

# MB 11 BERAphone®

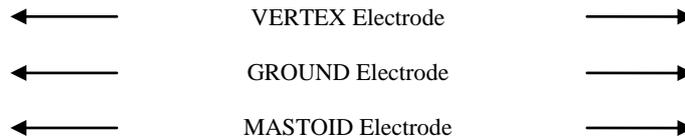
## Quick Guide

### 1. Prepare the MB 11 system

- Connect the MB 11 ...to the USB port of your notebook or PC
- Start your notebook/PC ...and wait until the operating system has finished booting
- Start the MB 11 software ...by selecting the desktop icon or by the respective start menu item

### 2. Prepare the baby

- The baby should be asleep or be very calm  
The BERAphone® collects electric signals which are generated by the brain. Since these signals are very small compared to other bio-electrical activity in the baby's brain it is important that the baby is asleep or in a quiet state (minimal sucking, blinking or moving).
- Skin should be clean  
The skin needs to be clean and free from lotion, cream or oil from the bath.
- "Mark" the contact points  
Apply a small amount of electrode gel on the 3 BERAphone electrodes and position the BERAphone® on the baby's head to mark the contact points. (Loosen blankets, if necessary, to access the neck and mastoid area.) Note that the vertex electrode can be rotated to the left to fit smaller heads). Remove the BERAphone and note the gel residue at the contact points.
- Apply gel onto contact points  
Put a drop of electrode gel on your finger and massage the gel into each of the marked contact points on the baby's head. (In order to improve the conductivity, rub each point about 10-15 times with an adequate quantity of gel. To avoid gel bridges, massage horizontally and in parallel lines; see left picture below.)
- Apply gel on electrodes  
Put a drop of electrode gel on your finger and apply a small amount onto each electrode. (Don't pour the gel directly from the bottle onto the electrode. Too much gel might cause a short circuit. This is not dangerous for the child, but the BERAphone® would not work)



The VERTEX is toward the midline of the head, forward near the hair line  
 The GROUND is positioned just above the ear  
 The MASTOID is behind the ear lobe on the mastoid bone

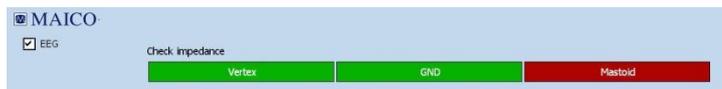


### 3. Enter the patient information, select the ear and start the measurement

- Enter the baby's information or select the baby's name from "Today's List"
- Select the test ear L = Left R = Right
- Click on « Measure » in order to enter the measurement screen
- Position the BERAphone® Place the BERAphone on the baby's head, positioning the electrodes on the contact points. Make sure that the earphone cushion surrounds the ear and contacts the baby's head all around its circumference. Do not apply pressure with the BERAphone! The electrodes have a spring mechanism that allows them to make contact without the need to apply pressure.
- Start the measurement by clicking on « Start Measurement »

### 4. Verification of the impedance

On top of the screen, view the « Check Impedance » traffic light display that provides feedback about the quality of the contact of the electrodes with each contact point.



- Red = poor impedance
- Yellow = marginally acceptable impedance
- Green = good impedance

If any traffic light remains red: rub the relevant contact point again with more gel, move the BERAphone slightly to the prepared contact point, and/or apply a little more gel to the electrode to achieve a yellow or green indicator.

The measurement will start automatically when all three signals remain green or yellow for 7-8 seconds.

## 5. Signal quality

After a successful impedance check, the screening begins automatically and the Impedance Check traffic light display will be replaced with a « Signal Quality » bar.



- Red = poor signal quality
- Yellow = marginally adequate quality
- Green = good quality

The signal quality is determined by the amount of artifact that is detected in the EEG response measured by the electrodes.

- If the signal quality remains red or is very unstable, flashing rapidly from red to green, refer to Section 7.

## 6. Measurement results



Example result : PASS



Example result : REFER

- During the measurement, a test progress line will appear and grow as each one second EEG sample is collected and processed. (When artifact occurs the test progress line will automatically stop growing until good quality EEG data resumes.)
- When the test progress line reaches the green area, the pass criterion is achieved and the screening result is PASS. (The shape of the test progress line and the time it takes to arrive at a Pass will vary.)
- If no response is detected, the test progress line will not reach the green area. The test will continue for 180 seconds (excluding time when artifacts are occurring) and then terminate with a REFER result displayed in the bottom right corner of the display.
- A REFER result does not necessarily indicate that the child has a hearing impairment. Consult your screening program's protocol regarding the procedure for rescreening or referring for diagnostic follow-up.
- Results are saved automatically

## 7. Troubleshooting and Testing Recommendations

- Perform the screening at a time when the baby is comfortable, that is, recently fed, diapered and preferably sleeping. Much time will be wasted attempting to screen an irritable, hungry baby. It would be more efficient to come back later when the baby is in a calmer state.
- Calm and relax the baby if needed by:
  - o Gently stroking the baby's head, area between the eyebrows or hand
  - o Encourage relaxation of neck/shoulder tension near the test ear by grasping the baby's arm and gently guiding it down and toward the midline of the body. You will note that the baby will suddenly relax and open the shoulder making it easier to position the BERAphone and reducing artifacts from muscle tension.
  - o Roll up a blanket or towel and place it against the curve of the back and neck when the baby is lying on his/her side
- Noisy conditions can prolong the test and impact the test outcome; therefore, test in a quiet room if possible. When testing in a mother's room or multi-purpose environment, reduce the sound levels (TV, conversations, etc) as much as possible.
- If impedance remains poor despite repeated attempts at skin preparation with electrode gel, massaging 10-15 times at each contact point:
  - o Use an electrode skin preparation product such as NuPrep® or an alcohol pad to clean the skin and try again with a small amount of gel on the electrode.
  - o Unplug the laptop PC (and printer) from the AC outlet to run on PC battery power
  - o Check that the system USB cable is securely connected to the PC and to the BERAphone USB box.
  - o Verify that only water-soluble electrode gel is being used. Ultrasound gel is NOT recommended.
- If EEG signal quality remains poor or becomes poor during testing:
  - o Check the state of the baby to be sure he/she is calm and relaxed. Pause the test temporarily to calm the baby in necessary. Keep the BERAphone in place since repositioning it can cause the baby to react again causing artifacts.
  - o To the extent possible, turn off other non-critical electrical devices in the environment.
  - o Unplug the MB 11 laptop PC (and printer) from the AC outlet to run on PC battery power.
  - o Check that the BERAphone has not slipped away from the prepared contact points.
  - o Verify that electrode gel at the 3 contact points on the head do not touch each other. Clean any areas of overlapping gel.