

EDA BIOSCAN

**OPERATOR'S
MANUAL**

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MIND ALIVE INC.
EDMONTON, CANADA

WARNING

DO NOT PLUG ANY POWER SOURCE OR ADAPTER FROM A WALL OUTLET TO THE 9-VOLT CONNECTOR INSIDE THE EDA BIOSCAN.

DO NOT USE THE EDA BIOSCAN WITH A TAPE OR CD PLAYER THAT IS PLUGGED INTO A WALL OUTLET.

THE EDA BIOSCAN IS NOT RECOGNIZED AS A TREATMENT OR CURE OF ANY MEDICAL CONDITION OR DISABILITY. HOWEVER, RESEARCH SUGGESTS THAT EDA IS AN EFFECTIVE RELAXATION TOOL.

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EDA BIOSCAN Biofeedback Monitor

INTRODUCTION

Congratulations! You have purchased our high quality compact biofeedback Galvanic Skin Response device, the **EDA BIOSCAN**. We are confident you will find using the **EDA BIOSCAN**, not only an enjoyable, relaxing experience, but also beneficial as you explore electrodermal activity biofeedback as an educational tool for your personal awareness.

In order to obtain maximum enjoyment and benefits from your EDA BIOSCAN, please read this Operator's Manual thoroughly. If you have any questions, comments or require assistance, please call 1-800-661MIND (6463).

COMPONENT LIST

- (1) **EDA BIOSCAN** serial number
(located in the battery compartment)
- (2) Headphones
- (3) Sensor Cable
- (4) Stereo Patch Cord
- (5) Operator's Manual
- (6) Carry Bag
- (7) Warranty Card

WARNING

The **EDA BIOSCAN** connects the power from the 9-volt internal battery directly to the skin. It does not use opto-isolation to separate the battery power from the user's body. ***THEREFORE, IT IS VERY IMPORTANT THAT YOU DO NOT PLUG ANY POWER SOURCE OR ADAPTER FROM A WALL OUTLET TO THE 9-VOLT CONNECTOR INSIDE THE EDA BIOSCAN.***

DO NOT USE THE EDA BIOSCAN WITH A TAPE OR CD PLAYER THAT IS PLUGGED INTO A WALL OUTLET.

PRECAUTIONS

Traumatic Experiences - Although it is a rare occurrence, repressed traumatic experiences may be released into the conscious mind when practising deep relaxation. If this should occur, we recommend that you consult a competent therapist.

Orthostatic Hypotension - Occasionally, when a person becomes very relaxed, his/her blood pressure may fall significantly. Should you feel weak-kneed or imbalanced after using the **EDA BIOSCAN**, remain sitting for a short time before trying to stand again.

NOTE: *No medical implications are implied with the **EDA BIOSCAN**.*

DISCLAIMER OF LIABILITY

Mind Alive Inc., its employees, authorized dealers and distributors, shall not be held liable for any claim, demand, action, liability or damages arising out of any injuries resulting from malfunction or defect of the said **EDA BIOSCAN** whether wilful or negligent either to person or damage to property of the purchaser, employees of the purchaser, persons designated by the purchaser for training in the use of the **EDA BIOSCAN**, clients or patients of the purchaser, any other person, designated by the purchaser for any purpose, prior to or subsequent to acceptance, delivery, installation and use of the **EDA BIOSCAN** either at the premises of Mind Alive Inc. or the premises of its dealers or distributors or the purchaser' s place of business.

The purchaser, employees of the purchaser, clients or patients of the purchaser or any other person designated by the purchaser for any purpose, hereby undertake to waive and disclaim any action in respect of the aforesaid terms.

WARRANTY

The **EDA BIOSCAN** is warranted against defects in workmanship or materials for one year from date of original purchase, on the terms stated herein. Should this unit become inoperative within the one-year period, it will be repaired or replaced at our option, without charge. All shipping costs, insurance, brokerage, and duties incurred in returning the **EDA BIOSCAN** to Mind Alive Inc. for service are the responsibility of the customer.

To activate your warranty, return the enclosed warranty card to: **Mind Alive Inc., 9008 - 51 Avenue, Edmonton, Alberta, Canada, T6E 5X4.**

This warranty does **NOT** cover the following:

- (a) shipping damage
- (b) damage caused by accidents, lack of care or by other than normal use
- (c) ordinary wear and tear
- (d) 9-volt battery
- (e) damage caused by tampering with or opening the **EDA BIOSCAN** or repairs performed by persons other than those authorized by Mind Alive Inc.

To return your **EDA BIOSCAN** for repairs, be sure to wrap the **EDA BIOSCAN** in at least one inch of tight packing on all sides in a strong carton. Neither Mind Alive Inc. nor courier companies will pay for damage incurred by poorly packaged goods. Label the carton "**FRAGILE, HANDLE WITH CARE**". Include a copy of your sales invoice.

FOR OUR UNITED STATES AND INTERNATIONAL CUSTOMERS:

Please contact our service department at (780) 450-3729 to obtain a warranty/repair authorization number and instructions. Failure to do so may result in unnecessary additional charges (such as brokerage, duties and taxes). These charges are the responsibility of the customer. Repaired equipment will not be returned until all outstanding charges have been paid. Indicate on the outside of the package and all shipping documents "**RETURN TO COUNTRY OF ORIGIN, FOR REPAIRS UNDER WARRANTY**".

BATTERY

The **EDA BIOSCAN** is designed to operate using a 9-volt battery. An alkaline 9-volt battery should provide approximately 100 hours of operation.

To replace the battery, simply remove the door to the battery compartment, remove the old battery and connect the new battery. Be sure that the new battery and the connecting wires are tucked in properly before replacing the battery compartment door.

MAINTENANCE AND CARE

Clean the case and control panel face with a soft cloth slightly moistened with water or a mild detergent. Do not clean with solvents. Do not place the **EDA BIOSCAN** near heat sources such as radiators or air ducts, or in direct sunlight, excessive dust, mechanical vibration or shock. Should a liquid enter your **EDA BIOSCAN** unplug the sensor cable immediately. It may be necessary to have your **EDA BIOSCAN** checked by authorized personnel before commencing operation.

ABOUT BIOFEEDBACK

Biofeedback is a unique cognitive learning process. When we receive information about our bodily processes that are normally beyond our conscious awareness (such as muscle tension, skin surface temperature, brainwave activity, heart rate, and electrodermal activity), we can learn to modify and control these functions at a conscious level. According to the book *“Biofeedback - Methods and Procedures in Clinical Practice”* by George D. Fuller, Ph.D., biofeedback is defined as the “use of instrumentation to mirror psychophysiological processes of which the individual is not normally aware and which may be brought to voluntary control.” Most biofeedback techniques aim at helping the individual to both master the physiological function and produce a general state of relaxation at will.

Possibly, the first and simplest biofeedback device was a pond of calm water that served as a mirror. But with the more recent development of sophisticated equipment capable of measuring small biological processes, biofeedback enjoyed a “revolution” since the 1960s. When it was discovered that we could learn to consciously control these bodily functions, it was found that biofeedback was a reliable and safe treatment for many of our pains, discomforts and dysfunctions, especially those brought about by stress. Biofeedback devices measure a particular bodily function and provide the user information in a variety of ways, whether by changing the pitch of a tone, the number of lights lit on a panel or even elaborate computer-based visual displays that imitate a car driving up a hill as the user produces more beta brainwaves or geometric patterns that form when the user relaxes his/her muscles.

Some of the most commonly used biofeedback instruments currently being used are:

- a) **Galvanic Skin Response** (GSR) devices (also called *Electrodermal Activity or EDA*) that measure sweat gland activity and are useful in measuring stress, associated negative feelings and are useful in learning desensitization.
- b) **Electro-Myographic** (EMG) devices measure muscle tension. So much of our common day stress-related ailments are a result of tight muscles that produce neck and back pain, TMJ problems, tension headaches and gastro-intestinal trouble that produce diarrhea and heartburn.
- c) **Electro-Encephalographic** (EEG) devices are used to measure brainwaves. They can be used to help in learning meditation and to overcome many attentional disorders where unnatural brainwaves are a result of under or over arousal.
- d) **Plethysmographs** measure blood pressure. They are used to train hyper-tense people to reduce blood pressure as well as alter areas of blood pressure in those with spinal cord injuries.

There are many more biofeedback instruments not mentioned here. The basic rule-of-thumb is: if a biological process can be measured, then information about it can be fed back to the user and this information can be used to control that part of our biological functioning. Some people have even learned to control their stomach acid excretions through biofeedback!

MEASURING ELECTRODERMAL ACTIVITY

Electrodermal activity (EDA) has also been referred to as skin conductance level and/or galvanic skin response (GSR). However, in this manual, we will use the term EDA.

Your sweat glands are controlled by the sympathetic nervous system. Therefore, the more aroused (nervous, anxious or excited) you are, the more perspiration there is in your skin, which lowers your electrical resistance. As you relax, you perspire less, your skin becomes drier and your electrical resistance increases. An EDA device measures EDA by applying a small electrical current down through one sensor into a finger and then back up the other finger and out another sensor. As the amount of perspiration in the skin increases, the amount of electrical current flowing between your fingers also increases which will increase the pitch of the biofeedback tone. Increases in anxiety, fight-or-flight responses or bodily arousal, will increase sympathetic arousal which results in increased sweat gland activity and decreased skin electrical resistance.

Equipment monitoring EDA is used to assist in learning about stress and tension and teaching relaxation and maintaining a specific state of consciousness. EDA is especially useful in helping to bring awareness of, and appreciation for, the mind-body connection and interaction between emotions and physiological reactions. Once you have learned to become deeply relaxed through the use of EDA feedback, you can learn to reproduce the same state of mind anywhere you wish, at home, work or play by recalling how you felt while practising EDA training.

It is important to note that EDA is a measurement of **arousal** as a result of either a stress response or an emotional (eg. love) response. Heat and exercise also affect sweat gland activity.

TRAIT AND STATE AROUSAL

There are two measurements of EDA typically called **trait anxiety** and **state anxiety**. EDA measurements of trait anxiety indicate the overall level of stress. EDA measurements of state anxiety measure the immediate arousal response to emotions from a thought, situation, person, loved one, child and/or event. We will refer to these measurements as “trait arousal” and “state arousal” rather than “anxiety” because arousal is a more accurate description.

Trait Arousal

Measurements of trait arousal are very slow changes in EDA. They take a long period of time to accurately observe. The trait level is the average of hundreds of small day-by-day responses reflecting the overall makeup or “trait” of the person. Trait EDA is easily measured with a common electronic ohm meter.

State Arousal

State arousal represents the level of arousal at a specific moment in time. Measurements of state arousal are basically small transient changes in arousal. State responses occur from stimuli such as the startle response to a loud noise. They are easily triggered by an individual’s thoughts that cause an increase in his/her arousal. Thoughts that cause an

increase in EDA may be warm loving thoughts, for example, a parent's thoughts towards a child or a person's thoughts about a lover or spouse. EDA responses may also be triggered by thoughts related to a stressful situation, for example, thoughts of the office, an abusive situation, of engaging in a violent activity or when telling lies. This is what makes measuring EDA so effective as a lie detector. State responses are affected by room temperature, foods, caffeine and physical effort. People in poor physical condition or smokers may notice changes in EDA measurements with the rising and falling of their breathing.

Trait levels range from 50,000 ohms in a stressed person to more than 2 million ohms for a meditator during meditation. State responses may be as low as 10,000 ohms, a small window in such a large range. Therefore, the major problem encountered while measuring trait and state arousal together is that the sensitivity needed to display the state responses is much higher than the sensitivity needed to display trait levels. For example, if the equipment is set to monitor trait levels, the state responses will appear insignificant. If the equipment is set to monitor state levels, small changes in trait arousal will drive the EDA equipment off scale. Consequently, different sensitivities are needed to measure state and trait arousal. *Figure 1* shows the trait arousal of a mildly tense person and the small window from which his/her state arousal would be monitored.

Figure 1

The **EDA BIOSCAN** uses a method called "DC-coupled with offset" which allows the user to observe the trait arousal while getting feedback as to the state arousal. Refer to "Using the **EDA BIOSCAN** to Determine Trait Arousal"

and *Figure 4* for information about determining trait arousal by observing the position of the **PITCH** dial. It is important to understand that the state arousal is *the change in the pitch of the tone* once the dial has been adjusted to the trait arousal position.

Often after a state response occurs, the pitch will stay steady, and then increase again. This period of stable EDA in between two or more pitch increases is called a *plateau*, the zone between multiple arousals. Multiple arousals occur when a thought or event triggers associated thoughts or when a person is self-conscious or embarrassed by his/her own reactions. Often during EDA demonstrations before a group, the participant is more self-conscious and therefore has more multiple reactions.

ADDITIONAL TECHNICAL INFORMATION

As stated earlier, EDA is the measurement of electrical skin resistance. The trait arousal is the overall electrical resistance, expressed in ohms. It can be measured using a standard technician's ohm meter. However, most biofeedback equipment now measures EDA in terms of skin conductance (SC) that is the reciprocal of ohms, which is why the measurement is called mhos ("ohms" spelled backwards). Most equipment displays mhos actually as micro-mhos where 1 micro-mho equals 1 million ohms.

FRONT PANEL AND CONTROLS

Figure 2

- 1) **On/Off** - The **EDA BIOSCAN** automatically turns on when the sensor cable is plugged into the **SENSOR** jack and the sensor pads are connected to the fingertips. When the **EDA BIOSCAN** is on, the power indicator light will illuminate. The **EDA BIOSCAN** turns off by unplugging or disconnecting the sensor cable.
- 2) **Pitch Control** - Lower the pitch by turning the **PITCH** dial counter-clockwise. To increase the pitch, turn the **PITCH** dial clockwise.
- 3) **Volume Control** - Adjust the volume as desired. The volume control only affects the biofeedback tone; it does not affect the tape/CD volume. To adjust volume for tapes and CDs, use the volume control on the tape/CD player.
- 4) **Sensor Cable Input** - Plug the sensor cable into the **SENSOR** jack.
- 5) **Headphone/Paradise Output** - Plug the headphones into the **PARADISE** jack to hear the biofeedback tone of your EDA activity and to hear any music/text that is being played along. You may also use your

DAVID *Paradise* with the **EDA BIOSCAN** by connecting one end of the stereo patch cord included to the **PARADISE** output and the other to the tape input on your DAVID *Paradise*. Connect the headphones to the headphone jack on the *Paradise* to hear the tone from the **EDA BIOSCAN**.

- 6) **Tape Input** - To use your tape/CD player with the **EDA BIOSCAN**, connect the stereo patch cord provided to the tape input (**TAPE**) of the **EDA BIOSCAN** and the headphone output on the tape/CD player. The volume of the CD or tape will be controlled through the volume control on the tape/CD player.

ADDITIONAL SELECTIONS

There are two switches located in the battery compartment to adjust (1) the headphones to hear either both ears or left ear only and (2) to adjust the sensitivity of the pitch. To access either of these selections, you will need to remove the 9-volt battery from the battery compartment. Refer to *Figure 3*.

- 1) **Left Ear/Both Ears Selection** - This switch turns the right ear headphone on and off. To hear the EDA tone in both ears, set the switch labelled "1" to the "ON" position. *The arrow indicates the direction of "ON" position.* To turn the right ear off and hear the tone in the left ear only, set this switch to the off position.
- 2) **Sensitivity Control** - To select low sensitivity, set the switch labelled "2" to the "ON" position. *The arrow indicates the direction of on position.* To

select high sensitivity, set to the off position.

Figure 3

SENSORS

Sensors are the electrodes used to measure EDA. They are usually metal contacts or silver impregnated cloth that do not require electrode jelly.

The sensors are strapped to the palm-side of two fingertips on the same hand. Typically, the sensors are placed on the index and middle finger of the non-dominant hand. That is, right-handed people should use their left hand and vice versa.

The contact between the skin and sensor is critical. Be sure that the electrodes fit snugly to the fingertip, but not so tightly that they restrict blood flow. If your finger is throbbing, the electrodes are too tight. Also, the fingers should be allowed to hang freely and not press against anything. You may lay your hand on a soft pillow or a bunched-up blanket, but be careful not to move your fingers.

SETTING UP YOUR EDA BIOSCAN

Before you begin using your **EDA BIOSCAN**, be sure that you will be comfortable. For example, wear comfortable clothing, choose a location that is quiet, at a comfortable temperature and where you will not be interrupted. You may also want to be in a reclined position and keep a blanket nearby (to use if you find yourself feeling cool as you become more relaxed). You are now ready to begin.

Select high or low sensitivity (see "*Front Panel and Controls - Additional Selections*"). Use high sensitivity for personal development exercises. Use low sensitivity for reactive, tense people or when practising relaxation, so that the pitch will not need to be adjusted too often.

Choose to hear the EDA tone in the left ear only or both ears in headphones (see "*Front Panel and Controls - Additional Selections*").

Plug the headphones into the jack labelled "**PARADISE**". Or, if you want to use a *DAVID Paradise* with the **EDA BIOSCAN**, connect the stereo patch cord from "**PARADISE**" jack to the *Paradise* **TAPE** input. Turn the *Paradise* on to hear the **EDA BIOSCAN** feedback tone mixed with the tone from the *Paradise*.

If using a CD or tape player, use the stereo patch cord to connect the tape or CD player (headphone output) to the **TAPE** input on the **EDA BIOSCAN**.

Plug the sensor cable into the **SENSOR** input.

Place the sensors on the fingers (see ‘*Sensors*’). Wait a few minutes for the moisture from the fingers to collect on the sensors. Adjust the **PITCH** dial clockwise so that the pitch of the tone is high. Adjust the volume to a comfortable level.

Slowly rotate the **PITCH** dial counter-clockwise until the pitch of the tone just begins to fall (lower). Note the position of the **PITCH** dial. This indicates your *trait* arousal. The increases and decreases in pitch indicate your *state* arousal.

Now adjust the pitch to medium low. Note if the pitch drifts up and down with breathing. People in good physical condition tend to have relatively little drift in pitch. People who smoke and/or are not “physically fit” will tend to have larger increases and decreases in pitch as they breath.

Take a deep breath. Hold for a few seconds. Then exhale forcefully. The pitch of the tone should rise considerably. Wait a few minutes for the pitch to fall back. If the pitch does not drop, adjust the **PITCH** dial to lower the pitch back down.

Keep all activity, including talking, to a minimum. Even small movements will cause fluctuations in pitch.

Sometimes, when a person begins using the **EDA BIOSCAN**, he/she will be very self-conscious about any increases in pitch. This will cause an even greater increase in pitch (state arousal), especially if others are watching and/or can hear the pitch via a speaker. This in turn may cause the person to squirm or giggle, again sending the pitch even higher. Encourage the person to relax and the pitch will soon begin to drop.

Practice the exercises following this section of the manual.

After completing the exercises, check the trait anxiety. Has the dial moved into a position indicating an increase in trait anxiety?

USING THE EDA BIOSCAN TO DETERMINE TRAIT AROUSAL

Before beginning, be sure to read “*Setting Up Your EDA BIOSCAN*” on page 16. Set sensitivity to high. A dial pointing to the left of centre indicates higher than average arousal and a dial pointing to the right of centre indicates higher than average relaxation. Pointing straight left as shown in *Figure 4-Tense* represents a skin resistance of roughly 70,000 ohms. A dial pointing upwards (*Figure 4-Average*) indicates average arousal representing a skin resistance of approximately 420,000 ohms. Pointing straight right (*Figure 4-Relaxed*) represents a skin resistance of approximately 2.2 million ohms.

If a person braces muscle or vascular tension (eg. cold or hot hands) when feeling anxious, EDA will not accurately indicate arousal by the dial setting. If this is the case, make a note of the position of the dial and observe changes in the dial position at different times to evaluate your relative arousal level with respect to the different situations or feelings.

Figure 4

EXPERIMENTS WITH EDA

Now that you have your **EDA BIOSCAN** set up and tested, you may try the following experiments.

It is easier to conduct these experiments if you have someone present to assist you. Have a pen or pencil and paper at hand to record your results. Read about plateaus under "State Anxiety".

For group demonstrations, connect an audio amplifier (speaker) to the **PARADISE** output on the **EDA BIOSCAN** using the patch cord provided.

Let's begin!

1) EFFECTS OF THE STARTLE RESPONSE

Set the sensitivity high and the pitch low. Close your eyes and relax. After the pitch has stabilized, set pitch to medium low. Have your partner startle you by unexpectedly making a loud noise by clapping his/her hands, striking an object or hitting a tabletop once. Observe the reaction of the EDA. How many seconds did the phasic response last? How many plateaus were observed while the pitch was increasing? Did the pitch of the tone ever return to the same pitch (tonic level) achieved before you were startled? The EDA of a relaxed person will usually settle down in 30-60 seconds whereas the EDA of a tense person may take several minutes.

2) EFFECTS OF TEMPERATURE

Set the sensitivity high and the pitch low. Close your eyes and relax. After the pitch has stabilized, set to a medium low.

Have your partner cover you with a heavy blanket. Be careful not to disturb the hand wearing the sensors. Observe the changes to the pitch over a time of ten minutes or more. This temperature-produced response is the body's *trait response* to the temperature increase. What effects do you notice? How much time passed before you started to perspire? Were you aware you were beginning to perspire as the pitch was rising?

3) EFFECTS OF CANDY

This experiment shows the effect of sugar on our metabolism. Set the sensitivity high and the pitch low. Be certain that you have not eaten for three hours or had any sweetened or caffeinated beverages for at least two hours.

Relax until the pitch of the tone is stable. Set the pitch to medium. With minimal movement, eat a candy bar. Have your partner record the time elapsed from the first swallow to an EDA response. The EDA may take a few minutes to respond. Record the change in pitch. Does the pitch plateau in either direction? Does it go off scale?

4) EFFECTS OF PHYSICAL POSITION

Set the sensitivity high and the pitch medium low. Sit upright in a reclining chair. After a few minutes, recline the chair and record your results. Does the EDA fall from being in a more relaxed position?

5) EFFECTS OF INTERPERSONAL CONTACT

Set the sensitivity switch to high and the pitch to medium low. Sit more than ten feet (approximately three metres)

from your partner. Make eye contact for about one minute. Have your partner record the EDA response. Have your partner move his/her chair against yours and make eye contact from about 6 inches (15 cm) away for one minute. Does this make you uneasy? If you are willing to say, answer these questions: Were you nervous? Romantically inspired? Indifferent? Thoughtful? Experience any other emotions?

6) EFFECTS OF EXTERNAL EMOTIONS

Set the sensitivity high and pitch medium. Sit relaxed in front of a television. Select a drama program that you find “touching”. How do you react when an emotional scene is present? Could you predict when you were going to respond? Do other people respond the same way as you do? Try other programs such as game shows, situation comedies, etc.

7) EFFECTS OF EMOTIONAL REACTIONS

Emotional reactions affect electrodermal activity. This is the basis for using EDA devices as lie detectors. This experiment will demonstrate emotional reactivity to various words.

Have your partner add approximately fifteen words to the list on this page. Have your partner mix neutral words that he/she predicts will not produce an emotional response and other words that will. Do not look at the list of words. Have your partner pause after each word to record the time taken by the response and the number of plateaus occurring in the response portion of the response/return reaction on the EDA. You might be surprised at some of the words which you thought were emotionally neutral that brought up an

emotional response to a past memory.

Set the sensitivity high and pitch medium. Sit comfortably with your eyes closed. Have your partner read the list of words to you one at a time. Take time to allow the EDA to settle. If the pitch hasn't returned to the original pitch within 30 seconds, the pitch may have to be adjusted. Move on to the next word on the list.

Word List	Peak time	# of Plateaus
1) Lamp	_____	
2) Sock		
3) Sex	_____	
4) Mother	_____	
5) Wood	_____	_____
6) _____	_____	
7) _____	_____	
8) _____	_____	
9) _____	_____	
10) _____	_____	
11) _____	_____	
12) _____	_____	
13) _____	_____	
14) _____	_____	
15) _____	_____	

- 16) _____
- 17) _____
- 18) _____
- 19) _____
- 20) _____

Have your partner record the number of plateaus that occurred before finally peaking and the time required to peak and return to normal. Discuss the words after reading the checklist. Note the psychological impact the words had on you. Can you identify which words were relaxing, emotional, or “warm”? Which words invoked feelings of tension or anxiety? Which raised feelings of resentment or reminded you of conflict with someone or something? How did the number of plateaus vary with the psychological impact?

8) THE EFFECTS OF TRUE/FALSE STATEMENTS

Set sensitivity high and pitch medium. Make a false statement to your partner with conviction as if it were true. Have your partner record the change in pitch and the number of plateaus which occurred by the time you peaked plus the time required from making the statement until the pitch settled to or near to its original value. Make a truthful statement with conviction about something you know to be true. Have your partner record these results. How do they compare with the false statements? What happens if after making these statements, your partner does not believe you? What if your partner does believe you?

9) RELAXATION WITH EDA FEEDBACK

As you relax, the physical component of your arousal will decrease. Sweat gland activity will decrease accordingly with a resulting decrease in the pitch of the tone.

Set the sensitivity high and pitch medium high. Become very relaxed. Clear any expectations of the progress you wish to achieve. When expecting a certain result, you may become anxious and experience extreme difficulty in lowering the pitch of the tone. As you relax, your sweat activity will decrease and the pitch will fall. If the pitch reaches bottom, readjust to a medium high pitch. Eventually as you become very relaxed, the pitch will remain constant. Do you feel like you are in the zone between awake and sleep? Do thoughts that creep into your mind cause fluctuations in pitch? If so, try to clear your mind for longer periods of time. See if you can identify when an arousing thought has crept in just before your EDA responds to the thought.

10) CONSCIOUS CONTROL OF EDA

Follow the procedure in Experiment 7. Set sensitivity high and set pitch medium. While paying careful attention to the relaxed state of your muscles, imagine your hands being very damp or wet. Do not try too hard or pitch may increase from increased arousal rather than conscious control. Several attempts may be necessary before you will become proficient at raising the pitch of the tone. Once you have successfully completed this technique, try lowering the tone by imagining your hands being very dry. Be willing to try other thoughts to raise and lower pitch. Be careful that the words do not have an emotional effect on you however. Thoughts that carry an emotional component with them will

produce a false indicator of conscious control.

Do you have sweaty hands? Teach yourself how to keep them drier. Are your hands dry and chapped? Teach yourself to keep them moist and throw away all those hand creams!

11) EFFECTS OF LIFESTYLE ON EDA

EDA may be used to indicate our effectiveness in coping with life's events. Set sensitivity high and pitch to medium. Relax as in Experiment 9. Close your eyes and imagine events from the previous day. As you visualize these events, mentally note the changes in the EDA. Do you find that you are now reacting to past events where you were angry? Are there ways in which you might use the **EDA BIOSCAN** as a way of improving your effectiveness in your day-to-day activities by identifying and dealing with stressful situations? Take your **EDA BIOSCAN** with you when you go driving. What circumstances cause you to become tense? Are you reacting to these circumstances?

12) USING THE *Paradise* WITH YOUR EDA BIOSCAN

Monitor your EDA while using a DAVID *Paradise* audio-visual entrainment device. Do you find you achieve relaxation much faster using the *Paradise* compared to self-relaxation? Record the time in both settings and compare your results!

All of the previous exercises will provide you with a basic understanding of how EDA functions and how it is influenced. We hope that you will continue to explore with the **EDA BIOSCAN**.

Enjoy!

TROUBLESHOOTING

If	Meaning	Response
Indicator light is dim, poor sound	Low batteries	Replace battery
No EDA response Power light not on	Broken Sensor	Repair sensor wire
No sound in headphone	Headphone plugged into TAPE or SENSOR jack	Plug headphone into PARADISE jack
Sound only in left ear	Right ear audio switched off	Switch left/both ear selection in battery compartment.

ALSO AVAILABLE FROM Mind Alive Inc.

The following products are just a small sample of what is available at Mind Alive Inc. To order any of the following, contact your local distributor or Mind Alive Inc. Call us toll free at 1-800-661MIND (6463), or (780) 450-3729 for our international customers or fax us at (780) 461-9551.

For a complete list of products or for more information, we highly recommend that you visit our website at www.mindalive.com or email us at info@mindalive.com.

DAVID Paradise XL

Our most complete addition to our audio-visual entrainment devices, the *Paradise XL* is fully programmable from MS Windows. The *Paradise XL* offers 40 preset sessions (including four music modulations sessions), binaural beats or pulse tones, heartbeat, Tru-Vu Omniscreen™ eyesets, rechargeable internal batteries (with Travel Model) and more.

Special Application Sessions for the *Paradise XL+*, *Paradise XL* and *Paradise TC*. Includes Operator' s Manual and cassette or CD.

- **Wave Pattern Breathing** - Features several breathing and focusing exercises designed to lower stress, combat anxiety and hyperventilation, and relieve the respiratory and digestive systems of stress-related patterns of dysfunction. The sound of stereo ocean waves enhances the relaxing effect of the hypnotic script.

- **Slow the Body Down (on CD)** - This session guides the user to a deep relaxed state by listening to gentle music at a rhythm of 80 beats per minute and gradually slowing to 50 beats per minute.

Relax into Lucid Dreaming (on CD) - Guides the listener through the key skills of lucidity so that dreams become more vivid in the conscious mind at a higher level of awareness. Used for personal development, exploring dreams and to assist with sleep disorders such as insomnia.

- **In Psych for Sports** - This session teaches the user how to construct a detailed and vivid mental model, using as many senses as possible to increase the depth of neural imprinting of the Ideal Performance State (IPS).
- **Mind Aerobics for Golf** - A tangible way to effectively tap the potentials of your mind to enable you to get the most out of your physical abilities. Rocky Thompson, and several other PGA golfers hail this special application, as the "mental T-Off" which gave them the edge.
- **Developing Creativity** - A self-guided program to increase personal effectiveness and fulfillment and to access the vast untapped creative potential of the human brain.
- **Building Self-Esteem** - This session includes an effective approach for recovery from low self-esteem by offering cognitive strategies to reverse unrealistic expectations, reduce perfectionism, increase the ability to receive and integrate compliments, and reverse the tendency to live for the approval of others.

OASIS

Through cranial electrical stimulation (CES), the OASIS produces remarkable results by enhancing endorphin production, which assists in reaching deep relaxation. The OASIS, the only stereo CES device available, is extremely compact and lightweight.

AUDIO-CASSETTE TAPES & CDs

Hypno-Peripheral (HPP) Audio-Cassette Tapes & CDs by Dr. Lloyd Glauberman

HPP audio-cassette tapes and CDs use a powerful psychological technique combining dual induction Ericksonian hypnosis with sophisticated audio technology. Each tape or CD plays two metaphors simultaneously, one in each ear, to gently confuse the user into a deep relaxed hypnotic state ideal to absorb positive suggestions. Some topics include: Healing and Stress Management, Interpersonal Relationships and Self-Esteem, Creativity and Time Management and more.

BOOKS

The Rediscovery of Audio-Visual Entrainment Technology
by Dave Siever

New Technology For Attention & Learning by Dave Siever

Doing Neurofeedback by Richard Soutar