Thought Technology Ltd.

SA7951 ver 5.1

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BioGraph Infiniti EEG Suite

Welcome

The EEG Suite is designed to include a selection of clinical tools for monitoring, assessing baselines, performing biofeedback sessions, reviewing recorded data for the purpose of artifact rejection and generating session and trend reports for one or two EEG channels as well as one EEG channel with physiology. The suite can be used with any of four encoder types: ProComp Infiniti, ProComp 5 Infiniti, ProComp+ and ProComp 2. Select the encoder type of your choice when you install the Suite.

Getting Started with BioGraph Infiniti

Before You Begin

Ensure that BioGraph Infiniti 5.1 and the EEG Suite have been installed on your computer.

To ensure compatibility with the Windows Vista® and Windows® 7 operating systems, from version 5.0 forward, BioGraph Infiniti installs a different file structure from previous versions. As a result, only the EEG Suite with the version number 5.0 or later can be installed after BioGraph Infiniti 5.1 has been installed on your computer.

- **If this is the first time that you have installed BioGraph Infiniti**

  Confirm that your EEG Suite is version 5.1. This indicates that the EEG Suite has been modified to incorporate the changes to the BioGraph Infiniti system file structure and that all channel sets, screens, and scripts are compatible with BioGraph Infiniti 5.1.

- **If you are updating BioGraph Infiniti from a version earlier than 5.0**

  The process will also update the file structure of any previously-installed version of the EEG Suite (i.e., version 4.0 installed with BioGraph Infiniti 4.0). After you have updated BioGraph Infiniti to version 5.1, you cannot install an EEG Suite with a lower version number than 5.0.

  If you need to install an older version of the EEG Suite after installing BioGraph Infiniti 5.1, or if you have problems installing your EEG Suite, check for a solution in the FAQ section of the Thought Technology website or contact our Technical Support.

Peak-to-Peak Algorithm

To correct a slight bias in the calculation of mean values for peak-to-peak signals, the peak-to-peak algorithm has been modified in BioGraph Infiniti 5.0 and later versions.

When compared to results calculated in BioGraph Infiniti 4.0 or earlier, you may notice small differences in epoch or full-session means calculated for peak-to-peak values. However, overall trends should not be significantly affected.

First Time Run

Setting up your System

Once the software is installed, you have to configure your system. This takes only a few minutes.

To start the program, simply double-click on the BioGraph Infiniti icon, on the Desktop:

The program always starts by showing the Main Menu screen:

Anywhere in the software, you can access *contextual on-line help* by pressing the F1 key on your keyboard.

Show/Hide File Names:

- Select **Options** at the top left of the main screen.

- Select **Show/Hide File names** from the drop-down menu.

- Select **Show or Hide**, according to your preference.
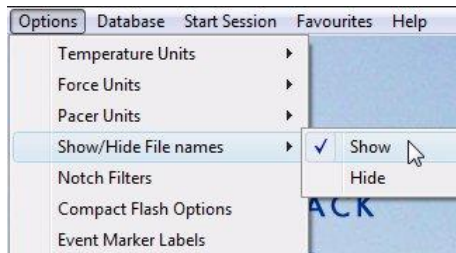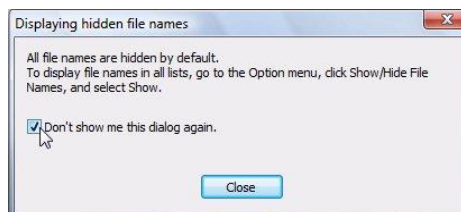
Enable the Notch Filter Settings:

- Select **Options** at the top left of the main screen.

- Select **Notch Filter** from the drop-down menu.

- Select **EEG** and **EKG**, and set Frequency to **50Hz** or **60Hz**, depending on the transmission frequency used in your country (60Hz for North America, for instance). Then click **OK**.

Note: *These settings stay in effect unless you change them.*
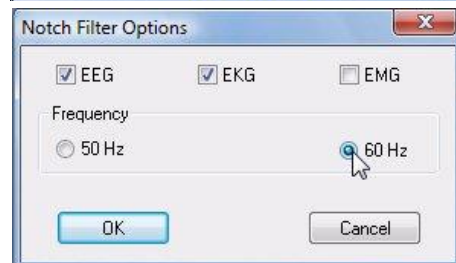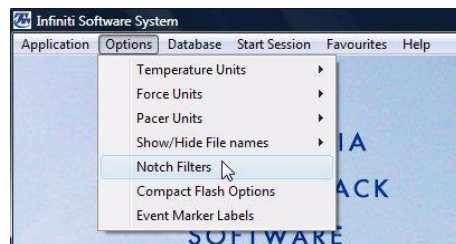
Notch Filter Options dialog box

Select Temperature Units:

- Select **Options** at the top left of the main screen.

- Select **Temperature Units** from the drop-down menu.

- Select **Fahrenheit** or **Celsius**, as appropriate.
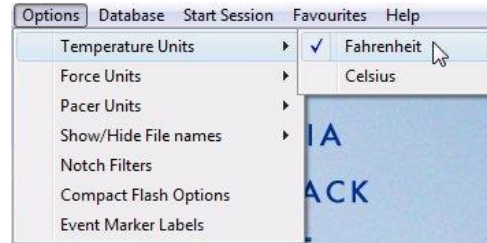
Note: This setting stays in effect unless you change it.

Optionally, enable the Confidential setting. This helps protect the privacy of your clients by masking their names in the client database.

- Click **Database** to open the **Main Database** window.

- From the **Settings** menu, select **Confidential**. The check mark indicates that the setting is enabled.

- If you need to disable the **Confidential** setting, repeat these steps to remove the check mark.
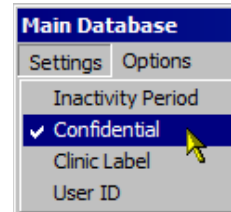
Clients:	
Full Name	ID Num...
Ballance, Tara	1
Florimond, Dorian	4
Dorimond, Florian	6
Physiology, Jane	9

With the Confidential setting disabled

Clients:	
Full Name	ID Num...
Ba******, T***	1
Fl*******, D*****	4
Do******, F******	6
Ph********, J***	9

With the Confidential setting enabled

Starting a session

There are three ways to launch a recording session in BioGraph Infiniti. The type of session you select depends on what you need to do. Each type of session will be described in more detail in the next chapters.

Quick Start: Use this to run a **Favorite** session. The EEG Suite includes a number of favorite session configurations for standard biofeedback protocols.

Start Open Display Session: Use this option if you want to run a session with your own selection of feedback screens.

Start Script Session: Use this option to run a script. The EEG Suite includes a number of scripts, for baseline measures and assessment.

Hardware Setup

Before you can start recording a session, you have to set up your hardware. The following section describes how to connect a ProComp Infiniti device but the process is similar when using other encoder types. For more information on using your particular encoder, please refer to the device's hardware manual.

Connecting TT-USB and ProComp Infiniti

Insert one end of the fiber optic cable carefully into the fiber optic port on the encoder. Tighten the nut gently so that the cable won't slip out.

Do the same with the other end of the fiber optic cable and the fiber optic port of the TT-USB interface unit.

Insert the small connector of the USB cable into the USB port on the TT-USB interface device.

Insert the large connector of the USB cable into the USB port of your PC.
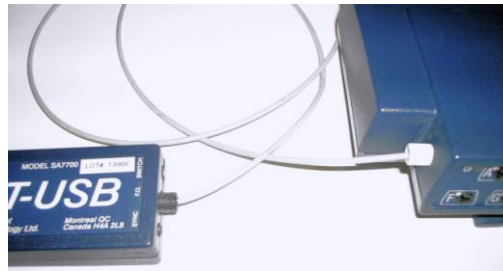
USB ports on a PC are generally located at the back of the base unit. You may also find a USB port at the front of your base unit; you can connect the other end of the USB cable to it. On a laptop, USB ports are usually located at the side or the back of the laptop. It is recommended to always use the same USB port for connecting the TT-USB to your computer.
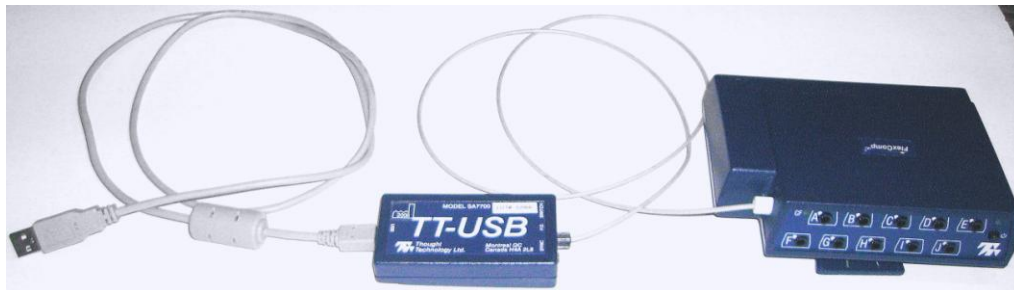
Battery Placement

Opening the Compartment

Looking at the underside of the ProComp Infiniti device, you will see a long door in the plastic enclosure. Holding the encoder with the connectors facing you and with the door up, push lightly down and back with your thumbs on the door to slide it open.

Attention: *The internal workings of the ProComp Infiniti encoder are not intended to be opened for repair except by qualified service personnel. The tamper-evident seal under the batteries in the battery compartment should not be removed or broken. Thought Technology may refuse to honour the unit's warranty if the seal is broken.*

Polarity

When the compartment cover has been slid out, place four AA batteries in the slots, observing the correct battery polarity as embossed on the inside surface of the compartment.

Closing The Compartment

Slide the door back into the ProComp Infiniti case, gently pushing it in until you feel the click of the locking mechanism.

Keeping an Eye on the Battery Level

Since each sensor draws a small amount of power from the batteries when connected to the ProComp Infiniti, it is better to connect only the sensors that are going to be used for a session before you start recording; this will ensure maximal battery life. Most Thought Technology software applications will display a battery power indicator; we recommend that you replace the batteries as soon as this indicator falls below about 50% of the battery power.

Caring For The Fiber Optic Cable

A fiber optic (FO) cable is used for transmitting the sensor data to the computer. Although this technology provides maximal electrical isolation, signal fidelity and freedom of movement, some care has to be taken when handling the fiber optic cable, as it is much less flexible than a regular electric wire.

Be careful not to bend it sharply or wind it in a loop smaller than 4 inches in diameter.
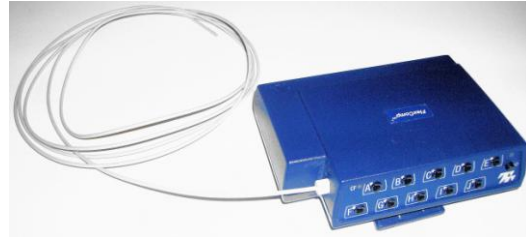
EEG and Physiological Sensors

The EEG suite is designed to work with one or two EEG sensors and, optionally, with EEG plus other physiological sensors. Before a session can be recorded, the correct sensors must be connected to the correct input on your ProComp Infiniti.

This section of the manual describes the various sensors, how to connect them to your encoder, and how to hook them up to your client.

Connecting the sensors

When connecting a sensor to the ProComp Infiniti, make sure to properly line up the guiding dot on the top of the plug with the notch in the protected pin socket. Forcing the plug into the socket in any other position may damage the equipment.
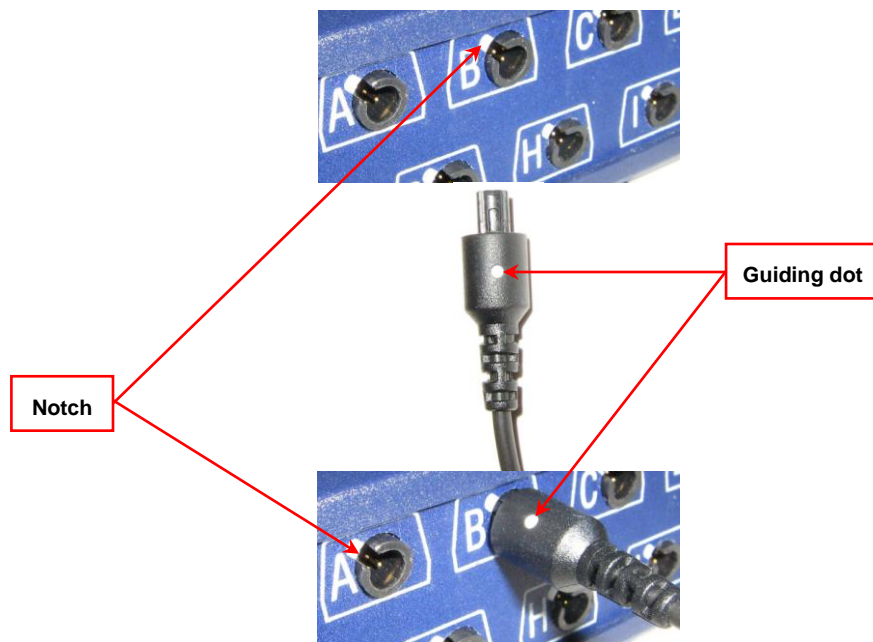
The Sensor Connection Table for each encoder type and channel set you may be using can be found on page 25. Refer to these tables to find out which sensors are required and the correct location of each sensor on the encoder's front panel.

Correct orientation of sensors

For some sensors, such as the temperature and skin conductance sensors, either the connection cable or the electrode cable forms a permanent part of the item. Other sensors, for example the push button switch, have removable cables but only a single input entrance. This makes it impossible to connect these sensors in the wrong orientation to the encoder.

Certain sensors, however, have removable cables and two input entrances. It is important to orient these sensors to the encoder correctly so that the physiological signal is properly received. These sensors include the EKG, EEG, and EMG sensors, all of which are shaped like the illustration at the right.

Such a sensor is correctly oriented to the encoder when the cable joining them is connected to the bottom entrance of the sensor. If an extender cable with electrodes needs to be attached to such a sensor, it should be connected to the top entrance of the sensor.

Connect to electrodes

Connect to encoder
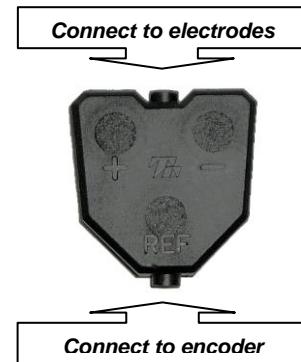
The following is an overview of the sensors, electrodes, and accessories used with the system.

EEG-Z Sensor (P/N: SA9305M)

The EEG-Z is a pre-amplified electroencephalograph sensor with built in impedance sensing capabilities. This sensor can be toggled to record regular EEG or monitor skin impedance (both the reactive and resistive elements) to help optimize electrode hook-up.

Used for:

- Assessment

- EEG biofeedback

Note: *The EEG Flex/Pro sensor can also be used with the EEG suite but the EEG-Z is recommended because of its ability to measure impedance.*

Each EEG-Z sensor comes with a monopolar/bipolar electrode kit (shown).

Other electrode kits are also available (for example, 2-channel, linked ear).

Connecting and Placing EEG-Z Sensors, starting on page 11, contains a detailed explanation of how to connect EEG sensors and place electrodes on your client.

Monopolar/bipolar electrode kit (T8750)

EKG Sensor (P/N: SA9306M)

The EKG sensor is a pre-amplified electrocardiograph sensor, for directly measuring the heart's electrical activity. Connects via extender cables for a single channel hook up.

Used for:

- Stress Assessment
- HRV Biofeedback

A 3 snap extender cable is provided with your sensor.

For optimal signal quality, we recommend using UniGel electrodes and placing them on the chest, as shown in the illustration. In case a chest placement is not possible, you can move the black and blue electrodes to the left forearm and the yellow electrode to the right forearm.

Cleaning the skin with an alcohol pad, prior to applying the electrodes helps improve the signal.
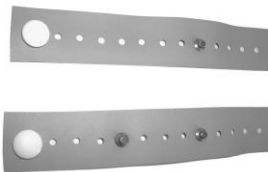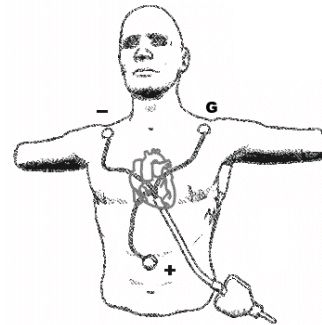
EKG Wrist Straps (P/N: SA9325) come in a kit containing reusable medical-grade, non-latex straps and replaceable silver/silver-chloride electrodes.

They provide fast, convenient placement of electrodes for measuring EKG from the wrists.

HR/BVP Sensor (P/N: SA9308M)

The HR/BVP sensor is a blood volume pulse (BVP) detection sensor (also known as a photoplethysmography – PPG – sensor) housed in a small finger worn package, to measure heart rate (HR) and provide BVP amplitude, BVP waveform, HR and heart rate variability (HRV) feedback.

Used for:

- Stress Assessment
- HRV Biofeedback

An elastic strap is provided with the sensor.

Place the sensor against the fleshy part of the first joint of any finger. The middle finger is recommended for better compatibility with the other sensors when they are all placed on the same hand.

Note: *Place the sensor label up, so that the electronic sensor components (the two small square openings) on the back of the sensor (not shown) are against the finger.*

With elastic strap

As an alternative, Coban (3M) self-adhesive tape can be used to provide a more secure attachment.

With Coban tape

MyoScan-Pro EMG (P/N: SA9401M-60 or SA9401M-50)

The MyoScan-Pro is a pre-amplified surface electromyography sensor for use on low sampling rate encoder inputs and designed to measure root mean square (RMS) SEMG.

Used for:

- Stress Assessment
- SEMG Biofeedback

Affix a triode on each MyoScan-Pro sensor.

Clean the skin with an alcohol pad and remove the paper cover from the Triode electrode. Line up the Positive and negative electrodes with the muscle fibers and apply the sensor to the skin, making sure it is well over the muscle belly.

The illustration shows sensors placed on the trapezius muscles. Note the orientation shown here.

Note: *For small muscles or when a wide placement is desired, you can use the extender cable that is included with your EMG sensor and affix 3 Single-strip or UniGel electrodes.*
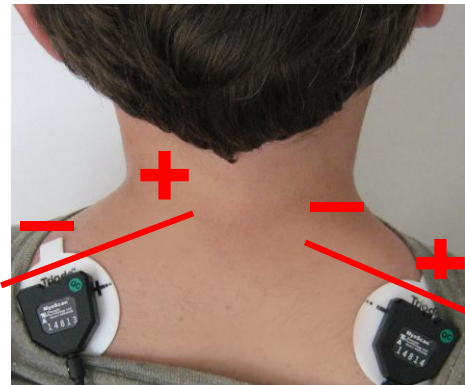
Skin Conductance Sensor (P/N: SA9309M)

The Skin Conductance sensor measures the electrodermal response of the skin, and is normally connected to the fingers or toes. Supplied with two finger bands.

Used for:

- Stress Assessment
- Biofeedback

There are two finger straps attached to the skin conductance sensor.

The conductive electrode in each finger strap should be placed against the inside part of the finger.

Electrodes
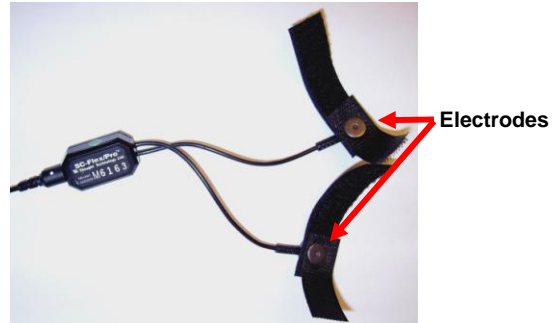
A good choice for placement is to use the index and ring finger. Close the hook and loop fasteners around the fingers so that contact is snug yet comfortable.

Placement with the cables directed inwards (shown) is practical for keeping the cables out of the way.

Skin Temperature Sensor (P/N: SA9310M)

The Temperature sensor measures skin surface temperature between 10°C – 45°C (50°F - 115°F). It is supplied with a self adhering band for easy finger placement.

Used for:

- Stress Assessment
- Biofeedback

A hook and loop fastener is provided with the sensor.

Ensure that the end of the temperature sensor makes solid contact with the finger. Any finger can be used.

Shown here is the ring finger.
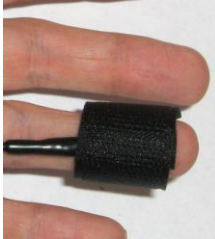
As an alternative, Coban self-adhesive tape (3M) can be used to provide a more secure attachment.

With hook and loop fastener
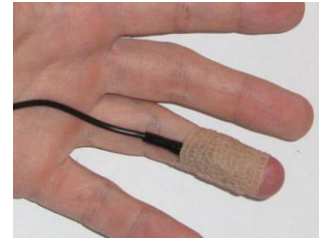
With Coban tape

Using multiple sensors together:

This configuration is suggested for placing skin conductance, BVP and temperature sensors on the same hand. In this configuration, the temperature sensor is tucked under the ring finger strap of the skin conductance sensor.

This is a practical way to combine these sensors, but care must be taken to ensure that the end of the temperature sensor is secured firmly against the skin.

Also note that the cables are all directed inwards and Coban tape is used to secure the cables to the wrist.

Close up view of temperature sensor and skin conductance finger strap.

Respiration Sensor (P/N: SA9311M)

The Respiration Sensor is a sensitive girth sensor using an easy fitting high durability latex rubber band fixed with self-adhering belt. It detects chest or abdominal expansion/contraction and shows the respiration waveform and amplitude. It can be worn over clothing.

Used for:

- Stress Assessment

- Breathing re-training

- Biofeedback

The rubber strap stretches when the abdomen expands during breathing.

Two-sensor placement

The respiration sensor is fixed to a long hook and loop strap that is placed around the chest or abdomen.

For most applications, placing one sensor around the abdomen is required. Optionally, you can place a second respiration sensor around the chest. Using two sensors is helpful for abdominal breathing exercises.

Unravel the strap and attach it around the abdomen so that the sensor is in the front. Ask the client to breathe out as fully as possible and attach the sensor so there is minimal tension. The fit should be snug enough that the strap stays fixed when the subject is relaxed.

There should also be enough slack in the rubber strap of the sensor so that expansion of the abdomen causes this rubber strap to expand without being overextended.

Disposable EKG/EMG electrodes
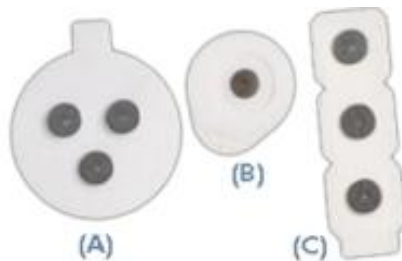
(A) T3402M - Triode™ electrode, with standard 2cm spacing of silver-silver chloride electrodes, backed with nickel plated brass snaps to prevent corrosion.

(B) T3425 – UniGel electrodes, for use with the EKG sensor or EMG, in case of sensitive placements on dry skin.

(C) T3404 – Single strip electrodes, versatile electrodes can be used as strip or separated for wider placements.

Used for:

- Stress Assessment

- SEMG Biofeedback

- HRV Biofeedback

Connecting and Placing EEG-Z Sensors

The electroencephalogram (EEG) is a recording of the electrical activity of the brain, most often captured at the surface of the scalp.

10–20 electrode placement system

The ten–twenty (10–20) electrode system of the International Federation is the standard for electrode placement. It is used to place surface EEG electrodes in a repeatable way independent of inter-patient anatomical variability. Called 10–20 because of the way distances between electrode sites are computed. The distances between certain anatomical landmarks are segmented at increments of 10% and 20% of their value, and electrodes are placed at these points.

A letter is used to indicate over which area of the brain the site is located. Sites are identified as follows:

Frontal lobe – F	Central sulcus – C	Parietal lobe – P
Frontopolar area – FP	Temporal lobe – T	Occipital lobe – O

Other miscellaneous labels are used for the ears (A) and other reference sites (for example, M for mastoid process, G for ground, etc.). The letter Z indicates the central line along the interhemispheric fissure.

Numbers are used to indicate the position in reference to the central line (Z). Number value increases the further away a site is from the central line. Odd numbers are on the left. Even numbers are on the right
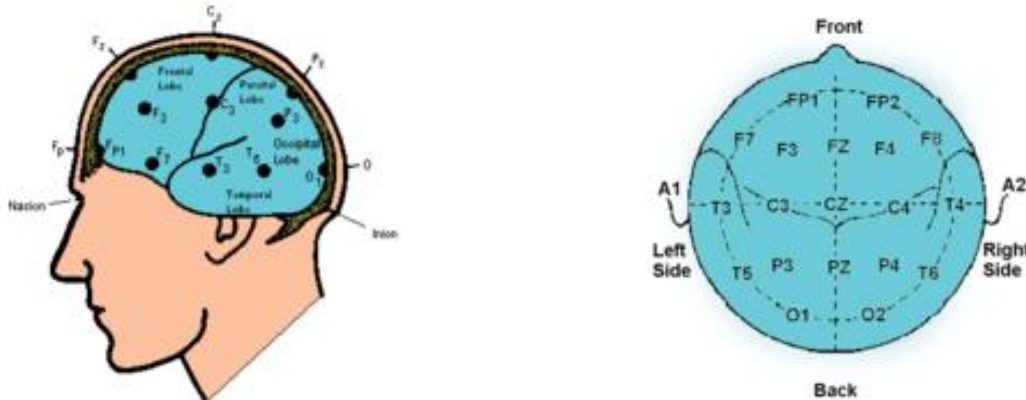
For example, along the line joining sites A1 and A2: to the right of A1, at 10% of the overall A1–A2 distance is electrode site T3. This is followed by C3 (20% further), Cz (20% further), C4 (20% further), and T4 (20% further). Site T4 should fall 10% to the left of A2.

EEG electrodes

Each EEG-Z sensor comes with a monopolar/bipolar electrode kit.

T8750 electrode kit

- DIN cable
- Color coded inputs
- Color coded cup electrodes
- Color coded earclips
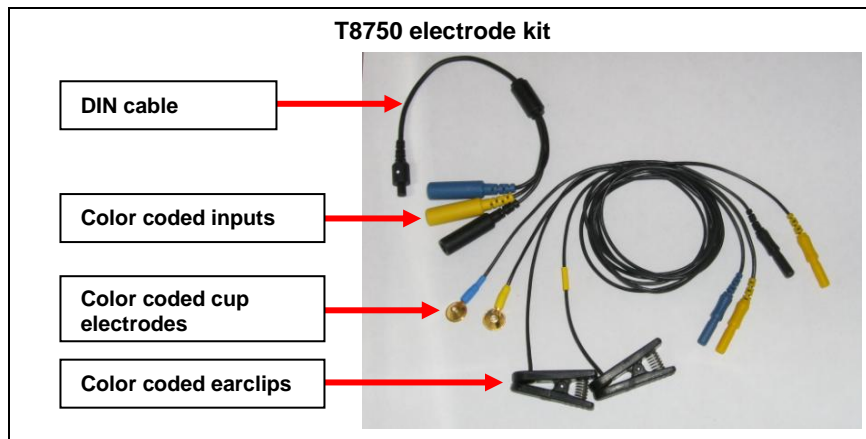
Instructions for 1-channel EEG:

Connect the blue active electrode to the blue DIN cable input.

Connect the yellow ear clip to the yellow DIN cable input, and the black earclip to the black DIN cable input.

The other end of the DIN cable plugs into the input of the EEG-Z sensor.

DIN cable

EEG-Z sensor
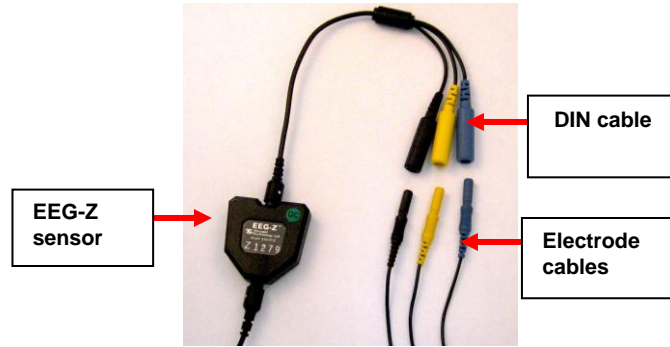
Electrode cables

Note: *The yellow cup electrode can replace the yellow ear clip for bipolar placement.*

Optionally, if you are using two EEG-Z sensors, you may also add a 2-channel connectivity kit .

T8760 2-channel connectivity kit

Y-splitters needed for 2-channel placement

Extra cables used for linked ear reference
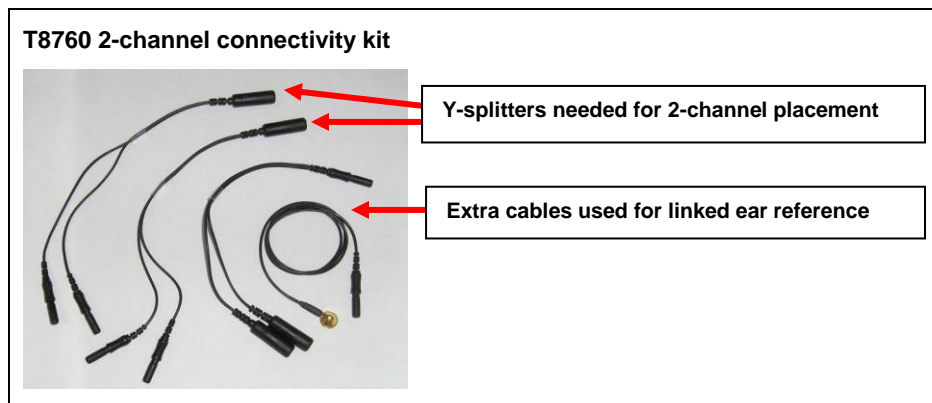
Instructions for 2-channel EEG:

Using the two T8750 packages, start by connecting the blue active leads to the blue sockets in the DIN cables.
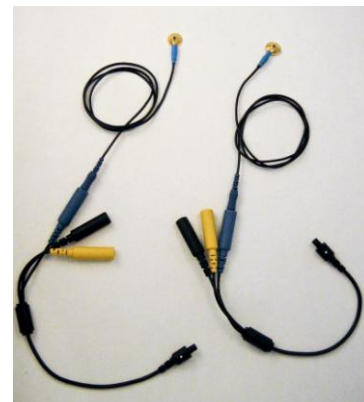
Connect the yellow earclip to the y-splitter from the T8760 package as shown.

Two kinds of y-splitters are provided. The one needed here has only one electrode connector and two output connectors.

Note: *There are two of these in the kit, and only one of the other kind.*

Connect the output connectors to the yellow inputs in the DIN cables as shown.
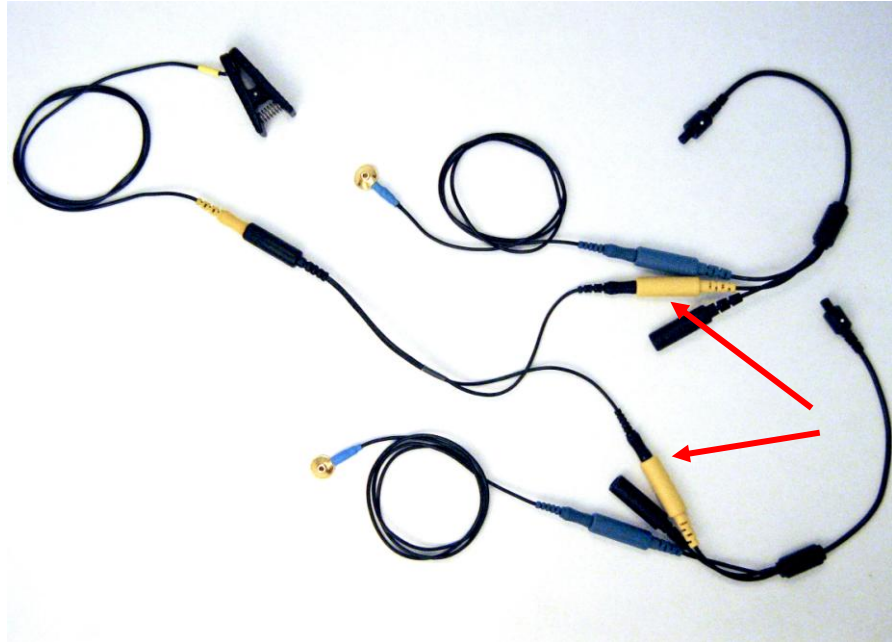
Repeat for the black earclip, first connecting it to the same kind of splitter, then connecting the two ends of that splitter to the black inputs in the DIN cables (not shown – but the result is the same as for the yellow earclip shown above).

Final result: *A single yellow earclip is connected to the yellow input of both sensors, a single black earclip is connected to the black input of both sensors, and individual blue cup electrodes are connected to their respective blue input on each sensor.*

EEG electrode placement technique:

Proper site preparation and electrode placement are essential for clean, trouble-free recording of the EEG signal. The following steps describe how to achieve a secure connection in an efficient, repeatable way. They should be followed closely every time EEG is recorded. This may seem daunting at first, but the technique is easily learned and the user will quickly become accustomed to it and will certainly appreciate the benefits.

Locate the required electrode site(s)

For 1-channel EEG biofeedback protocols, a common site to use is CZ. This site is located, prepared and fixed with an electrode in the example below. For 2-channel protocols, there will be two electrode sites, for example, C3 on the left and C4 on the right (these are used in the example below).

Locate the inion.

On the posterior base of the skull, where the spine meets the skull, there is a small protrusion called the "inion". It can be found by running the finger up the spine towards the skull.

There is a small crevice between the spine and skull in which vertebrae can no longer be felt. Just above that area, the inion of the skull can be found.

Locate the nasion.

The depression on the bridge of the nose, just below the brow and directly between both eyes, is called the "nasion".

The line between these two points runs along the interhemispheric fissure of the brain (the space that separates the left and right sides of the brain, i.e. right down the middle).

Mark a spot located at 50% of the distance between the nasion and the inion.

Locate the mandibular notch.

Anatomy revisited: To locate the mandibular notch, place a finger against the tragus, just anterior to the ear, and ask the subject to open their mouth. Your finger should find its way into a cavity, resting superior to the manibular notch.

Find this spot on both sides of the head.
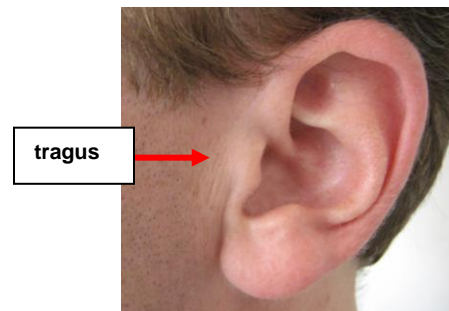
The line that connects the left and right mandibular notches runs along the central sulcus of the brain (the space that separates the frontal and parietal lobes).

Mark a spot located at 50% of the distance between the left and right mandibular notches. It should intersect directly with the mark made between the front and back of the head.

The intersection of these two lines is electrode location CZ.
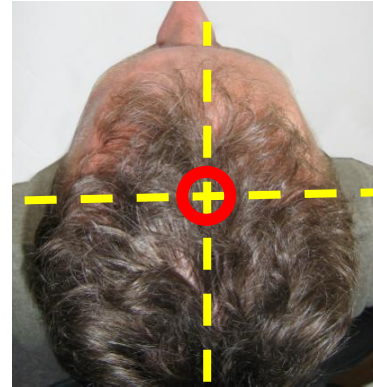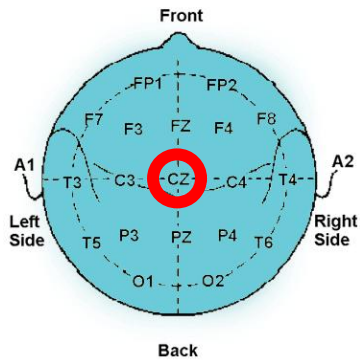
Along the line between the mandibular notches, 20% of the total distance towards the left is location C3, 20% towards the right is location C4.
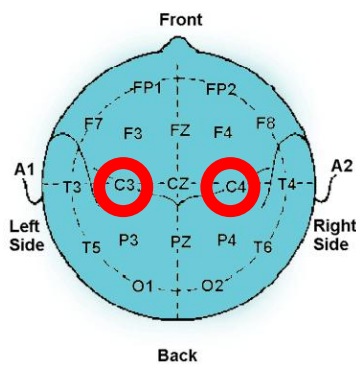
Note: *Electrode location CZ can always be approximated instead of explicitly measured following the procedure described above. It is the top middle of the skull. Imagine if the subject were to hang perfectly straight from a string tied to the top of their heads, this is where the string would have to be fixed. The other sites, C3 and C4 can simply be estimated to be a certain distance away from that top middle point towards the left and right ears, respectively. Still, to ensure repeatable measurements, especially when comparing across sessions, it is recommended that the electrode locations be measured as described.*

Prepare the scalp

The scalp must be prepared before an electrode can be fixed. This involves slightly abrading the skin to remove dead skin, sweat and other contaminants to the EEG signal.

The following steps should be followed for all electrode location sites.

Scoop up a small quantity of NuPrep ™ skin prepping gel on a cotton swab or tissue.

With the thumb and index finger of one hand, separate the hair around the electrode site that was previously found and marked.

Run the gel in the direction of the natural line formed along the scalp by the split hair. Some light force must be used, enough to redden the scalp slightly, but not enough to break the skin.

Wipe away the excess prepping gel with a dry, lint-free cloth. Care should be taken to keep the hair parted and to keep track of the site after wiping clean.

Helpful trick:	*A small amount of Ten20™ Conductive paste should be smeared on the newly prepared site. This has the combined effect of keeping track of the site, keeping the hair neatly out of the way, and acting as a landing pad for the electrode once it is ready to fix.*

Prepare the electrodes

Start by securing the electrode cables to the patient.

Helpful trick:	*Loop the three electrode cables around the plastic clip provided with the EEG-Z sensor. Attach the clip to the back of the shirt collar as shown below. Keep the heavy DIN cable and EEG-Z sensor underneath the clip, and the light electrode cables above it.*

Electrode cables

Plastic clip, set at a 90 degree angle for best placement

DIN cable (attached to EEG-Z sensor – not shown)
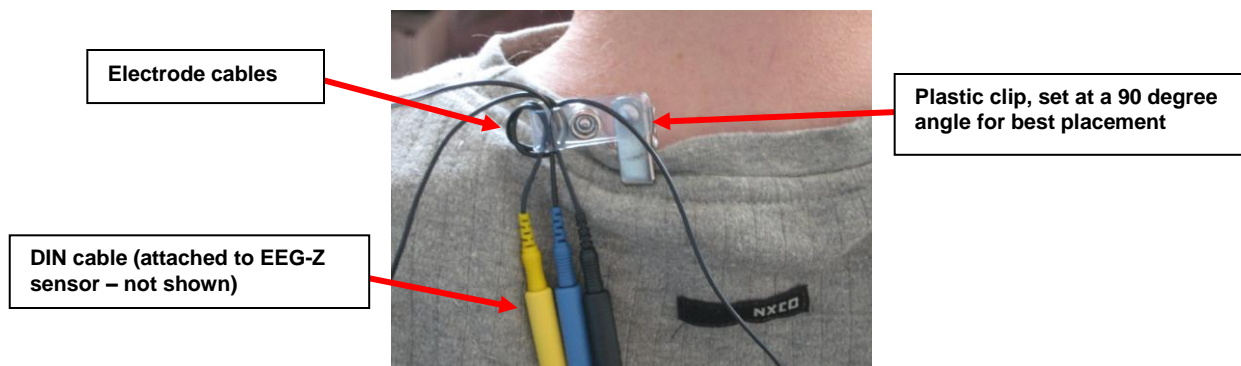
Fill the electrode cup with Ten20 ™ conductive paste so that no air bubbles exist in the cup.

Add more Ten20 paste onto the cup electrode, just enough to form a ball on the cup, not so much that it spills over the edge. Shown is the ideal amount of paste.
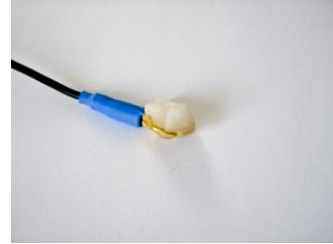
Place the cup face down on the landing pad previously prepared. Gently push the electrode down to fix it to the scalp. A little bit of paste should run out along the edge of the cup to form a thin ring around it.

Helpful trick: *Place the electrode so that the direction of the cable does not place undue stress on the cup (so that it gets pulled, lifted or twisted off). The cable should hang naturally and towards the plastic clip (as shown). Leave enough slack in the cable to allow for comfortable head movement as well.*

Reference sites

Repeat the above preparation and placement steps on the ear lobes. Do not put too much paste on the ear clip electrode, but ensure that the gold disc is completely covered.
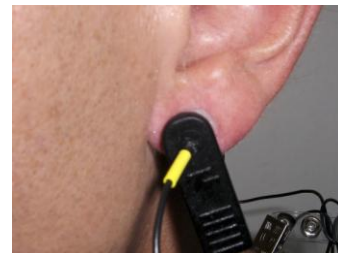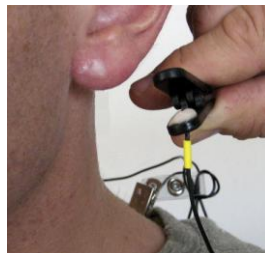
Leave enough slack in the cable to allow the patient to turn their head easily, but not too much that it can get caught. Think about the angle of the cable from the ear clip to the neck clip, so that no extra tension is placed on the ear clip.

Viewed from behind, the final configuration should look like this:

A single channel setup is shown for clarity. The two channel setup is essentially the same.

Note the position of the clip, the direction of the cables and the slack left to provide mobility.
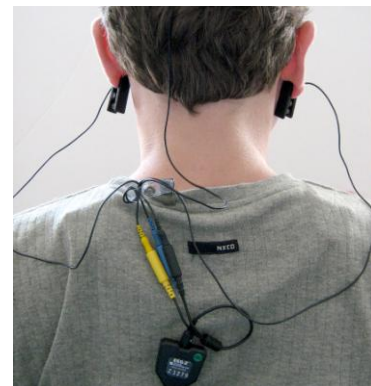
Recording an Open Display Session

1. Connect your encoder to the computer using the fiber optic cable and the TT-USB Interface.
2. Plug your sensor(s) into the encoder according to the configuration described for your channel set in **Encoder & Sensor Configuration** on page 25.
3. Launch BioGraph Infiniti.
4. In the Main Menu screen, click the **Start Open Display Session** button.
5. Click **Add New Client** to open the Client Data dialog box.

6. Type in a **First Name**and **Last Name** (eg., Guy Test). If you are planning to use the Z-Score add-on, also enter a **Birth Date**. (It is crucial to the proper operation of the Z-Score Biogeedback add-on that this birth date be correct.) Click **OK** to create the client file. The new client's name is automatically selected.

7. Click **Define New Session** to open the screen selection dialog box.

8. In the Encoder Communication Protocol drop-down list, in the upper left corner, select what's appropriate for your encoder:

ProComp Infiniti or ProComp 5 Infiniti	ProComp + or ProComp 2
ProComp Infiniti	Legacy

Note: *Because the ProComp 5 Infiniti is a ProComp Infiniti with 5 channels instead of 8, the Encoder Communication Protocol is ProComp Infiniti for both.*

9. Now select the desired channel set. There are four channel sets available for ProComp Infiniti, ProComp + and ProComp 2 and eight for ProComp 5 Infiniti. (These are designated by the first part of the channel set name: PI for Procomp Infiniti, P5 for ProComp5, P2 for ProComp2, and P+ for ProComp +.)

For the purpose of this quick start, please select the 1 EEG channel set. The various screens for that channel set are listed in the table to the right of the channel set list. Click the drop-down list on the top right corner and select a Screen Category: Standard bands, 3 user bands, 6 user bands or multiple bands. **Categories** are explained on page 27.

10. Select up to five screens by pressing the [Control] key while clicking on screen items. Then click OK.

Note: *If this is the first time you record a session, please see **Entering Key Codes** on page 20.*

11. Start the recording by clicking on the Start button ![Start button] in the toolbar.

Recording a Script Session

1. Connect your encoder to the computer using the fiber optic cable and the TT-USB Interface.

2. Plug your sensor(s) into the encoder according to the configuration described for your channel set in **Encoder & Sensor Configuration** on page 25.

3. Launch BioGraph Infiniti.

4. In the Main Menu screen, click the **Start Script Session** button.

5. Click **Add New Client** to open the Client Data dialog box.

6. Type in a **First Name**and **Last Name** (eg., Guy Test). If you are planning to use the Z-Score add-on, also enter a **Birth Date**. (It is crucial to the proper operation of the Z-Score Biogeedback add-on that this birth date be correct.) Click **OK** to create the client file. The new client's name is automatically selected.

7. Click **Select New Script** to open the Script Database dialog box.

8. In the Encoder Communication Protocol drop-down list in the upper left corner, select what's appropriate for your encoder:

ProComp Infiniti or ProComp 5 Infiniti	ProComp + or ProComp 2
ProComp Infiniti	Legacy

Note: *Because the ProComp 5 Infiniti is a ProComp Infiniti with 5 channels instead of 8, the Encoder Communication Protocol is ProComp Infiniti for both.*

9. Select a script from the list and click **OK**.

Note: *If this is the first time you record a session, please see **Entering Key Codes** on page 20.*

10. Start the recording by clicking on the Start button ![Start button] in the toolbar.

Recording a Favorite Session

The EEG Suite includes a number of preset open display and script sessions called Favorites. You can find shortcuts to all the favorites in the *EEG Suite Favorites* program group, on your desktop. You can also find them listed in the Favorites table when you click the *Quick Start* button on the main BioGraph screen.

1. To run a favorite session, do one of the following:

    *   **When BioGraph is not running**: Double-click the shortcut for the selected Favorite session configuration.

    *   **When BioGraph is already running**: Click the **Quick Start** button on the main screen, select a Favorite from the list and click OK.

    *Note: If this is the first time you record a session, please see **Entering Key Codes** on page 20.*

    The Favorite session presets allow you to run sessions with a minimum of mouse clicks. In order to accomplish this, each Favorite contains all the information BioGraph needs to run a session, including a list of recording and reviewing screens, a list of statistics and a number of other configuration elements. For sessions you repeat often, Favorite sessions are more convenient than open display or script sessions because you don't have to make the usual selections. Of course, before you can run a Favorite, you have to connect all sensors as described above and your encoder has to be turned on and connected properly.

For All Encoders:

*   *Alpha Peak Frequency Training*: Runs a session to up-train Alpha Peak Frequency using recording and reviewing screens for 1 EEG sensor.

*   *Alpha Theta Training Script (28 min)*: Runs a session to train Alpha Theta using recording and reviewing screens for 1 EEG sensor.

*   *Beta Training*: Runs a session to up-train Beta using recording and reviewing screens for 1 EEG sensor.

*   *SMR Training*: Runs a session to up-train SMR using recording and reviewing screens for 1 EEG sensor.

*   *Theta Beta Training*: Runs a session to down-train Theta and up-train Beta using recording and *reviewing* screens for 1 EEG sensor.

*   *3 User Bands Training*: Runs a session to train 3 User Bands (up or down *is* user-defined) using recording and reviewing screens for 1 EEG sensor.

*   *4 Activity baseline Script*: Runs the 4 activity 1 EEG *baseline* assessment script.

*   *2 EEG Beta SMR Training*: Runs a *session* to train Beta and SMR using recording and reviewing screens for 2 EEG sensors.

When you launch a Favorite session and there is no problem with your encoder or sensor connection, the first dialog box you see is the Client database popup, where you have to select a **Client** and Click **OK**.
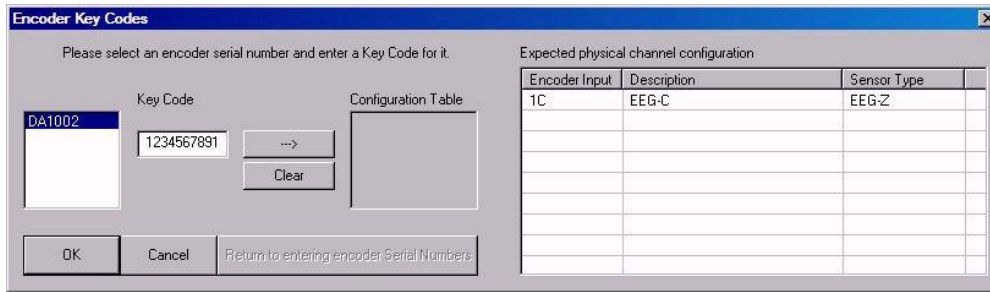
2. Start the recording by clicking on the **Start** button in the toolbar.
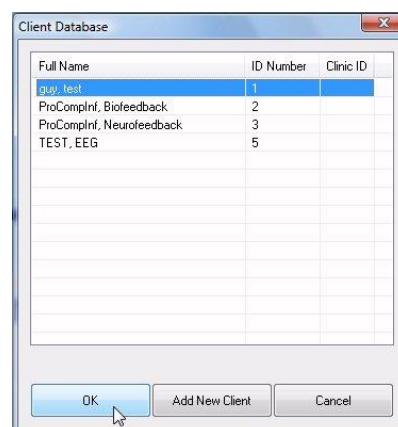
Entering Key Codes

If this is the very first time you are starting to record a session, you must enter key codes. After you have defined the session you want to record and click **OK**, the Encoder Key Codes dialog box opens.

- Click to highlight your unit's serial number in the left table, for example, CA1002. This is the same serial number you can see on the back of the unit.

- Type the **Encoder Key Code** (found inside the battery compartment) into the **Key Code** text box.

- Click on the arrow key [--->] to move the serial number from the left table to the right table. The serial number should now appear in the **Configuration Table**.

- When done, click **OK**.

- Now enter the **Application Key Code** for your system. This number is found with the encoder key code. Enter the number and click **OK** when done.

Note: *Even if you are using more than one encoder, you need to enter only one Application Key Code.*

If the key codes have been entered properly and there is no problem with your encoder setup or your sensor connections, you should now see the recording screen.

Verifying Sensor Connections

If there are problems with your sensor connections, the program will report those, prior to accessing the recording screen. If, for example, you have sensors that are connected but are not required for this channel set, you will get a warning message.

You can remove the sensor if you want, or continue recording by clicking **Yes**. Keep in mind that no data is recorded for sensors that are not defined in the channel set.
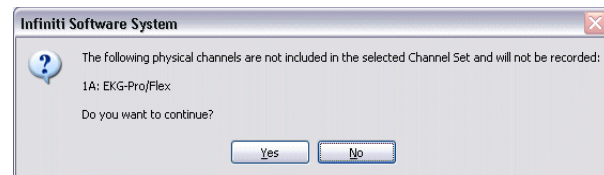
Note: *If there are sensor connection problems in addition to extra sensors, this information won't appear as a separate message. It will display in the Sensor Connections window.*

If you have connected wrong sensor types, you will see the Sensor Connections window. All the sensors that are expected will be listed in the Expected Sensor column. The **Wrong Sensor Type** column shows which sensor type was actually detected.

You can remove the wrong sensor or replace it with the right one. Click **Repeat** to check the sensor connections again until the system no longer detects a wrong sensor type. The program will not allow you to record a session with the wrong sensors.
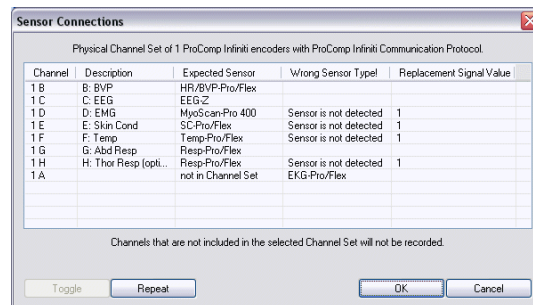
Note: *If the Wrong Sensor Type column is empty, the correct sensor has been connected.*

If you do not connect all the sensors that are required for the selected channel set, the message "Sensor is not detected" appears in the **Wrong Sensor Type** column. When a sensor is not connected, the program replaces its signal value by a constant value of 1. It is possible to record a session with missing sensors but the corresponding signal will be a flat line. Any calculations based on that signal will not reflect real physiological changes.

Stopping a Session

Script sessions end automatically when the script is finished. If you stop a script session before the script has finished running, no data will be saved.
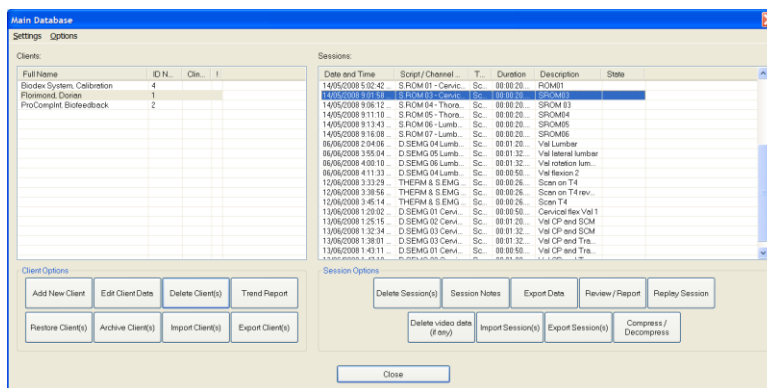
To stop recording an open display session, click the **Stop** button:

- The program asks if you want to save the recorded data. You can save the session in compressed format but, unless your hard drive has very little space available or you do not need to review the saved sessions, we recommend that you always **Save**, which will use the non-compressed format. Compressed files can't be replayed, reviewed or trended until they are decompressed.

- Then the **Session Notes** pop-up appears where you can enter, if you want, a treatment (CPT) code, a session description and some notes.

- Click **OK** to continue. Next, you are asked if you would like to review the session right away. You can switch to the review mode or the replay mode.

- If you click **No**, the program asks if you want to record another session with the same settings.

- If you click **No**, the program reminds you to turn your encoder off!

- Clicking **OK** takes you back to the Main Menu Screen.

Replaying Sessions

Replaying a session allows you to playback a recorded session like a movie. This is especially useful if you have recorded video with audio data. You can replay the session from any point in time and skip to event markers or script activities and steps.

- Select **Database** from the main screen.

- In the Main Database window highlight the client whose session you want to replay.

- Select the session from the right-hand table.

- Click on **Replay Session** at the bottom.

Main Database
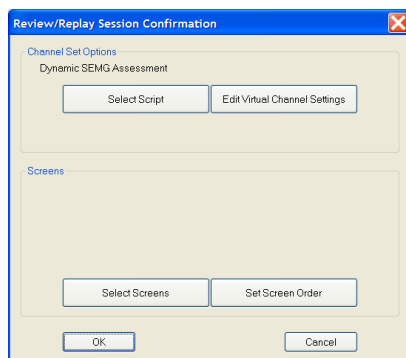
Review/Replay Session Confirmation

If you are replaying a Script Session:

- Click **OK** to close the Edit Channel Set Setting for Current Client window and go into replay mode.

If you are replaying an Open Display Session:

- Click on **Select Screens** from the **Review/Replay Session Confirmation** window.

- In the **Select Screens** window select up to 5 screens and click **OK**.

- Click **OK** in the **Review/Replay Session Confirmation** window to enter replay mode.

- Click on the **Start** button to replay the session.

Reviewing Sessions

After recording a session you can analyze the data by going into review mode. This mode allows you to scroll through the graphs, look at statistics, and print out a report displaying the data in graphical and/or statistical form.

Review

- Select **Database** from the main screen.

- In the Main Database window highlight the client whose session you want to review.

- Select the session from the right-hand table.

- Click on **Review/Report** to open the Review/Replay Session Confirmation window.

- For an open display session, click on **Set Open Display Statistics** and select the statistics you want to be calculated.

- Click on **Select Screens**.

- Click on the column heading for **Category** to reorder the screens into groups, and scroll down to **Report-Review** category.

- Select up to 5 screens and click **OK**.

- Click **OK** in the Review/Replay Session Confirmation window to enter review mode.

Rejecting Artefacts

The purpose of rejecting artefacts is to have reliable statistics, with the least amount of noise affecting the recording. Rejecting artefacts can be performed while reviewing sessions. It can be done manually by the person reviewing the data or BioGraph can be set to reject artefacts automatically.

First review the session to determine where the recording is most affected by noise. Then place artefact rejection segments at these locations, by following these steps:

1. Select the line graph that contains the segment to be rejected. (Only line graphs can be used for artefact rejection. If you get an error message, select a screen containing a line graph to review the data.)

2. Press and hold the **[Control]** Key.

3. Place the cursor over one end of the rejected segment.

4. Click and hold the left mouse button. (You can release the **[Control]** key at this point.)

5. Drag the cursor across the segment to be rejected; it will be highlighted in gray.

6. Release the mouse button at the end of the segment.
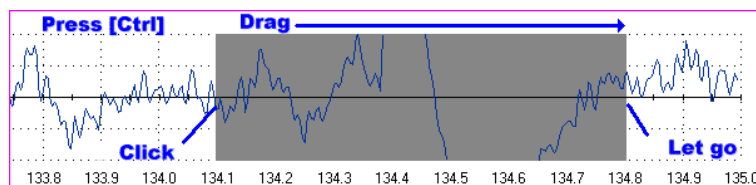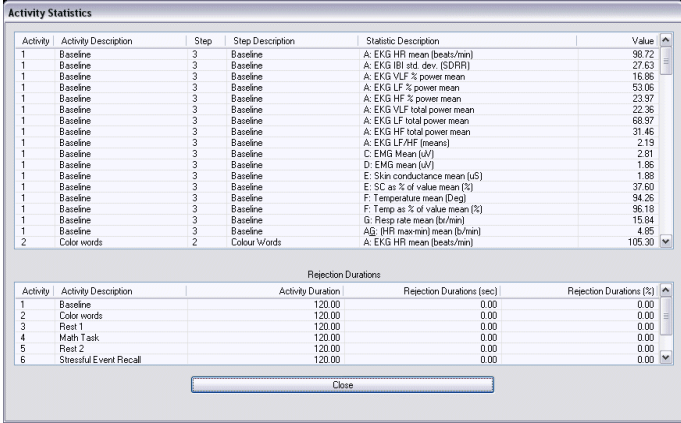
To set the auto-rejection function, do the following:

1. Click the **Review Mode Auto-Rejection Settings** menu item in the Edit menu.

2. Select the **EEG Standard (Physical channels only)** rejection type.

3. Click to select any channel in the list of EEG channels (usually 1–C EEG–C)

4. Enter a **Rejection Threshold** based on the highest micro-volt level of normal EEG as shown on the line graph (generally 20 to 30 micro-volts) and click OK.

5. Click **Yes** when the program warns you that all previously placed rejection segments will be deleted.

6. Review the session once more and add manual rejection segments as required.

Calculating Statistics

1. To calculate statistics for a session, click the **Calculate Statistics** button ▦ in the tool bar.

   A message confirms that the program is processing session data and then the Statistics window opens.

2. Click **Close** to close the window.

   Note: *This is the Statistics window for a script session. The Statistics window for an open display session is similar, but does not display a list of rejection durations for individual activities.*

Activity Statistics

Activity	Activity Description	Step	Step Description	Statistic Description	Value
1	Baseline	3	Baseline	A: EKG HR mean (beats/min)	98.72
1	Baseline	3	Baseline	A: EKG IBI std. dev. (SDRR)	27.63
1	Baseline	3	Baseline	A: EKG VLF % power mean	16.86
1	Baseline	3	Baseline	A: EKG LF % power mean	53.06
1	Baseline	3	Baseline	A: EKG HF % power mean	23.97
1	Baseline	3	Baseline	A: EKG VLF total power mean	22.36
1	Baseline	3	Baseline	A: EKG LF total power mean	68.97
1	Baseline	3	Baseline	A: EKG HF total power mean	31.46
1	Baseline	3	Baseline	A: EKG LF/HF (means)	2.19
1	Baseline	3	Baseline	C: EMG Mean (uV)	2.81
1	Baseline	3	Baseline	D: EMG mean (uV)	1.86
1	Baseline	3	Baseline	E: Skin conductance mean (uS)	1.88
1	Baseline	3	Baseline	E: SC as % of value mean (%)	37.60
1	Baseline	3	Baseline	F: Temperature mean (Deg)	94.26
1	Baseline	3	Baseline	F: Temp as % of value mean (%)	96.16
1	Baseline	3	Baseline	G: Resp rate mean (br/min)	15.84
1	Baseline	3	Baseline	AG: (HR max-min) mean (b/min)	4.85
2	Color words	2	Colour Words	A: EKG HR mean (beats/min)	105.30

Rejection Durations

Activity	Activity Description	Activity Duration	Rejection Durations (sec)	Rejection Durations (%)
1	Baseline	120.00	0.00	0.00
2	Color words	120.00	0.00	0.00
3	Rest 1	120.00	0.00	0.00
4	Math Task	120.00	0.00	0.00
5	Rest 2	120.00	0.00	0.00
6	Stressful Event Recall	120.00	0.00	0.00

Close

Generating a Session Report

In review mode BioGraph Infiniti can generate two types of session report.

- **Text reports** are a standard feature of the software. A text report includes general information about the session as well as optional information (session notes, statistics, markers) that you select. Text reports are generated from Microsoft Word templates, and can be saved or printed using the Word functions.

  A text report can be generated from any screen which includes line graphs or trend graphs. The EEG Suite includes many screens designed for generating reports, one for every type of training protocol. The various training and reporting screens are described below, in the **Screen Description** section.

- **Excel reports** must be user-defined, and can be customized for specific analytical uses. The EEG Suite does not contain predefined Excel reports.

Text Report

This type of report is generated in review mode. You can enter review mode in one of two ways:

- Immediately after recording a session (see **Stopping a Session**).

- From the Database window by selecting **Review/Report** (see **Reviewing a Session**).

When the Main Frame screen opens in Review Mode, follow these steps:

1. If this is an open display session, from the **Options** menu select **Set Open Display Statistics** and choose the channels for which statistics should be calculated. (For a script session, statistics are defined in the script.)

2. If necessary, perform artifact rejection on the recorded data.

3. Click the **Calculate Statistics** icon ▦ in the tool bar to recalculate the statistics.

4. If you have loaded more than one screen, open the screen from which you want to generate the report. Different screens can generate different reports.

5. Click the **Session Report** icon ⟦🖶▾⟧ in the tool bar and select **Generate Text Report**. The **Session Report** window opens.

6. Select report components by placing a check mark in the desired boxes.

7. Click **Generate Report** to generate the report. Word opens and displays your report as a document. You can print or save the report using Word's **Print** and **Save** functions.
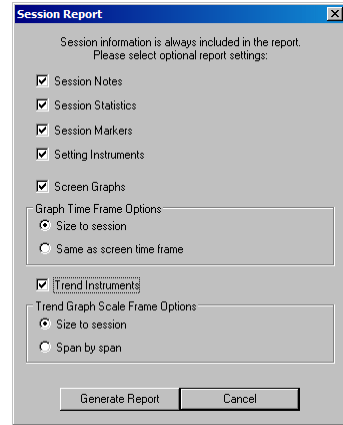
> *Note*: *Microsoft Word **must** be installed on your system for this function to work.*

Encoder & Sensor Configurations

The EEG suite includes a number of channel sets for 1 EEG, 2 EEG and 1 EEG with physiology sensors (BVP or EKG). Depending on the encoder type you are using, the sensor inputs for each type may vary. The following table reviews the encoder input/sensor type configurations:

1 EEG

Encoder	Input A	Input B	Input C	Input D	Input E	Input F	Input G	Input H
ProComp Infiniti			EEG-Z					
ProComp 5 Infiniti			EEG-Z					
ProComp +	EEG-Z							
ProComp 2	EEG Pro/Flex	EEG-Z*						

> ***Note***: *Because the ProComp 2's integrated EEG sensor does not have impedance checking capabilities, input B is defined with an EEG-Z sensor. You can temporarily switch the extender leads to the EEG-Z sensor, do an impedance check, then switch them back to Input A.*

> **Note 2**: *The original version of the EEG Suite did not include a 1 EEG channel set with Input B defined for impedance checking. If you are using the "P2 1 EEG" channel set, we recommend starting a short session with the 2 EEG channel set, for the purpose of checking the electrode impedance, and then switching to the 1 EEG channel set for training.*

2 EEG

Encoder	Input A	Input B	Input C	Input D	Input E	Input F	Input G	Input H
ProComp Infiniti			EEG-Z	EEG-Z				
ProComp 5 Infiniti			EEG-Z	EEG-Z				
ProComp +	EEG-Z	EEG-Z						
ProComp 2	EEG Pro/Flex	EEG-Z						

1 EEG & Physiology BVP

Encoder	Input A	Input B	Input C	Input D	Input E	Input F	Input G	Input H
ProComp Infiniti		BVP	EEG-Z	EMG	SC	Temp	Resp	Resp
ProComp 5 Infiniti		BVP	EEG-Z	Resp	EMG			
ProComp 5 Infiniti		BVP	EEG-Z	Resp	SC			
ProComp 5 Infiniti		BVP	EEG-Z	Resp	Temp			
ProComp +	EEG-Z	BVP		EMG	SC	Temp	Resp	Resp
ProComp 2	EEG* Pro/Flex	BVP						

> ***Note***: *This ProComp 2 sensor configuration does not allow impedance checking.*

1 EEG & Physiology EKG

Encoder	Input A	Input B	Input C	Input D	Input E	Input F	Input G	Input H
ProComp Infiniti	EKG		EEG-Z	EMG	SC	Temp	Resp	Resp
ProComp 5 Infiniti	EKG		EEG-Z	Resp	EMG			
ProComp 5 Infiniti	EKG		EEG-Z	Resp	SC			
ProComp 5 Infiniti	EKG		EEG-Z	Resp	Temp			
ProComp +	EEG	EKG		EMG	SC	Temp	Resp	Resp
ProComp 2	EEG*	EKG						

__Note__: This ProComp 2 sensor configuration does not allow impedance checking.

Using the EEG Suite

The EEG suite offers a full set of clinical tools to allow you to perform three essential clinical tasks:

- **Assessment**: You can evaluate the current state of a client's physiological processes by running the **4-activity EEG baseline assessment**.

- **Training**: You can teach the client new self regulation strategies through EEG biofeedback by recording open display sessions with one to five **Training screens** or running a **Training script**.

- **Follow-up**: You can perform regular evaluations of your client's progress by running regular **pre-training** and **post-training** EEG baseline scripts and generating trend reports. Trend reports give you a quick overview of your client's outcome and rapidly demonstrate the client's learning curve.

Assessment: 4-Activity EEG Baseline Assessment

The 4-activity baseline assessment script is composed of a series of four "state" activities during which a baseline measures are recorded, including Eyes open, Eyes closed, Sensory attentiveness and Cognitive effort. The assessment can be run once, during the initial visit and once or twice, later, during the training period.

If you run the 1 monitor version, you will be prompted to give instructions to your client at the beginning of every activity and you will have to turn the monitor towards the client for the Cognitive effort activity.

The 2 monitors version gives clinician and client instructions and doesn't require turning the monitor.

- Using the **within session** trend report functions, you can rapidly see how the client's EEG changes during each state.

- If you also run the script after a number of therapy sessions, you can generate trend reports **across sessions**, to compare "before" and "after" states.

Pre- and Post-Training Baseline

 The **Pre-** and **Post-training** baseline assessment scripts can be run at the beginning and at the end of every visit to give you two types of clinical information:

- **Pre-training baseline** recordings are a quick and easy way to take a snapshot of how your client is after a period of time spent back in his/her own environment. By trending pre-treatment baseline sessions, you can get an idea of how much of the learning that occurs during the biofeedback sessions is actually retained from visit to visit.

- **Post-training baseline** recordings show what was learned during each treatment and if incremental learning is occurring from visit to visit. Expertise is gained through learning if training exercises are performed frequently enough for the new knowledge to be integrated. Post-training baseline recordings can demonstrate this by showing increasing levels of learning, as your client is expanding his/her self-regulatory skill set.

Open Display Sessions and Training Scripts

There are two ways to use the EEG Suite with BioGraph Infiniti:

- **Open display sessions** allow you to load 1 to 5 different feedback screens in one session and switch between screens, on the fly, by simply clicking a numbered button in the tool bar. There is no need to stop and re-start the session to change the biofeedback experience. You can pause and continue the session, at will, to coach the client in using different strategies and you can reset counters and percentages by clicking the Reset button.

Open display sessions give you the most flexibility but are not very good for generating trend reports as the client's physiological state might have been changing a number of times during the session.

- ***Script sessions*** are time-limited and allow for standardized recordings of assessments and baselines. The EEG Suite includes a number of assessment and training scripts that can be run at regular intervals to monitor progress. Running a standardized training session allows you to monitor learning during a single session because you can trend statistical means across a number of practice trials.

Screen Descriptions

Categories

The EEG Suite contains a number of display screens for a variety of purposes, divided into specific categories. Depending on the type of biofeedback training you want to do (and depending on the number of sensors & channel set you are using), the categories classify the types of feedback as:

For 1 & 2 EEG

- **Standard bands:** This category regroups screens for ***Signal verification***, ***Training***, ***Artifact rejection*** and ***Reporting*** on many standard EEG protocols. These include:
  - ***Alpha amplitude (range)***
  - ***Alpha peak frequency***
  - ***Alpha theta***
  - ***Beta amplitude (& counter)***
  - ***SMR amplitude (& counter)***
  - ***Theta beta***
  - ***Theta SMR***
  - ***Wide band***

- ***3 User bands***: This category includes screens for Signal verification, Training, Artifact rejection and Reporting for any three user-defined EEG bands set as one reward and two inhibits. The cut-off frequencies for the three bands are definable on-the-fly. This category of screens is most useful when you want to train for a protocol that is not found in the standard bands category.

- ***6 User bands***: Like the 3 user band category, this category provides screens for training any set of 6 user bands set to two rewards and up to four inhibits. The cut-off frequencies for all the bands are definable on-the-fly.

- ***Multiple bands***: Just like the above two categories, this set of screens is designed to help training up to 10 user-defined EEG bands defined as one reward and nine inhibits. The cut-off frequencies for all the bands are definable on-the-fly.

- **Scripts:** Screens in this category are mainly used as part of the assessment scripts.

For 1 EEG & Physiology

- ***EEG & Physiology***: This category combines user band EEG training with physiological monitoring and includes two sets of screens: User bands & physiology and User bands & HRV.

- ***User bands & physiology***: This set of screens combines a standard 1 reward + 2 inhibit protocol for any three EEG bands (on-the-fly band adjustment) with electromyography (EMG), skin conductance (SC) and peripheral temperature training. This protocol is ideal for training focus or attention while monitoring the physiological indicators of relaxation (EMG & SC down + temperature up).

- ***User bands & HRV (heart rate variability)***: Same as above with the standard very low frequency (VLF), low frequency (LF) and high frequency (HF) heart rate variability components.

Tasks

Within each category, the display screens are described according to the type of task they are designed to help accomplish:

- ***Signal verification***: These display screens can be used at the beginning of a session, to check the quality of the recorded signals and ensure proper sensor placement.

- **Training screens**: The training screens are designed for biofeedback and generally implement a number of multi-media features, ranging from MIDI tone feedback to animation, to DVD playback control, for the purpose of communicating physiological change. Training screens are not usually adequate for reviewing data and generating session reports.

- **Report Screens**: Report screens are designed to facilitate session reviewing and for generating session reports. Some review screens show actual signal graphs. Others show trend graphs.

- **Instruction & Script**: These screens are used as part of the assessment and training scripts.

Common Screen Options

Within each category, you can select from a number of multimedia feedback schemes, including DVD playback, simple animation, puzzle animation (counter-based), plain audio tone feedback and MIDI song control (MIDI splitter). Furthermore, many display screens come in two versions, 1 monitor and 2 monitors. The 2 monitor screens show the clinician information on the primary monitor and the feedback information on the second monitor.

Note: *The EEG suite comes with a number of animation and music files of identical size and purposes. You can easily select a different file by editing the screen, just prior to starting a session, using the screen editor.*

General Anatomy of a Feedback Screen

Most of the screens included in the EEG Suite follow the same screen arrangement structure to facilitate their usage. These include the following general features:
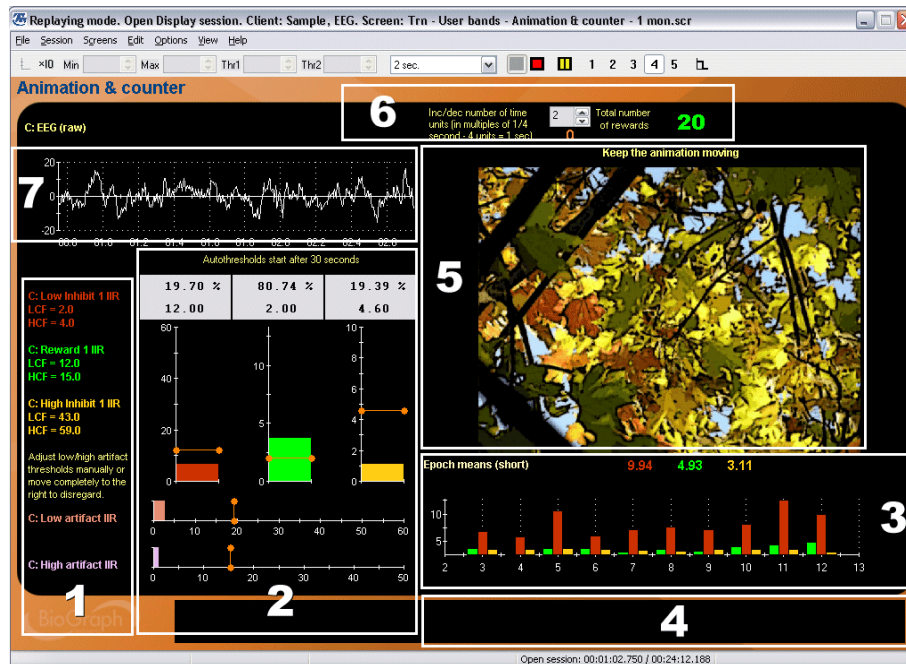
1. **Band definition:** Right-click over any band to open the settings dialog box where you can modify the low and high cut-off frequencies.

2. **Amplitude graphs:** The amplitude graphs always include a low- and a high-artifact graph where you can set manual thresholds to stop feedback when the client blinks too often or moves a lot (EMG). The other graphs are connected to the reward and inhibit bands and are generally set with automatic thresholds that will maintain a set percentage of time over threshold. By default these are set to about 80% for the reward band and 20% for the inhibit bands. The percentages are user-definable.

Note: *You can easily toggle between automatic and manual threshold mode by right-clicking over each bar graph and selecting the preferred mode. This way, you can toggle to manual, drag the threshold to any position on the graph and toggle back to automatic.*

3. **Real-time trend graphs:** This section displays a graph of averaged amplitude for each of the trained bands, which shows a long term history of the changes in amplitude engendered by training. The refresh period of the graph (epoch duration) is user-definable.

4. **Prompt area:** When the screen is used as part of a session script, any user instruction is posted in the lower right section of the display screen.

5. **Feedback area:** Any multimedia feedback (animation, DVD, etc) is shown in the upper right area on a single monitor screen. On a dual-monitor screen, all the feedback information appears on the second monitor.

6. **Counter zone:** On some screens, the ability to sustain the "success" condition is rewarded by incrementing a counter. The upper right corner of the display screen is where counter settings are usually found. The smallest time increment is set to ¼ second. You can increase/decrease the required sustain period by setting the target number. Clicking the Reset button (left side of the toolbar) brings the count back down to zero.

7. **Raw EEG signal:** All the EEG screens show the raw EEG signal in the upper left corner (on the clinician side). Verifying the quality of the raw EEG waveform is an important factor for successful EEG training.

Screen Descriptions

Note: *The following screen captures show only screens for the ProComp Infiniti channel sets. Screens for the ProComp + channel sets are identical to these but screens for the ProComp 5 Infiniti and ProComp 2 channel sets may vary slightly because the devices have fewer sensor inputs.*

Note 2:   *In the new release of the EEG Suite, the ProComp 2 channel set for training 1 EEG was renamed "P2 EEG" (it was called "P2 1 EEG" in the original version) and includes a second EEG channel defined in Input B for impedance verification only.*

Open Display 1 EEG Screens: 3 User bands

Signal verification – 3 User Bands – 1 Monitor

This screen can be loaded as part of the 5 screen selection of an open display session to allow you to verify the quality of the recorded signal. The screen shows the raw signal trace, along with the output of some digital filter channels (IIR) and the 2D & 3D frequency spectrum displays. A spike at 50 or 60 Hz can indicate the need to verify your electrode placement.
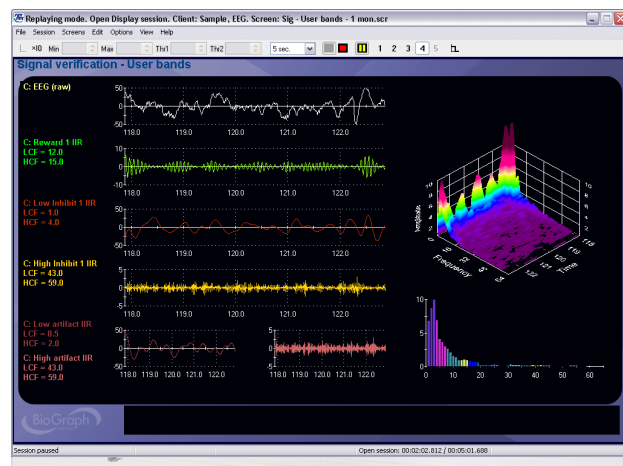
Training – Bar Graphs – 1 Monitor

In this basic three band training screen, audio feedback occurs when the success condition is met, which is defined – by default – as the reward band above threshold and the two inhibit bands below. The Output ON for each condition can be toggled between Below Threshold and Above Threshold on the fly. The user bands can be adjusted on the fly using the Settings instruments along the left edge of the screen.
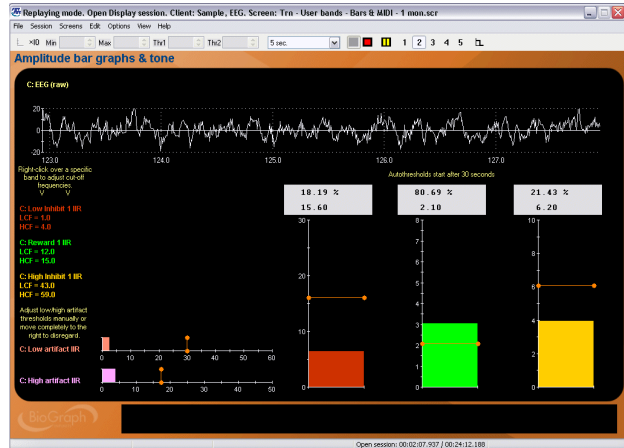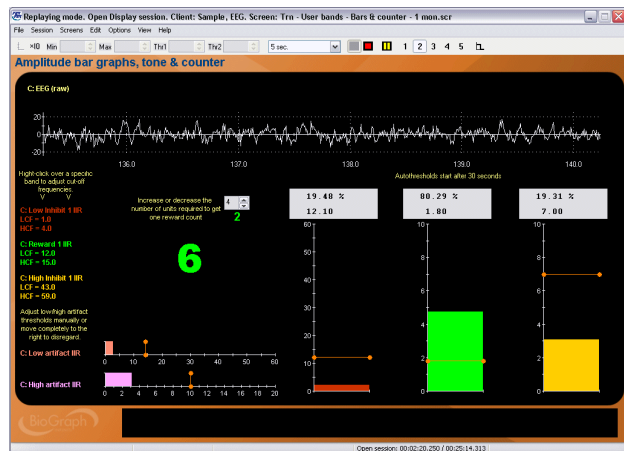

Note: *All of the 3 User Bands category screens allow you to toggle the above/below condition for the bar graphs by right-clicking and setting the desired "reward" condition.*

Training – Bar Graphs & Counter – 1 Monitor

Same as above with a counter giving discrete feedback when the success condition is sustained for the time period defined in the target counter settings.

Training – Bar Graphs & Trends – 1 Monitor

Similar to the two screens described above with the addition of two red/green light indicators, to indicate when the inhibits and reward are in condition.

Training – MIDI Splitter – 1 Monitor (2 screens)

Another variation on the three bar graph screen, this one uses a MIDI splitter instrument to play individual voices of a MIDI song when each band is in condition. All three conditions have to be met to hear the complete song. Two screens of this type are available. Only the MIDI song differs.
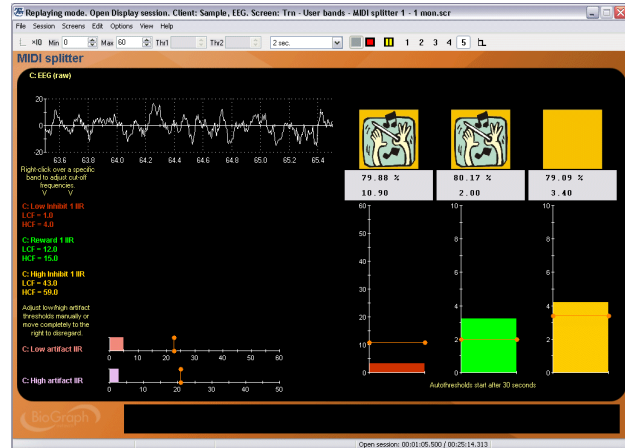
Training – Animation – 1 Monitor

This screen follows the standard screen structure defined in the previous section and is set to up-train the reward band and down-train the inhibit bands. The animation plays when the success condition is met. The setting instruments on the left side allow you to adjust the cut-off frequencies on the fly.

Training – Animation & Counter – 1 Monitor

Same as above with a counter for discrete feedback.
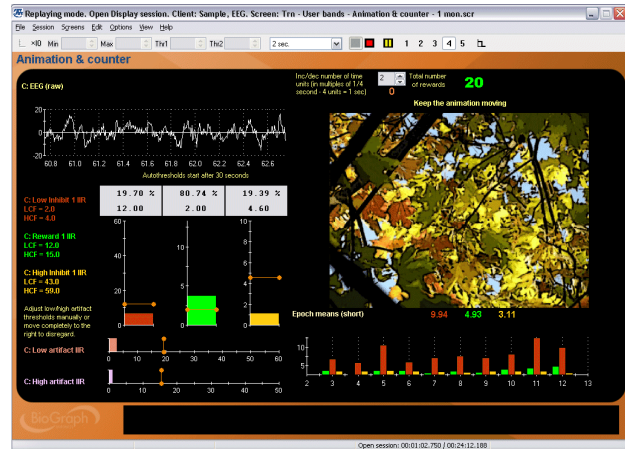
Training – Animation & Counter – 2 Monitors

Same as above for a two-monitor set-up. The client side bar graphs are "child" bar graphs that are directly linked to the three graphs on the clinician side. Their scale and threshold settings mirror the parent graph settings automatically so you can adjust them from the clinician side.
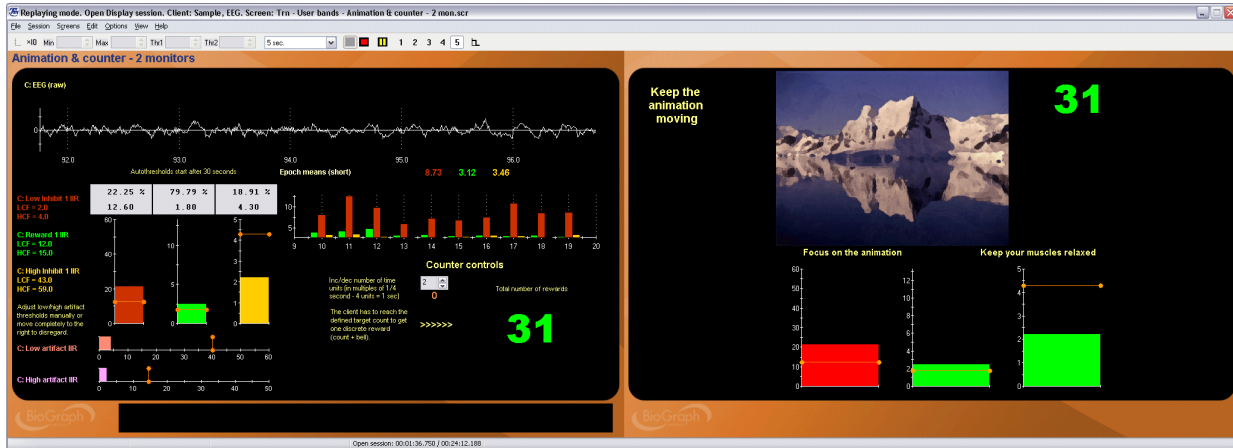
Training – DVD & Counter – 1 Monitor

Training – DVD – 1 Monitor

Same as above with DVD video feedback. The Movie frame enlarges when the reward conditions are met and shrinks when the conditions are not met. Pause the session and right-click over the DVD instrument to select a different movie chapter.

Training – Puzzle Animation – 1 Monitor

This screen is designed to train the ability to sustain the success condition. A discrete reward counter gives one point each time the success condition is maintained for the time period defined by the target counter. At each count, a new piece of the puzzle appears. When a puzzle is complete another counter increments, counting how many puzzles were completed.
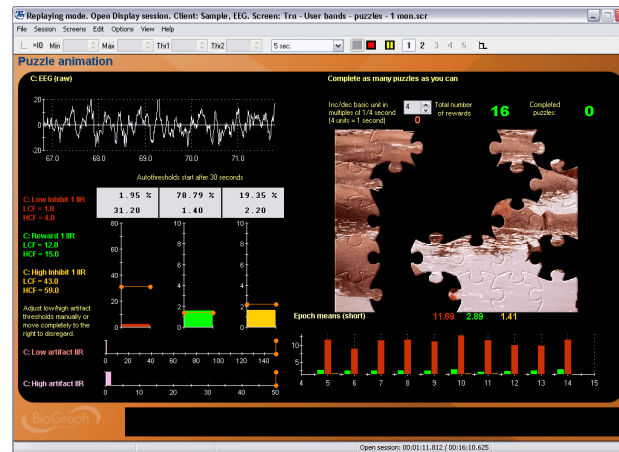
Training – Puzzle Animation – 2 Monitors

Same as above for a two-monitor system. The client side bar graphs are "child" bar graphs that are directly linked to the three graphs on the clinician side.
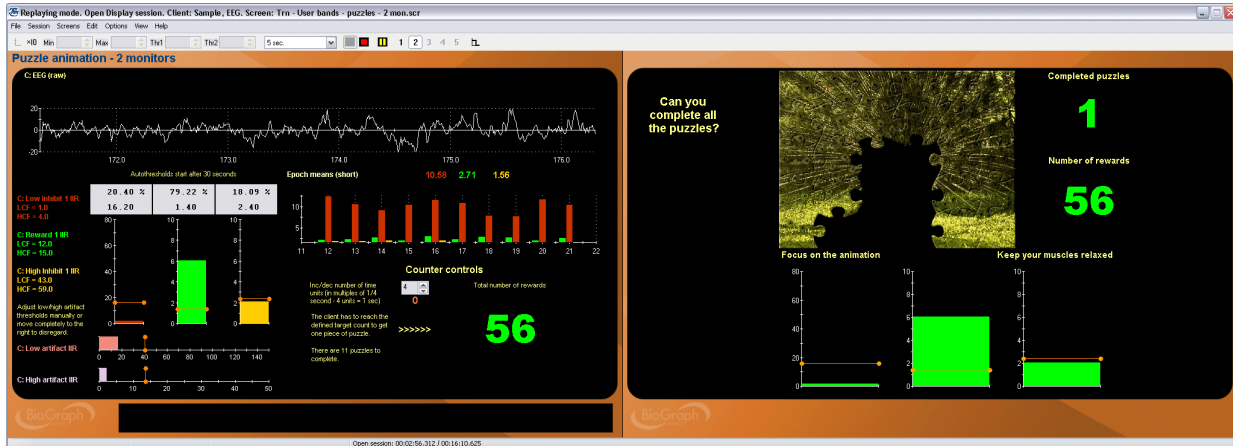
Training – 3 Stage Puzzle – 2 Monitors

This is a slightly more complex version of the puzzle screen described above. The puzzles are three versions of the same image, shown at different resolutions. When the first puzzle is complete once, a piece of the second puzzle appears. When the second puzzle is completed once, a piece of the third puzzle appears. The goal is to complete the third puzzle to see the clearest image. The client side bar graphs are "child" bar graphs that are directly linked to the three graphs on the clinician side.

Training – 3 Boat Race – 2 Monitors

This two-monitor screen is similar to the previous ones but the client side shows three boats and three bar graphs. Each boat advances when the corresponding bar graph's signal is in the ON (or success) condition. The goal is to make the middle boat, which is connected to the reward channel, advance while keeping the other two from advancing. When a boat reaches the finish line (right edge), a green light (reward) or a red light (inhibit) turns ON to indicate the winner. The whole game can be restarted by clicking the Reset button in the Toolbar.
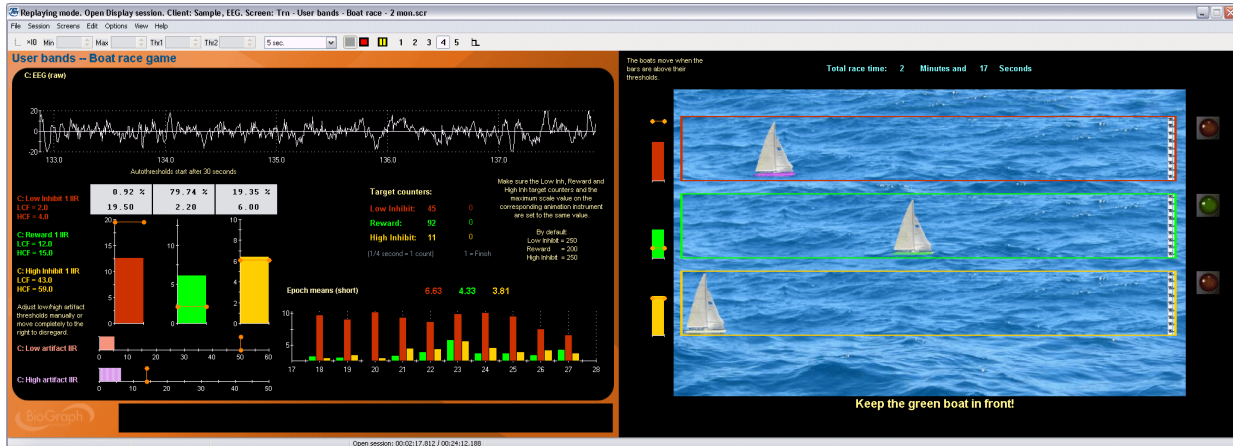
Artifact Rejection – 3 User Bands – 1 Monitor

The artifact rejection screen facilitates the task of reviewing recorded EEG and placing artifact rejection segments over sections of noisy signal for the purpose of generating reliable statistics. The screen shows the raw signal, 2D and 3D frequency spectra as well as trend graphs and whole session means for most standard EEG bands.
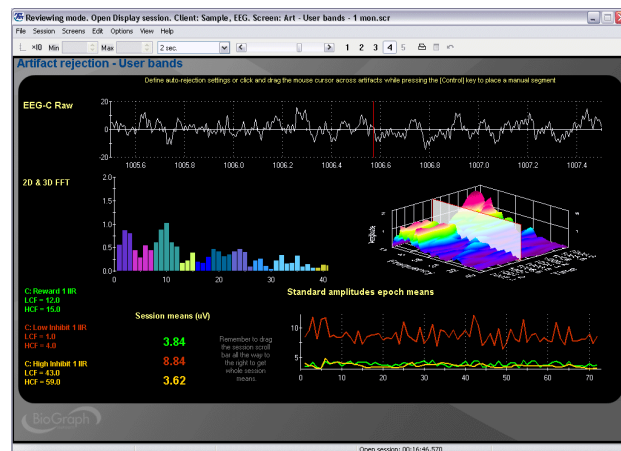
Report – 3 User Bands – 1 Monitor

This report screen shows trend graphs of the mean amplitude for the trained bands (user specified short and long epoch durations). To see the whole session means, drag the time marker completely to the end of the session. Along the left edge of the screen, a number of Setting Instruments show the cut-off frequencies for each trained band.
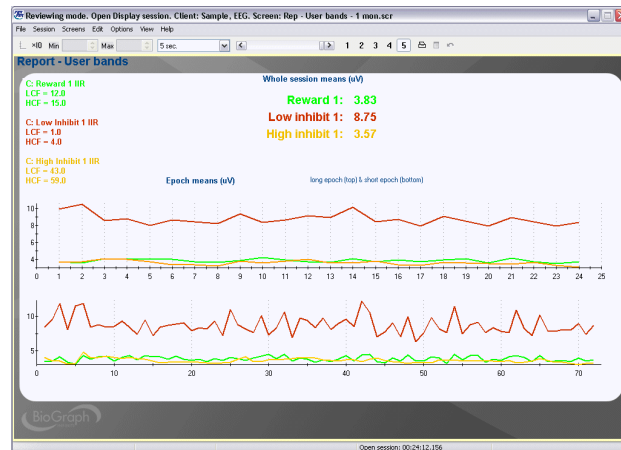
Open Display 1 EEG Screens: Standard Bands

Signal verification – Standard Bands – 1 Monitor

This screen can be loaded as part of the 5 screen selection of an open display session to allow you to verify the quality of the recorded signal. The screen shows the raw signal trace, along with the output of some digital filter channels (IIR) and the 2D & 3D frequency spectrum displays. A spike at 50 or 60 Hz can indicate the need to verify your electrode placement.

Training – Alpha Peak Frequency – 1 Monitor

This screen shows a line graph and a narrow band frequency spectrum graph in the feedback area to give instantaneous information on the moment-to-moment peak frequency within the alpha band. A proportional tone is heard each time the peak frequency changes, to indicate an increase or decrease. A red light turns ON when the artifact or inhibit conditions are met. The goal is to keep the light OFF and to try to produce higher tones.

Training – Alpha Peak Frequency – 2 Monitors

This two-monitor screen is similar to the previous one, but designed to work on two monitor systems. The clinician screen shows the signal line graphs, with a trend graph of epoch means, while the client screen shows a sequence of 4 animations, each triggered by the occurrence of a specific frequency. The goal is to activate all the animation frames while keeping the red light OFF.
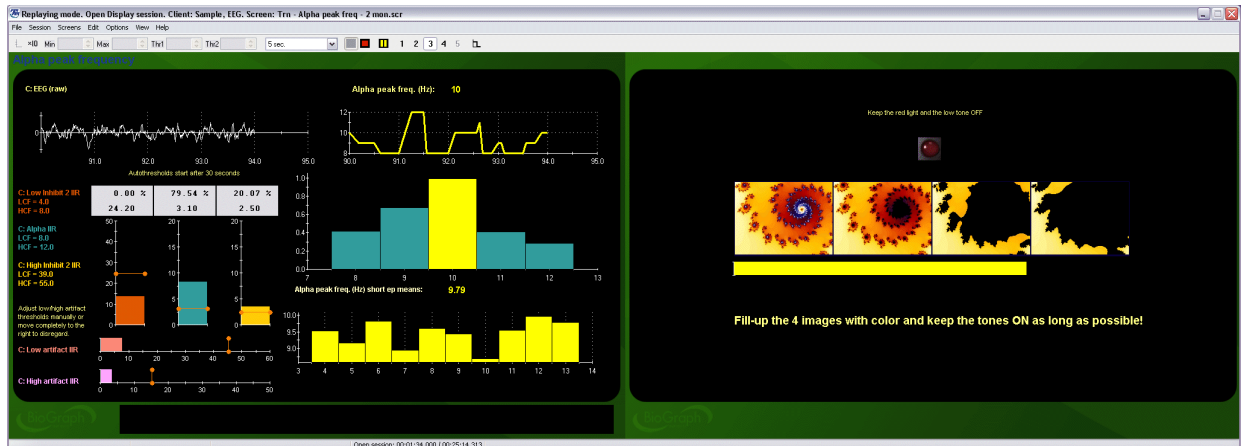
Report – Alpha Peak Frequency – 1 Monitor

This report screen shows trend graphs of the mean amplitude for the trained bands (user specified short and long epoch durations) and for the alpha peak frequency. To see the whole session means, drag the time marker completely to the end of the session. Along the left edge of the screen, a number of Setting Instruments show the cut-off frequencies for each band.
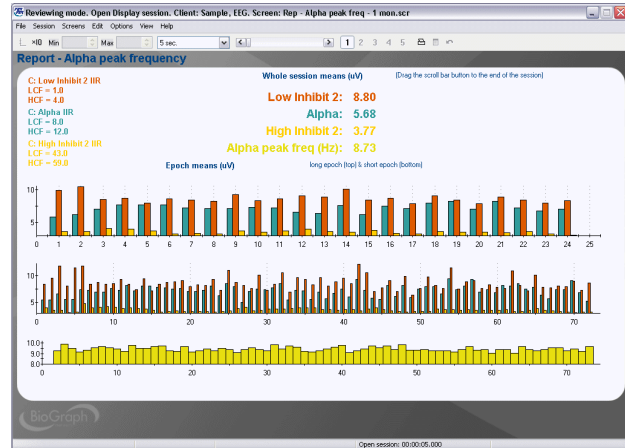
Training – Alpha Range – 1 Monitor (& dual threshold version)

This screen is designed to train alpha amplitude within a specified range. Two horizontal graphs allow you to set manual thresholds at the desired low and high amplitude values. A green light turns ON and a tone is heard when the signal is within the specified range if the inhibit signals are not over their thresholds. A counter keeps track of how often the alpha amplitude was maintained within range, with no inhibit, for a user-defined target duration (multiples of ¼ second). A bell tone is heard at every count.

Training – Alpha Range – 2 Monitors (& dual threshold version)

This two-monitor screen is like the previous one but designed for two monitors. The client side also displays an animation that plays when the reward condition is met.
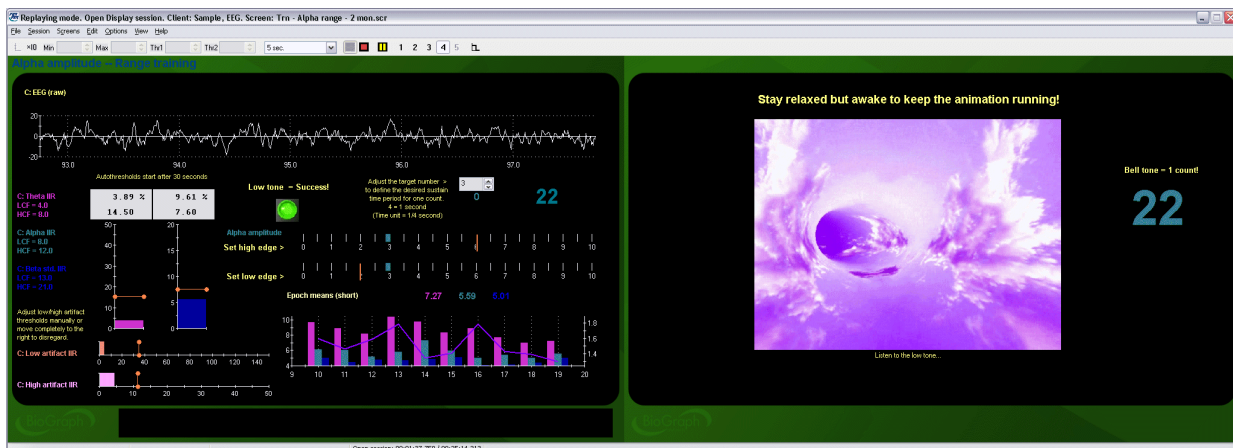
Note: A Dual threshold version of the two screens described above was added to the version 4.0 release of the EEG Suite. On these screens, both the low and high thresholds (edges) can be adjusted on the same instrument.

Report – Alpha – 1 Monitor

This report screen shows trend graphs of the mean amplitude for the trained bands (user specified short and long epoch durations). To see the whole session means, drag the time marker completely to the end of the session. Along the left edge of the screen, a number of Setting Instruments show the cut-off frequencies for each trained band.
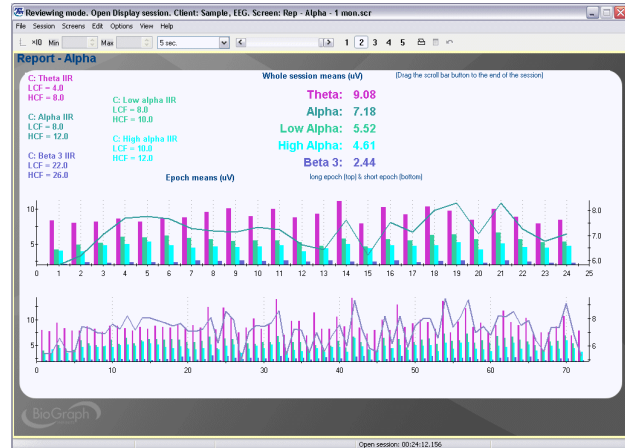
Training – Alpha Theta Nature Sounds – 1 Monitor

Training – Alpha Theta Meditation Sounds – 1 Monitor

This screen is designed to help train for alpha theta relaxation. The feedback is driven by the ebb and flow of alpha and theta amplitudes and shifts towards one type of sound (babbling brook or high tone melody) when alpha is dominant and towards another (ocean waves or low tone melody) when theta is dominant. Although the screen shows amplitude graphs, they are not involved in driving the feedback because choppy sound is not conducive to relaxation.

A tone is heard when the amplitude of Delta is over a manual threshold to indicate that the client is falling asleep

Note: *The alpha theta screens can be used for an open display session when no specific session duration is desired. If you prefer, you can run the alpha theta relaxation script which is time limited and includes a "wake up" period at the end of the script to help the client return progressively to a normal state of consciousness.*

Training – Alpha Theta Nature Sounds – 2 Monitors

Although alpha theta relaxation is usually performed with eyes closed, it is occasionally useful to show simplified clinical information on a second monitor for replaying or reviewing recorded sessions. This screen shows a trend graph of the trained bands on the second monitor and a purple bar that shifts left and right to indicate the moment by moment dominant frequency band.

Report – Alpha Theta – 1 Monitor

This report screen shows trend graphs of the mean amplitude for the trained bands (user specified short and long epoch durations). To see the whole session means, drag the time marker completely to the end of the session. Along the left edge of the screen, a number of Setting Instruments show the cut-off frequencies for each trained band.
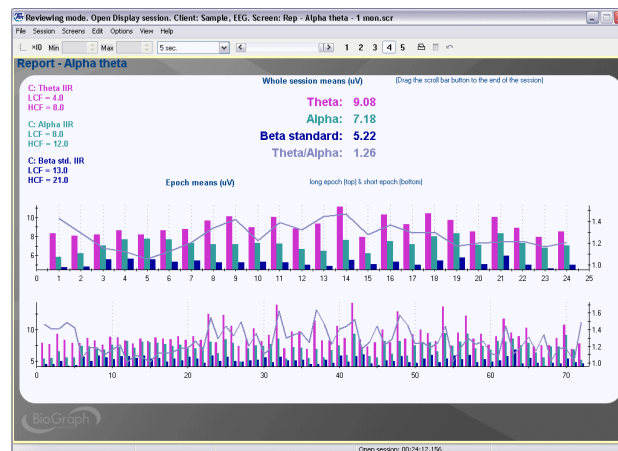
Training – Beta – Animation & Counter – 1 Monitor

Training – SMR – Animation & Counter – 1 Monitor

These screens follow the standard screen structure defined in the previous section and are set to up-train low beta or SMR while down-training theta and high beta. The animation plays when the success condition is met. The setting instruments on the left side allow you to adjust the cut-off frequencies on the fly.

Training – Beta – DVD & counter – 1 Monitor

Training – SMR – DVD & counter – 1 Monitor

Same as above with a DVD instrument instead of the animation. The DVD image enlarges when the success condition is met and shrinks when it isn't.
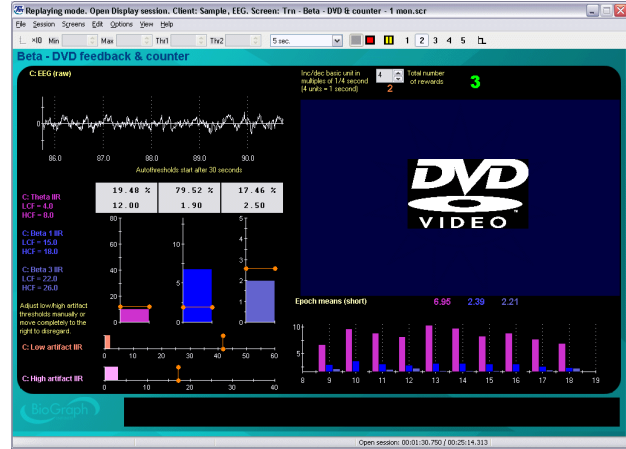
Training – Beta – Boat Race – 2 Monitors & Training – SMR – Boat Race – 2 Monitors

These two-monitor screens are similar to the previous ones but the client side shows three boats and three bar graphs. Each boat advances when the corresponding bar graph's signal is over the threshold. The goal is to make the middle boat, which is connected to the reward channel, advance while keeping the other two from advancing. When a boat reaches the finish line (right edge), a green light (reward) or a red light (inhibit) turns ON to indicate the winner. The whole game can be reset by clicking the Reset button in the Toolbar.
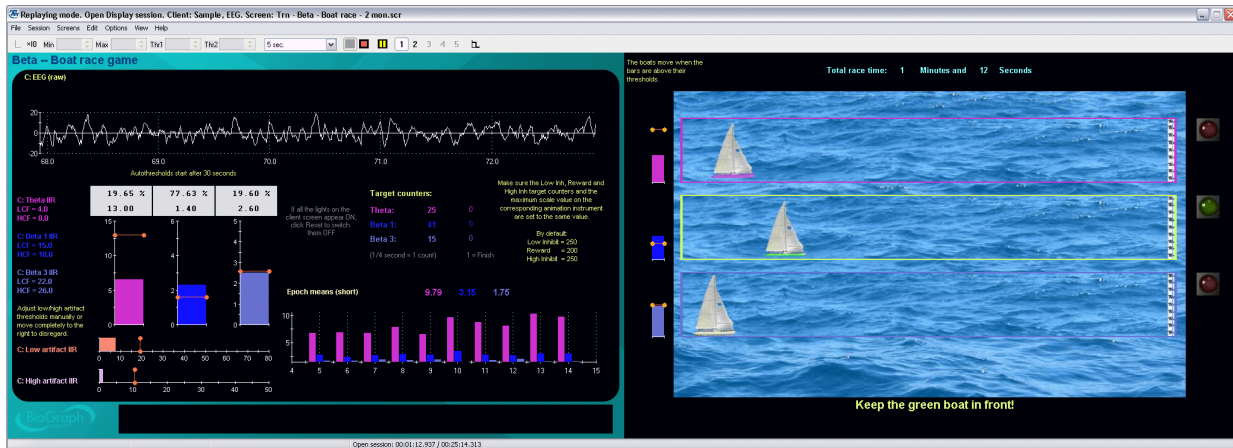
Training – SMR – Puzzle Animation – 2 Monitors

This two-monitor screen is similar to the previous ones but the client side shows three bar graphs that turn light or dark green, depending on their above/below threshold position. When all three bars are light green, the success condition is met and the counter starts incrementing if the state can be sustained for the period of time defined as the target value. At each count, a tone is heard and one piece of a puzzle appears. The goal is to complete as many puzzles (up to 11) and get the highest number of pieces as possible. The game can be reset by clicking the Reset button in the Toolbar.
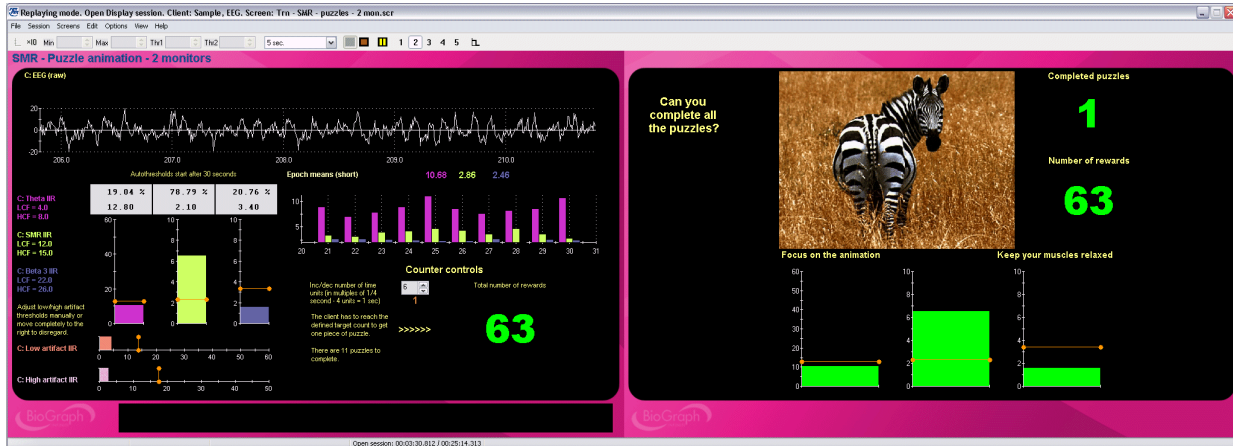
Training – Theta Beta – 1 Monitor

This screen monitors theta and beta activity as well as the theta/beta ratio. The training goal is to produce sufficient amounts of beta activity while maintaining theta below threshold and sustaining a low theta beta ratio. A green light turns ON and a tone is heard when all the conditions are met. Two growing rectangles give a visual clue on the relative proportions of theta and beta activity.


Training – Theta Beta – Animation – 2 Monitors

This two-monitor screen is like the previous one but the client side shows only the growing rectangles, the green light and an animation that plays when the success condition is met.
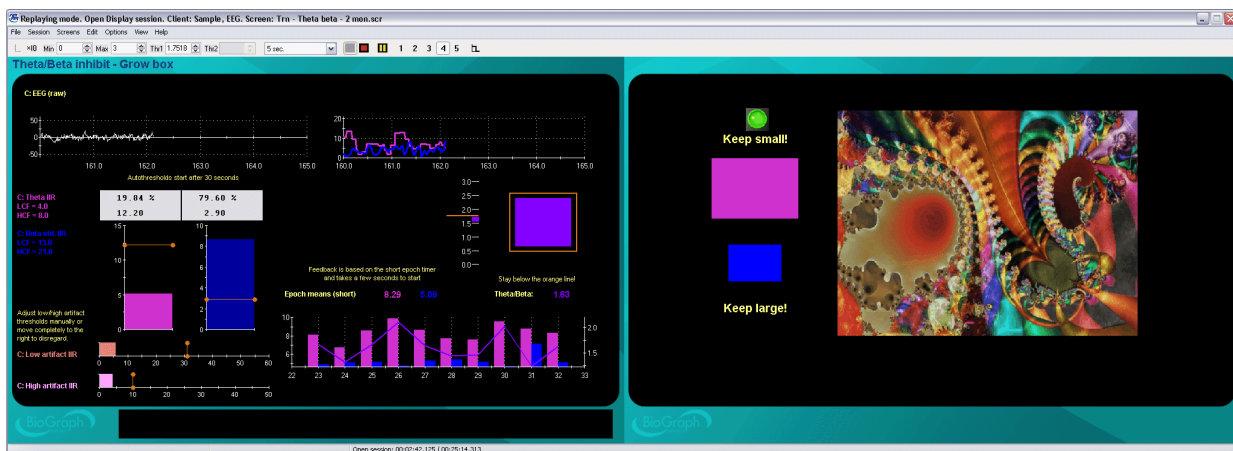
Training – Theta Beta – Listening – 2 Monitors

Training – Theta SMR – Listening – 2 Monitors

These two-monitor screens are designed to reward the ability to sustain a specified success condition. An audio recording plays when the success conditions are met (based on an averaged amplitude ratio). A red light and a soft low tone are heard whenever the inhibit band goes over threshold or the reward band dips below threshold. If this happens too often, the playing stops until the conditions are right, once more.
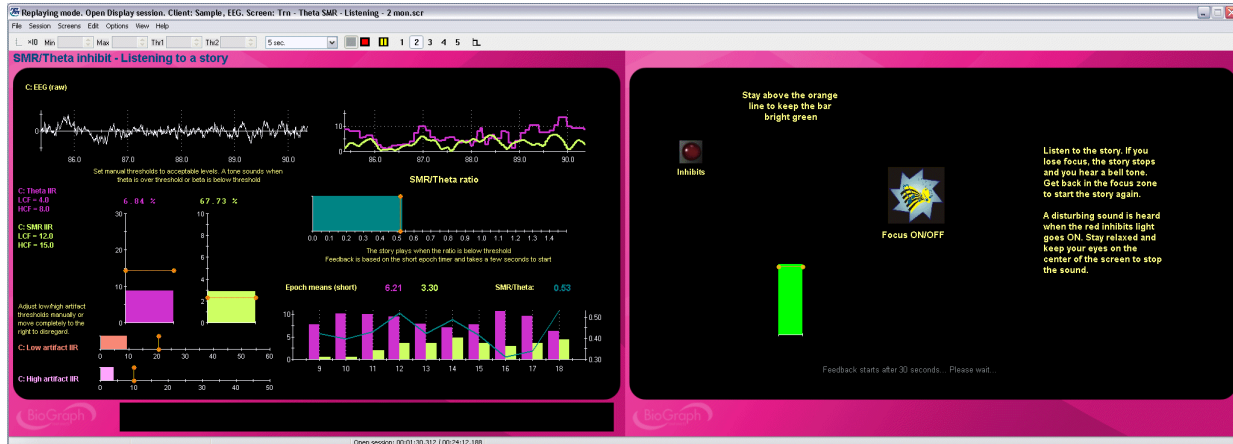
Report – Beta – 1 Monitor, Report – SMR – 1 Monitor

Report – Theta Beta – 1 Monitor

These report screens show trend graphs of the mean amplitude for the trained bands (user specified short and long epoch durations). To see the whole session means, drag the time marker completely to the end of the session. Along the left edge of the screen, a number of Setting Instruments show the cut-off frequencies for each trained band.
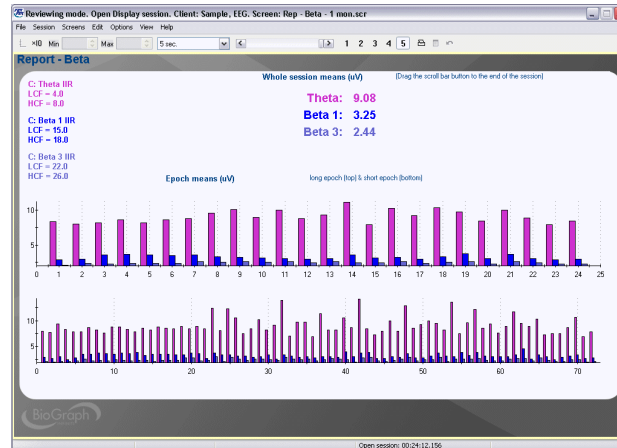

Training – Wide Band – Bars and Tone – 1 Monitor

The Wide band screens can be set to inhibit any user-specified wide band while rewarding a user-specified narrow band. Bandwidths are adjustable on the fly. Similarly to previous screens, a green light and a tone turn ON when the success conditions are met.

Training – Wide Band – Animation – 2 Monitors

This two-monitor screen is like the previous one but the client side shows only the growing rectangles, the green light and an animation that plays when the success condition is met.
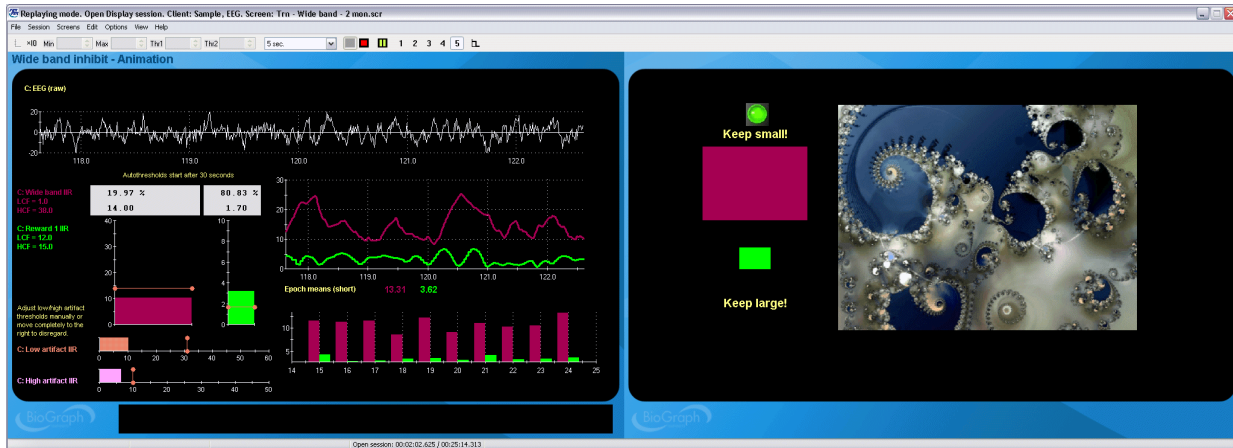
Report – Wide Band – 1 Monitor

These report screens show trend graphs of the mean amplitude for the trained bands (user specified short and long epoch durations). To see the whole session means, drag the time marker completely to the end of the session. Along the left edge of the screen, a number of Setting Instruments show the cut-off frequencies for each trained band.

Artifact Rejection – Standard Bands – 1 Monitor

The artifact rejection screen facilitates the task of reviewing recorded EEG and placing artifact rejection segments over sections of noisy signal for the purpose of generating reliable statistics. The screen shows the raw signal, 2D and 3D frequency spectra as well as trend graphs and whole session means for most standard EEG bands.
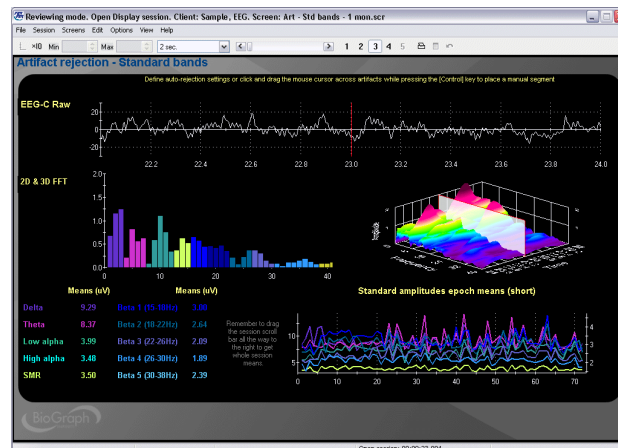
Artifact Rejection – Standard Bands – 2 Monitors

This two-monitor screen is similar to the previous one, but designed to work on two monitor systems. Since this is not a feedback screen, both monitors show clinical data.
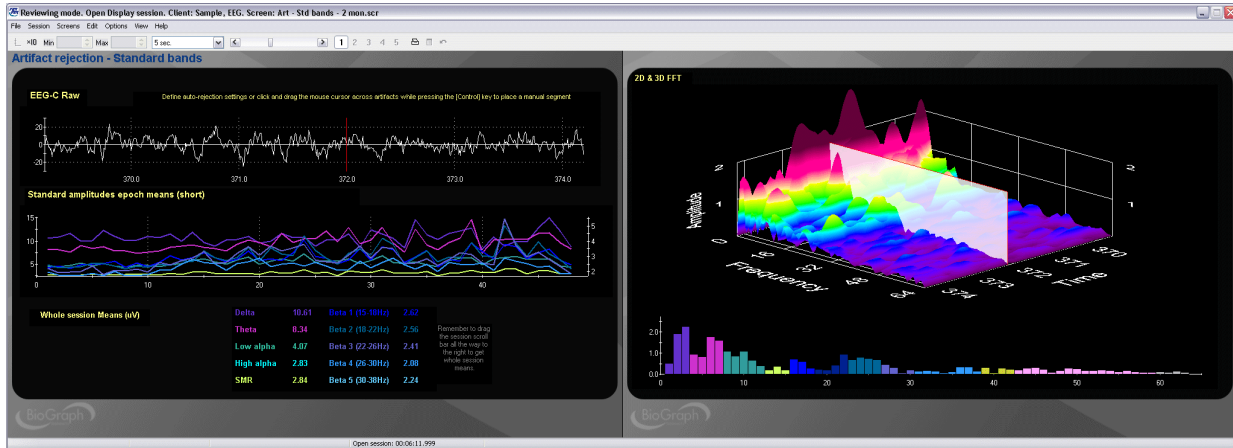
Report – Standard Bands – 1 Monitor

These report screens show trend graphs of the mean amplitude for most common standard bands (short epoch). To see the whole session means, drag the time marker completely to the end of the session.
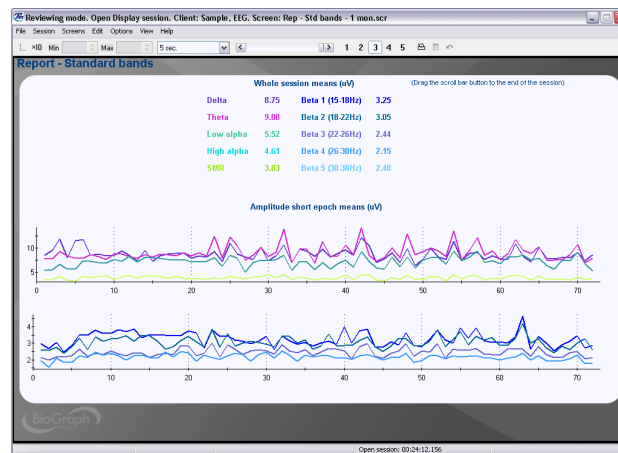

Open Display 1 EEG Screen: 6 User Bands

Signal Verification – 6 User Bands – 1 Monitor

This screen can be loaded as part of the 5 screen selection of an open display session to allow you to verify the quality of the recorded signal. The screen shows the raw signal trace, along with the output of some digital filter channels (IIR) and the 2D & 3D frequency spectrum displays. A spike at 50 or 60 Hz can indicate the need to verify your electrode placement.
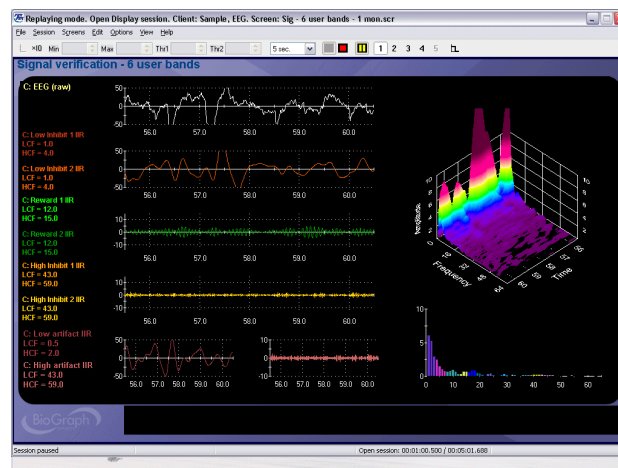
Training – Bars, Tones & Animation – 1 Monitor

This category of screens can be used for training up to 6 different EEG bands set up as two rewards (1 and 2) and four inhibits, divided into two sets of 3. When one set of conditions is met, one green light turns ON. When both green lights are ON, audio feedback is heard and the animation starts playing.

Training – Bars, Tones & Animation – 2 Monitors

Same as above for two monitor systems. The green lights and the animation are on the client side screen.
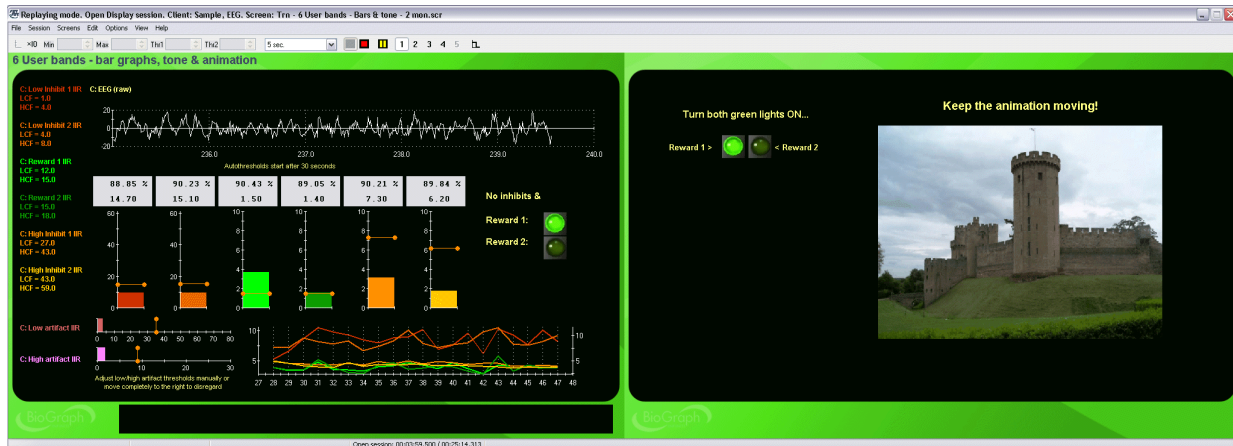
Artifact Rejection – 6 User Bands – 1 Monitor

The artifact rejection screen facilitates the task of reviewing recorded EEG and placing artifact rejection segments over sections of noisy signal for the purpose of generating reliable statistics. The screen shows the raw signal, 2D and 3D frequency spectra as well as trend graphs and whole session means for most standard EEG bands.
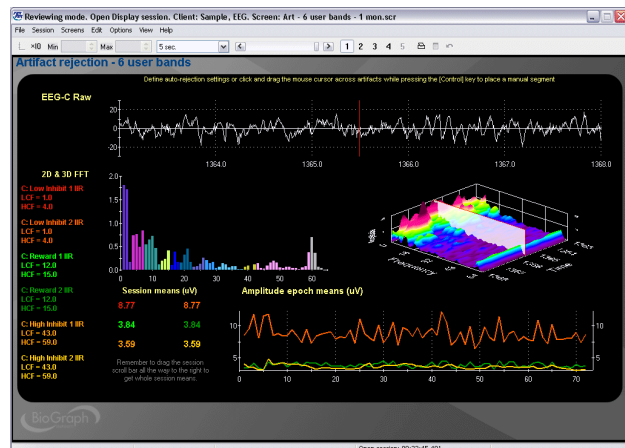
Report – 6 User Bands – 1 Monitor

These report screens show trend graphs of the mean amplitude for the trained bands (user specified short and long epoch durations). To see the whole session means, drag the time marker completely to the end of the session. In the top left corner of the screen, a number of Setting Instruments show the cut-off frequencies for each trained band.
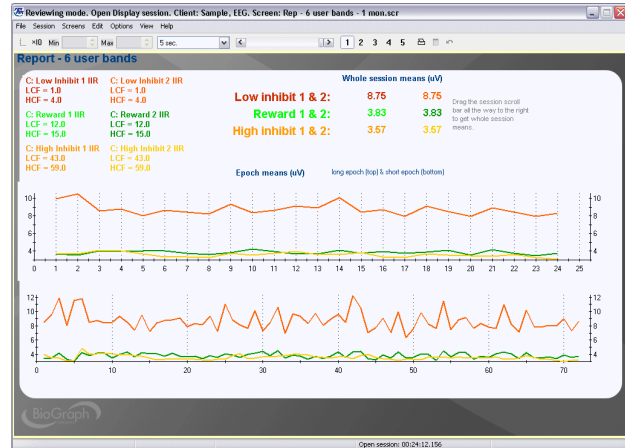

Open Display 1 EEG Screens: Multiple Bands

Signal Verification – Multiple Bands – 1 Monitor

This screen can be loaded as part of the 5 screen selection of an open display session to allow you to verify the quality of the recorded signals. The screen shows both raw signal traces, along with the output of some digital filter channels (IIR) and 2D frequency spectrum displays. A spike at 50 or 60 Hz on either side can indicate the need to verify your electrode placement.
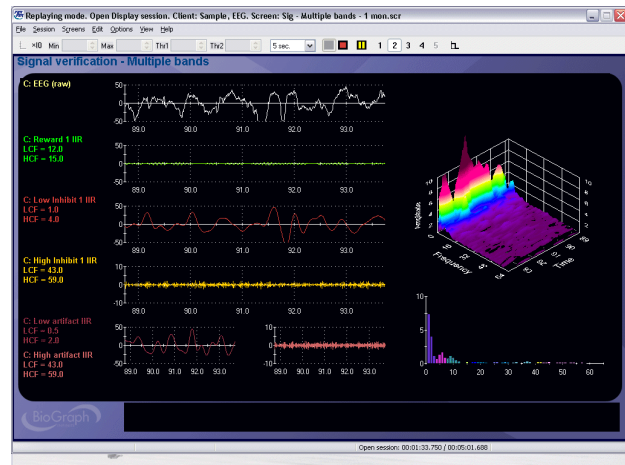
Training – Multiple Bands – Bars & Tone – 1 Monitor

This category of screens can be used for training up to 10 different EEG bands set up as one reward and 9 inhibits. When all the conditions are met, the green light turns ON and a tone is heard. The auto-thresholds for all the inhibits are set to 10% instead of 20%.
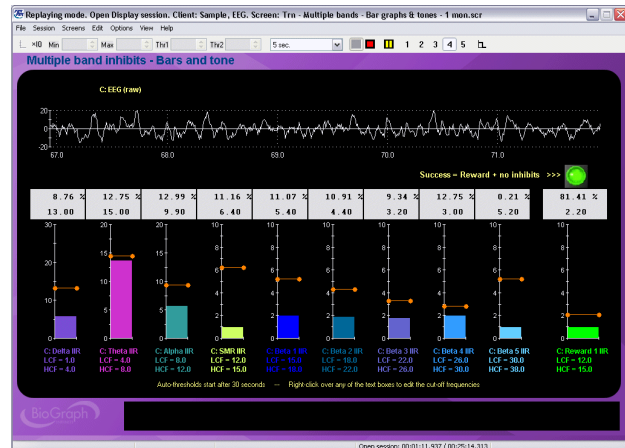

Training – Multiple Bands – Animation – 2 Monitors

This screen is identical to the one above, but built for two monitor systems. The client side shows one green and one red light as well as an animation. When the reward signal is above threshold, the green light turns ON. When any of the inhibit bands goes above threshold, the red light turns ON. When the green light is ON and the red light is OFF, audio feedback is heard and the animation starts playing.
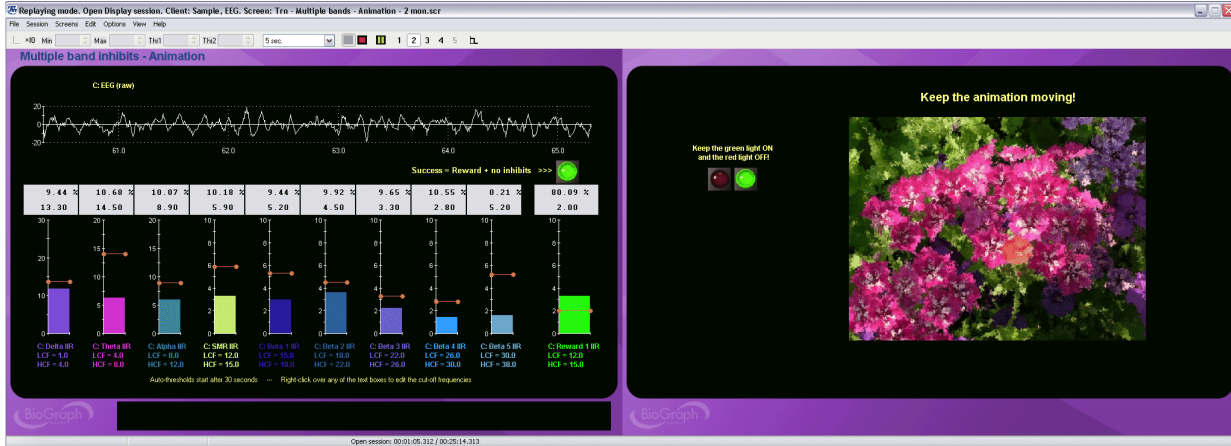
Artifact Rejection – Multiple Bands – 1 Monitor

The artifact rejection screen facilitates the task of reviewing recorded EEG and placing artifact rejection segments over sections of noisy signal for the purpose of generating reliable statistics. The screen shows the raw signal, 2D and 3D frequency spectra as well as trend graphs and whole session means for most standard EEG bands.
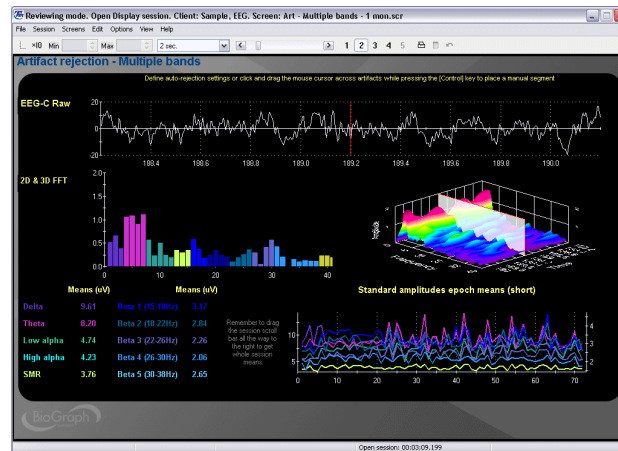
Report – Multiple Bands – 1 Monitor

These report screens show trend graphs of the mean amplitude for the trained bands (short epoch). To see the whole session means, drag the time marker completely to the end of the session.
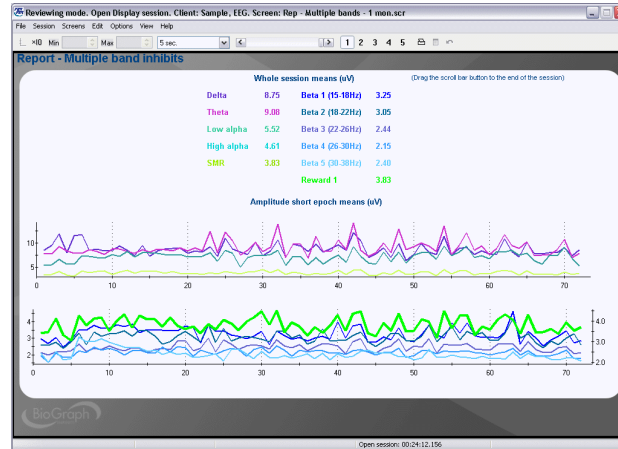
Open Display 2 EEG Screens: User Bands

Signal Verification – User Bands – 1 Monitor

This screen can be loaded as part of the 5 screen selection of an open display session to allow you to verify the quality of the recorded signals. The screen shows both raw signal traces, along with the output of some digital filter channels (IIR) and 2D frequency spectrum displays. A spike at 50 or 60 Hz on either side can indicate the need to verify your electrode placement.

Training – Bars and Tone – 1 Monitor

This category of screens can be used for training up to 6 different EEG bands set up as one reward and two inhibits on each side. When one side is in condition, one green light turns ON. When both green lights are ON, audio feedback is heard and the animation starts playing.
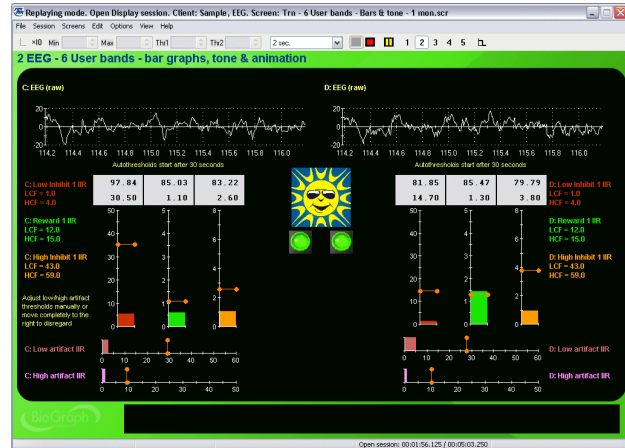

Training – Bars & Animation – 2 Monitors

This category of screens can be used for training up to 6 different EEG bands set up as one reward and two inhibits on each side. When one side is in condition, one green light turns ON. When both green lights are ON, audio feedback is heard and the animation starts playing.

Report – 6 User Bands – 1 Monitor

The report screen shows trend graphs of the mean amplitude for the 6 user-defined trained bands (short epoch). To see the whole session means, drag the time marker completely to the end of the session.
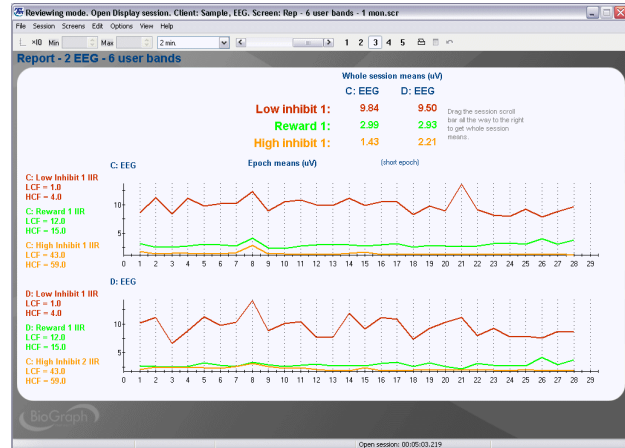
Training – Coherence – Tones – 1 Monitor (& dual threshold version)

This screen is designed to train coherence between two EEG sites within four user bands. For each band, there are two bar graphs where you can set a minimum and a maximum coherence value (between 0 and 100). When the coherence value for that band is within range, the green light turns ON. When all four green lights are ON, audio feedback is heard and the animation plays.

Training – Coherence – Animation & Tones – 2 Monitors (& dual threshold version)

Same as above for two monitor systems. The green lights and the animation are on the client side screen.

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### Artifact Rejection – User Bands Coherence – 1 Monitor

The artifact rejection screen facilitates the task of reviewing recorded EEG and placing artifact rejection segments over sections of noisy signal for the purpose of generating reliable statistics. The screen shows the raw signal, a full spectrum coherence graph and a graph of epoch mean coherence for the four user bands.

Report – User Bands Coherence – 1 Monitor

The report screen shows trend graphs of the mean coherence for the 4 user-defined trained bands. To see the whole session means, drag the time marker completely to the end of the session.

Note: *The maximum period for computing coherence on is 300 seconds (5 min). The baseline script is defined to record 2 minutes.*
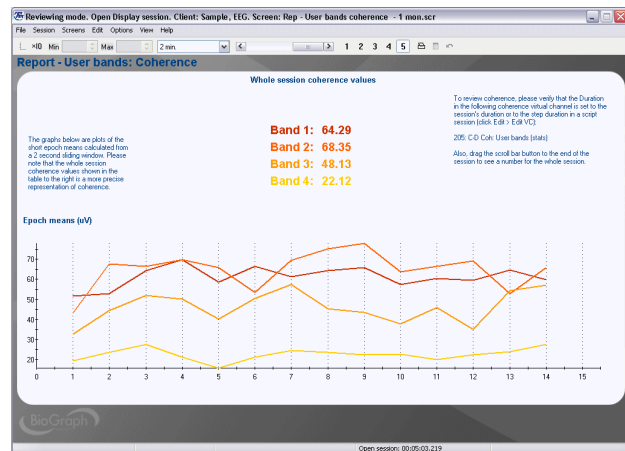
## Open Display 2 EEG Screens: Standard Bands

Signal Verification – Standard Bands – 1 Monitor

This screen can be loaded as part of the 5 screen selection of an open display session to allow you to verify the quality of the recorded signals. The screen shows both raw signal traces, along with the output of some digital filter channels (IIR) and 2D frequency spectrum displays. A spike at 50 or 60 Hz on either side can indicate the need to verify your electrode placement.
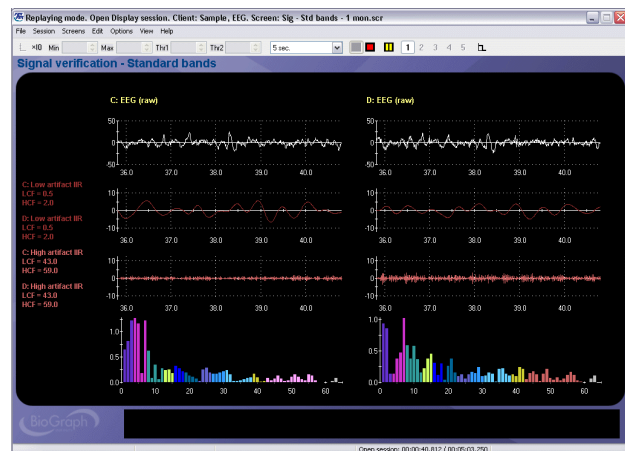
Training – Beta SMR with Tones – 1 Monitor

This screen is designed for training beta on the left side and SMR on the right side. Two low and high frequency inhibits can be configured to any desired user band. When one side is in condition, one green light turns ON. When both green lights are ON, audio feedback is heard and the animation starts playing.
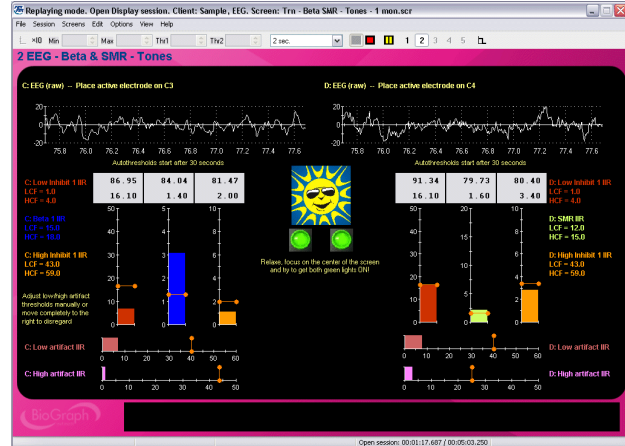

Training – Alpha Coherence Range – 1 Monitor (& other bands)

The suite includes 5 screens for training coherence within a single band (delta, theta, alpha, beta standard & SMR). A bar on the left side shows the actual moment by moment coherence value (0 to 100). The animation's scale can be set to a target minimum and maximum value and the goal is to maintain coherence for that band within the specified range. When coherence value is within range, the green light turns ON and audio feedback is heard.
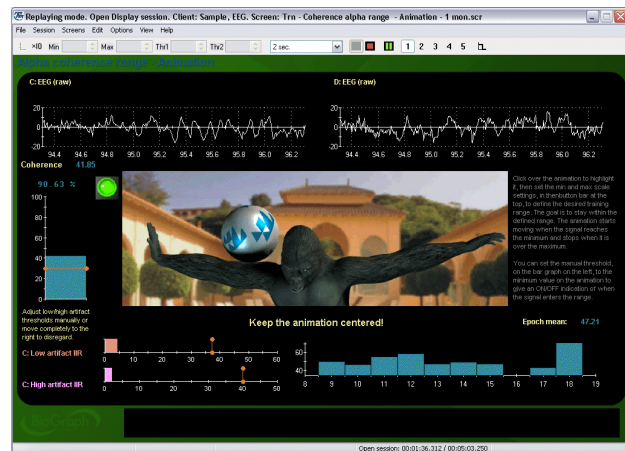
Training – Alpha Coherence Range – Dual threshold & DVD – 1 Monitor (& other bands)

The suite includes 5 screens for training coherence within a single band (delta, theta, alpha, beta standard & SMR). A bar on the left side shows the actual moment by moment coherence value (0 to 100). The bar graph's min and max scale can be set to a target minimum and maximum value and the goal is to maintain coherence for that band within the specified range. The DVD image enlarges when the success condition is met and shrinks when it isn't.
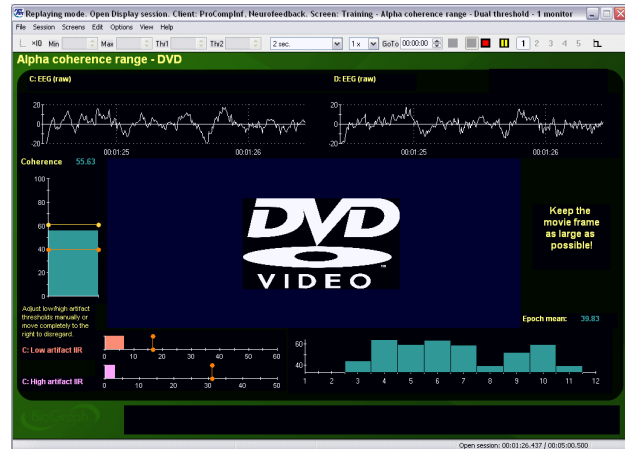
Training – Coherence – Tones – 1 Monitor (& dual threshold version)

This screen is designed to train coherence between two EEG sites within four standard bands. For each band, there are two bar graphs where you can set a minimum and a maximum coherence value (between 0 and 100). When coherence for a band is within range, the green light turns ON. When all four green lights are ON, audio feedback is heard and the animation plays.

Training – Coherence – Animation & Tones – 2 Monitors (& dual threshold version)

Same as above for two monitor systems. The green lights and the animation are on the client side screen.
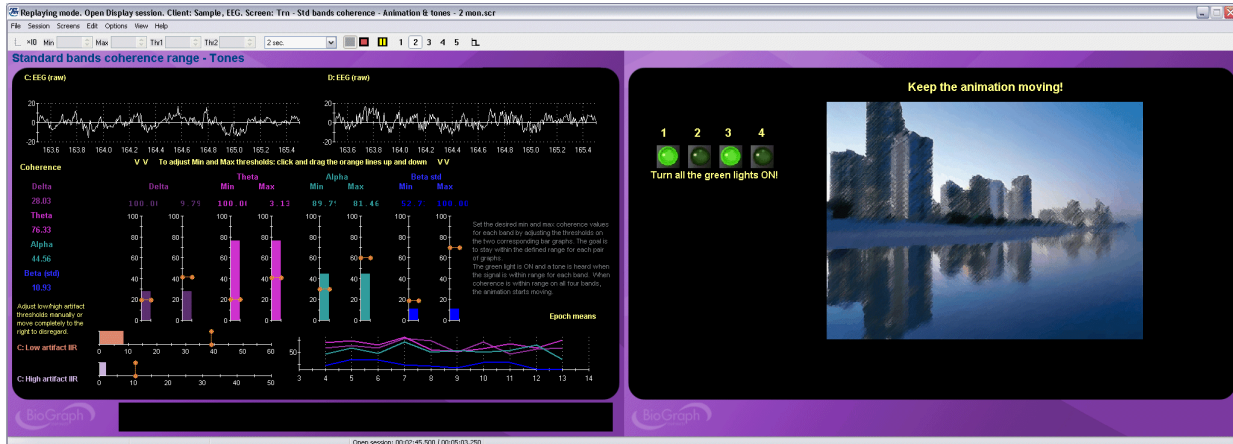
Artifact Rejection – Standard Bands – 1 Monitor

The artifact rejection screen facilitates the task of reviewing recorded EEG and placing artifact rejection segments over sections of noisy signal for the purpose of generating reliable statistics. The screen shows the raw signal, 2D frequency spectra as well as trend graphs and whole session means for most standard EEG bands.

Report – Beta SMR – 1 Monitor

The report screen shows trend graphs of the mean amplitude for the 6 trained bands (short epoch). To see the whole session means, drag the time marker completely to the end of the session.

### Report – Std Bands Coherence – 1 Monitor

The report screen shows trend graphs of the mean coherence for the 10 standard bands. To see the whole session means, drag the time marker completely to the end of the session.

***Note*:** *The maximum period for computing coherence on is 300 seconds (5 min). The baseline script is defined to record 2 minutes.*
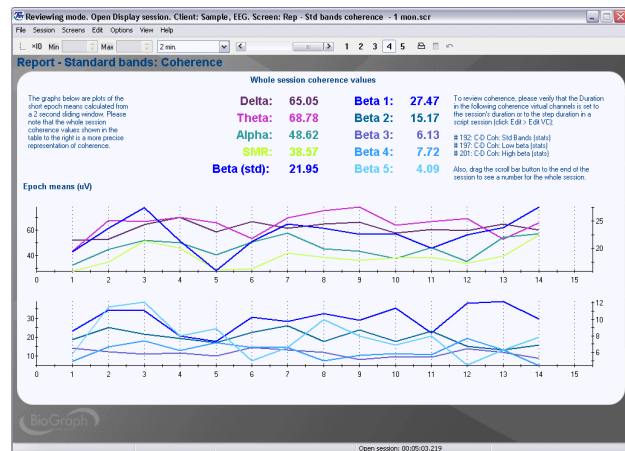
### Signal Verification – Z–Scores – 1 Monitor

This screen can be loaded as part of the 5 screen selection of an open display session to allow you to verify the quality of the recorded signals and see that you can select any Z-Score item from the list. The screen shows both raw signal traces, along with the output of some digital filter channels (IIR) and a Z-Score bar graph and numeric.
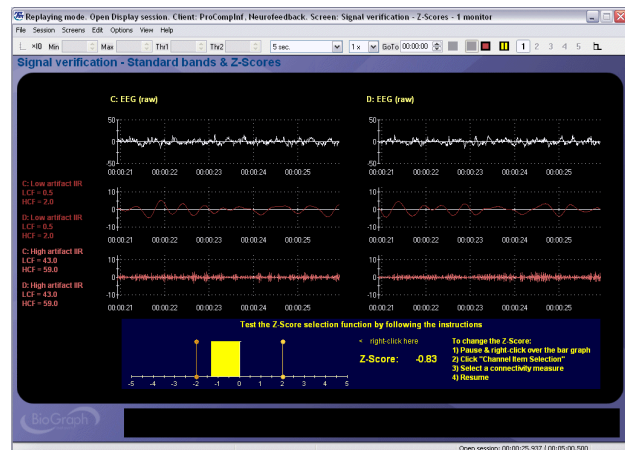
Training – Single Z–Score – Bars & tone – 1 Monitor

This bilateral screen is designed to train with any Z-Score value. The selected Z-Score is shown in the horizontal bar graph, just below the animation. On each side, there are two amplitude-based bar graphs for high and low frequency inhibits. When the Z-Score is within range, the bar turns light green. When all the conditions are met, audio feedback is heard and the animation plays.
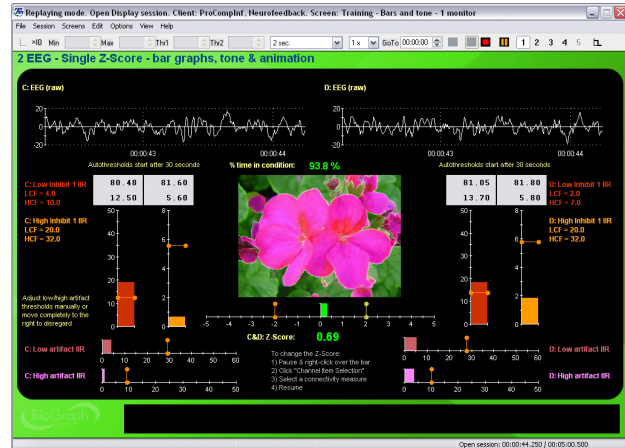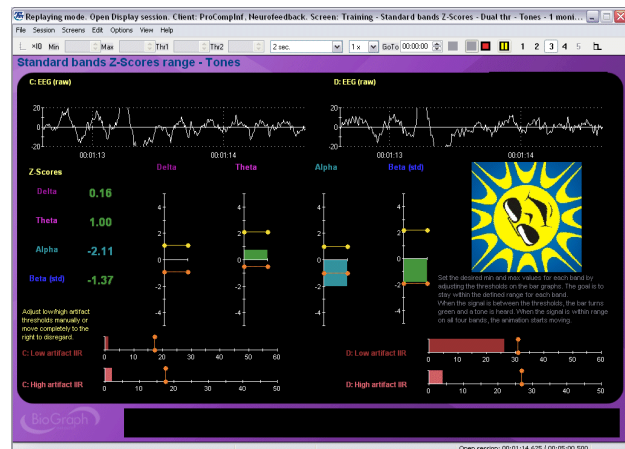

Training – Single Z–Score – Bars & tone – 2 Monitors

Same as above for two monitor systems. The client side shows red and green lights to indicate when artifacts or inhibits are triggered and when the Z-Score is within the range. The animation plays when all the conditions are met.
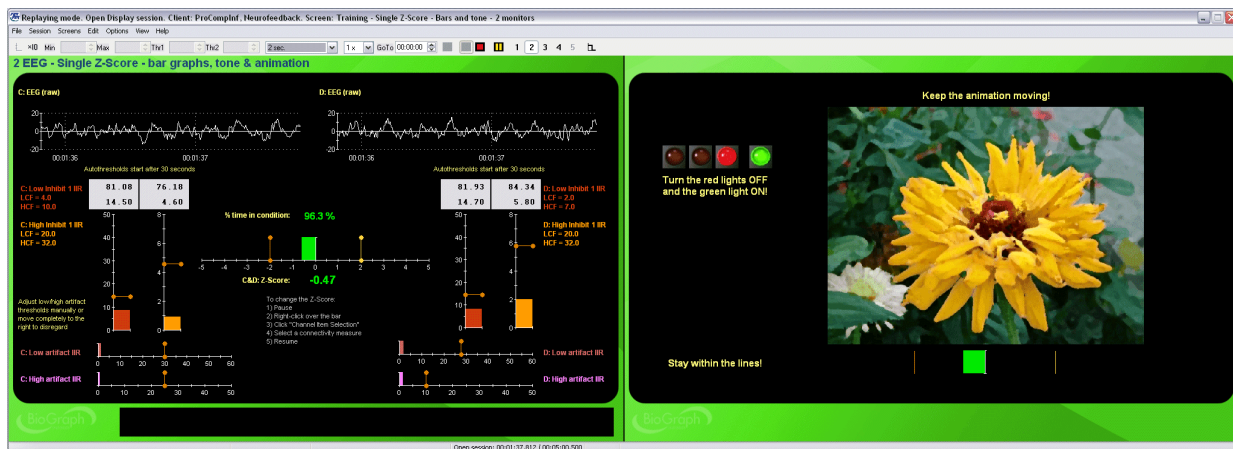

Training – Standard bands Z–Scores – Dual thr – Tones – 1 Monitor

This bilateral screen is designed to train with the four standard band Z-Scores (delta, theta, alpha and beta). The Z-Scores are shown in the four bar graphs and you can set the range for each one by adjusting the graph's min and max scale values. Below the bars, you can set manual thresholds for high and low frequency artifacts. When a Z-Score bar is within range, its bar turns light green. When all the conditions are met, audio feedback is heard and the animation plays.

**Training – Standard bands Z–Scores – Dual thr – Tones – 2 Monitors**

Same as above for two monitor systems. The client side shows four green lights, corresponding to the Z-Score bars, and the goal is to make them all bright green. The animation plays when the four Z-Scores are within range & there is no artifact.
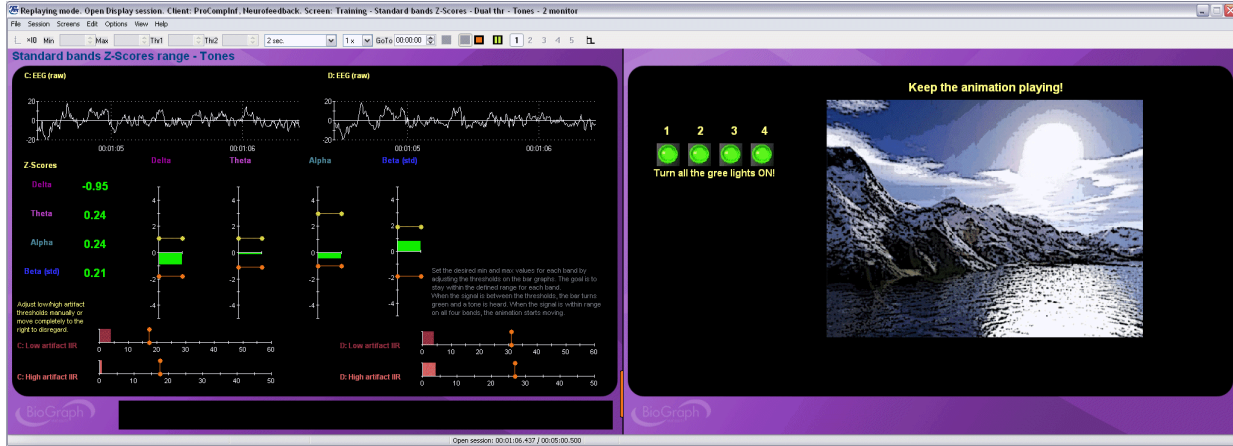
Note: *There are no report screens for Z-Score training in the EEG suite.*

**Training – Narrow Digital Filters & Lissajous – 1 Monitor**

This is a prototype screen designed to visually demonstrate the phase relationship for a specified frequency between two bilateral or sequential EEG locations. The frequency can be defined and adjusted on-the-fly from two Settings instruments. The screen also shows raw EEG and the output of both digital filters.
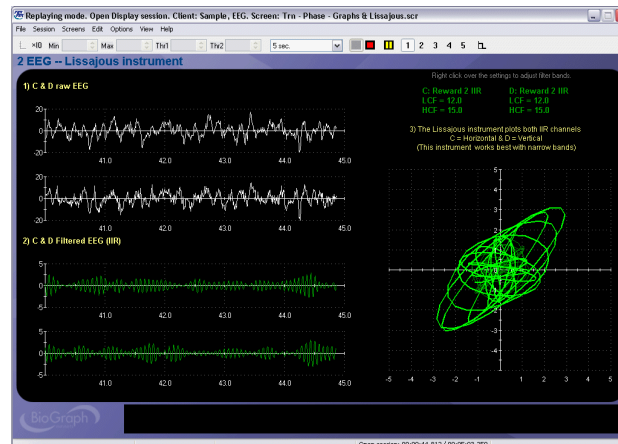
Open Display 1 EEG & Physiology Screens

Signal Verification – User Bands & Physiology – 1 Monitor

This screen can be loaded as part of the 5 screen selection of an open display session to allow you to verify the quality of the recorded signals. The screen shows the EEG and physiology raw signal traces with the output of some EEG digital filter channels. Use this screen to optimize sensor placement.
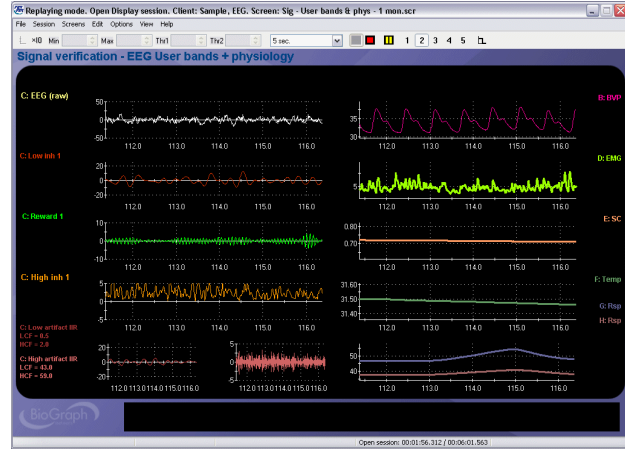

Signal Verification – User Bands & HRV – 1 Monitor

This screen can be loaded as part of the 5 screen selection of an open display session to allow you to verify the quality of the recorded signals. The screen shows the EEG raw trace with the output of some EEG digital filter channels and the BVP & respiration raw signal traces with the VLF, LF and HF components of HRV. Use this screen to optimize sensor placement.
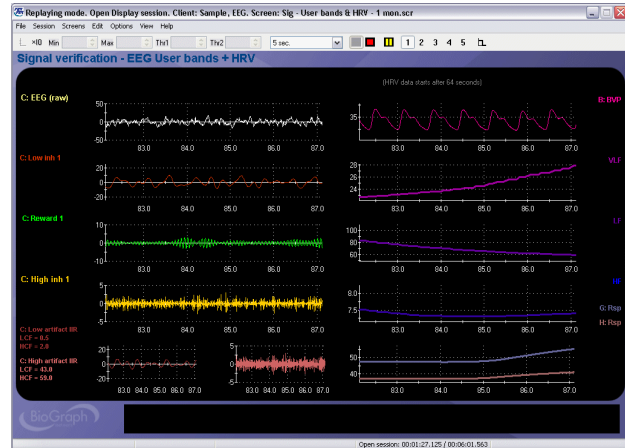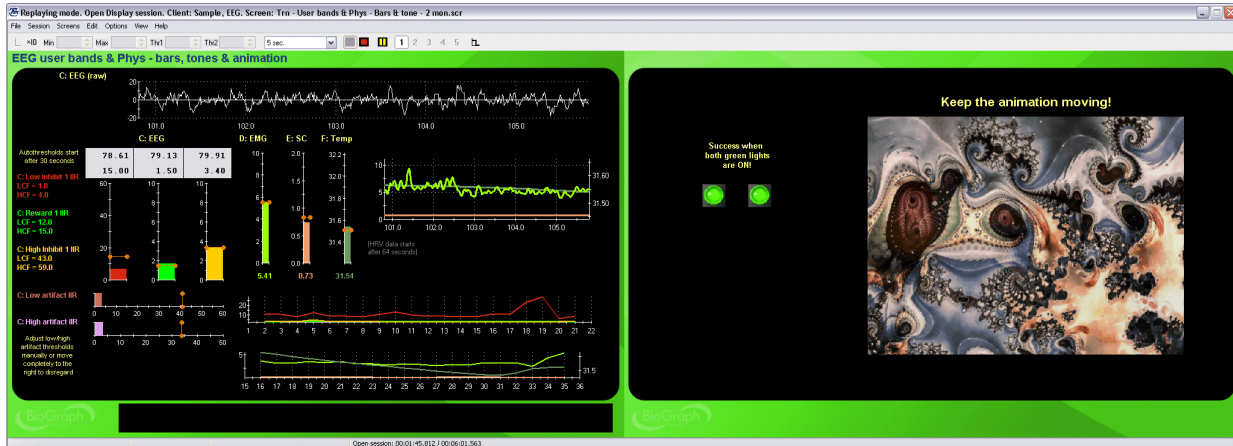

Training – User Bands & Physiology– 1 Monitor

This screen is designed for training three EEG user bands, along with EMG, skin conductance and temperature. When the EEG components are in condition, one green light turns ON. When the physiologic components are in condition, the second green light turns ON. When both lights are ON, audio feedback is heard and the animation starts playing.
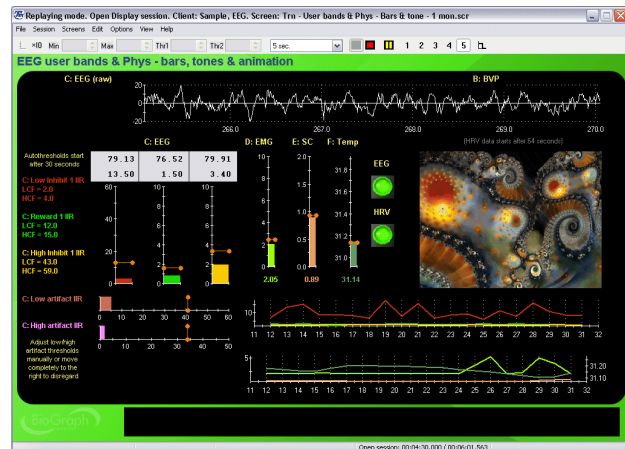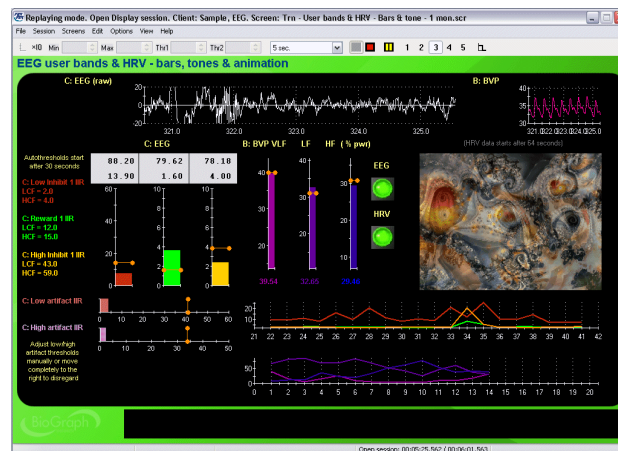

Training – User Bands & Physiology – 2 Monitors

Same as above for two monitor systems. The green lights and the animation are on the client side screen.

Training – User Bands & HRV – 1 Monitor

This screen is designed for training three EEG user bands, along with HRV. When the EEG components are in condition, one green light turns ON. When the HRV components are in condition, the second green light turns ON. When both lights are ON, audio feedback is heard and the animation starts playing.


Training – User Bands & HRV – 2 Monitors

Same as above for two monitor systems. The green lights and the animation are on the client side screen.
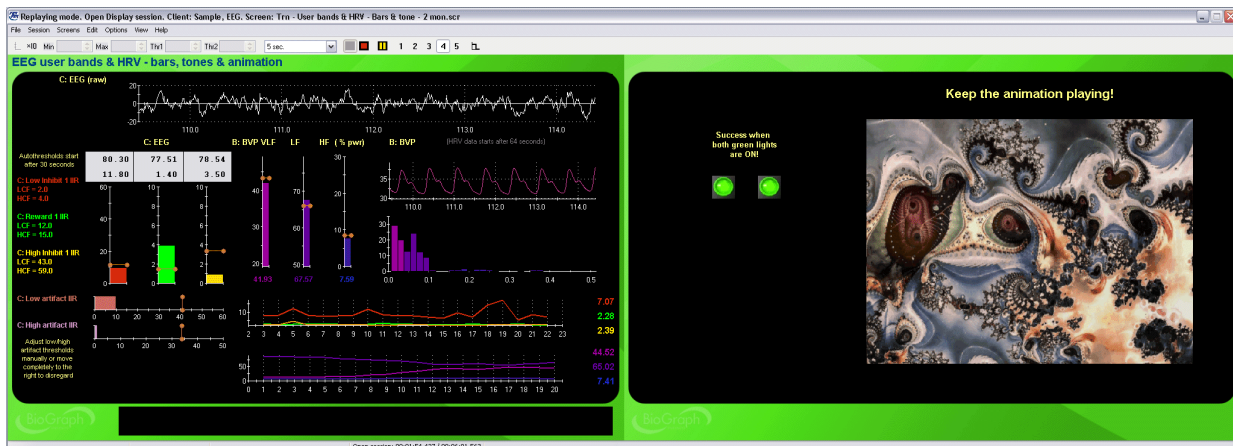
Artifact Rejection – 1 Monitor

The artifact rejection screen facilitates the task of reviewing recorded EEG and placing artifact rejection segments over sections of noisy signal for the purpose of generating reliable statistics. The screen shows the raw signal, 2D and 3D frequency spectra as well as trend graphs and whole session means for the three user bands.
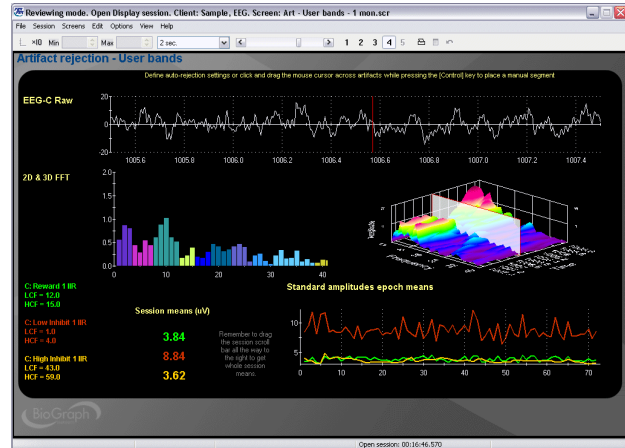
## Report – User Bands & Phys – 1 Monitor

The report screen shows trend graphs of the mean amplitude for the 3 trained bands (short epoch) and the three physiological factors: EMG amplitude, skin conductance and temperature. To see the whole session means, drag the time marker completely to the end of the session.

Note: *ProComp5 screens only show one physiological factor with the EEG.*

Report – User Bands & HRV – 1 Monitor

The report screen show trend graphs of the mean amplitude for the 3 trained bands (short epoch) and the relative percentage of power for the three HRV factors: Very low frequency (VLF), low frequency (LF) and high frequency (HF). To see the whole session means, drag the time marker completely to the end of the session.
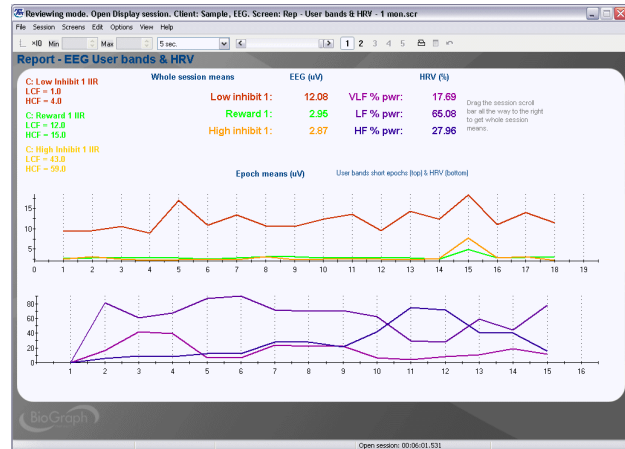
ProComp 5 Infiniti Channel Set Configurations

Since the ProComp 5 Infiniti is a five-channel device, there are six variations on the 1 EEG and Physiology channel sets, three for 1 EEG and BVP, EMG, SC and Temp and three for EKG, EMG, SC and Temp.

ProComp 2 Channel Set Configurations

Since the ProComp 2 is a two-channel device, the channel sets only include 1 EEG with 1 BVP or 1 EKG sensor.

Script Descriptions

Assessment: 4 Activity EEG Baseline Assessment – 1 or 2 Monitors

- Duration: 8 minutes & 45 seconds (user redefinable).

- Four 2-minute activities:

- Eyes open baseline

- Eyes closed baseline

- Sensory attentiveness: Listening to an audio text

- Cognitive effort: Searching for a sequence of letters in an image

- Each activity is preceded by an instruction step during which recording is paused. The clinician has to press a key to continue with the rest of the activity.

- The 1-monitor version gives instructions to the clinician and requires that the monitor is turned towards the client during the Cognitive effort task.

- The 2-monitor version shows clinician and client instructions on the left and right monitors and does not require that the monitor is adjusted.

Assessment: 1 Activity EEG Baseline, Pre– and Post–Training

- Duration: 2 mn 10 sec

- One activity: Baseline

- The script starts with an instruction step and the clinician has to press a key to start the recording.

Note: *Although these two scripts are structurally identical, running the pre-training script before any training is done and the post-training baseline script at the end of a training session allows you to generate better trend reports. (See the first section of this manual for more details.)*

Training

The EEG suite includes two training scripts, one basic training script and one specialized alpha theta relaxation training script.

- *3 User Band Training*: This script follows the standard training script structure: 1 Instruction step followed by 10 trials of identical durations. By accessing the Edit Script functions prior to running the script, you can easily change the duration of the 10 training steps as well as the actual training screen that is used for the 10 trials.

- *Alpha Theta Relaxation*: This script runs for nearly 28 minutes and should not be edited since it loads specialized screens which play relaxation audio files of a fixed duration. The script's duration is defined to match the length of the audio files. The script loads the Alpha theta Nature Sounds screen and includes a "wake up" period, near the end, during which an audio indicator is played with increasing volume to gently bring the client back to a normal state of awareness.

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