



# Standard Operating Procedures: Infant Eyes and Vision Assessment

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## 1 Background

Initial discussions regarding vision assessments took place in 2012, in the Life Study Scientific Protocol Development Group and Scientific Working Groups. Consideration was given to potential research questions that could be answered by Life Study, and also the exciting opportunities for novel approaches to be included.

Work to develop the Life Study Standard Operating Procedures (SOPs) commenced in 2013, prior to the initial Life Study pilot for the pregnancy component. NatCen Social Research conducted this pilot and feedback from their staff was incorporated into the SOPs.

Members of the Life Study Neurodevelopment Group provided in-depth scientific expertise from a range of complementary disciplines. They reviewed the results from the Life Study pilot and advised on the neurodevelopment assessments to be included in the final Life Study scientific protocol.

The Life Study Scientific Steering Committee reviewed recommendations from the Neurodevelopment Group and had overall responsibility for the final Life Study scientific protocol.

Members of the Life Study team based at UCL Institute of Child Health gave feedback on draft documents, sourced equipment, tested data capture mechanisms and liaised with external suppliers regarding the specification and development of data capture systems.

The Infant Eyes and Vision Assessment SOPs were not implemented, as funding for Life Study was withdrawn by the funders in October 2015 before the infant visits had commenced.

At the time funding for Life Study was withdrawn, opportunities to include assessments of infants' visual acuity using the PEEKABOO VISION (PV app)<sup>1</sup> presented on a tablet, were being explored. This provides an acuity score based on the ability to discern high frequency grating patterns, which is the clinical standard for testing infants. Work had been planned to pilot its use prior to inclusion within Life Study, however as this did not take place, no further details of that component of the infant vision assessment are included here.

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<sup>1</sup> See <http://www.peekvision.org/>

## 2 Aim

In the first phase of Life Study we are investigating:

- How vision develops in infants
- How and why misalignment of the eyes (strabismus) – commonly known as a ‘squint’ or ‘turn’ - develops in children
- The relationship between vision and specific eye conditions and physical, social and emotional development.

To do this, we need to measure - through assessments -

- the alignment of the eyes (strabismus)
- the presence or absence of short sightedness or long sightedness (refractive error)
- the presence or absence of depth/3D vision (stereovision).

We also need to collect information about eyes and vision through the Life Study questionnaire instruments. The information collected from these assessments and questionnaires is not equivalent to a clinical assessment and therefore cannot be used to advise parents on the need for any further detailed medical review. Thus no feedback on the findings of the ‘Eyes and Vision’ assessment will be provided to parents of participants<sup>2</sup> in line with the Life Study Ethics and Information Governance Framework<sup>3</sup>.

## 3 Subjects

### 3.1 Inclusion criteria

Life study participants (infants aged about 1 year) accompanied by a parent/carer.

NB Parents/carers may have had these tests themselves earlier in the study (at the pregnancy visit) and so may be familiar with their purpose and content.

### 3.2 Exclusion criterion

Infants who have both eyes missing.

At the beginning of the assessment the parent(s) should be asked if their infant has one or both eyes missing (for any reason). Those with one eye missing will be tested with the unocular protocol for the plusoptix and the rest of the protocol is unchanged.

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<sup>2</sup> ‘Participant’ refers to the infant and to his/her mother or individual with legal parental responsibility for the infant, and/or the mother’s nominated father or partner who may or may not have legal parental responsibility for the infant.

<sup>3</sup> This can be accessed through the resources pages on the Life Study website [www.lifestudy.ac.uk](http://www.lifestudy.ac.uk)

## 4 Staff undertaking the assessment

Staff are to be trained in the use of plusoptiX A09, Frisby stereotest, autofocimeter and digital camera by a research orthoptist and/or plusoptiX technician.

## 5 Environment

- A **distraction-free environment** is necessary to ensure the infant's visual attention.
- **Instructions / explanations must be brief** to avoid losing the interest of the participant. The emphasis is on **obtaining measurements as quickly as possible** while the participant is most attentive and co-operative.
- Room lighting should be dim but not completely dark for the plusoptiX measurement at the beginning of the protocol.

### NOTE:

- Windows need to be covered to avoid U.V light interference with the plusoptiX autorefractor (see 6.1).
- All other assessments are to be conducted under standard office illumination.

## 6 Equipment

### 6.1 PlusoptiX A09 Autorefractor

The plusoptiX autorefractor (Figure 1) is a device that is used in clinical settings in order to provide a rapid assessment of the alignment of the eyes (presence or absence of a squint) and short or long sightedness, with a view to deciding if a child needs to be referred for detailed expert clinical review.

The plusoptiX has a default 'binocular' setting (which will be used for >95% participants), which works by measuring both eyes at the same time. Thus it requires two 'normal' eyes which are reasonably well aligned.

It will be uncommon for a participant to have widely misaligned eyes and very rare for a participant to have one malformed, missing or artificial (prosthetic) eye. In these situations, the device is used in the 'uniocular' (one eye) setting so that it can measure each eye separately. This is described later.



*Figure 1 PlusoptiX A09 autorefractor*

The device has a ‘vision screener’ unit, comprised of a base with a cradle, and the hand-held device ‘head’.

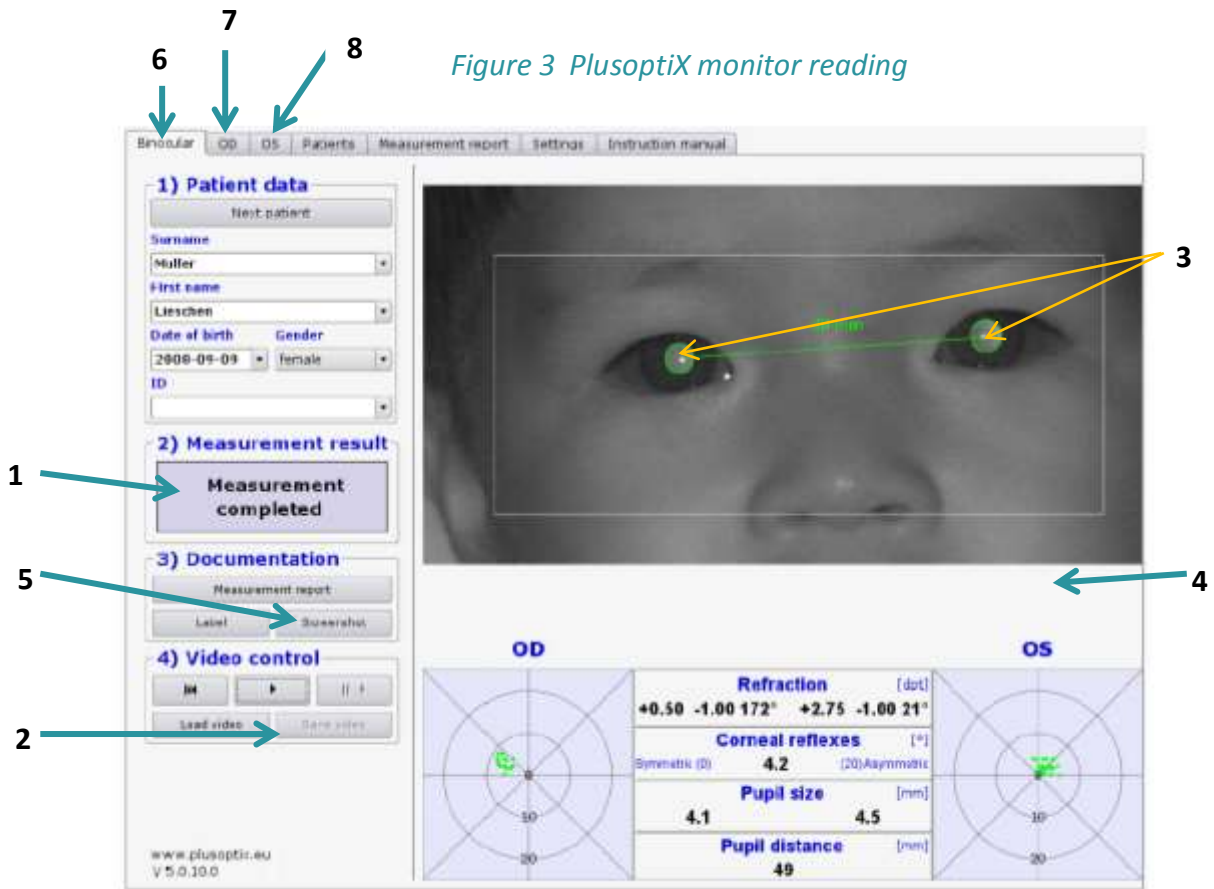
It is a non-invasive, non-contact device. The participant simply views small red lights on the “nose” of the face on the device head held by the examiner (Figure 2).



*Figure 2 PlusoptiX autorefractor device head*

The monitor displays the participant’s face (eye area), seen in Figure 3, and the measurement is made by the device held by the examiner.





<http://www.plusoptix.com/>

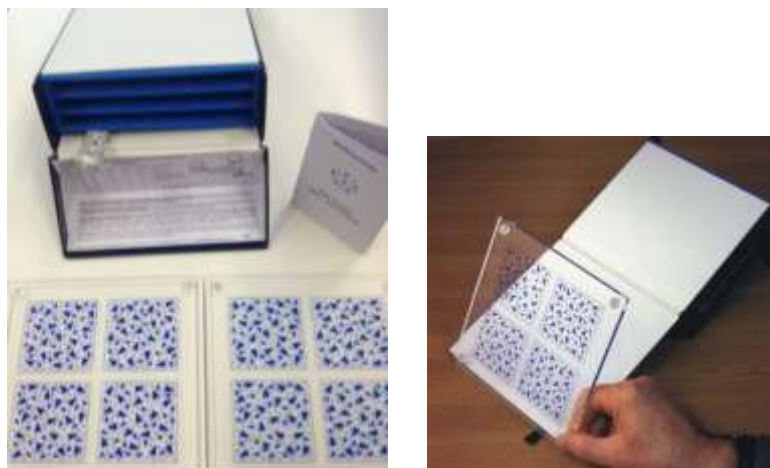
## Key

- 1 Measurement result
- 2 Save video button
- 3 Pupil circles (green/red)
- 4 Information bar (only present when error messages appear)
- 5 Screenshot capture button
- 6 'Binocular' tab – Default test mode
- 7 'OD' tab – For testing the right eye
- 8 'OS' tab – For testing the left eye

## 6.2 Frisby Stereotest.

The Frisby Stereotest is used to measure depth perception (stereovision or 3D vision), which requires reasonably good vision in each eye and the ability to use the eyes together. In infants, a behavioural (rather than verbal) response is measured based on “preferential-looking” ie the infant’s visual interest and the direction in which s/he looks when a Frisby ‘plate’ is shown.

The test contains 2 plates in a box with a flip down lid which provides a white background in front of which the plates are held for the test (Figure 4). **NOTE:** The thinnest plate has been permanently removed from the box to simplify the test procedure, leaving two plates. Plate number 1 (the thicker plate) is marked with a white sticker; plate number 2 is marked with a red sticker (Figure 5). Each of the plates is made up of two clear sheets held together by round studs at each corner.



*Figure 4 Frisby stereotest plate with four images*



*Figure 5 Frisby plate with white and red sticker identifiers*

Each plate is divided into quarters. Each quarter has a printed image made up of randomly orientated ‘arrowheads’ of different sizes (Figure 5).

**ONE** of the four images on the plate has inside it a ‘Hidden Target’, which appears to protrude forwards from the background. It can only be seen using depth perception/3D vision (Figure 6).



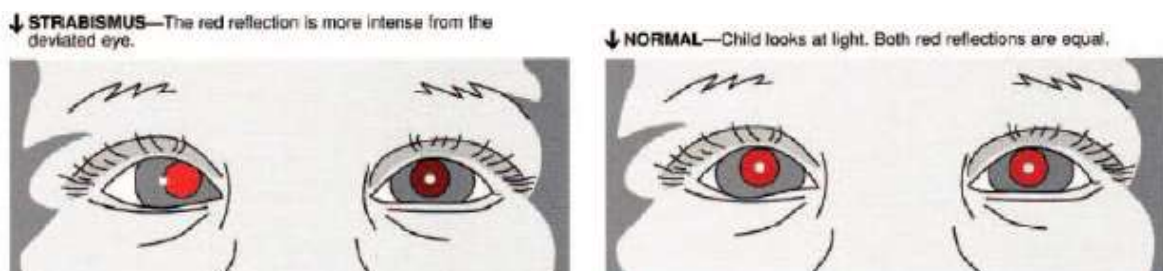
[www.frisbystereotest.co.uk/](http://www.frisbystereotest.co.uk/)

*Figure 6 Hidden target in one image on plate*

**NOTE:** The image with the target within it is next to the corner of the plate with the stud that has been filed flat. The coloured sticker that identifies the plate is located on the corner next to the hidden target. It should therefore always be covered from the participant’s view by the examiner’s hand (Figure 4), but will allow for easy identification of a correct response.

### 6.3 Digital camera

This is used to take a photograph of the eyes (mid face area) of all participants in whom each eye had to be tested separately with the plusoptiX device and when a participant required their eyelids to be lifted to complete an assessment. The photograph will be used to assess alignment of the eyes using the ‘red eye’ image that appears in a photograph when a flash is used (Figure 7).



*Pediatrics 2008;122;1401*

*Figure 7 Image composition for mid-face photograph*

6.3.1 Camera Settings

**NOTE: These should be as follows:**

Auto-focus: ON      Red-eye reduction: OFF      Flash: ON      Mode: P



Red Eye reduction control is accessed through the menu: Select **OFF**

Image review button



Flash on/off button: Select **ON**

Mode dial: Select **Mode P**



Zoom Barrel

[www.canon.co.uk](http://www.canon.co.uk)

Figure 8 Digital camera

## 6.4 Auto Focimeter

This device measures the strength (prescription) of lenses in a pair of glasses. All participants who wear glasses will have them measured as the last part of the assessment.



[www.reichert.com](http://www.reichert.com)

*Figure 9 Reichert AL-200 Autofocimeter*

### 6.4.1 Sensory Toy

If required, this can be used to attract the infant's attention.



*Figure 10 Large Light Up Galaxy Spinner*

[www.sensorytoywarehouse.com](http://www.sensorytoywarehouse.com)

## 7 Preparation

- 1) **NOTE: Room lighting is very important and different lighting is required for the different parts of the assessment.**

Throughout the day during all testing, all windows should be covered to avoid UV light interference with the plusoptiX device. The participant and parent will enter the room while it is dimly lit. The room lighting needs to be dim, but not completely dark for the plusoptiX measurement at the beginning of the protocol and restored to normal 'office' levels for the Frisby Stereotest and for photography.

- 2) The plusoptiX device and monitor are set at a workstation, 1.5 metres from the chair for the parent and participant (Figure 11).
- 3) The plusoptiX device, monitor, focimeter and workstation computer (for data capture) must be **TURNED ON** at the **START** of the day and left on throughout the day.
- 4) The Frisby stereotest, digital camera and toy should be ready near the workstation.
- 5) **To turn on the plusoptiX device:**
  - a) Before turning on the plusoptiX device make sure the dongles from the back of the keyboard and the mouse have been inserted into the back of the plusoptiX device. The USB dongle for the mouse can be located by lifting the front part of the mouse where the batteries are stored.
  - b) Turn the monitor on first and then switch the plusoptiX on by pressing the black switch on top of the device.
  - c) Wait for the plusoptiX to load. Once the mouse is functioning, it is ready to use.
  - d) The USB memory stick to be used for video data capture must **ONLY BE INSERTED** into the plusoptiX vision screener base **AFTER** the device is switched on.
- 6) To turn on the focimeter - Press the black switch at the back of the focimeter.

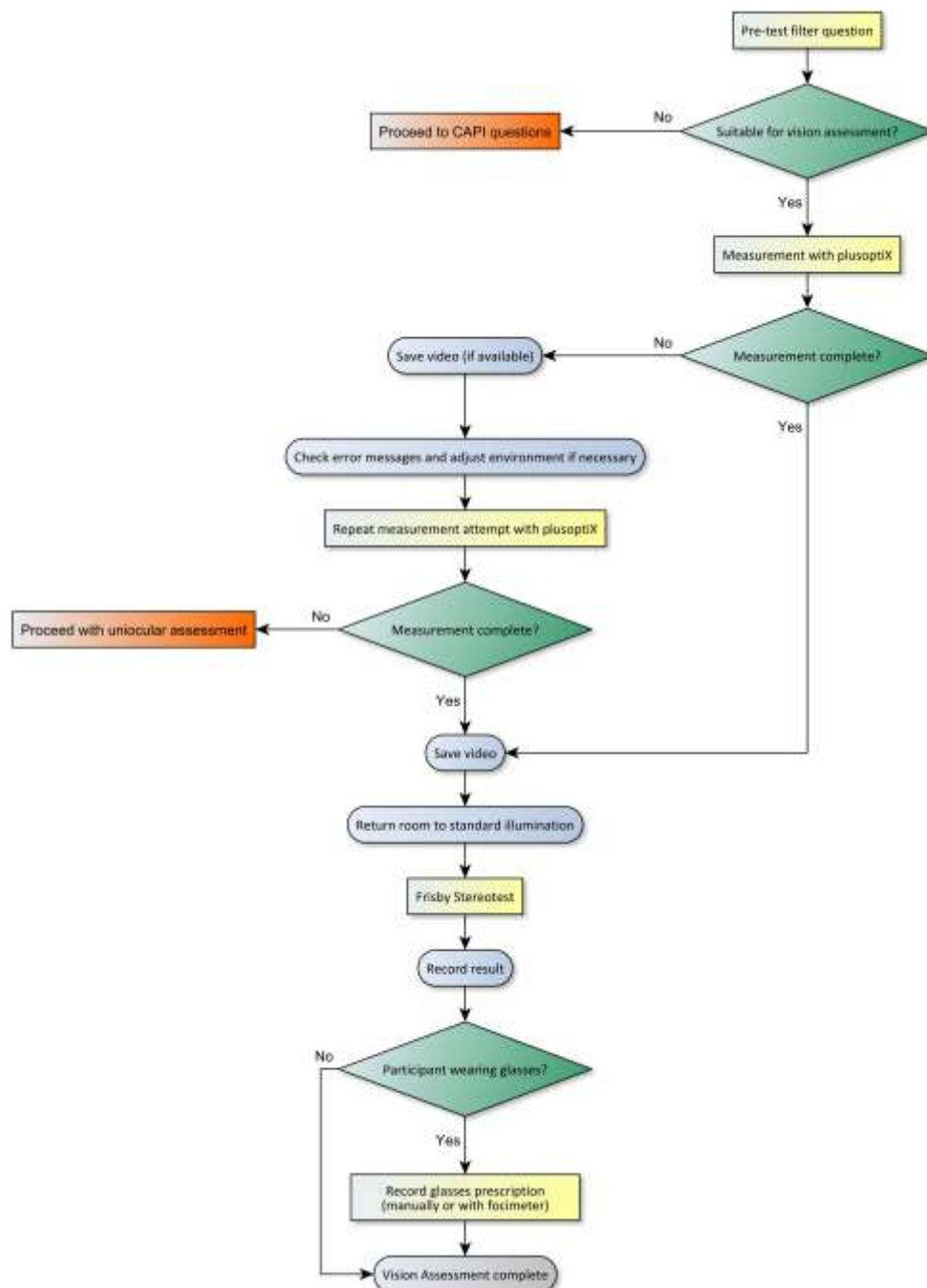




*Figure 11 PlusoptiX assessment setup*

## 8 Summary of protocol

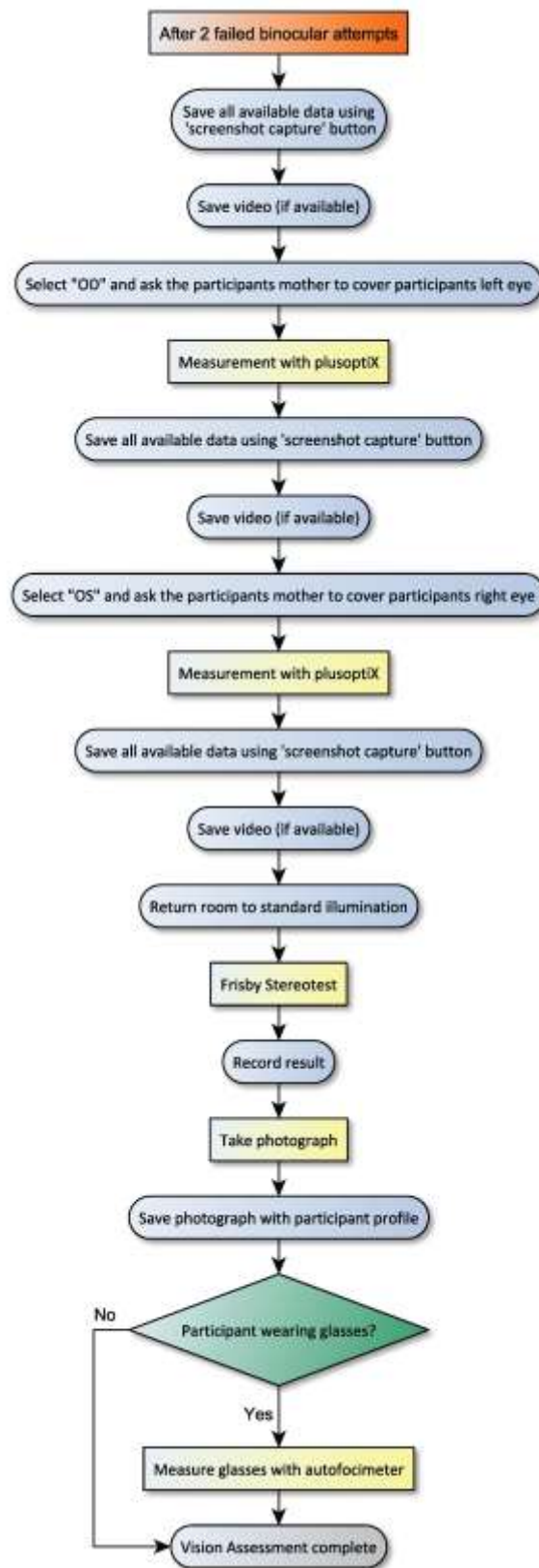
The eyes/vision assessment workflow of the conventional / default assessment protocol applies to the majority of participants including those who wear glasses (**Flowchart 1**).



*Flowchart 1 Vision assessment protocol overview*

**NOTE:** In a minority of participants, it may be necessary to follow the alternative unioocular protocol, as set out in **Flowchart 2**.





Flowchart 2 Uniocular protocol for infants failing plusoptix measurement with both eyes

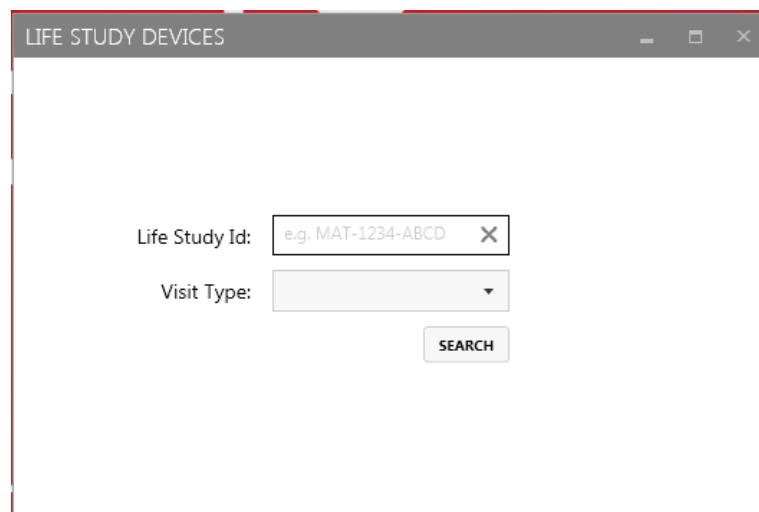
## 9 Measurement using the plusoptiX device

(see **Flowchart 3**)

- 1 The parent and participant enter the examination room.
- 2 Open the 12 month “Vision Assessment Survey” via the UCL Life Study Survey Portal login.
- 3 Make sure that the Desktop Device Application is running. To do this click on the shortcut as shown below:

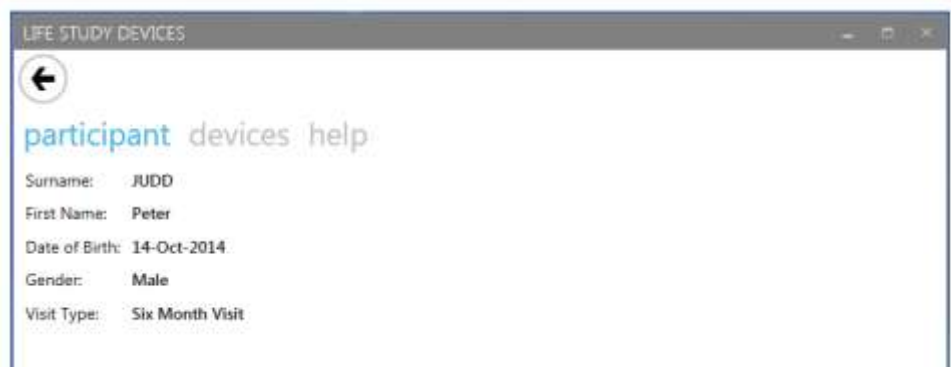


- 4 Enter the participant’s ID and select the visit type (12 month) using the dropdown box, then press “search”.

A screenshot of a web application window titled "LIFE STUDY DEVICES". The window contains a search form with two input fields: "Life Study Id:" with a text box containing "e.g. MAT-1234-ABCD" and a clear button (X), and "Visit Type:" with a dropdown menu. Below these fields is a "SEARCH" button.

- 5 The participant’s details (name, date of birth, gender, and visit type) should appear on the screen. Check this is the correct participant. If not, use the arrow in the top

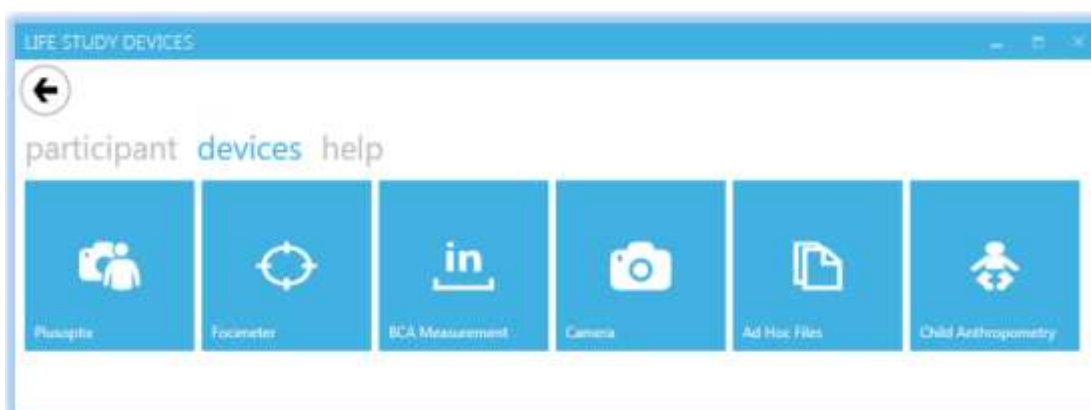
left corner to return to the participant identification screen and re-enter the correct participant ID.



4

6 Select “devices” which appears above the participant details.

7 Select the icon labelled “Plusoptix”.

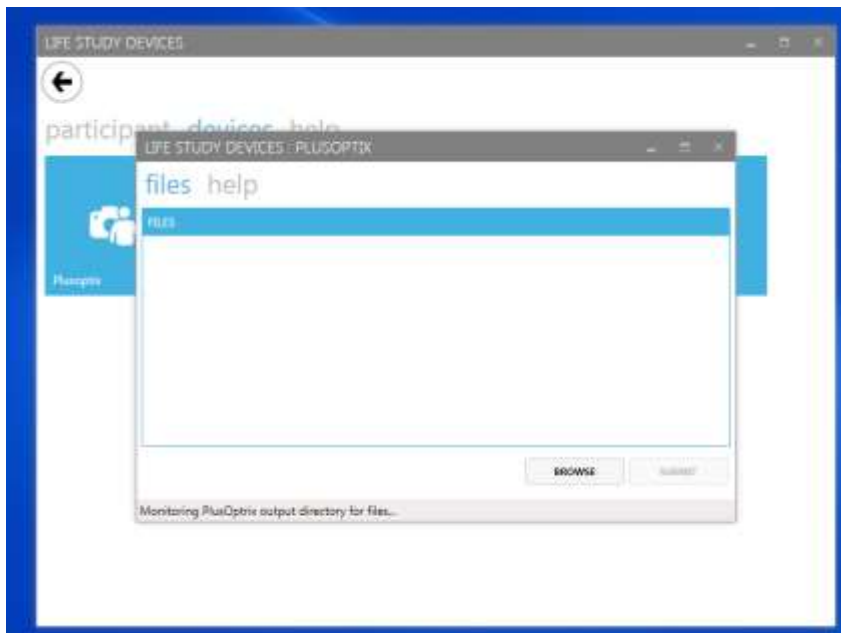


8 Upon launching the plusoptiX module the application will generate a configuration file specific to the current participant and interact with the plusoptiX software to configure your environment for a new set of measurements to be taken. You may need to wait for a few seconds for the configuration step to complete.

---

<sup>4</sup> Note – all names and dates of birth relate to fictitious participants

- 9 Once ready the application will display the following screen:



- 10 This screen indicates that the output measurements from the device are awaited. The application monitors the destination directory for the files created after the reading has been taken. When the measurements have been taken, the relevant files should appear in the files list under the files tab.
- 11 Commence the Vision Assessment Survey and follow the questions and instructions which appear on the screen. These will verify eligibility and consent, and prepare the parent and infant for the plusoptiX measurement.

**If an infant has both eyes missing**

- **do not proceed with the vision assessment.** Record this in the Vision Assessment Survey.

**If the infant has one eye missing (confirmed by the parent)**

- **switch the plusoptiX to the unocular (one eye) mode** and test the eye that is present (as described in Section 9.2.2)
- **These infants will require a photograph** at the end of the assessment (see Section 11).

**If the parent is unsure as to whether one or both eyes are ‘normal’**

- proceed with the standard protocol.

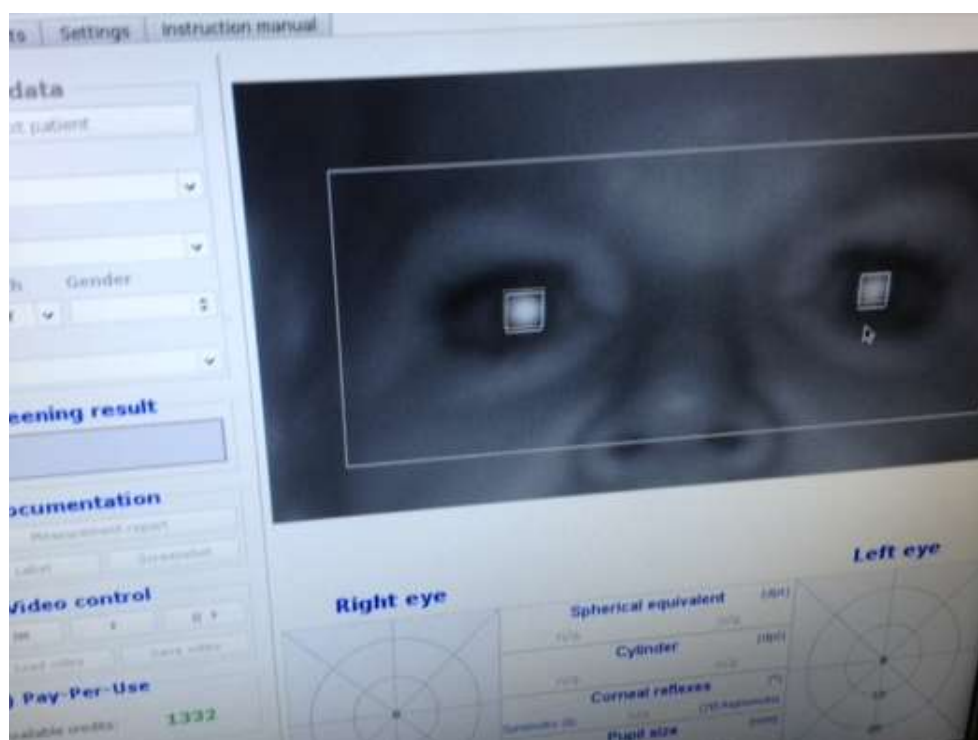
- 12 Briefly explain the procedure to the parent. The emphasis is on obtaining a measurement as quickly as possible while the infant is most attentive and co-operative. The parent will be informed that:
  - a. The device measures long / short-sightedness and the alignment of the eyes
  - b. There is no direct contact
  - c. There are no harmful risks
  
- 13 Face the participant and the plusoptiX monitor.  
The participant should sit on the parent's lap and facing forwards / towards you (Figure 11).
  
- 14 Ask the parent to remove the participant's glasses, if worn.  
**NOTE:** The participant will need to put the glasses on again for assessment of stereovision (Frisby)
  
- 15 Lift the plusoptiX autorefractor device head off the cradle and ***make sure the room is dimly lit.***
  
- 16 Sit on a wheeled office chair and hold the device head at eye-level to the participant (Figure 11).
  
- 17 Hold the handle with one hand, placing a finger over the trigger. Place the other hand above or below the body of the device to stabilise.
  
- 18 Hold the device head 1.25 metres from the participant's face.
  
- 19 Measurement can start when the "trigger" on the device head is pulled.  
**NOTE:** Once a measurement is complete, pulling the 'trigger' again **RESETS** the device and **DELETES ANY UNSAVED INFORMATION.**
  
- 20 Pulling the 'trigger' causes a sound to be emitted to attract the participant's attention.

Other objects can be used to attract attention before measurement begins. The toy (supplied with the plusoptiX) can be held above the plusoptiX vision screener and used intermittently to better engage the participant's attention. You can also try tapping the top of the device head.

- 21 Once the trigger is pulled, the screen will display what the device is 'viewing' in real time.
- 22 Move the device head until it is pointing directly at the participant's face, as shown in Figure 12.

**NOTE:**

Initially, the image will be blurry, with white squares over the pupils (Figure 12).



*Figure 12 PlusoptiX measurement process - white squares over pupils*

- 23 Move the device head closer to the participant. The image will become clearer as you move closer. Stop moving when the white squares are replaced by green circles over the pupils (Figure 13).



*Figure 13 PlusoptiX measurement process - green circles indicating a correct testing distance*

- 24 If the green circles change to white squares again, move the device away from the participant very slowly until the green circles re-appear.
- 25 Measurement of both eyes simultaneously begins automatically once the green circles are present.
- 26 Measurement continues as long as the participant continues to look at the 'face' on device head.  
**NOTE:** Encourage the participant to maintain viewing.
- 27 On average, measurement takes about 5 seconds.
- 28 The device 'beeps' to indicate measurement is complete.
- 29 When measurement is complete (device has beeped), the measurement result (Label 1, Figure 14) shows a "Measurement completed" message. This indicates a successful measurement.

See Section 9.2 for further discussion of possible outcomes and actions required if a successful measurement has not been made.

Figure 14 PlusoptiX screenshot of a successful measurement



Label 1: Measurement completed

30 Press the “save video” button as shown in Figure 15 to save measurement data. This saves the video to the USB stick in the back of the plusoptiX device.

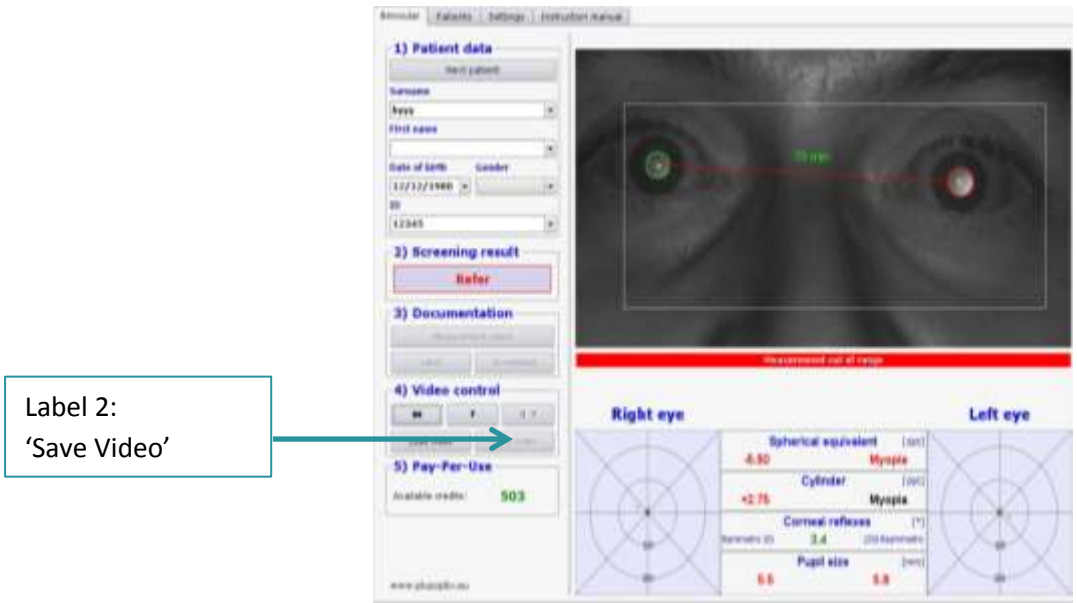
**NOTE:**

Video data must be **SAVED** manually in this way.

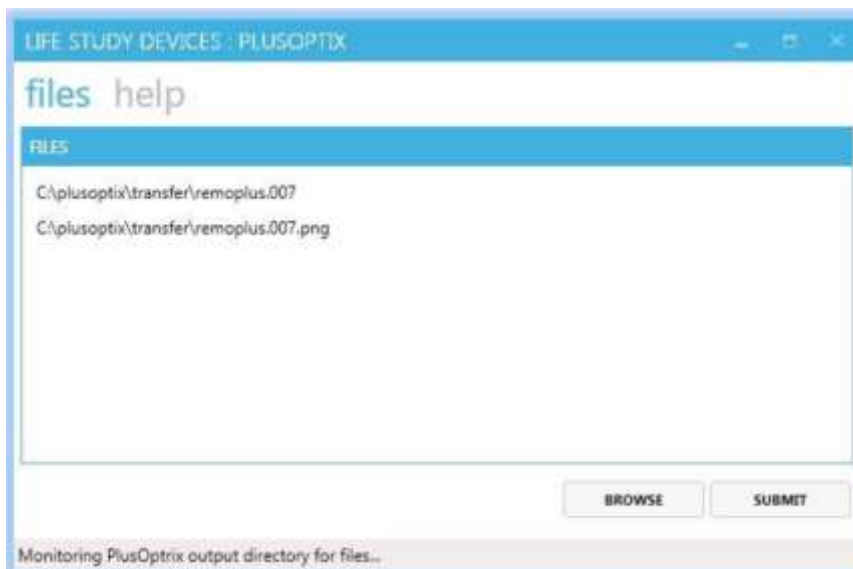
**ANY UNSAVED DATA WILL BE LOST** if another measurement is made (trigger pulled).



Figure 15 Save video button

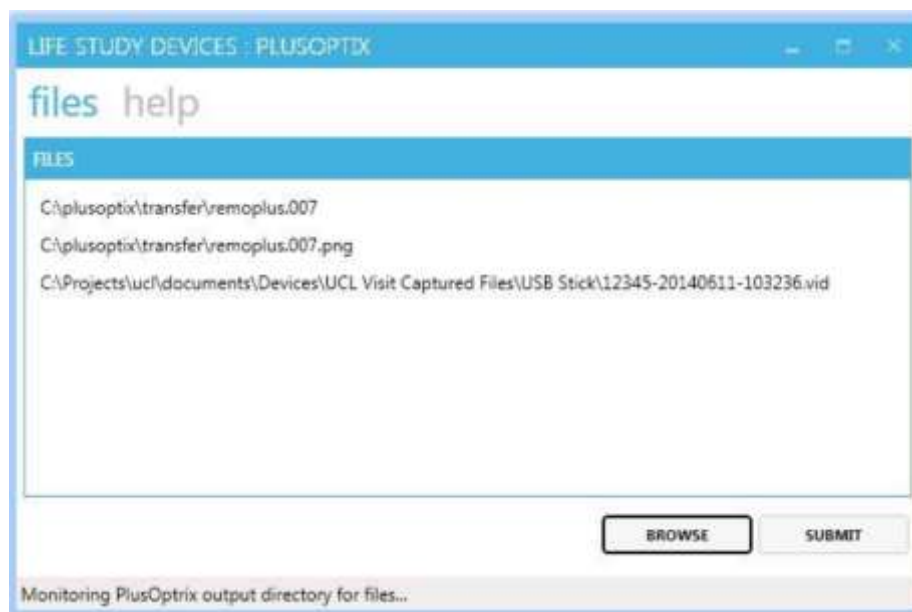


31 When the measurements have been taken, the files should appear in the files list within the Desktop Device Application as shown below:

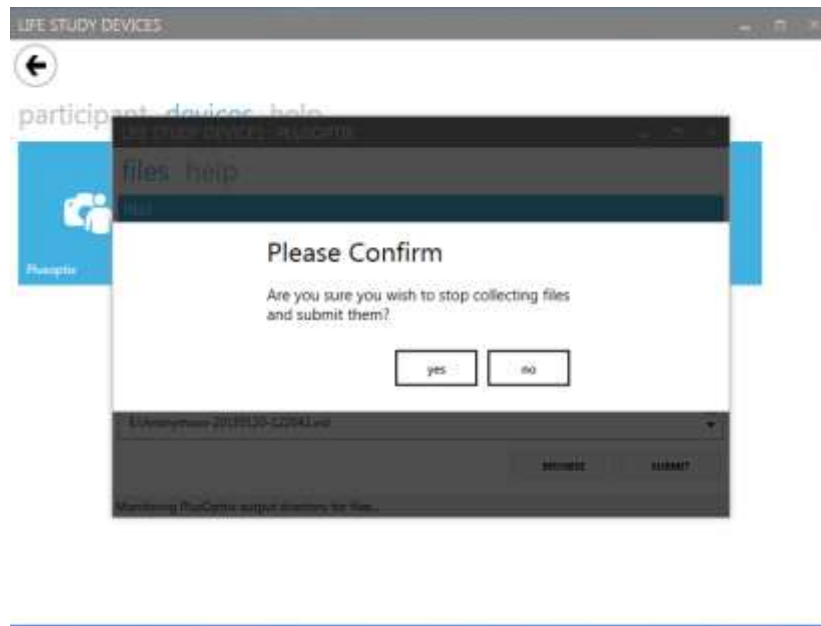


32 The application will continue to monitor for new files during this time. Once the system has found a file named remoplus.[nnn] then the SUBMIT button will be enabled; if the system does not automatically pick up the file from the monitored directory, browse to find the remoplus file and select it, and this will also enable the button.

- 33 Once all the files are present attach the video file from the USB storage device attached to the plusoptiX apparatus. Remove the USB stick from the back of the plusoptiX and place it in the USB port on the left side of the computer screen. Click the BROWSE button on the Desktop Device Application, and then select Local disk (E:) to access the files on the USB stick. Click on the .vid file (which should display the correct date and time) which will be added to the files list.

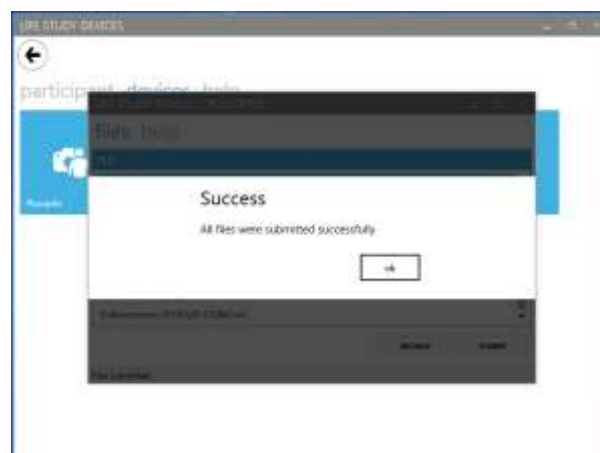


- 34 When all the relevant files have been collected, select the SUBMIT button, which will display a confirmation screen as follows:



- 35 If 'no' is selected, the previous screen is shown and more files can be added. If 'yes' is selected, the files will be copied to long-term storage and then removed from local storage on the plusoptiX device (and the local computer if relevant).

- 36 A confirmation screen will be displayed confirming that all files have been submitted successfully.



- 37 On selecting 'OK' the "Plusoptix" module will end and you are returned to the devices selection screen

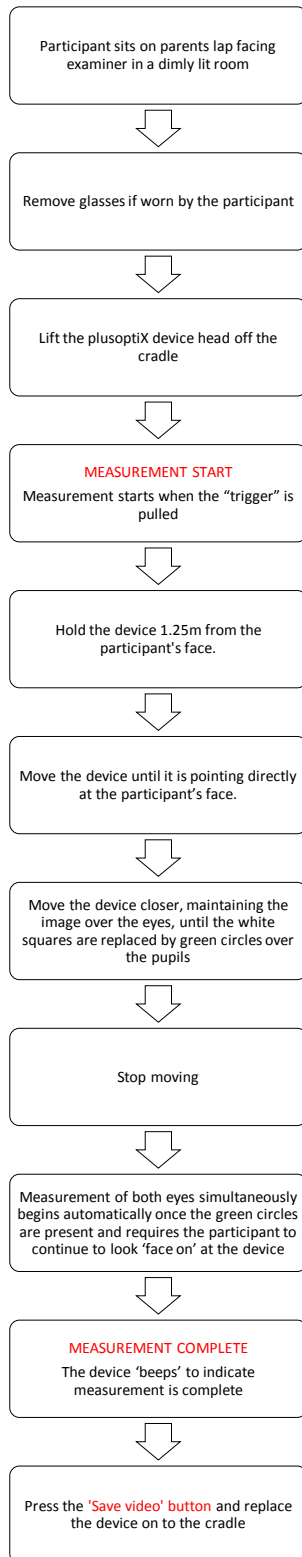
- 38 Restore the room to standard office illumination levels.
- 39 Complete the Vision Assessment Survey.
- 40 Check that the data have been deleted from the USB Stick. Eject and remove the USB stick from the side of the computer screen and place it back in the plusoptiX device so that it is ready for the next participant.
- 41 If at any time you find data left on the USB stick from another participant, you should notify and hand this to the Life Study Centre Manager.
- 42 If there is a folder on the USB stick called “PDF”, this is because the “Screenshot” button on the plusoptiX was pressed in addition to, or as well as the “Save video” button.
- 43 Assuming that the protocol was followed and three files have been transferred via the Desktop Device Application, then this “PDF” folder can be deleted (as the screenshot will already have been saved).
- 44 Delete the “PDF” folder from the USB stick.
- 45 Check the recycle bin, and if it has been transferred to there, delete it from the recycle bin as well.
- 46 Finally, once all data have been submitted, remove the participant’s image and data from the plusoptiX screen by clicking “next patient”.

## 9.1 PlusoptiX Top Tips

- 1 The key to successful measurement is getting and retaining the attention of the infant.
- 2 Measurements should be made as quickly as possible.
- 3 Always make sure the participant is:
  - Directly 'face on' and not moving / looking to the side
  - Not looking up or down to see the device head

If the infant is not facing directly forwards or turns their face then the plusoptiX screen will show one green and one red circle over the pupils or it will struggle to find the pupils at all. It will not be able to take a measurement.

- 4 Press the trigger again if the participant starts to lose interest – the device will make a noise to draw attention.
- 5 Be engaging – building a rapport with an infant is essential to achieving good measurements.
- 6 At the beginning of each measurement, make an effort to engage / reengage the participant and get them to look directly at the instrument / equipment using sounds, calling out their name or tapping the equipment.



- The device makes a sound to attract the participant's attention
- An image of what the device is 'viewing' will show on the monitor
- One hand should hold the handle, with a finger over the 'trigger'. The other hand can either be placed below or on top of the device to aid stability
- If required, the trigger can be pulled again to attract the participant's attention or other sounds can be used before measurement begins
- Initially, the image will be blurry, with white squares over the pupils
- The image will become clearer as you move closer
- If the circles turn to white squares again, move the device backwards slowly until the green circles re-appear
- **NB. An Information Bar label 'Measurement out of range' is a 'successful' measurement and does not need to be repeated.**

*Flowchart 3 PlusoptiX measurement process*

## 9.2 Troubleshooting measurements using the plusoptiX device

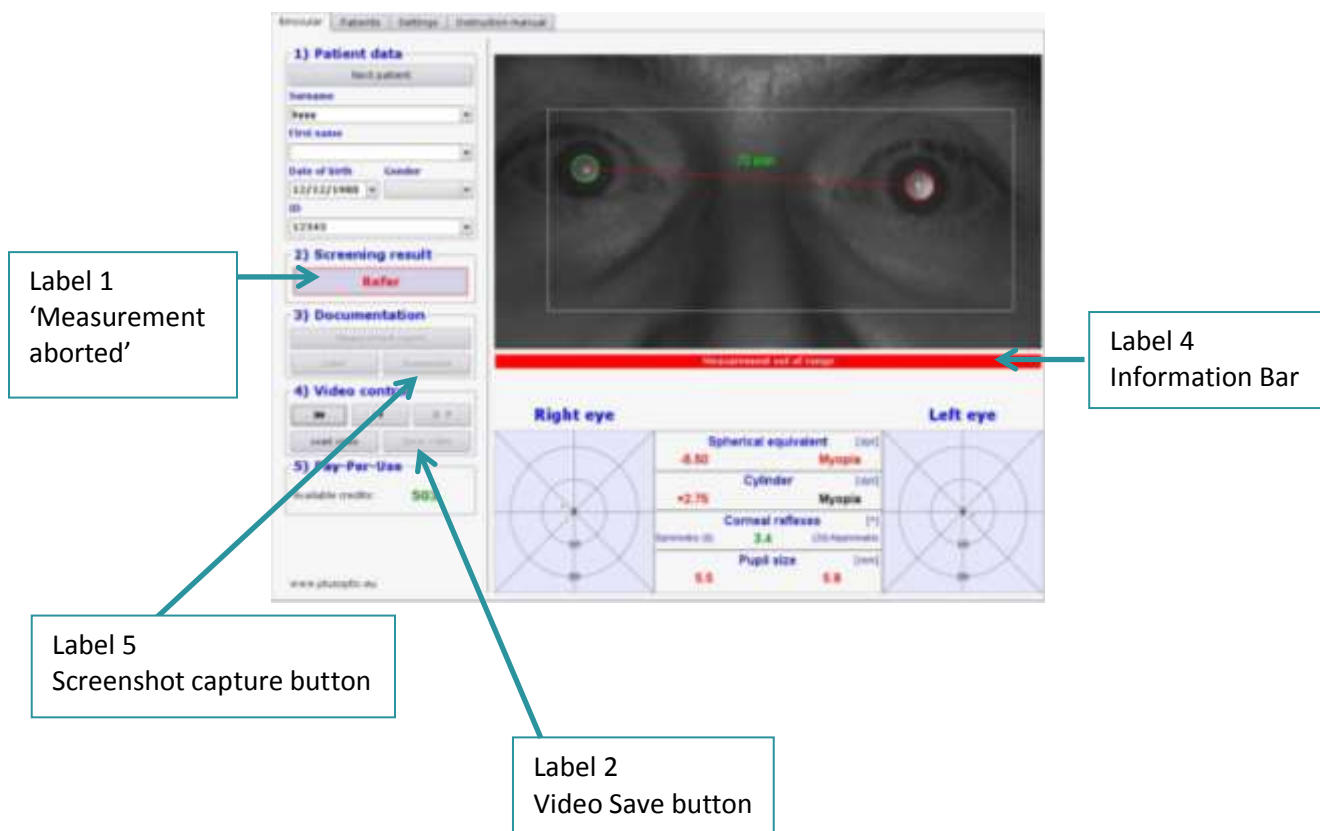
### 9.2.1 Outcomes of a plusoptiX measurement

- Table 1 lists all possible outcomes of a plusoptiX measurement: different plusoptiX outcomes change the testing process that follows.
- Successful measurements (measurement result = ‘completed’) do not require a further plusoptiX measurement attempt.
- For certain plusoptiX outcomes you will need to troubleshoot.
- shows key items on the plusoptiX display that will help you to troubleshoot.

First measurement outcome	‘Information bar’ comment	‘Measurement result’ comment	Action required	Photograph needed?
<b>Successful</b>	Nil	‘Measurement completed’	Save all available data (screenshot and video) (See flowchart 1) Move onto Frisby Stereotest	No
<b>Successful</b>	‘Measurement out of range’	‘Measurement completed’	Save all available data (screenshot and video) (See flowchart 1) Move onto Frisby Stereotest	No
<b>Unsuccessful</b>	‘Pupils not found’	‘Measurement aborted’	Save all available data (screenshot and video) Attempt another measurement Switch to UNIOcular testing setting and repeat measurement if second binocular attempt is unsuccessful  Save all available data (screenshot and video) Move onto Frisby Stereotest	Yes
<b>Unsuccessful</b>	‘Pupils too large’	‘Measurement aborted’	Turn up room lighting – see troubleshooting guide and try measurement again  Save all available data (screenshot and video) Move onto Frisby Stereotest	No
<b>Unsuccessful</b>	‘Pupils too small’	‘Measurement aborted’	Turn down room lighting - see troubleshooting guide and try measurement again  Save all available data (screenshot and video) Move onto Frisby Stereotest	No

*Table 1 PlusoptiX outcomes and actions required*

Figure 16 Areas of interest for plusoptiX measurement troubleshooting



A full description of the plusoptiX protocol and troubleshooting guidance (with alternative protocols) is given below.



### 9.2.2 Key Points

- 1 If the participant is not 'face on' and looking directly at the device, the circle over the pupils will turn red and automatic measurement will not proceed. Ensure that the participant is directly 'face on' and at eye-level. Measurement will start as soon as both circles become green.
- 2 If measurement still does not occur, check the message in the "information bar" (Figure 16, label 4) and follow the steps in Table 2.
- 3 Note the following protocol if the information message reads '**Pupils not found**'
  - a. If a pupil is partly obscured by the eyelid, ask the parent to lift their infant's eyelid and then resume measurement.  
**NOTE:** A note of which eyelid was raised must be documented in the Vision Assessment Survey and these participants will also have a photograph (see Section 11).
  - b. If you have tried to re-engage the participant but there continues to be a measurement failure (information bar still reads "**pupils not found**"), no data will be saved automatically. All data captured so far (in attempting the measurement) should be saved manually using the screenshot capture button (Figure 16, label 5) and video save button (Figure 14, label 2), as shown above.
  - c. **Switch the plusoptiX to 'uniocular mode'** by selecting the tab 'OD' at the top of the screen. This will allow measurement of the **RIGHT EYE** first.
  - d. Ask the participant's parent to **COVER** the participant's **LEFT EYE**. This should be done with the palm of the hand (Figure 17).
  - e. Take a measurement with the device using the same technique as described above for binocular measurements.  
**NOTE:** If the device detects **TWO** pupils it will automatically stop taking a measurement.
  - f. Save the video by pressing the 'save video' button.
  - g. Select 'OS' from the tab and repeat the measurement process for the **LEFT EYE**. Ask the parent to **COVER the RIGHT EYE** for this measurement.

- h. A maximum two attempts should be made to capture a reading for each eye.
- i. Take a photo of the participant (see Section 11).

**NOTE:** The device takes longer to register a measurement if the corneal reflexes are asymmetrical. In these cases, the device will take a few seconds once the examiner is at the right distance. It is important to try to maintain the participant's attention to the device during this time. The device will not capture any data if the pupils cannot be found.

- 4 Take a photograph (Section 11) if a unocular measurement is required.
- 5 ***If no reading can be made with plusoptiX after two attempts*** (e.g. due to poor co-operation) record the reason in the Vision Assessment Survey. Then take a photograph as described in Section 11.



*Figure 17 Incorrect (top) and correct (bottom) covering of the eye using the palm of the hand*

### 9.2.3 Troubleshooting ‘Environmental factors’

There are a number of ‘environmental factors’ that may make it difficult to obtain a measurement. A summary of these is set out in Table 2.

<b>Information bar message</b>	<b>Actions</b>
<b>Pupils too small</b>	Dim room lighting further and repeat measurement attempt
<b>Pupils too large</b>	Brighten room lighting and repeat measurement attempt
<b>Measurement out of range</b>	Continue with vision assessment. This is a ‘successful’ measurement
<b>Pupils not found</b>	<p>Prior to attempting a second measurement:            Save all available data (screenshot and video)            Check eyelids are not obscuring the pupils            Ensure the infant is engaged with the task            Repeat measurement attempt</p>
<b>Monocular: Cover OS!</b>	<p>This message only appears when the ‘OD’ tab is selected            Ensure the left eye is properly covered            Repeat measurement attempt</p>
<b>Monocular: Cover OD!</b>	<p>This message only appears when the ‘OS’ tab is selected            Ensure the right eye is properly covered            Repeat measurement attempt</p>

*Table 2 Troubleshooting for ‘environmental factors’ during the plusoptiX assessment*

**NOTE:**

- A maximum of two binocular measurements should be attempted.
- After this, uniocular assessments will be conducted.
- Any infant requiring a uniocular assessment will require a photograph at the end of the assessment.

## 10 Measurement with the Frisby stereotest

- 1 **Adjust the room lighting** to standard daytime office illumination levels.
- 2 The participant remains on their parent's lap, as shown in Figure 18.



<http://www.frisbystereotest.co.uk>

*Figure 18 Assessment with the Frisby stereotest*

- 3 **If the participant wears glasses, ensure they are worn for this assessment.**
- 4 Familiarise the infant with the task by showing them what they are searching for i.e. the test image that sticks out towards them as follows, before you start the test.

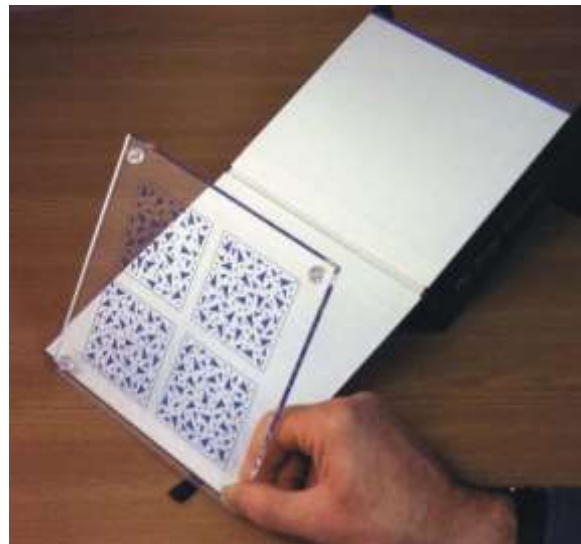
**Present plate 1** (the thickest plate – white sticker) in front of the white background of the box, holding it

- a. 30cm (12 inches) from participant's face  
AND
- b. with the hidden target in the **bottom** corner to your **right side** (target circle facing 'out').

**Point to the hidden target.** This will draw attention to the plate and show the infant what they are looking for. Keep the infant's interest by calling their name as the test progresses.

- 5 **Flowchart 4** sets out the testing protocol. Record these responses in the Vision Assessment Survey.
- 6 **Present plate 1** (the thickest plate – white sticker) in front of the white background of the box, holding it
  - a. 30cm (12 inches) from participant’s faceAND
  - b. with the hidden target in the **bottom** corner to your **left side** (target circle facing ‘out’).

**NOTE:** the image with the hidden target is next to corner of the plate that has been filed flat.



*Figure 19 Testing with the Frisby stereotest*

- 7 **Observe and score the test as either:**
  - a. ‘Positive’ behavioural or visual response ie definite looking towards, pointing or touching the hidden target.
  - b. ‘Negative’ behavioural/visual response ie random/indiscriminate viewing of the plate: ie either ‘searching but not finding’ behaviour or definite fixing / viewing of the wrong image.
- 8 **It is important to give positive feedback to the infant to encourage participation in the task.**

9 **If response to plate 1 is positive**, move onto testing with plate 2 (see point 11).

10 **If response to plate 1 is negative**, re-test but after rotating the plate so that it is presented with the hidden target in the **top** corner to your **left side**.

**NOTE:** the image with the hidden target is next to corner of the plate that has been filed flat.

**a. Observe and score the test as either:**

- i. 'Positive' behavioural or visual response ie looking towards, pointing or touching the hidden target.
- ii. 'Negative' behavioural/visual response ie random/indiscriminate viewing of the plate ie 'searching but not finding' behaviour or definite fixing/viewing of the wrong image

**b. If the second trial with plate 1 is negative**, then no further testing is required.

**c. If the second trial with plate 1 is positive**, then move on to testing with plate 2 (see point 13).

11 **Present plate 2** (the thinnest plate – red sticker) in front of the white background of the box

a. 30cm (12 inches) from participant's face  
AND

b. with the hidden target in the **bottom** corner to your **right side** (target circle facing 'out').

**NOTE:** the image with the hidden target is next to corner of the plate that has been filed flat.

**c. Observe and score the test as either:**

- i. 'Positive' behavioural or visual response ie looking towards, pointing or touching the hidden target.
- ii. 'Negative' behavioural/visual response ie random/indiscriminate viewing of the plate ie 'searching but not finding' behaviour or definite fixing/viewing of the wrong image

12 **If the response to plate 2 is positive**, then no further testing is required.

- 13 ***If the response to plate 2 is negative***, re-test but after rotating the plate so that it is presented with the target in the ***top*** corner to your ***left side***.

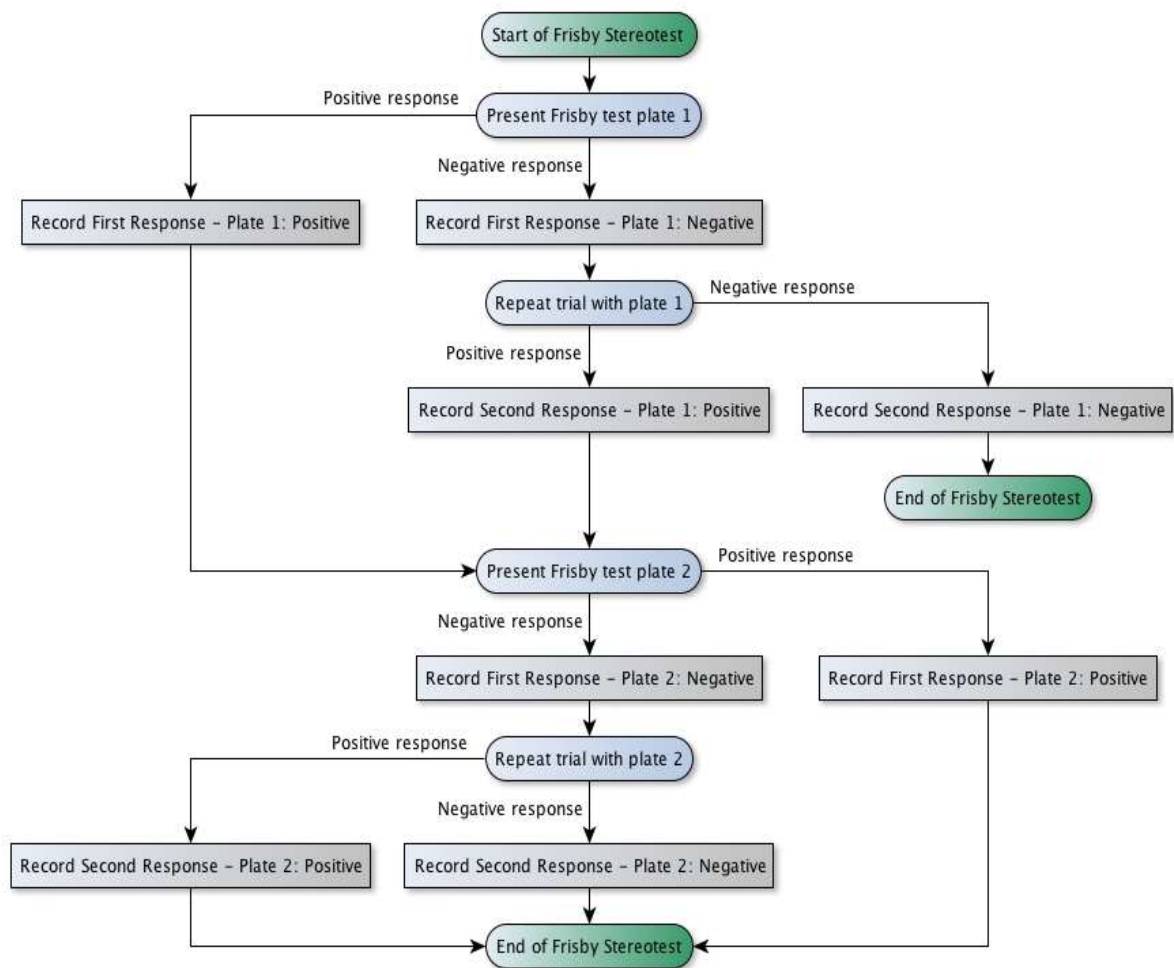
**NOTE:** the image with the target is next to corner of the plate that has been filed flat and is marked with a label. Always hold the plate with your ***finger over the label***, so that the hidden target is presented facing outwards.

- a. ***Observe and score the test as either:***
- i. 'Positive' behavioural or visual response ie looking towards, pointing or touching the hidden target.
  - ii. 'Negative' behavioural/visual response ie random/indiscriminate viewing of the plate ie 'searching but not finding' behaviour or definite fixing/viewing of the wrong image

- 14 No further testing is required.

### 10.1 Frisby Stereotest Top Tips

- 1 If the infant is losing interest, call their name and drum your fingers on the centre of the test plate for a brief moment.
- 2 Infants are likely to be more interested in faces than tests. Using facial expressions to gain attention is good practice, but care is needed that it does not distract the infant from their task.
- 3 Ensure that the plate is held at **30cm** and that participants are wearing their glasses if required.



Flowchart 4 Scores and outcomes for the Frisby Stereotest



## 11 Photograph of the participant's eyes

- 1 **A photograph of the participants' eyes (mid face area) is required if any of the following occurred:**
  - a. One or both eyelids had to be lifted to allow plusoptix measurement,
  - b. Uniocular testing was required,
  - c. A plusoptix result was not obtained e.g. equipment failure, the parent/carer refused the plusoptix assessment, the infant was not co-operative
- 2 Keep the room lighting to standard daytime office illumination levels.
- 3 Explain to the parent that a photograph is needed because the plusoptix device was not able to take a **FULL** measurement.
- 4 The participant remains on their parent's lap.
- 5 Check that **CAMERA FLASH is ON**, **REDUCE RED EYE is OFF** and the **CAMERA MODE is set to P**.
- 6 Access the Desktop Device Application as before (if this has been closed) by entering the participant's ID number and check that the correct participant details appear. Select "Devices" and then "camera". Then select "Plusoptix" under categories. Select the correct category for the images so that they can be labelled accordingly as part of Life Study; the selected category can be found under the categories tab and also at the top of the file list on the files tab.



- 7 To return to the previous screen, press 'X' in the top right of the screen.

**NOTE:** If files have been added and the wrong category chosen, select the correct category before pressing the submit button: the category will change at the top of the file list and any selected files will still be present.

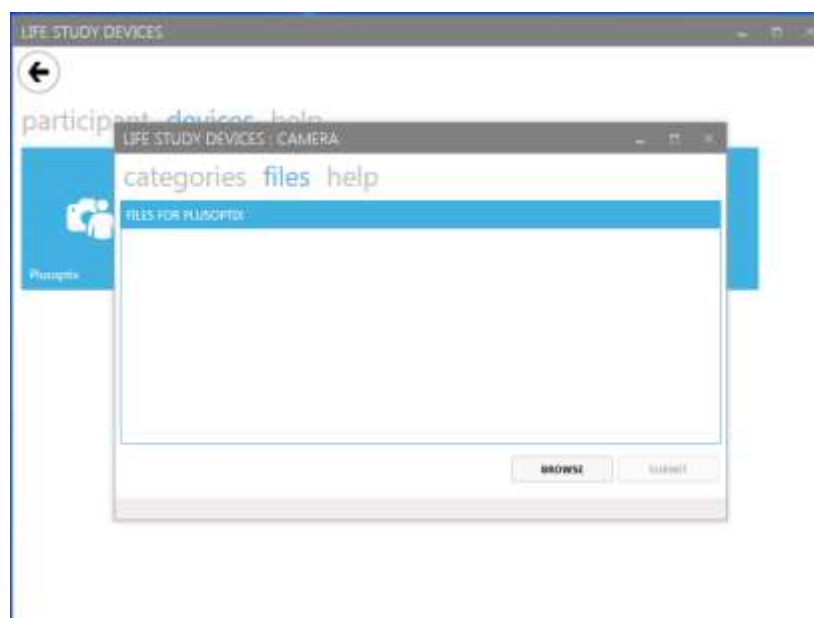
- 8 Once the correct category has been selected, click on the files link to switch to the files tab.
- 9 Take 'face on' / 'face forwards' photograph(s) of the mid face area showing the eyes, as described below.
- 10 Take the camera and turn the lens barrel to 200mm. This will 'zoom-in' to allow a close-up photograph. Move your chair to approx. 2m from the participant.
- 11 Look through the viewfinder. Half-pressing the shutter will make the camera focus. The camera will beep when focus has been achieved. Press the shutter down fully to take a photograph.  
**NOTE:** If the participant is too close, the camera will not focus.
- 12 If the participant moves after the camera has focussed, refocus by lifting your finger off the shutter and half-pressing it again. Take a photograph by fully depressing the shutter.
- 13 Review the image taken using the image review button. ***If the image is unsuitable (ie infant looking away from camera), re-take the image.*** A maximum of three attempts should be made. If the participant is highly mobile, take one photograph with the zoom set to 100mm.
- 14 Two photographs need to be taken of those being photographed because an eyelid was lifted during the plusoptiX assessment: one with eyelids in their natural position, and one with eyelids lifted (Figure 20).



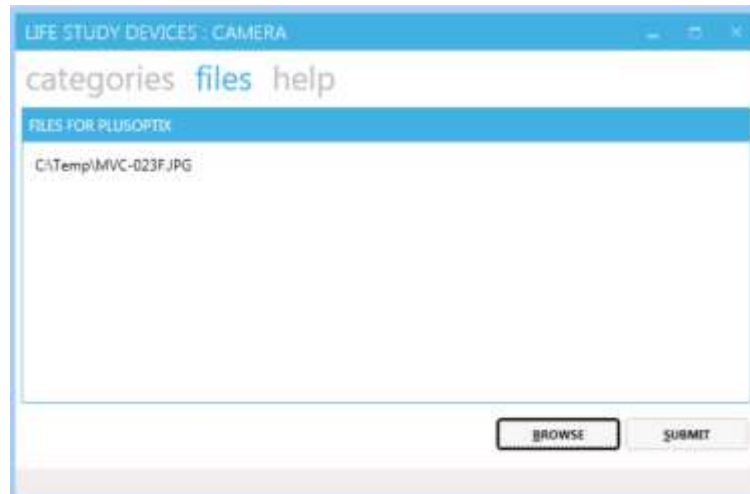
*Figure 20 Lifting an eyelid that obscures the pupil.*

15 Connect the camera to the PC via the USB cable.

16 Once the photo has been taken, return to the Desktop Device Application.



- 17 Click on the Browse button and select the appropriate files which will be added to the files list. (Computer / Cannon EOS 1100D / SD / DCIM / 108CDPFQ).



- 18 Once at least one file has been selected the SUBMIT button will be enabled. When all the relevant files have been collected click on the SUBMIT button, which will display a confirmation screen as follows:



- 19 If “no” is selected, then the previous screen is shown and more files may be added. If “yes” is selected, files will be copied to long-term storage.

- 20 A confirmation screen will be displayed confirming that files have been successfully submitted.
- 21 Once the image has been successfully saved, go back to the camera, press view (to see the image on the screen) and then press delete.
- 22 Turn the camera off (and if necessary put the battery on charge).

### 11.1 Photography Top Tip

Call the participant's name just before the photograph is taken to ensure that they are looking directly at the camera.

## 12 Manual recording of refractive error

This section is only relevant for subjects that wear glasses, when their parent has brought a copy of the prescription with them to the assessment.

**If a copy of the glasses prescription is available**, record this in the Vision Assessment Survey (as shown below) using the example as a guide.

**If the participant is wearing glasses, but does not have a record of their prescription**, measure the strength of the glasses with the focimeter (see Section 13).

**NOTE: If the prescription is for spectacles, tick the ‘Glasses’ box.**

**Prescription type:**

Glasses

Contact lenses

	Sph (DS)	Cyl (DC)	Axis	ADD	Prism ( $\Delta$ )	Base
<b>Is it unlikely that glasses will have a prescription outside the range:</b>	-24.00 to +20.00 DS  (DS values will be in 0.25 steps)	+/- 8.00 DC  (DC values will be in 0.25 steps)	between 0 and 180	Greater than +4.00 ADD	Greater than 20 prism dioptres ( $\Delta$ )	Up, Down, In or Out
Right (R) Eye						
Left (L) Eye						

**Note:** Some of these fields in the prescription will be blank. The first 3 fields (Sphere (Sph), Cylinder (Cyl) and Axis) will be the most commonly used. The symbol ‘ $\infty$ ’ (infinity) is used to denote a power of 0 DS.

**It is very important that you correctly identify positive and negative values.**

**For example**, a standard prescription brought by a participant may read:

R: + 3.50 DS

L: + 4.00/-0.75 x 140

This would be documented as:

Eye	Sph (DS)	Cyl (DC)	Axis	ADD	Prism ( $\Delta$ )	Base
Right (R)	+3.50	-	-	-	-	-
Left (L)	+4.00	-0.75	140	-	-	-

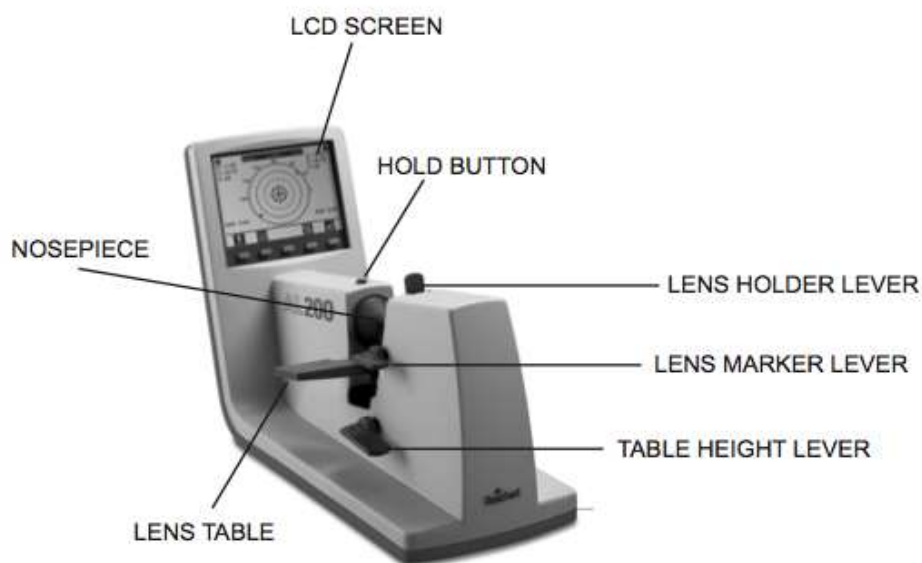
**NOTE:** Empty cells should be marked as blank (as shown above).

## 13 Assessing participants' glasses

This assesses the strength of a pair of glasses. It is to be performed for any infant wearing glasses that does not have a copy of their prescription available to record.

### 13.1 Equipment

Focimeter and printer

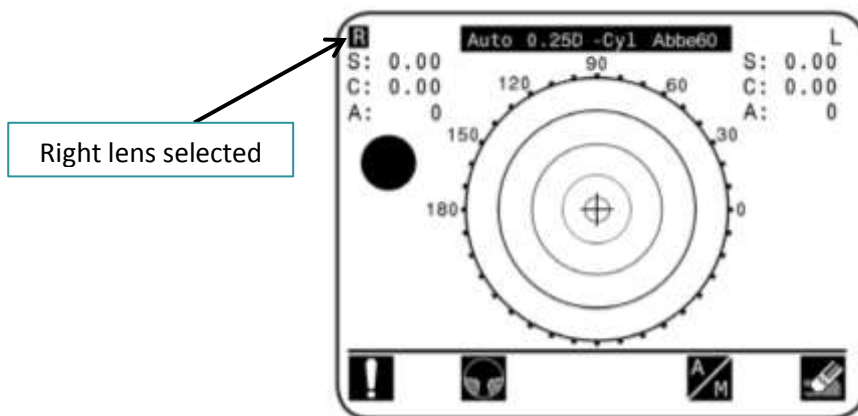


[www.reichert.com](http://www.reichert.com)

*Figure 21 Reichert AL-200 Focimeter*

### 13.2 Procedure

- 1 Turn the focimeter on by pressing the black switch at the back of the focimeter. The focimeter will take a few moments to calibrate. Once it has calibrated press any button to continue.
- 2 Ask the parent to remove the infant's glasses for measurement.
- 3 Check that the focimeter is in automatic mode. If it is not, press the blue button with the A/M symbol above it.
- 4 The focimeter measures the right lens first. Ensure the focimeter has the **right** eye measurement selected. This will be highlighted in the top left corner of the screen (Figure 21). Hold the glasses so that the lenses are nearest and the arms are pointing away as if they are about to be placed on someone else.



*Figure 22 Focimeter screen with right lens measurement selected*

- 5 Place the glasses on the lens table and adjust the table height lever until the right lens (i.e. lens furthest to your left) is in front of the device 'nosepiece' (Figure 23).



*Figure 23 Focimeter with glasses in place to measure the right lens*



- 6 A cross '+' symbol will appear on screen (Figure 24). Move the glasses on the lens table (using the table height lever) until this cross is in the centre of the screen as shown in Figure 25 **Error! Reference source not found.**

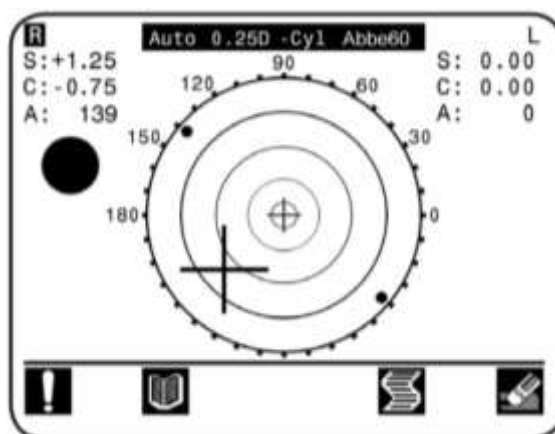


Figure 24 Focimeter screen during lens measurement

- 7 Measurement will start automatically and the machine will beep when measurement of the right lens is complete.

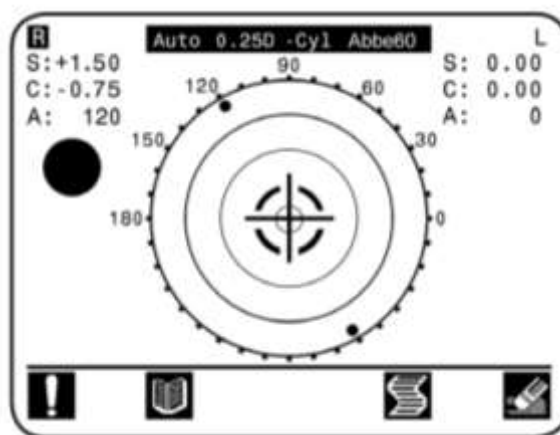


Figure 25 Focimeter Screen with correct lens placement

[www.reichert.com](http://www.reichert.com)

- 8 Remove the glasses from the device and re-insert with the left lens (ie the lens furthest to your right as you look at it) in front of the nosepiece.  
**NOTE:** The focimeter will automatically 'select' the left lens for measurement once a successful right lens measurement has been completed.

- 9 Repeat the measurement process (as described in points 5-7 above) to complete the glasses assessment.
- 10 Once measurement of the right and left lenses are complete, press the print button (fourth blue button) to print the output.
- 11 Enter the focimeter readings into the Vision Assessment Survey.
- 12 Make sure that the Desktop Device Application is running. To do this click on the shortcut as shown below:



- 13 Enter the participant's ID and select the visit type (12 month) using the dropdown box, then press "search".

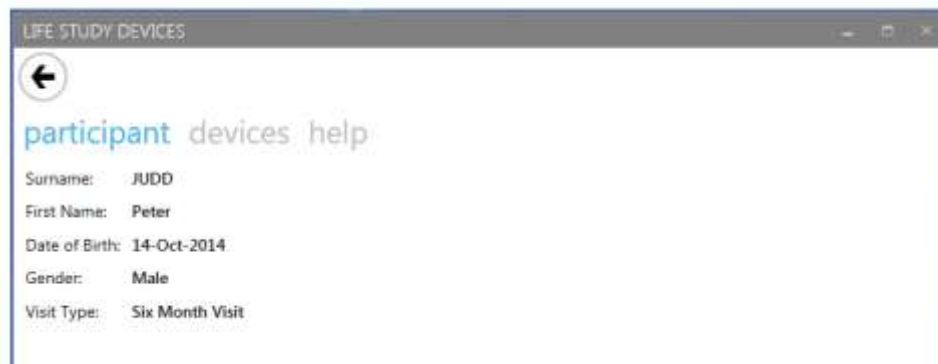
LIFE STUDY DEVICES

Life Study Id:

Visit Type:

SEARCH

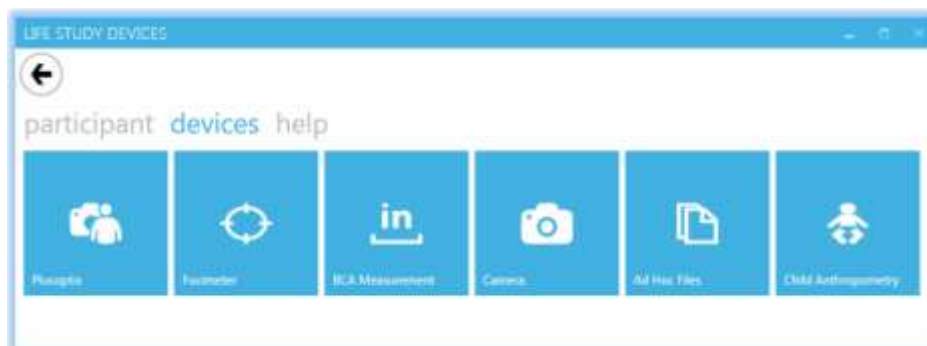
- 14 The participant’s details (name, date of birth, gender, and visit type) should appear on the screen. Check this is the correct participant. If not, use the arrow in the top left corner to take you back to the participant identification screen to re-enter the correct participant ID.



5

- 15 Select “devices” which appears above the participant details

- 16 Select “Focimeter”

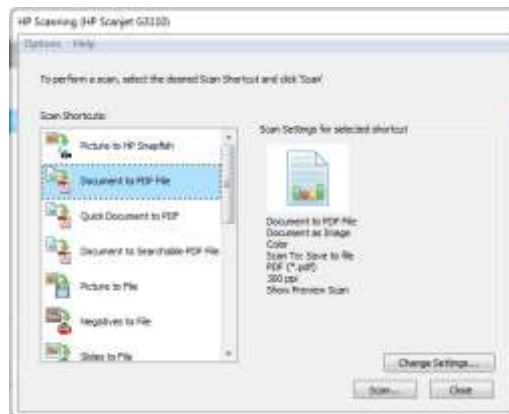


- 17 On the computer desktop, click on HPScanning (G3110) icon.



<sup>5</sup> Note – all names and dates of birth relate to fictitious participants

18 Select “Document to PDF file”.

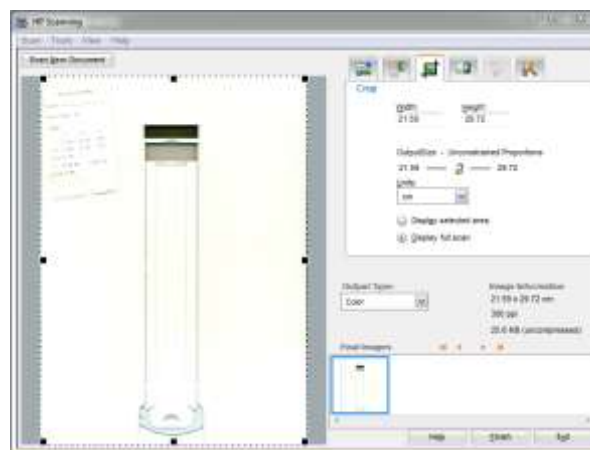


19 Turn on the scanner (the power button is on the top of the scanner).

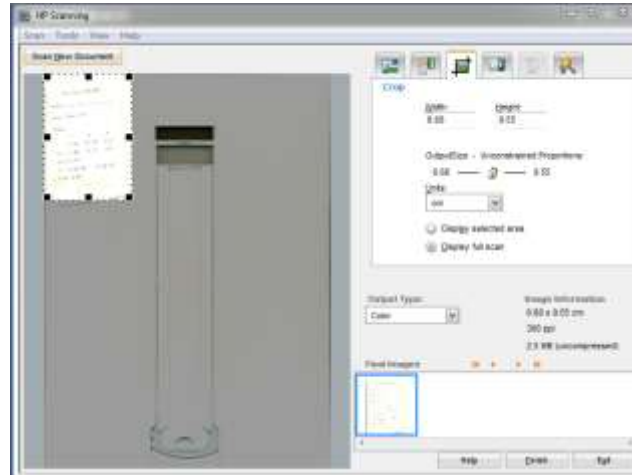
20 Open the lid of the scanner and place the focimeter printout in the top right corner.

21 Press “Scan” in the HP Scanning window.

22 Select the “Crop” tab in the HP Scanning window.



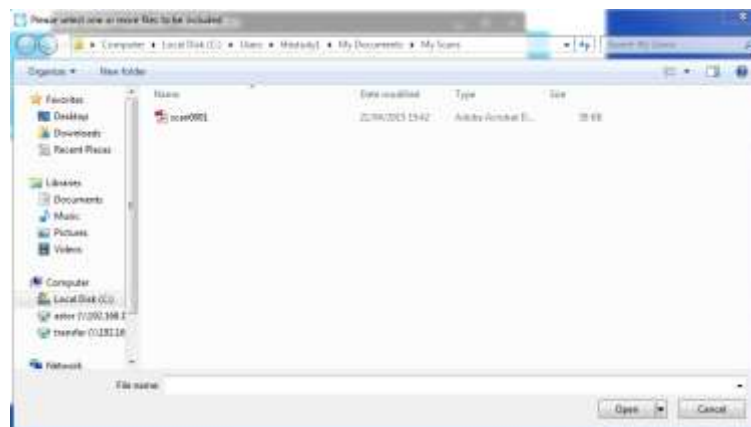
- 23 Then take the bottom right corner of the scanned area and drag it to select just the relevant image.



- 24 Press “Finish” in the HP Scanning window.

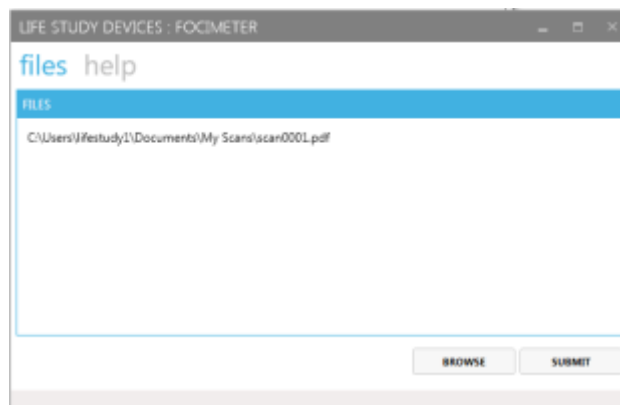
- 25 Close the HP Scanning window.

- 26 Go back to the Desktop Application Coordinator and press browse. The scanned fociometer image should have been saved under: Computer, Local Disc (C:)/Users/Lifestudy1/My Documents/My scans.



- 27 Click on the PDF and press “Open”.

28 Press “Submit” on the Desktop Device Coordinator.



29 Press “Yes” to confirm.

30 Press “OK”.

**NOTE:** The image is removed from the computer once the upload is successful.

31 Before beginning the next glasses assessment press the ‘clear’ button (fifth blue button) on the focimeter.

### 13.3 Focimeter troubleshooting

If the device freezes and no measurements are possible, switch the device off using the power button. Wait 2-3 seconds and then turn the device on again. It will then re-calibrate and be ready to use again.

**NOTE:** Make sure there are no glasses on the lens table while the focimeter is calibrating.

## 14 End of the day procedures

- 1 Turn off the plusoptiX device, screen and focimeter.
- 2 Shut down the PC.

## 15 Annex: Vision Assessment Survey – Infants

The Vision Assessment Survey was designed for use with both Adults and Infants. Textfills, indicated as ^[.....], are used to make changes to the wording so that it is appropriate for the adults when the question relates to themselves, and also when they are responding on behalf of the their infant. This document gives all the textfills, showing how the wording varies according to the participant.

Variable	Question	Responses	Universe								
<b>VisCons</b>	CHECK RELEVANT CONSENT FORM SIGNED.	Choice: single <table border="1"><tr><td>1</td><td>Yes</td></tr><tr><td>2</td><td>No</td></tr></table>	1	Yes	2	No	If ((RespType = 1 or 2) // Mother or Partner And (ModeType = 1) // CAPI And (Sweep = 1)) // 28 weeks  OR ((RespType = 1) // Mother And (ModeType = 1) // CAPI And (Sweep = 3)) // 12 months				
1	Yes										
2	No										
<b>MissEye</b>	We can't take measurements on an artificial eye. Can I just check, ^[do you / does ^[cohort baby name]] have an eye missing or have an artificial eye?	Choice: single <table border="1"><tr><td>1</td><td>Yes - both eyes missing</td></tr><tr><td>2</td><td>Yes - right eye missing</td></tr><tr><td>3</td><td>Yes - left eye missing</td></tr><tr><td>4</td><td>No</td></tr></table>	1	Yes - both eyes missing	2	Yes - right eye missing	3	Yes - left eye missing	4	No	If ((RespType = 1 or 2) // Mother or Partner And (ModeType = 1) // CAPI And (Sweep = 1)) // 28 weeks  OR ((RespType = 1) // Mother And (ModeType = 1) // CAPI And (Sweep = 3)) // 12 months
1	Yes - both eyes missing										
2	Yes - right eye missing										
3	Yes - left eye missing										
4	No										
<b>VisIntro</b>	I am now going to do the tests that measure different aspects of visual function, long/short sightedness and the alignment of the eyes.  The information is not equivalent to a medical assessment so we aren't feeding back the findings.  Are you happy to start the tests?	Choice: single <table border="1"><tr><td>1</td><td>Participant agreed</td></tr><tr><td>2</td><td>Participant refused</td></tr></table>	1	Participant agreed	2	Participant refused	If ((RespType = 1 or 2) // Mother or Partner And (ModeType = 1) // CAPI And (Sweep = 1) // 28 weeks And (MissEye = 2,3,4)) // Don't have both eyes missing  OR ((RespType = 1) // Mother And (ModeType = 1) // CAPI And (Sweep = 3) // 12 months And (MissEye = 2,3,4)) // Don't have both eyes missing				
1	Participant agreed										
2	Participant refused										
<b>WhyVisNo</b>	Can I ask why you don't want ^[cohort baby name] to have a vision assessment?	Open: 150	If ((RespType = 1 or 2) // Mother or Partner And (ModeType = 1) // CAPI								

Variable	Question	Responses	Universe										
			<p>And (Sweep = 1) // 28 weeks And (VisIntro = 2)) // refused Vision assessment</p> <p>OR ((RespType = 1) // Mother And (ModeType = 1) // CAPI And (Sweep = 3) // 12 months And (VisIntro = 2)) // refused Vision assessment</p>										
<b>Glasses</b>	<p>DOES THE PARTICIPANT WEAR GLASSES OR CONTACT LENSES, AND IF SO, DO THEY HAVE THEIR GLASSES WITH THEM OR ARE THEY WEARING THEIR CONTACT LENSES?</p> <p>CODE ALL THAT APPLY.</p>	<p>Choice: multiple</p> <table border="1"> <tr> <td>1</td> <td>They are wearing glasses</td> </tr> <tr> <td>2</td> <td>They are not wearing glasses but have glasses with them</td> </tr> <tr> <td>3</td> <td>They wear glasses but do not have the glasses with them</td> </tr> <tr> <td>4</td> <td>They are wearing contact lenses</td> </tr> <tr> <td>5</td> <td>They do not wear glasses or contact lenses</td> </tr> </table>	1	They are wearing glasses	2	They are not wearing glasses but have glasses with them	3	They wear glasses but do not have the glasses with them	4	They are wearing contact lenses	5	They do not wear glasses or contact lenses	<p>If ((RespType = 1 or 2) // Mother or Partner And (ModeType = 1) // CAPI And (Sweep = 1) // 28 weeks And (VisIntro = 1)) // agreed to proceed with vision assessments</p> <p>OR ((RespType = 1) // Mother And (ModeType = 1) // CAPI And (Sweep = 3) // 12 months And (VisIntro = 1)) // agreed to proceed with vision assessments</p>
1	They are wearing glasses												
2	They are not wearing glasses but have glasses with them												
3	They wear glasses but do not have the glasses with them												
4	They are wearing contact lenses												
5	They do not wear glasses or contact lenses												
<b>GlassRem</b>	<p>ASK THE PARTICIPANT TO REMOVE THEIR ^[CHILD'S] GLASSES. THIS IS NECESSARY TO TAKE A MEASUREMENT WITH THE PLUSOPTIX.</p> <p>WAS PARTICIPANT WILLING TO REMOVE THEIR ^[CHILD'S] GLASSES?</p>	<p>Choice: single</p> <table border="1"> <tr> <td>1</td> <td>Yes</td> </tr> <tr> <td>2</td> <td>No</td> </tr> </table>	1	Yes	2	No	<p>If ((RespType = 1 or 2) // Mother or Partner And (ModeType = 1) // CAPI And (Sweep = 1) // 28 weeks And ((Glasses = 1) // wearing glasses And (Glasses &lt;&gt; 4))) // not wearing contact lenses</p> <p>OR ((RespType = 1) // mother And (ModeType = 1) // CAPI And (Sweep = 3) // 12 months And ((Glasses = 1) // wearing glasses And (Glasses &lt;&gt; 4))) // not wearing contact lenses</p>						
1	Yes												
2	No												
<b>PlusOp</b>	<p>EXPLAIN THE PLUSOPTIX ASSESSMENT TO THE PARTICIPANT I.E. THE DEVICE</p>	<p>Choice: single</p> <table border="1"> <tr> <td>1</td> <td>Participant agreed to proceed to measurement</td> </tr> <tr> <td>2</td> <td>Participant refused</td> </tr> </table>	1	Participant agreed to proceed to measurement	2	Participant refused	<p>If ((RespType = 1 or 2) // Mother or Partner And (ModeType = 1) // CAPI And (Sweep = 1) // 28 weeks And (VisIntro = 1) // agreed to vision assessment</p>						
1	Participant agreed to proceed to measurement												
2	Participant refused												



Variable	Question	Responses	Universe		
	<p>MEASURES LONG/SHORT-SIGHTEDNESS AND THE ALIGNMENT OF THE EYES.</p> <p>IF ADULT: YOU JUST NEED TO LOOK DIRECTLY AT THE 'NOSE' ON THE MACHINE'S 'FACE'.</p> <p>IF CHILD: YOUR CHILD NEEDS TO LOOK DIRECTLY AT THE 'NOSE' ON THE MACHINE.</p>	<table border="1"> <tr> <td>3</td> <td>Unable to measure vision for other reason</td> </tr> </table>	3	Unable to measure vision for other reason	<p>And (Glasses &lt;&gt; 4) // they are not wearing contact lenses</p> <p>And (GlassRem &lt;&gt; 2)) // they have not refused to remove glasses</p> <p>OR ((RespType = 1) // Mother And (ModeType = 1) // CAPI And (Sweep = 3) // 12 months And (VisIntro = 1) // agreed to vision assessment And (GlassRem &lt;&gt; 2) // they have not refused to remove glasses And (Glasses &lt;&gt; 4)) // they are not wearing contact lenses</p>
3	Unable to measure vision for other reason				
<b>WhyOpNo</b>	Can I ask why you don't want ^[cohort baby name] to have a Plusoptix assessment?	Open: 150	<p>If ((RespType = 1 or 2) // Mother or Partner And (ModeType = 1) // CAPI And (Sweep = 1) // 28 weeks And (PlusOp = 2)) // they have refused plusoptix</p> <p>OR ((RespType = 1) // Mother And (ModeType = 1) // CAPI And (Sweep = 3) // 12 months And (PlusOp = 2)) // they have refused plusoptix</p>		
<b>PlsOpInt</b>	<p>YOU ARE NOW READY TO TAKE A PLUSOPTIX READING.</p> <p>- ENSURE YOU ARE APPROXIMATELY 1.5 METRES FROM THE PARTICIPANT'S FACE AND THAT YOU ARE SECURELY HOLDING THE HANDLE OF THE PLUSOPTIX VISION SCREENER.</p>	Control:	<p>If ((RespType = 1 or 2) // Mother or Partner And (ModeType = 1) // CAPI And (Sweep = 1) // 28 weeks And (PlusOp = 1)) // they have agreed to plusoptix</p> <p>OR ((RespType = 1) // Mother And (ModeType = 1) // CAPI And (Sweep = 3) // 12 months And (PlusOp = 1)) // they have agreed to plusoptix</p>		

Variable	Question	Responses	Universe
	<ul style="list-style-type: none"> <li>- ENSURE THE ROOM LIGHTING HAS BEEN DIMMED</li> <li>- ENSURE THE PARTICIPANT IS LOOKING STRAIGHT ON</li> <li>- THE PLUSOPTIX MEASUREMENT BEGINS WHEN YOU PULL THE TRIGGER.</li>   <li>REMEMBER:</li> <li>- INITIALLY WHITE SQUARES WILL APPEAR ON THE PLUSOPTIX READER THIS IS NORMAL.</li> <li>- IF THE CIRCLES TURN RED YOU ARE TOO FAR FORWARD. IF THIS HAPPENS MOVE THE DEVICE AWAY FROM THE PARTICIPANT.</li> <li>- THE MEASUREMENT SPONTANEOUSLY BEGINS ONCE THE GREEN CIRCLES ARE PRESENT.</li> <li>- THE DEVICE BEEPS ONCE THE MEASUREMENT IS COMPLETE.</li>   <li>- A MAXIMUM OF TWO BINOCULAR ATTEMPTS CAN BE MADE AT TAKING THE PLUSOPTIX READING.</li> <li>- AFTER TWO ATTEMPTS PROCEED WITH THE UNIOCLAR PLUSOPTIX ASSESSMENT.</li> <li>- IF THE PARTICIPANT HAS ONE EYE MISSING, USE THE PLUSOPTIX IN 'UNIOCLAR' MODE AND TEST ONE EYE ONLY.</li> </ul>		

Variable	Question	Responses	Universe								
	PRESS NEXT TO CONTINUE										
<b>PlusObt</b>	RECORD WHETHER YOU OBTAINED A PLUSOPTIX ASSESSMENT RESULT.	Choice: single <table border="1"> <tr> <td>1</td> <td>Yes</td> </tr> <tr> <td>2</td> <td>No</td> </tr> </table>	1	Yes	2	No	If ((RespType = 1 or 2) // Mother or Partner And (ModeType = 1) // CAPI And (Sweep = 1) // 28 weeks And (PlusOp = 1)) // they have agreed to plusoptiX  OR ((RespType = 1) // Mother And (ModeType = 1) // CAPI And (Sweep = 3) // 12 months And (PlusOp = 1)) // they have agreed to plusoptiX				
1	Yes										
2	No										
<b>EyeRai</b>	IF PARTICIPANT'S EYELID WAS RAISED TO TAKE THE PLUSOPTIX MEASUREMENT, RECORD WHICH ONE WAS RAISED.	Choice: single <table border="1"> <tr> <td>1</td> <td>Right</td> </tr> <tr> <td>2</td> <td>Left</td> </tr> <tr> <td>3</td> <td>Both</td> </tr> <tr> <td>4</td> <td>None</td> </tr> </table>	1	Right	2	Left	3	Both	4	None	If ((RespType = 1 or 2) // Mother or Partner And (ModeType = 1) // CAPI And (Sweep = 1) // 28 weeks And (PlusOp = 1)) // they have agreed to plusoptiX  OR ((RespType = 1) // mother And (ModeType = 1) // CAPI And (Sweep = 3) // 12 months And (PlusOp = 1)) // they have agreed to plusoptiX
1	Right										
2	Left										
3	Both										
4	None										
<b>PlusRea</b>	RECORD REASON FOR NOT OBTAINING A PLUSOPTIX ASSESSMENT RESULT.	Choice: single <table border="1"> <tr> <td>1</td> <td>Equipment failure</td> </tr> <tr> <td>2</td> <td>Could not obtain a reading after following test protocol</td> </tr> <tr> <td>3</td> <td>Lack of co-operation</td> </tr> <tr> <td>4</td> <td>Other (specify)</td> </tr> </table>	1	Equipment failure	2	Could not obtain a reading after following test protocol	3	Lack of co-operation	4	Other (specify)	If ((RespType = 1 or 2) // Mother or Partner And (ModeType = 1) // CAPI And (Sweep = 1) // 28 weeks And ((PlusOp = 3) // unable to measure vision for other reason Or (PlusObt = 2))) // failed to get plusoptiX measurement  OR ((RespType = 1) // mother And (ModeType = 1) // CAPI And (Sweep = 3) // 12 months And ((PlusOp = 3) // unable to measure vision for other reason
1	Equipment failure										
2	Could not obtain a reading after following test protocol										
3	Lack of co-operation										
4	Other (specify)										

Variable	Question	Responses	Universe				
			Or (PlusObt = 2))) // failed to get plusoptiX measurement				
<b>OPlusRea</b>	<p>SPECIFY OTHER REASON FOR NOT OBTAINING A PLUSOPTIX MEASUREMENT.</p> <p>COMMENT ON PLUSOPTIX TEST INCLUDING DETAIL OF SPECIFIC EYE PROBLEMS AND/OR ENVIRONMENTAL PROBLEMS E.G. ROOM LIGHTING</p>	Open: 150	<p>If ((RespType = 1 or 2) // Mother or Partner And (ModeType = 1) // CAPI And (Sweep = 1) // 28 weeks And (PlusRea = 4)) // other reason failed to get plusoptiX measurement</p> <p>OR ((RespType = 1) // mother And (ModeType = 1) // CAPI And (Sweep = 3) // 12 months And (PlusRea = 4)) // other reason failed to get plusoptiX measurement</p>				
<b>POend</b>	<p>END OF PLUSOPTIX ASSESSMENT.</p> <p>DON'T FORGET TO SAVE ALL DATA.</p> <p>PRESS NEXT TO CONTINUE</p>	Control:	<p>If ((RespType = 1 or 2) // Mother or Partner And (ModeType = 1) // CAPI And (Sweep = 1) // 28 weeks And (PlusOp = 1)) // they have agreed to plusoptiX</p> <p>OR ((RespType = 1) // mother And (ModeType = 1) // CAPI And (Sweep = 3) // 12 months And (PlusOp = 1)) // they have agreed to plusoptiX</p>				
<b>FrisIntr</b>	<p>We're now going to do a 3D vision test. For this test, ^[you are/^[Cohort baby name] is] looking for a circle like this hidden within one of the four squares on the following plate. It may appear to be jumping out like a 3D picture.</p> <p>IF THE PARTICIPANT REMOVED THEIR GLASSES FOR THE PLUSOPTIX ASSESSMENT ASK THEM TO REPLACE THEM.</p>	<p>Choice: single</p> <table border="1"> <tr> <td>1</td> <td>Participant agreed to proceed with measurement</td> </tr> <tr> <td>2</td> <td>Participant refused</td> </tr> </table>	1	Participant agreed to proceed with measurement	2	Participant refused	<p>If ((RespType = 1 or 2) // Mother or Partner And (ModeType = 1) // CAPI And (Sweep = 1) // 28 weeks And (VisIntro = 1)) // agreed to vision assessment</p> <p>OR ((RespType = 1) // Mother And (ModeType = 1) // CAPI And (Sweep = 3) // 12 months And (VisIntro = 1)) // agreed to vision assessment</p>
1	Participant agreed to proceed with measurement						
2	Participant refused						

Variable	Question	Responses	Universe								
<b>FrisRef</b>	Can I ask why you don't want ^[cohort baby name] to have a 3D vision test?	Open: 150	<p>If ((RespType = 1 or 2) // Mother or Partner And (ModeType = 1) // CAPI And (Sweep = 1) // 28 weeks And (FrisIntr = 2)) // refused Frisby test</p> <p>OR ((RespType = 1) // Mother And (ModeType = 1) // CAPI And (Sweep = 3) // 12 months And (FrisIntr = 2)) // refused Frisby test</p>								
<b>FrisPL1</b>	<p>DO THE FAMILIARISATION TASK FIRST, THEN:</p> <p>PRESENT THE FIRST PLATE TO THE PARTICIPANT (THE THICKEST PLATE, WHITE STICKER)</p> <p>- HOLD IT APPROXIMATELY 30CM FROM THE PARTICIPANT'S FACE IN FRONT OF THE WHITE BOX. - HOLD THE PLATE WITH THE HIDDEN TARGET IN THE BOTTOM CORNER (TARGET FACING OUT) TO YOUR LEFT SIDE. - REMEMBER TO HOLD THE PLATE WITH THE STICKER COVERED UP.</p> <p>RECORD IF THE RESPONSE TO PLATE ONE IS POSITIVE OR NEGATIVE.</p>	<p>Choice: single</p> <table border="1"> <tbody> <tr> <td>1</td> <td>Positive</td> </tr> <tr> <td>2</td> <td>Negative - participant cooperative but unable to locate 3D image</td> </tr> <tr> <td>3</td> <td>Negative - unable to do test e.g. lack of co-operation</td> </tr> <tr> <td>4</td> <td>Negative - unable to interpret participant's response</td> </tr> </tbody> </table>	1	Positive	2	Negative - participant cooperative but unable to locate 3D image	3	Negative - unable to do test e.g. lack of co-operation	4	Negative - unable to interpret participant's response	<p>If ((RespType = 1 or 2) // Mother or Partner And (ModeType = 1) // CAPI And (Sweep = 1) // 28 weeks And (FrisIntr = 1)) // agreed to do frisby test</p> <p>OR ((RespType = 1) // Mother And (ModeType = 1) // CAPI And (Sweep = 3) // 12 months And (FrisIntr = 1)) // agreed to do frisby test</p>
1	Positive										
2	Negative - participant cooperative but unable to locate 3D image										
3	Negative - unable to do test e.g. lack of co-operation										
4	Negative - unable to interpret participant's response										

Variable	Question	Responses	Universe								
	A POSITIVE RESPONSE IS THE PERSON POINTING TO (OR LOOKING AT) THE CORRECT LOCATION OF THE HIDDEN TARGET.										
<b>FrisPL2</b>	<p>SHOW THE PARTICIPANT THE FIRST PLATE AGAIN (THICKEST PLATE, WHITE STICKER).</p> <p>THIS TIME HOLD THE TARGET SO THAT IT IS IN THE TOP CORNER TO YOUR LEFT SIDE.</p> <p>A POSITIVE RESPONSE IS THE PERSON POINTING TO THE CORRECT LOCATION OF THE HIDDEN TARGET.</p> <p>RECORD IF THE RESPONSE TO PLATE ONE IS POSITIVE OR NEGATIVE.</p>	<p>Choice: single</p> <table border="1"> <tr> <td>1</td> <td>Positive</td> </tr> <tr> <td>2</td> <td>Negative - participant cooperative but unable to locate 3D image</td> </tr> <tr> <td>3</td> <td>Negative - unable to do test e.g. lack of co-operation</td> </tr> <tr> <td>4</td> <td>Negative - unable to interpret participant's response</td> </tr> </table>	1	Positive	2	Negative - participant cooperative but unable to locate 3D image	3	Negative - unable to do test e.g. lack of co-operation	4	Negative - unable to interpret participant's response	<p>If ((RespType = 1 or 2) // Mother or Partner And (ModeType = 1) // CAPI And (Sweep = 1) // 28 weeks And (FrisPL1 = 2,3,4)) // negative response to plate one (first trial)</p> <p>OR ((RespType = 1) // Mother And (ModeType = 1) // CAPI And (Sweep = 3) // 12 months And (FrisPL1 = 2,3,4)) // negative response to plate one (first trial)</p>
1	Positive										
2	Negative - participant cooperative but unable to locate 3D image										
3	Negative - unable to do test e.g. lack of co-operation										
4	Negative - unable to interpret participant's response										
<b>FrisPL3</b>	<p>PRESENT THE SECOND PLATE TO THE PARTICIPANT (THE THINNEST PLATE, RED STICKER)</p> <p>- HOLD IT APPROXIMATELY 30CM FROM THE PARTICIPANT'S FACE IN FRONT OF THE WHITE BOX.</p> <p>- HOLD THE PLATE WITH THE HIDDEN TARGET IN THE BOTTOM CORNER</p>	<p>Choice: single</p> <table border="1"> <tr> <td>1</td> <td>Positive</td> </tr> <tr> <td>2</td> <td>Negative - participant cooperative but unable to locate 3D image</td> </tr> <tr> <td>3</td> <td>Negative - unable to do test e.g. lack of co-operation</td> </tr> <tr> <td>4</td> <td>Negative - unable to interpret participant's response</td> </tr> </table>	1	Positive	2	Negative - participant cooperative but unable to locate 3D image	3	Negative - unable to do test e.g. lack of co-operation	4	Negative - unable to interpret participant's response	<p>If ((RespType = 1 or 2) // Mother or Partner And (ModeType = 1) // CAPI And (Sweep = 1) // 28 weeks And ((FrisPL1 = 1) // positive response to plate one (first trial) Or (FrisPL2 = 1))) // positive response to plate one(second trial)</p> <p>OR ((RespType = 1) // Mother And (ModeType = 1) // CAPI And (Sweep = 3) // 12 months</p>
1	Positive										
2	Negative - participant cooperative but unable to locate 3D image										
3	Negative - unable to do test e.g. lack of co-operation										
4	Negative - unable to interpret participant's response										

Variable	Question	Responses	Universe								
	<p>(TARGET FACING OUT) TO YOUR RIGHT SIDE. - REMEMBER TO HOLD THE PLATE WITH THE STICKER COVERED UP.</p> <p>A POSITIVE RESPONSE IS THE PERSON POINTING TO THE CORRECT LOCATION OF THE HIDDEN TARGET.</p> <p>RECORD IF THE RESPONSE TO PLATE TWO IS POSITIVE OR NEGATIVE.</p>		<p>And ((FrisPL1 = 1) // positive response to plate one (first trial) Or (FrisPL2 = 1)) // positive response to plate one(second trial)</p>								
<b>FrisPL4</b>	<p>SHOW THE PARTICIPANT THE SECOND PLATE AGAIN (THINNEST PLATE, RED STICKER).</p> <p>THIS TIME HOLD THE TARGET SO THAT IT IS IN THE TOP CORNER TO YOUR LEFT SIDE.</p> <p>A POSITIVE RESPONSE IS THE PERSON POINTING TO THE CORRECT LOCATION OF THE HIDDEN TARGET.</p> <p>RECORD IF THE RESPONSE TO PLATE TWO IS POSITIVE OR NEGATIVE.</p>	<p>Choice: single</p> <table border="1"> <tr> <td>1</td> <td>Positive</td> </tr> <tr> <td>2</td> <td>Negative - participant cooperative but unable to locate 3D image</td> </tr> <tr> <td>3</td> <td>Negative - unable to do test e.g. lack of co-operation</td> </tr> <tr> <td>4</td> <td>Negative - unable to interpret participant's response</td> </tr> </table>	1	Positive	2	Negative - participant cooperative but unable to locate 3D image	3	Negative - unable to do test e.g. lack of co-operation	4	Negative - unable to interpret participant's response	<p>If ((RespType = 1 or 2) // Mother or Partner And (ModeType = 1) // CAPI And (Sweep = 1) // 28 weeks And (FrisPL3 = 2,3,4)) // negative response to plate two (first trial)</p> <p>OR ((RespType = 1) // Mother And (ModeType = 1) // CAPI And (Sweep = 3) // 12 months And (FrisPL3 = 2,3,4)) // negative response to plate two (first trial)</p>
1	Positive										
2	Negative - participant cooperative but unable to locate 3D image										
3	Negative - unable to do test e.g. lack of co-operation										
4	Negative - unable to interpret participant's response										
<b>PhotoReq</b>		<p>Choice: multiple</p> <table border="1"> <tr> <td>1</td> <td>No, digital photograph not required</td> </tr> </table>	1	No, digital photograph not required	<p>If ((RespType = 1 or 2) // Mother or Partner And (ModeType = 1) // CAPI And (Sweep = 1) // 28 weeks And (VisIntro = 1)) // agreed to vision assessments</p>						
1	No, digital photograph not required										

Variable	Question	Responses	Universe												
	<p>RECORD WHETHER YOU NEED TO TAKE A DIGITAL PHOTO AS PART OF THE VISION PROTOCOL.</p> <p>IF YES, WHY?</p> <p>^[IF AN INFANT IS WEARING CONTACT LENSES CODE OPTION 5]</p>	<table border="1"> <tr> <td>2</td> <td>Yes, One or both eyelids had to be lifted to allow plusoptiX measurement</td> </tr> <tr> <td>3</td> <td>Yes, 'Measurement aborted' plusoptiX measurement result</td> </tr> <tr> <td>4</td> <td>Yes, Uniocular testing was required</td> </tr> <tr> <td>5</td> <td>Yes, Contact lenses or glasses were not removed to allow plusoptiX</td> </tr> <tr> <td>6</td> <td>Yes, participant refused plusoptiX assessment or unable to attempt plusoptiX assessment for other reason relating to participant</td> </tr> <tr> <td>7</td> <td>Yes, unable to attempt plusoptiX assessment because of equipment failure</td> </tr> </table>	2	Yes, One or both eyelids had to be lifted to allow plusoptiX measurement	3	Yes, 'Measurement aborted' plusoptiX measurement result	4	Yes, Uniocular testing was required	5	Yes, Contact lenses or glasses were not removed to allow plusoptiX	6	Yes, participant refused plusoptiX assessment or unable to attempt plusoptiX assessment for other reason relating to participant	7	Yes, unable to attempt plusoptiX assessment because of equipment failure	<p>OR ((RespType = 1) // Mother And (ModeType = 1) // CAPI And (Sweep = 3) // 12 months And (VisIntro = 1)) // agreed to vision assessments</p>
2	Yes, One or both eyelids had to be lifted to allow plusoptiX measurement														
3	Yes, 'Measurement aborted' plusoptiX measurement result														
4	Yes, Uniocular testing was required														
5	Yes, Contact lenses or glasses were not removed to allow plusoptiX														
6	Yes, participant refused plusoptiX assessment or unable to attempt plusoptiX assessment for other reason relating to participant														
7	Yes, unable to attempt plusoptiX assessment because of equipment failure														
<b>PhotoAgr</b>	<p>EXPLAIN TO PARTICIPANT THAT WE ARE TAKING A PHOTOGRAPH AS WE DIDN'T GET A COMPLETE MEASUREMENT WITH THE FIRST TEST.</p> <p>RECORD WHETHER THE PARTICIPANT AGREES TO HAVE A PHOTOGRAPH TAKEN.</p>	<p>Choice: single</p> <table border="1"> <tr> <td>1</td> <td>Participant agreed to proceed to take photograph</td> </tr> <tr> <td>2</td> <td>Participant refused</td> </tr> <tr> <td>3</td> <td>Unable to measure vision for other reason</td> </tr> </table>	1	Participant agreed to proceed to take photograph	2	Participant refused	3	Unable to measure vision for other reason	<p>If ((RespType = 1 or 2) // Mother or Partner And (ModeType = 1) // CAPI And (Sweep = 1) // 28 weeks And (PhotoReq = 2..7)) // photo required for protocol</p> <p>OR ((RespType = 1) // Mother And (ModeType = 1) // CAPI And (Sweep = 3) // 12 months And (PhotoReq = 2..7)) // photo required for protocol</p>						
1	Participant agreed to proceed to take photograph														
2	Participant refused														
3	Unable to measure vision for other reason														
<b>PhotoWNo</b>	<p>Could I ask why you don't want^[cohort baby name] to have a digital photo taken?</p>	<p>Open: 150</p>	<p>If ((RespType = 1 or 2) // Mother or Partner And (ModeType = 1) // CAPI And (Sweep = 1) // 28 weeks And (PhotoAgr = 2)) // refused photo</p> <p>OR ((RespType = 1) // Mother</p>												



Variable	Question	Responses	Universe						
			And (ModeType = 1) // CAPI And (Sweep = 3) // 12 months And (PhotoAgr = 2)) // refused photo						
PhotoCom	<p>TAKE PHOTOGRAPH</p> <p>MAKE SURE THAT: THE CAMERA FLASH IS ON, REDUCE RED EYE IS OFF CAMERA MODE IS SET TO P. AUTOFOCUS IS SET TO ON ZOOM IS SET TO 200MM</p> <p>PLEASE NOTE THAT YOU CAN HAVE A MAXIMUM OF 3 ATTEMPTS TO CAPTURE A SUITABLE IMAGE</p> <p>RECORD WHETHER YOU HAVE MANAGED TO TAKE A SUITABLE DIGITAL PHOTO.</p>	<p>Choice: single</p> <table border="1"> <tr> <td>1</td> <td>Yes</td> </tr> <tr> <td>2</td> <td>No</td> </tr> </table>	1	Yes	2	No	<p>If ((RespType = 1 or 2) // Mother or Partner And (ModeType = 1) // CAPI And (Sweep = 1) // 28 weeks And (PhotoAgr = 1)) // agreed to take photo</p> <p>OR ((RespType = 1) // Mother And (ModeType = 1) // CAPI And (Sweep = 3) // 12 months And (PhotoAgr = 1)) // agreed to take photo</p>		
1	Yes								
2	No								
PhotoWUn	<p>GIVE REASON FOR NOT BEING ABLE TO TAKE A DIGITAL PHOTO.</p>	<p>Choice: single</p> <table border="1"> <tr> <td>1</td> <td>Equipment failure</td> </tr> <tr> <td>2</td> <td>Lack of co-operation</td> </tr> <tr> <td>3</td> <td>Other</td> </tr> </table>	1	Equipment failure	2	Lack of co-operation	3	Other	<p>If ((RespType = 1 or 2) // Mother or Partner And (ModeType = 1) // CAPI And (Sweep = 1) // 28 weeks And ((PhotoAgr = 3) // unable to take photo Or (PhotoCom = 2))) // unable to get suitable image</p> <p>OR ((RespType = 1) // Mother And (ModeType = 1) // CAPI And (Sweep = 3) // 12 months And ((PhotoAgr = 3) // unable to take photo Or (PhotoCom = 2))) // unable to get suitable image</p>
1	Equipment failure								
2	Lack of co-operation								
3	Other								

Variable	Question	Responses	Universe						
PhotoWUO	SPECIFY OTHER REASON FOR NOT BEING ABLE TO TAKE A DIGITAL PHOTO.	Open: 150	<p>If ((RespType = 1 or 2) // Mother or Partner And (ModeType = 1) // CAPI And (Sweep = 1) // 28 weeks And (PhotoWUn = 3)) // other reason unable to get photo</p> <p>OR ((RespType = 1) // Mother And (ModeType = 1) // CAPI And (Sweep = 3) // 12 months And (PhotoWUn = 3)) // other reason unable to get photo</p>						
PhotoNat	RECORD WHETHER THE PHOTOGRAPH WAS TAKEN IN THE PARTICIPANT'S NATURAL POSITION, WITH THEIR EYELIDS RAISED, OR BOTH.	Choice: single <table border="1"> <tr> <td>1</td> <td>Natural position</td> </tr> <tr> <td>2</td> <td>Lids raised</td> </tr> <tr> <td>3</td> <td>Lids raised plus natural position</td> </tr> </table>	1	Natural position	2	Lids raised	3	Lids raised plus natural position	<p>If ((RespType = 1 or 2) // Mother or Partner And (ModeType = 1) // CAPI And (Sweep = 1) // 28 weeks And (PhotoCom = 1)) // obtained suitable photo</p> <p>OR ((RespType = 1) // Mother And (ModeType = 1) // CAPI And (Sweep = 3) // 12 months And (PhotoCom = 1)) // obtained suitable photo</p>
1	Natural position								
2	Lids raised								
3	Lids raised plus natural position								
PrescAva	Do you have a copy of the prescription for ^[your / ^[cohort baby name]'s] glasses ^[or contact lenses] with you?	Choice: single <table border="1"> <tr> <td>1</td> <td>Yes</td> </tr> <tr> <td>2</td> <td>No</td> </tr> </table>	1	Yes	2	No	<p>If ((RespType = 1 or 2) // Mother or Partner And (ModeType = 1) // CAPI And (Sweep = 1) // 28 weeks And (Glasses = 1..4)) // wear glasses or contact lenses</p> <p>OR ((RespType = 1) // Mother And (ModeType = 1) // CAPI And (Sweep = 3) // 12 months And (Glasses = 1..4)) // wear glasses or contact lenses</p>		
1	Yes								
2	No								
FocimInt		Choice: single	<p>If ((RespType = 1 or 2) // Mother or Partner And (ModeType = 1) // CAPI And (Sweep = 1) // 28 weeks</p>						

Variable	Question	Responses	Universe								
	<p>THIS TASK REQUIRES YOU TO ASSESS THE PARTICIPANTS' GLASSES. THIS SHOULD BE ADMINISTERED ON ANY ADULT WHO WEARS GLASSES FOR DISTANCE TASKS AND ON ALL CHILDREN WHO HAVE GLASSES.</p> <p>ARE YOU HAPPY FOR ME TO MEASURE THE STRENGTH OF ^[YOUR / ^[COHORT BABY NAME]'S] GLASSES?</p> <p>ASK PARTICIPANT IF GLASSES ARE PROGRESSIVE (VARIFOCALS).</p> <p>RECORD WHETHER PARTICIPANT AGREED TO FOCIMETER READING.</p>	<table border="1"> <tr> <td>1</td> <td>Participant agreed (and glasses not varifocals)</td> </tr> <tr> <td>2</td> <td>Participant refused</td> </tr> <tr> <td>3</td> <td>Unable - glasses are varifocals</td> </tr> <tr> <td>4</td> <td>Unable to measure vision for other reason</td> </tr> </table>	1	Participant agreed (and glasses not varifocals)	2	Participant refused	3	Unable - glasses are varifocals	4	Unable to measure vision for other reason	<p>And (PrescAva = 2) // prescription not available And (Glasses = 1 or 2) // they have their glasses with them And (GlassWhy = 1 or 3) // wear glasses for distance tasks or 'other' reason</p> <p>OR ((RespType = 1) // Mother And (ModeType = 1) // CAPI And (Sweep = 3) // 12 months And (PrescAva = 2) // prescription not available And (Glasses = 1 or 2)) // they have their glasses with them</p>
1	Participant agreed (and glasses not varifocals)										
2	Participant refused										
3	Unable - glasses are varifocals										
4	Unable to measure vision for other reason										
<b>FocimRef</b>	<p>Could I ask why you don't want ^[your / ^[cohort baby name]'s] glasses to be assessed?</p>	<p>Open: 150</p>	<p>If ((RespType = 1 or 2) // Mother or Partner And (ModeType = 1) // CAPI And (Sweep = 1) // 28 weeks And (FocimInt = 2)) // refused focimeter reading</p> <p>OR ((RespType = 1) // Mother And (ModeType = 1) // CAPI And (Sweep = 3) // 12 months And (FocimInt = 2)) // refused focimeter reading</p>								
<b>FocimWUn</b>	<p>GIVE REASON FOR NOT BEING ABLE TO ATTEMPT A FOCIMETER MEASUREMENT.</p>	<p>Choice: single</p> <table border="1"> <tr> <td>1</td> <td>Equipment failure</td> </tr> <tr> <td>2</td> <td>Other</td> </tr> </table>	1	Equipment failure	2	Other	<p>If ((RespType = 1 or 2) // Mother or Partner And (ModeType = 1) // CAPI And (Sweep = 1) // 28 weeks And (FocimInt = 4)) // unable to take focimeter reading</p> <p>OR ((RespType = 1) // Mother And (ModeType = 1) // CAPI</p>				
1	Equipment failure										
2	Other										

Variable	Question	Responses	Universe				
			And (Sweep = 3) // 12 months And (FocimInt = 4)) // unable to take focimeter reading				
<b>FocimWot</b>	GIVE OTHER REASON FOR NOT BEING ABLE TO DO A FOCIMETER MEASUREMENT.	Open: 150	If ((RespType = 1 or 2) // Mother or Partner And (ModeType = 1) // CAPI And (Sweep = 1) // 28 weeks And (FocimWUn = 2)) // other reason unable to take focimeter reading  OR ((RespType = 1) // Mother And (ModeType = 1) // CAPI And (Sweep = 3) // 12 months And (FocimWUn = 2)) // other reason unable to take focimeter reading				
<b>FocimCom</b>	PROCEED WITH MEASUREMENT OF GLASSES, USING THE FOCIMETER.  RECORD WHETHER YOU HAVE MANAGED TO TAKE A READING WITH THE FOCIMETER.	Choice: single <table border="1" data-bbox="862 790 985 853"> <tr> <td>1</td> <td>Yes</td> </tr> <tr> <td>2</td> <td>No</td> </tr> </table>	1	Yes	2	No	If ((RespType = 1 or 2) // Mother or Partner And (ModeType = 1) // CAPI And (Sweep = 1) // 28 weeks And (FocimInt = 1)) // agreed to focimeter reading  OR ((RespType = 1) // Mother And (ModeType = 1) // CAPI And (Sweep = 3) // 12 months And (FocimInt = 1)) // agreed to focimeter reading
1	Yes						
2	No						
<b>FocimCNo</b>	RECORD WHY YOU HAVE NOT MANAGED TO TAKE A READING WITH THE FOCIMETER.	Open: 150	If ((RespType = 1 or 2) // Mother or Partner And (ModeType = 1) // CAPI And (Sweep = 1) // 28 weeks And (FocimCom = 2)) // Unable to get focimeter reading  OR ((RespType = 1) // Mother And (ModeType = 1) // CAPI And (Sweep = 3) // 12 months And (FocimCom = 2)) // Unable to get focimeter reading				

Variable	Question	Responses	Universe						
<b>MeasFrom</b>	RECORD THE SOURCE OF THE PRESCRIPTION / MEASUREMENTS.	Choice: single <table border="1"> <tr> <td>1</td> <td>Glasses prescription</td> </tr> <tr> <td>2</td> <td>Contact Lens prescription</td> </tr> <tr> <td>3</td> <td>Focimeter reading</td> </tr> </table>	1	Glasses prescription	2	Contact Lens prescription	3	Focimeter reading	If ((RespType = 1 or 2) // Mother or Partner And (ModeType = 1) // CAPI And (Sweep = 1) // 28 weeks And ((PrescAva = 1) // has prescription available Or (FocimCom = 1))) // obtained focimeter reading  OR ((RespType = 1) // Mother And (ModeType = 1) // CAPI And (Sweep = 3) // 12 months And ((PrescAva = 1) // has prescription available Or (FocimCom = 1))) // obtained focimeter reading
1	Glasses prescription								
2	Contact Lens prescription								
3	Focimeter reading								
<b>RighSph</b>	RECORD THE PRESCRIPTION FOR SPHERE – RIGHT EYE.  THIS MAY BE WRITTEN AS SPH, AND THE DS VALUES WILL BE IN 0.25 STEPS.  IF ∞ (infinity) IS SHOWN ON THE PRESCRIPTION THIS MEANS 0 DS.	Number: 2, 5, -29..29	If ((RespType = 1 or 2) // Mother or Partner And (ModeType = 1) // CAPI And (Sweep = 1) // 28 weeks And ((PrescAva = 1) // has prescription available Or (FocimCom = 1))) // obtained focimeter reading  OR ((RespType = 1) // Mother And (ModeType = 1) // CAPI And (Sweep = 3) // 12 months And ((PrescAva = 1) // has prescription available Or (FocimCom = 1))) // obtained focimeter reading						
<b>RighCyl</b>	RECORD THE PRESCRIPTION FOR CYLINDER – RIGHT EYE.  THIS MAY BE WRITTEN AS CYL, AND THE DC VALUES WILL BE IN 0.25 STEPS.	Number: 2, 4, -9..9	If ((RespType = 1 or 2) // Mother or Partner And (ModeType = 1) // CAPI And (Sweep = 1) // 28 weeks And ((PrescAva = 1) // has prescription available Or (FocimCom = 1))) // obtained focimeter reading  OR ((RespType = 1) // Mother And (ModeType = 1) // CAPI And (Sweep = 3) // 12 months And ((PrescAva = 1) // has prescription available Or (FocimCom = 1))) // obtained focimeter reading						
<b>RighAxis</b>		Number: 0, 3, 0..180	If ((RespType = 1 or 2) // Mother or Partner						

Variable	Question	Responses	Universe
	<p>RECORD THE PRESCRIPTION FOR AXIS – RIGHT EYE.</p> <p>(IF NOT A WHOLE NUMBER, ROUND UP TO THE NEAREST VALUE)</p>		<p>And (ModeType = 1) // CAPI And (Sweep = 1) // 28 weeks And ((PrescAva = 1) // has prescription available Or (FocimCom = 1))) // obtained focimeter reading</p> <p>OR ((RespType = 1) // Mother And (ModeType = 1) // CAPI And (Sweep = 3) // 12 months And ((PrescAva = 1) // has prescription available Or (FocimCom = 1))) // obtained focimeter reading</p>
<b>RighADD</b>	<p>RECORD THE PRESCRIPTION FOR ADD – RIGHT EYE.</p>	Number: 2, 4, 0..5	<p>If ((RespType = 1 or 2) // Mother or Partner And (ModeType = 1) // CAPI And (Sweep = 1) // 28 weeks And ((PrescAva = 1) // has prescription available Or (FocimCom = 1))) // obtained focimeter reading</p> <p>OR ((RespType = 1) // Mother And (ModeType = 1) // CAPI And (Sweep = 3) // 12 months And ((PrescAva = 1) // has prescription available Or (FocimCom = 1))) // obtained focimeter reading</p>
<b>RighPris</b>	<p>RECORD THE PRESCRIPTION FOR PRISM (Δ) – RIGHT EYE.</p>	Number: 1, 4, 0..30	<p>If ((RespType = 1 or 2) // Mother or Partner And (ModeType = 1) // CAPI And (Sweep = 1) // 28 weeks And ((PrescAva = 1) // has prescription available Or (FocimCom = 1))) // obtained focimeter reading</p> <p>OR ((RespType = 1) // Mother And (ModeType = 1) // CAPI And (Sweep = 3) // 12 months And ((PrescAva = 1) // has prescription available Or (FocimCom = 1))) // obtained focimeter reading</p>
<b>RighBase</b>		Choice: single	<p>If ((RespType = 1 or 2) // Mother or Partner And (ModeType = 1) // CAPI</p>

Variable	Question	Responses	Universe								
	RECORD THE PRESCRIPTION FOR BASE – RIGHT EYE.	<table border="1"> <tr><td>1</td><td>Up</td></tr> <tr><td>2</td><td>Down</td></tr> <tr><td>3</td><td>In</td></tr> <tr><td>4</td><td>Out</td></tr> </table>	1	Up	2	Down	3	In	4	Out	<p>And (Sweep = 1) // 28 weeks            And ((PrescAva = 1) // has prescription available            Or (FocimCom = 1))) // obtained focimeter reading</p> <p>OR ((RespType = 1) // Mother            And (ModeType = 1) // CAPI            And (Sweep = 3) // 12 months            And ((PrescAva = 1) // has prescription available            Or (FocimCom = 1))) // obtained focimeter reading</p>
1	Up										
2	Down										
3	In										
4	Out										
<b>LeftSph</b>	<p>RECORD THE PRESCRIPTION FOR SPHERE – LEFT EYE.</p> <p>THIS MAY BE WRITTEN AS SPH, AND THE DS VALUES WILL BE IN 0.25 STEPS.</p> <p>IF ∞ (infinity) IS SHOWN ON THE PRESCRIPTION THIS MEANS 0 DS.</p>	Number: 2, 5, -29..29	<p>If ((RespType = 1 or 2) // Mother or Partner            And (ModeType = 1) // CAPI            And (Sweep = 1) // 28 weeks            And ((PrescAva = 1) // has prescription available            Or (FocimCom = 1))) // obtained focimeter reading</p> <p>OR ((RespType = 1) // Mother            And (ModeType = 1) // CAPI            And (Sweep = 3) // 12 months            And ((PrescAva = 1) // has prescription available            Or (FocimCom = 1))) // obtained focimeter reading</p>								
<b>LeftCyl</b>	<p>RECORD THE PRESCRIPTION FOR CYLINDER – LEFT EYE.</p> <p>THIS MAY BE WRITTEN AS CYL, AND THE DC VALUES WILL BE IN 0.25 STEPS.</p>	Number: 2, 4, -9..9	<p>If ((RespType = 1 or 2) // Mother or Partner            And (ModeType = 1) // CAPI            And (Sweep = 1) // 28 weeks            And ((PrescAva = 1) // has prescription available            Or (FocimCom = 1))) // obtained focimeter reading</p> <p>OR ((RespType = 1) // Mother            And (ModeType = 1) // CAPI            And (Sweep = 3) // 12 months            And ((PrescAva = 1) // has prescription available            Or (FocimCom = 1))) // obtained focimeter reading</p>								
<b>LeftAxis</b>		Number: 0, 3, 0..180	<p>If ((RespType = 1 or 2) // Mother or Partner            And (ModeType = 1) // CAPI            And (Sweep = 1) // 28 weeks</p>								

Variable	Question	Responses	Universe				
	RECORD THE PRESCRIPTION FOR AXIS – LEFT EYE.  (IF NOT A WHOLE NUMBER, ROUND UP TO THE NEAREST VALUE)		And ((PrescAva = 1) // has prescription available Or (FocimCom = 1))) // obtained focimeter reading  OR ((RespType = 1) // Mother And (ModeType = 1) // CAPI And (Sweep = 3) // 12 months And ((PrescAva = 1) // has prescription available Or (FocimCom = 1))) // obtained focimeter reading				
<b>LeftADD</b>	RECORD THE PRESCRIPTION FOR ADD – LEFT EYE.	Number: 2, 4, 0..5	If ((RespType = 1 or 2) // Mother or Partner And (ModeType = 1) // CAPI And (Sweep = 1) // 28 weeks And ((PrescAva = 1) // has prescription available Or (FocimCom = 1))) // obtained focimeter reading  OR ((RespType = 1) // Mother And (ModeType = 1) // CAPI And (Sweep = 3) // 12 months And ((PrescAva = 1) // has prescription available Or (FocimCom = 1))) // obtained focimeter reading				
<b>LeftPris</b>	RECORD THE PRESCRIPTION FOR PRISM (Δ) – LEFT EYE.	Number: 1, 4, 0..30	If ((RespType = 1 or 2) // Mother or Partner And (ModeType = 1) // CAPI And (Sweep = 1) // 28 weeks And ((PrescAva = 1) // has prescription available Or (FocimCom = 1))) // obtained focimeter reading  OR ((RespType = 1) // Mother And (ModeType = 1) // CAPI And (Sweep = 3) // 12 months And ((PrescAva = 1) // has prescription available Or (FocimCom = 1))) // obtained focimeter reading				
<b>LeftBase</b>	RECORD THE PRESCRIPTION FOR BASE – LEFT EYE.	Choice: single <table border="1" data-bbox="862 1310 1003 1377"> <tr> <td>1</td> <td>Up</td> </tr> <tr> <td>2</td> <td>Down</td> </tr> </table>	1	Up	2	Down	If ((RespType = 1 or 2) // Mother or Partner And (ModeType = 1) // CAPI And (Sweep = 1) // 28 weeks And ((PrescAva = 1) // has prescription available
1	Up						
2	Down						



Variable	Question	Responses	Universe				
		<table border="1"> <tr> <td>3</td> <td>In</td> </tr> <tr> <td>4</td> <td>Out</td> </tr> </table>	3	In	4	Out	<p>Or (FocimCom = 1))) // obtained focimeter reading</p> <p>OR ((RespType = 1) // Mother And (ModeType = 1) // CAPI And (Sweep = 3) // 12 months And ((PrescAva = 1) // has prescription available Or (FocimCom = 1))) // obtained focimeter reading</p>
3	In						
4	Out						
<b>VisStaff</b>	RECORD THE ID NUMBER OF THE STAFF WHO COMPLETED THE VISION ASSESSMENT	Number: 0, 4, 1000..5000	<p>If ((RespType = 1 or 2) // Mother or Partner And (ModeType = 1) // CAPI And (Sweep = 1) // 28 weeks</p> <p>Or ((RespType = 1) // Mother And (ModeType = 1) // CAPI And (Sweep = 3) // 12 Months</p>				
<b>VisRoom</b>	ENTER THE ROOM NUMBER IN WHICH THE VISION ASSESSMENT WAS CARRIED OUT	Number: 0, 2, 1..99	<p>If ((RespType = 1 or 2) // Mother or Partner And (ModeType = 1) // CAPI And (Sweep = 1) // 28 weeks</p> <p>Or ((RespType = 1) // Mother And (ModeType = 1) // CAPI And (Sweep = 3) // 12 Months</p>				