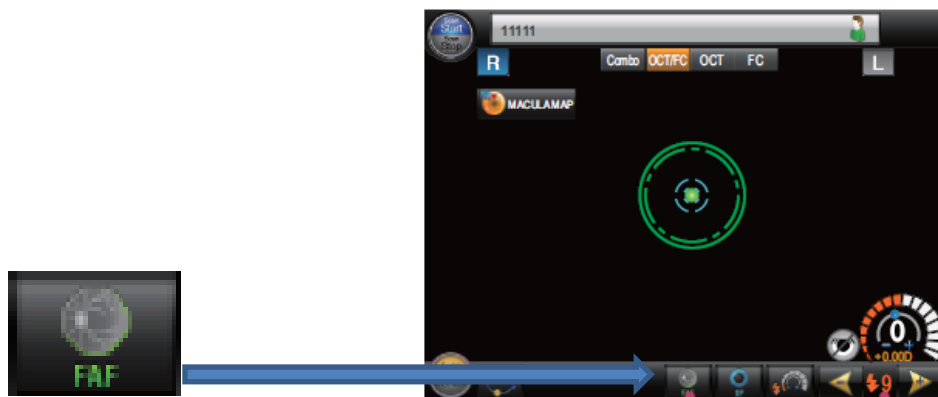

Q - Why is the fundus photo out of shape when viewed on the monitor in the test room?
A - This is down to the resolution settings of the PC. Your IT provider can alter the display settings of your PC to enable the correct sizing of the NAVIS-EX screens.

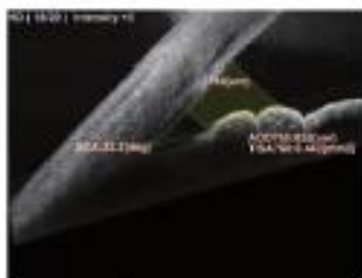**Q - Can the RSD image the anterior eye?**

A - The RSD can capture anterior photos and OCT scans. Pachymetry measurements and Anterior Chamber angle measurements can be performed (see separate guide).
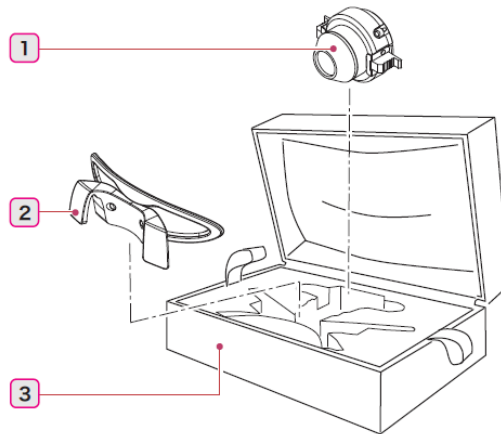
1) Anterior segment lens
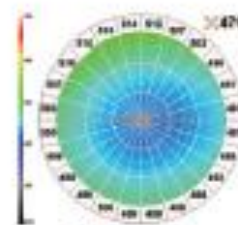2) Headrest
3) Box

Angle Measurement

- **ACA**
  Angle between posterior corneal surface and iris surface

- **AOD500 (AOD750)**
  Distance between iris and a point 500 μm (or 750 μm) from the scleral spur on posterior corneal surface

- **TISA500 (TISA750)**
  Area circumscribed with AOD500 (or AOD750) line, posterior corneal surface, line drawn from scleral spur in parallel with AOD line, and the iris surface

Corneal Measurement

- **Corneal thickness**
  Corneal thickness of apex and user selected sites

- **Corneal thickness map**
  Map of corneal thickness plotted radially

Thickness Map

Angle Measurement

Corneal Measurement