

MADSEN Capella

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Quick Guide

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Technical support

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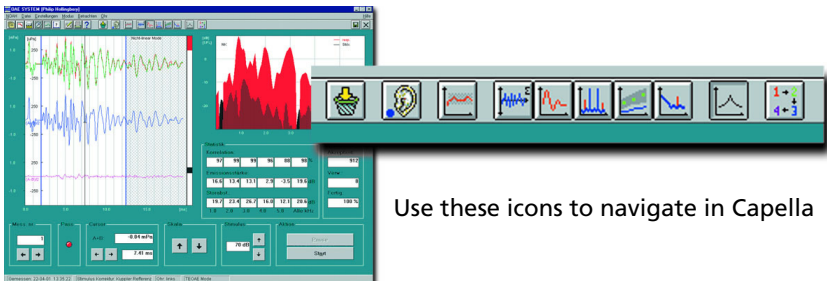
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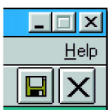
1 Capella Quick Guide



Use these icons to navigate in Capella

To use this Quick Guide it is recommended that you are familiar with Microsoft Windows™ and the NOAH™ or PAX™ platforms.

Before testing, prepare the patient for the test, for instance by visually inspecting the ear canal.



For more information about using Capella, click **Help**.

NOTE

If you have made the measurements with the wrong ear selected in Capella, open the **Ear** menu and choose **Swap ear data...** . Then select **This measurement only**, **All measurements for current mode (and current ear)**, **All measurements for current ear (all modes)**, or **Selected measurements**. If necessary, select the measurements to be moved from the list, and then click on **OK**.

To clear all measurement data for all modes and for both ears from the current session, select **Clear all** in the **File** menu or click on the **Clear all** icon in the toolbar. When you have used this function, you must repeat the *Probe Fit* operation before you can make any more measurements.

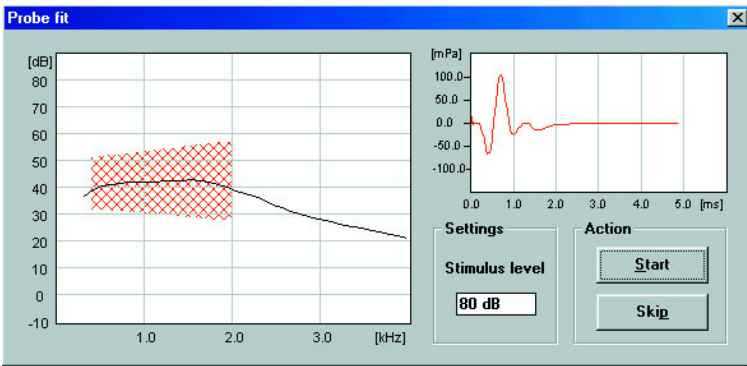
1.1 Probe fit



1. Click the **Ear** icon to select the ear you wish to measure, or select **Right** or **Left** from the **Ear menu**.
2. Mount a suitable eartip on the probe and insert it into the patient's ear canal. Make sure that the probe tip obtains a tight seal with the canal wall.



3. Activate *Probe fit mode* by clicking the **Probe fit** icon or select **Probe fit** in the **Mode menu**.
4. Click **Start** to check the probe fit. If necessary, adjust the probe in the ear canal until the curve falls within the red hatched area.



5. Probe fit will automatically stop when sufficient seal is obtained. A message will appear to inform you that the probe fit is either good or acceptable. You can end the probe fitting process manually by clicking **Skip**.
6. The **Fit** dot on the lower left part of the measurement screen allows you to monitor the status of the probe fit:
 - *Green* indicates a good fit,
 - *Yellow* indicates an acceptable fit,
 - *Red* indicates a poor fit (or that the probe fit procedure was not carried out).

1.2 Auto sequence



1. Capella provides for automatic testing.
2. Select **Setup menu > Auto sequence** or click the **Auto sequence** icon.
3. Select an existing Auto sequence from the box, and click **Run** to start measurements in the predefined sequence and with the predefined parameters. You can interrupt the measurement at any time by clicking **Pause**, or you can stop the Auto sequence prematurely by clicking the **Stop** button in the **Auto Sequence** run box.
4. To create a new sequence
 - Enter a name in the **New Auto sequence** box and then click **New**.

- Select the measurement modes you wish to test with,
- Enter the number in the sequence under **Mode order**,
- Select the **Number of measurements** you wish to make for each mode,
- Set up each measurement mode by means of **Parameters**. If required, choose the **Break condition** for Probe fit, Echo-Screen and Tympanometry.

NOTE

Each Auto sequence is for one ear at a time, i.e. to test both ears you must first change ear and then run the Auto sequence again.

5. After creating a new Auto sequence, click **Run** to execute it, or **Close** to exit from the dialog box.
6. You can delete or edit any existing sequence setup from the **Auto sequence** box.

1.3 Testing

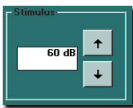
1.3.1 Echo-Screen



1. Click the **Echo-Screen** icon or select **Echo-Screen** from the **Mode menu**.
2. Press **Start** to begin screening.
3. When the screening is complete, the Result is shown in *green* for **Pass**, *red* for **Refer**, and *gray* if a significant result was prevented by a leak or noise.

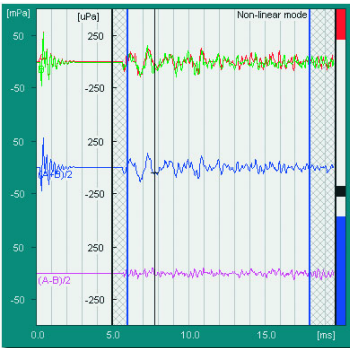
4. You can make up to 6 measurements for each ear. Click on the arrow keys in the **Meas. No.** box on the lower left to make a new measurement or to view other measurements made on the same ear during the session.
5. Repeat the procedure beginning with *Probe fit* for measuring the other ear.

1.3.2 TEOAE



1. Click the **TEOAE** icon or select **Transient (TEOAE)** from the **Mode menu**.
2. To change stimulus level click the **Stimulus** arrow keys or press the arrow keys **PgUp** and **PgDn** on the keyboard.
3. To access more test parameters select **Parameters** from the **Setup menu**, followed by **Linear**, **Nonlinear** or **Fast-Screen** mode, **Stimulus suppression**, **Noise criteria** and **Stop criteria** as required. If necessary, change the **Stimulus correction** in the **Setup menu**.
4. Click **Start** to begin measuring.
5. If you wish to interrupt the measurement, click **Pause**. Click **Continue** to resume the measurement.
6. You can monitor the measurement status by watching the **Sweeps** and **Statistics** boxes on the lower right part of the screen. **Correlation**, **Emission strength** and **S/N ratio** are shown in each of five frequency bands, as well as the broad-band values. The blue vertical bar on the right of the time response graph indicates the noise floor during the measurement.

7. Click **Stop** to end the measurement, if you have disabled **Stop criteria**.
8. You can change the scaling of the time response graph by using the **up** and **down** arrows in the **Scale** box on the screen or the arrow keys **PgUp** and **PgDn** on the keyboard (this applies only if **Scaling** is set to *manual* in the **Parameters** dialog box).
9. You can move the cursor by clicking on the time response graph or using the right and left arrow keys in the **Cursor** box on the screen or on the keyboard. The cursor's position on the time scale and the amplitude of the mean of the A and B curves are displayed in the **Cursor** box.



10. You can change the time window for data analysis by entering different values in **Window** in the **Parameters** dialog box (**Setup menu**) but this is not generally recommended as it can affect the correlation coefficient substantially. If displayed, the gray hatched area is not included in the FFT analysis. In this dialog box you can change the **Scaling** of the FFT display and its **Smoothing**, and/or turn **Microphone correction** on or off.

11. You can make up to 6 measurements for each ear. Click the arrow keys in the **Meas. No.** box on the lower left to make a new measurement or to view other measurements made on the same ear during the session.

- Repeat the procedure beginning with *Probe fit* for measuring the other ear.

1.3.3 DPOAE: DP-Gram



- Click the **DP-Gram** icon or select **Mode menu > DP-Gram > Distortion Products (DPOAE)**.
- Select **Parameters** from the **Setup menu** to set the **Level Difference** between f_1 and f_2 : Select either **$2f_1 - f_2$ (DP1)** or **$2f_2 - f_1$ (DP2)** for analysis. If required, change **Noise criteria**, **Stop criteria** and **Noise estimate**.

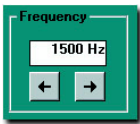


- Change the stimulus level by clicking the arrow keys in the **F1 Level** box or pressing the arrow keys **PgUp** and **PgDn** on the keyboard.
- Select the desired frequencies by clicking in the appropriate boxes under the DP-Gram.

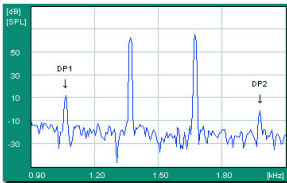


- Click **Start** to begin measuring. When the stop criteria for one frequency have been met, measurement will automatically continue on the next preselected frequency.
- Click **Stop** to end the measurement if you have disabled **Stop criteria**. To continue measurement on the next preselected frequency, click **Start**.

- 7. If you wish to interrupt the measurement, click **Pause**. Click **Cont.** to resume the measurement at the same frequency.
- 8. You can monitor the measurement status by watching the **Sweeps** and **Statistics** boxes on the lower right part of the screen. The blue vertical bar to the right of the DP-Gram indicates the noise floor during the measurement.



- 9. Use the right and left arrow keys in the **Frequency** box on screen or on the keyboard to view the amplitude spectra for different frequencies. Data for the selected frequency appear in the **Sweeps** and **Statistics** boxes, and in the box labeled **DP1** or **DP2**.



- 10. To view the DP1 and DP2 and noise values in a tabular form, select **DP Tabular** from the **View menu**. To view information on the f1:f2 ratio, primary and DP frequencies, primary levels and DP phases, select **DP Info** from the **View menu**.

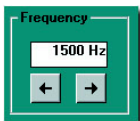
- 11. The default normative data pattern in the DP-Gram applies to adults, as measured at the University Hospital of Copenhagen. To show the corresponding pattern for babies instead, select **Norm. data** in the **Setup menu** and click *baby*. In this dialog box you can also select other types of normative data patterns such as the *Gorga* norm. To confirm your selection, click **OK**. The normally green DP-dot turns yellow if lower than the noise floor or outside the dynamic range of the instrument.

12. You can make up to 6 measurements for each ear. Click the arrow keys in the **Meas. No.** box on the lower left to make a new measurement or to view other measurements made on the same ear during the session.
13. Repeat the procedure beginning with *Probe fit* for measuring the other ear.

1.3.4 DPOAE: Input/output



1. Click the **DP-I/O** icon or select **Mode menu > DP-IO > Distortion Product (DPOAE)**.
2. From **Parameters** in the **Setup menu**, select **DP1** or **DP2** for analysis. If required, change **Noise criteria**, **Stop criteria** and **Noise estimate**, and set **Start level**, **Increment** and **Stop level**. The DP I/O measurement will be carried out automatically only if stop criteria are defined. If this is not the case, you must click on **Stop** to end the measurement, use the up and down arrow keys on the keyboard or on screen to change the F1 level, and then click on **Start** to resume measuring.



3. Select frequency by using the right and left arrow keys on the keyboard or in the **Frequency box** on the screen.
4. Click **Start** to begin measuring.
5. If you wish to interrupt the measurement, click **Pause**. Click **Continue** to resume the measurement.

6. You can monitor the measurement status by watching the **Sweeps** and **Statistics** boxes on the lower right part of the screen. The blue vertical bar to the right of the DP-Input/output graphic display indicates the noise floor during the measurement. The normally green DP-dot turns yellow if lower than the noise floor or outside the dynamic range of the instrument.
7. Click **Stop** to end the measurement if you have disabled **Stop criteria**.
8. Use the up and down arrow keys on the keyboard or in the **F1 Level** box on screen to view the amplitude spectra and data for the various presentation levels.
9. You can make up to 6 measurements for each ear. Click on the arrow keys in the **Meas. No.** box on the lower left to make a new measurement or to view other measurements made on the same ear during the session.
10. Repeat the procedure beginning with *Probe fit* for measuring the other ear.

1.3.5 SOAE



1. Click the **SOAE** icon or select **Spontaneous (SOAE)** from the **Mode menu**.
2. Select **Parameters** in the **Setup menu** to choose the bandwidth for the measurement, the criteria for stopping the measurement automatically (if desired), the noise reject level, and the S/N ratio for automatic identification of an SOAE. Click **OK**.
3. Click **Start** to begin measuring.

4. If you wish to interrupt the measurement, click **Pause**. Click **Continue** to resume the measurement. You can monitor the measurement status by watching the **Sweeps** box on the lower right part of the screen.
5. Click **Stop** to end the measurement if you have disabled **Stop criteria**.
6. The frequency range shown in the SOAE response spectrum window extends to half of the measured frequency bandwidth. Use the scroll bar under the response spectrum to view other frequencies.
7. Move the cursor by using the left and right arrow keys on the keyboard, by clicking on the arrow keys in the Cursor box on screen, or by clicking on the response spectrum itself at the point where you want to position the cursor.
8. Click **Next** to identify the next SOAE according to the defined S/N criteria. The spike will be marked on the graph with ↓, and data listed in the box in the upper right hand corner of the screen.
9. Click **Auto** to automatically identify SOAEs according to the defined S/N criteria. These will be listed in the box, and the spikes on the graph marked with ↓.
10. You can mark SOAEs manually by double-clicking on them on the graph. They will also be listed in the upper right hand corner of the screen.
11. If you do not wish to identify spikes, which have been either manually or automatically selected, as SOAEs, you can delete them by double-clicking them in the list or on the graph.

12. You can make up to 6 measurements for each ear. Click on the arrow keys in the **Meas. No.** box on the lower left to make a new measurement or to view other measurements made on the same ear during the session.
13. Repeat the procedure beginning with *Probe fit* for measuring the other ear.

1.3.6 Tympanometry



1. Click the **Tympanometry** icon or select **Tympanometry** from the **Mode menu**. If the patient shows signs of distress at any time, release the air pressure by clicking on **Air release** (F5) or pressing **F5** on the keyboard.
2. If required, reduce measurement time by clicking on the up arrow in the **Pump speed** box. A.F.A.P. means "As Fast As Possible".
3. If required, select **Setup menu > Parameters** to change other settings such as **Pump pressure range**, **Sweep direction**, **Display scaling** and **Smoothing**, **Auto start**, **Measurement increment**, and **Stop when results available**).
4. Select probe tone in the **Frequency** box.
5. To prevent the sweep from restarting if a leak is detected, click *Off* in the **Leak detect** box.
6. If *Auto start* has not been selected, click **Start** to begin the sweep. If a leak interrupts the sweep or the **Pump position** displayed during the sweep reaches either of its end stops, reposition the eartip in the ear canal to improve seal, and then sweep again.

7. To compare the recorded tympanogram with norm data, click **Setup** and then **Norm data**. Click on the option required and then click **OK**.
8. You can make up to 3 tymp. measurements for each ear. Click on the arrow keys in the **Meas. No.** box on the lower left to make a new measurement (if **Enable meas. no. increment** has not been checked in **Setup**) or to view other measurements made on the same ear during the session.

1.4 Managing test results

1.4.1 Comments

You can register comments by selecting **File menu > Edit comments**. You can enter 4 lines of comments per session. These comments are displayed on NOAH's session list, and can be included on the printout.

1.4.2 User configuration

1. You can save all setup and test parameters as a specific user configuration from any measurement mode. Select **Setup menu > User**. Enter a name or initials in the **New user** box, and click **Save**.
2. Click **OK** to confirm **Save user setup**. Click **OK** again to exit.
3. If you wish to use the default configuration or select another configuration, click on the desired user setup file to select, and then **OK** to exit.
4. You can also delete an old user setup file by selecting it, and then clicking **Delete**. You will be prompted to confirm the deletion.

1.4.3 Compare

Use this function to compare measurements made on the same patient's ear over time:

1. Select **File menu > Compare**.

2. Select **TEOAE**, **DP-Gram** or **DP-I/O** from the **Mode menu** as required.
3. Click **Open session** in the **File menu** to find the data to be compared.
4. Click on the first session to be compared, then **OK**, and then select another measurement, if required, by means of the left or right arrows in the **Session** sub-window.

Repeat step 4 up to five times. Each successive measurement result will be assigned a session number and superimposed on the others on the graph. To display the corresponding measurement parameters and/or statistics, select **Param.** and/or **Statistics** in the **View menu** and then click on the **Session** sub-window with the corresponding session number.

1.4.4 Printing measurement results and comments

You can configure the Capella printout function to your own requirements.

- To print out measurement results (with any comments) using the default setup, select **File menu > Print**, followed by **This mode**, **Overview** or **All**.
- To configure a new print setup or select a different existing named setup (**Load Setup**), select **File menu > Print layout**.
- To set up portrait or landscape format, click **Select Printer**.
- To add an image to the current page, do as follows:
 1. Click on the arrow to the right of the selection bar at the top of the dialog box.
 2. Click on the required image.
 3. Click **Add Image**.
 4. Drag the image to the required position on the page.
 5. Use the right mouse button to identify a selected image (**Show Description**), bring it to the **Top** or **Bottom**, or **Delete** it from the page.
 6. You can change the size of an image by clicking on an edge or a corner.
 7. When the setup is complete, click **Save Setup** and assign a name to it.