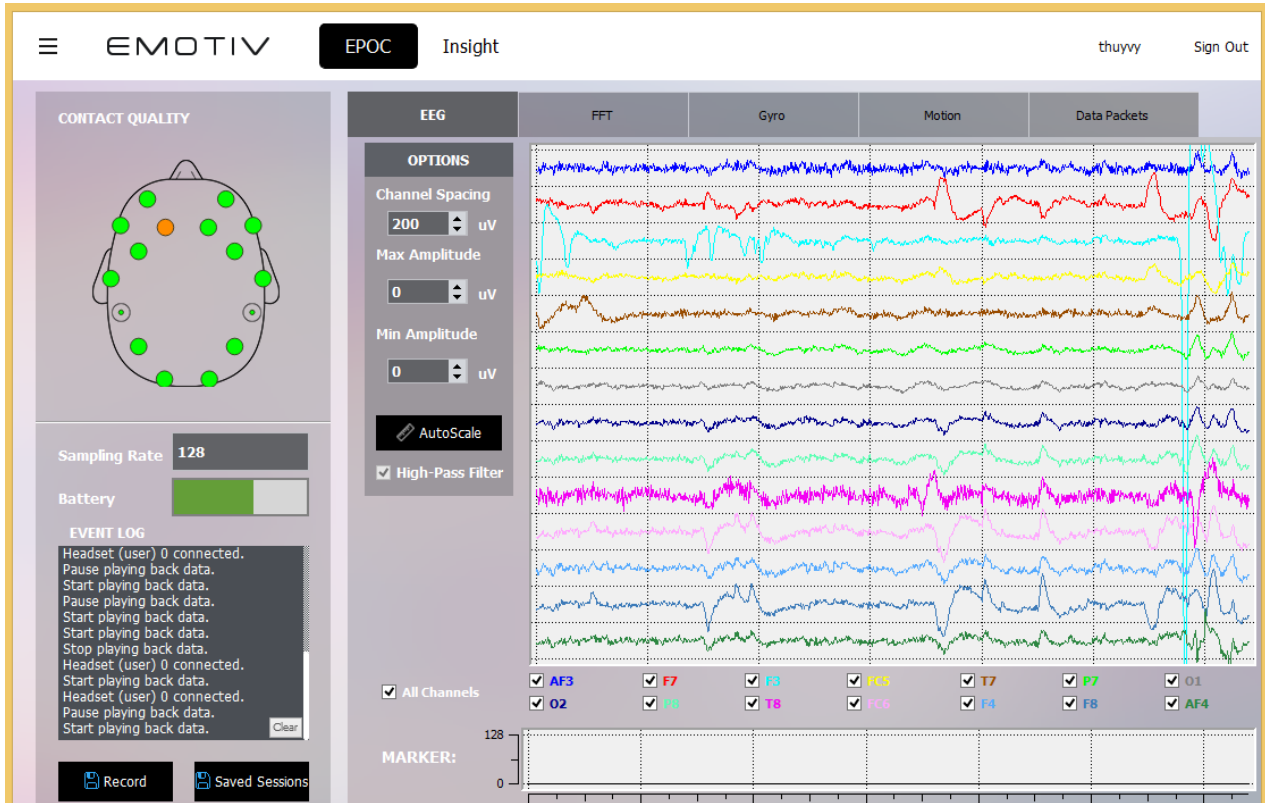


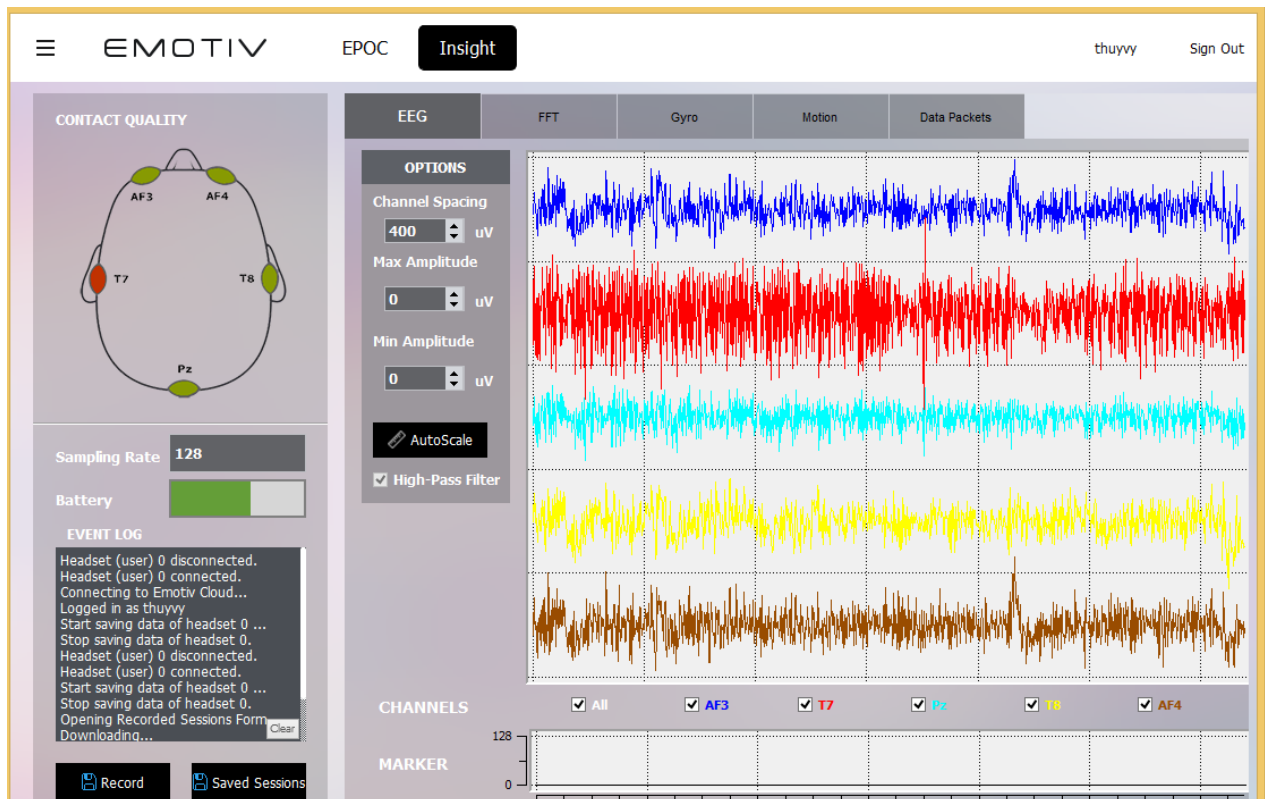
EMOTIV

Pure.EEG™

User Manual



Emotiv Xavier Pure.EEG EPOC/ EPOC+



Emotiv Xavier Pure.EEG Insight

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## 1. Introduction

This document is intended as a guide for Pure.EEG. It describes different aspects of the Pure.EEG, including:

### **Getting Started:**

Basic information about installing the Pure.EEG hardware and software.

### **Emotiv Xavier PurEEG :**

Introduction to Emotiv Xavier Pure.EEG, an application that configures and demonstrates the Pure.EEG detection Suites.

If you have any queries beyond the scope of this document, please contact the Pure.EEG support team.

## 2. Getting Started

### 2.1 Hardware Components

The Emotiv Xavier SDK consists of one or more SDK Epoc, Epoc+ or Insight neuroheadsets, one or more USB wireless receivers, and an installation application downloaded from the Emotiv website. Emotiv Xavier SDK does not include Pure.EEG or EEG emulation.

The neuroheadsets capture users' brainwave (EEG) signals. After being converted to digital form, the brainwaves are processed, and the results are wirelessly transmitted to the USB receivers. A post-processing software component called Emotiv EmoEngine™ runs on the PC and exposes Emotiv detection results to applications via the Emotiv Application Programming Interface (Emotiv API).

The Pure.EEG application can run concurrently with EmoEngine or it can run as a standalone program. Pure.EEG independently collects data packets from the USB device and processes them to display, analyse, record, upload to cloud and download from cloud recorded sessions to and play back time dependent EEG signals.



Figure 1: Emotiv SDK Setup

For more detailed hardware setup and neuroheadset fitting instructions, please see the "Emotiv SDK Hardware Setup.pdf" file shipped to SDK customers.

### **2. 1. 1 Charging the Neuroheadset Battery**

The neuroheadset contains a built-in battery which is designed to run for approximately 12 hours when fully charged. To charge the neuroheadset battery, set the power switch to the “off “ position, and plug the neuroheadset into the Emotiv battery charger using the mini-USB cable provided with the neuroheadset. Using the battery charger, a fully drained battery can be recharged to 100% capacity in approximately 100 minutes; charging for 15 minutes usually yields about a 10% increase in charge.

Alternatively, you may recharge the neuroheadset by connecting it directly to a USB port on your computer. However, please note that this method takes substantially longer to charge the battery. The neuroheadset contains a status LED located next to the power switch at the back of the headband. When the power switch is set to the “on” position, the LED will illuminate and appear blue if there is sufficient charge for correct operation. The LED will appear red during battery charging; when the battery is fully-charged,

### **2.2 Installation**

Please see the detailed installation instructions supplied in the SDK and User manuals. For a Windows PC, EPOC uses a standard USB HID driver system and will self-install the first time it is inserted into a USB port.

### **2.3 Setup and pair with bluetooth 4.0 Insight and Epoc+ headset**

You can see “How to set up and pair with Bluetooth 4.0 devices( Epoc+ and Insight).pdf” to set up and pair device

## **3. Emotiv Xavier Pure.EEG**

At the top right of Emotiv Xavier Pure.EEG is a place to user login. If you have a EmotivID account you only click Sign In, if not you click Sign Up to create a new EmotivID account.

### 3.1 Pure.EEG Status Panel

The left pane of Pure.EEG Panel is known as the Pure.EEG Status Pane. This pane shows neuroheadset sensor contact quality. It also exposes other functions which are described below, the LED will display green.

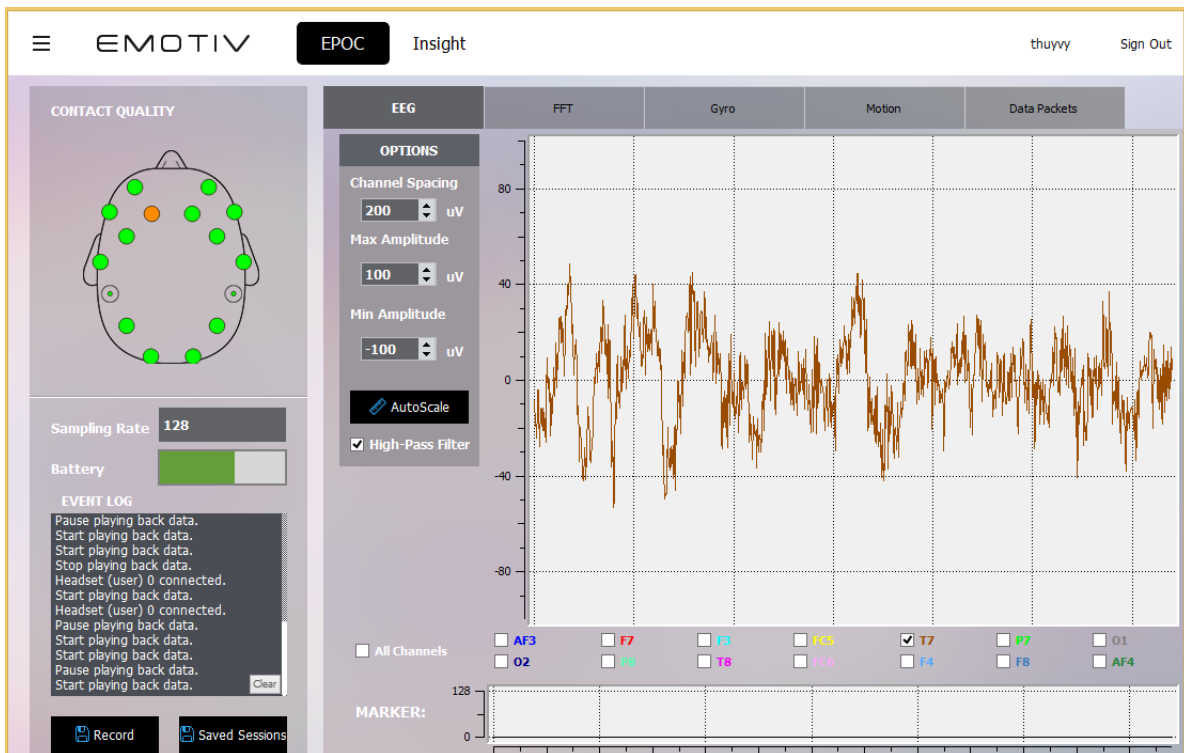


Figure 2 Emotiv Pure.EEG display showing one single EEG channel



### 3.1.1 Menu Items

The menu has four items:

#### Application

Save Current Screenshot: when you click this item a screenshot is taken and a path window opens so you may type a filename to save the screenshot. After you click the Save button on this window it is closed.

Quit: click this item to exit the program.

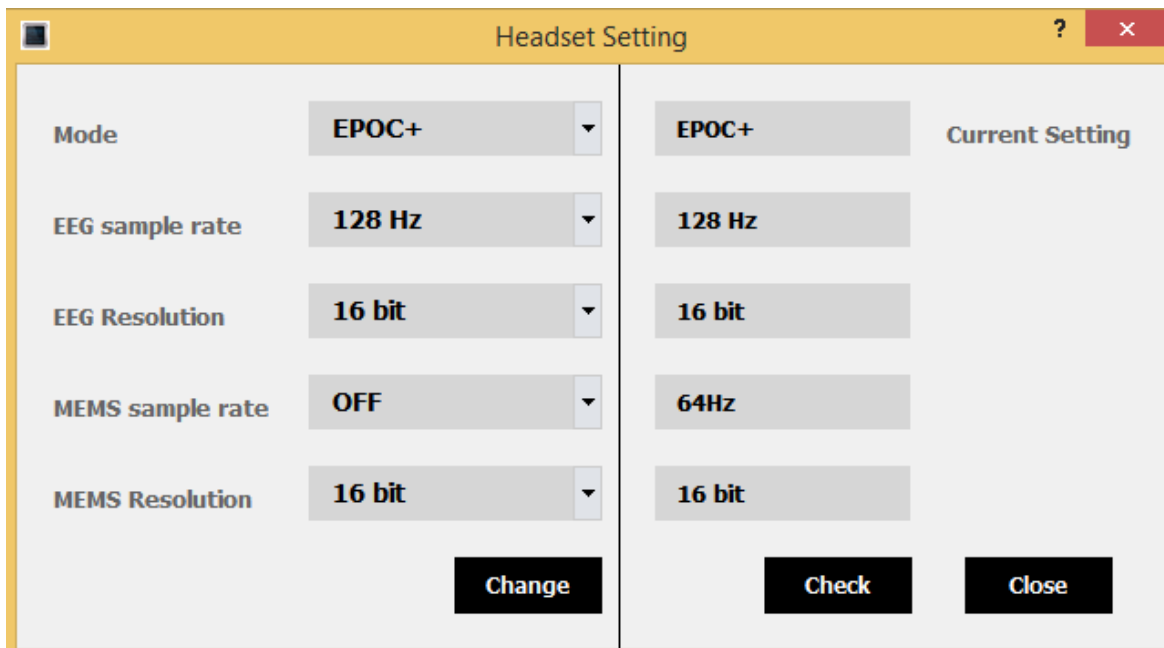
#### Tools

When you click “Convert EDF to CSV ...” a window appears so you can choose the EDF source file you wish to convert, and select destination folder of the converted file. Clicking OK button to convert file.

The “Load Local File...” item allows you playback EDF file on local. This function will load a .edf file data on screen. When playback is running you can see and analyse data for EEG, FFT, Gyro, Motion and Data Packets. With data was recorded by EPOC+/ Insight you have an addition option for loading motion data.

The “Choose dongle” item allows you to select between multiple EPOC/EPOC+/Insight headsets which are connected to the same PC. You can launch multiple instances of Pure.EEG on the same machine in order to record and view data from several headsets, or you can use one instance and switch between headsets to view each one in turn. In order to verify which headset is connected to an instance of Pure.EEG, briefly turn off the headset and check that the rolling display stops and restarts as you power the headset down and up.

The "Headset setting" item only has for Epoc+ headset. This item allows you to setting between multiple mode headsets, EEG sample rate, EEG resolution, MEMS sample rate, MEMS resolution.



You want to do this you need connect headset Epoc+ with computer by cable. You select mode suitable, after you click Change button. Epoc+ headset has 2 mode:

Epoc mode only has EEG sample rate is 128Hz and EEG Resolution is 14 bit. With Epoc mode will not display motion data.

Epoc+ mode has EEG sample rate are 128Hz and 256Hz, EEG Resolution is 16 bit, MEMS sample rate are OFF, 32, 64, 128, and the final MEMS Resolution is 16 bit. With Epoc + mode will display motion data.

*Note:*

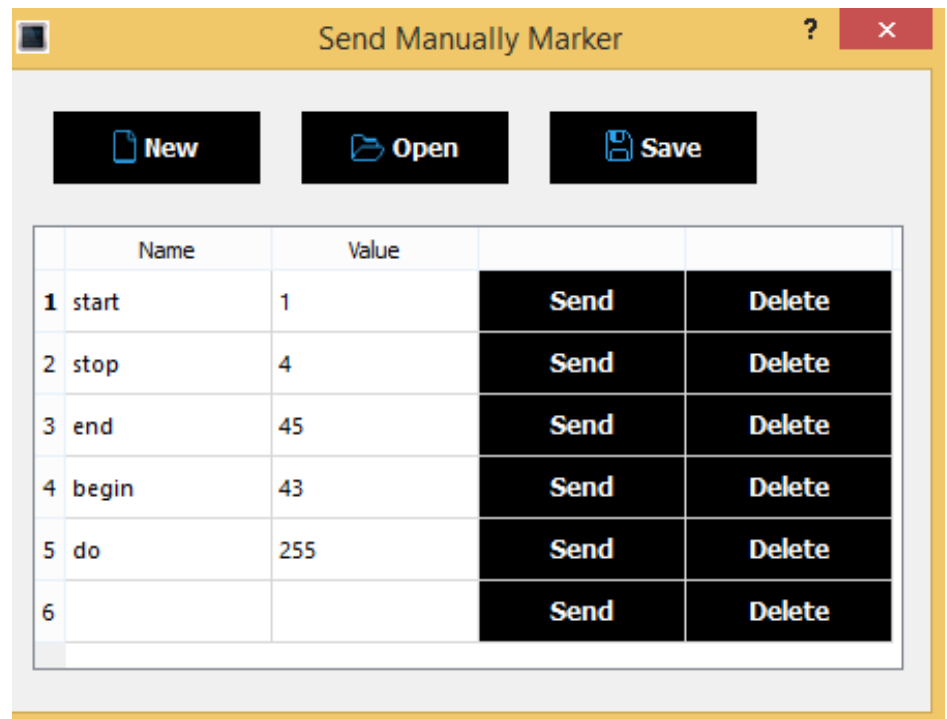
*If you get text: " Update failed. Please attach the cable to the headset in order to update the settings. Error 1", you need plugin cable to computer.*

*If you get text : "No devices connected. Error 1024 ", you are using Epoc headset and you can't change mode .*

## Marker

Markers are used to indicate specific events or areas of interest in EEG files as they are recording, so you can find the events later during playback or analysis. You can send markers manually, or connect to a serial port (or virtual serial port) or send via USB port to allow other applications to present stimuli to the EPOC user and mark the events automatically. Any marker entered will display in the Event Log pane and also on the Marker window at the bottom of the main EEG window.

Send manually: when you click this item, a Marker Configuration window is shown (see right). To define a marker type, start typing in the box next to the \* to add a new marker. Enter a unique numerical value (integer in the range 1-255). To make a marker appear in a file you are



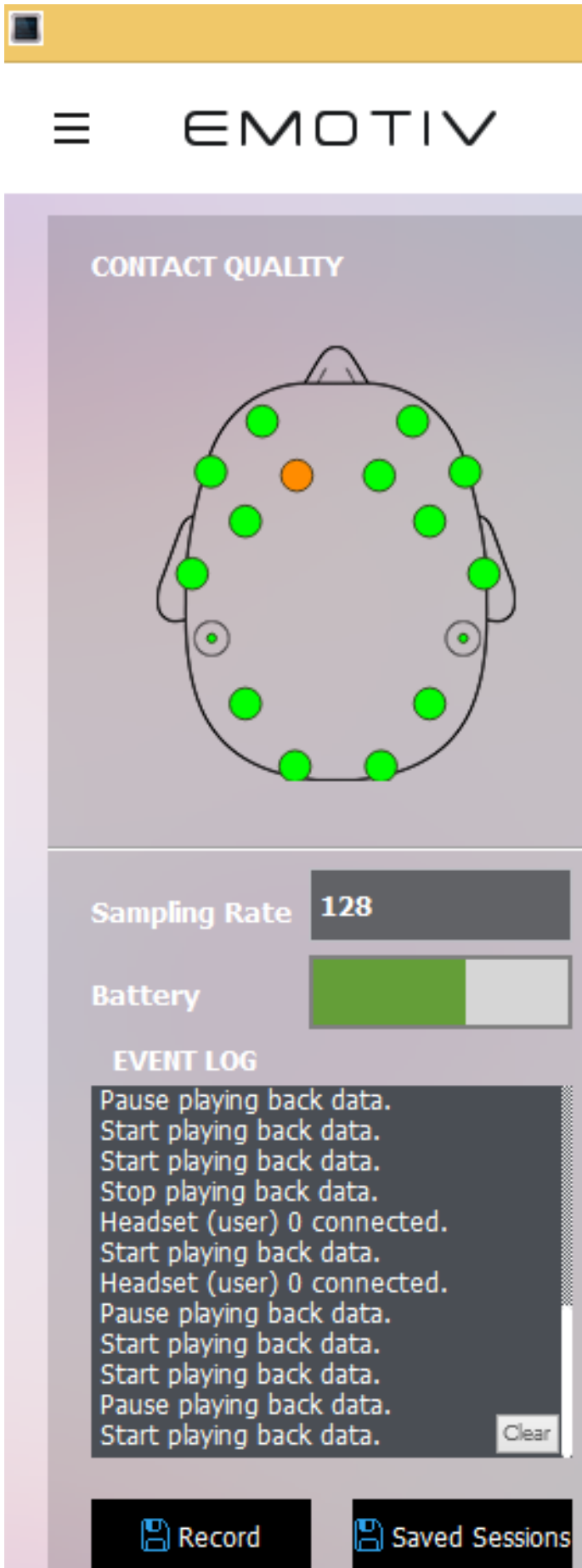
recording, click on the "Send" button next to the marker type you want to enter. In the example shown below, press the "Send" button next to the "Start" label when your subject is ready to start the experiment, and you will find a marker of value 1 in the data file when you play it back or analyse the data file. Click "delete" to remove the button. For convenience you can save, load and edit marker. At the top of the window are icons to create a new marker configuration file, open an existing file, save the current configuration and save a modified file with a different name, configuration files.

Configure serial port: Use this function to accept markers from a designated serial COM port for automated marker entry. When you click this item, a "Serial Port Configuration" window is shown, in which, you should choose the hardware configuration of the port which should be compatible with the sending application. A drop-down list appears at the top of the window allowing you to select between COM ports detected on the system, and the baud rate (bits per second), error checking and flow control settings can be set to match the sending device.

Send via USB port: Use this function to accept markers from a USB port for automated marker entry. When you click this item, a "SendViaUsbPort" window is shown, in which, you should choose a device in combo box and click OK.

## **Help**

Brings up the About Emotiv Xavier Pure.EEG box which allows you to view information about the version of Pure.EEG and some information about hardware as headset and dongle you are using.



### 3.1.2 Contact Quality Status

Accurate detection results depend on good sensor contact and EEG signal quality. This display is a visual representation of the current contact quality of the Individual neuroheadset sensors. You can observe Contact Quality Status to adjust sensors in such a way that all sensors is green is the best

### 3.1.3 Sampling Rate

The Sampling Frequency displays when the program implements. For EPOC/Insight this is fixed at 128 samples per second. With EPOC+ beside 128 there is 256 samples per second.

### 3.1.4 Battery Status

This status displays the battery of the headset, it helps users to easily view battery power for their purposes.

### 3.1.5 Event Log Status

Event Log is a window that display detailed information about significant events ( for example, program detect headset had connected or disconnected, Log in or log out of account...). Event Log consists of a rewritten event tracing and logging

architecture on Emotiv Xavier Pure.EEG. It has more precisely log event and to help make it been rewritten around a text format and a easier for support technicians and developers designated log type to allow application to to interpret the events.

You must be logged in as a EmotivID account to do all tools and show all event log.

When users interact with app one event log will be showed on Event Log and next is status of task is finished or failed . You can click Clear button to delete all Event Log.

### **3.1.6 Record Button**

If users want to save this data, they have to click the Record button. The Recording Configuration window opens, users enter Subject ID and Record ID to create file name for session. Click to Start button to begin record. During recording you can add Marker or create Gyro, Motion to tick data. When you want to stop recording , you need click Stop button and one Session will add to Recorded Session with EmotivID account you are Sign In.

### **3.1.7 Saved Sessions**

If you want to view all sessions in your EmotivID account, you need only click Saved Sessions button. There is a table display with name is Recorded Sessions. This table stored all sessions was recorded by your account login and information of it as SubjectID, RecordID, Start Time, Duration(s), Local, Cloud.

	SubjectID	RecordID	Start Time	Duration (s)	Local	Cloud
1	thuyvy	thuy	2015-12-22 10:36:57	00:03:35	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
2	ngoc	thuy	2016-01-04 11:35:21	00:00:37	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
3	ngoc	thuy	2016-01-04 14:24:24	00:00:28	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
4	ngoc	thuy	2015-12-29 15:44:30	00:03:32	<input type="checkbox"/>	<input checked="" type="checkbox"/>
5	test	epocplus	2016-01-04 11:36:20	00:00:54	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
6	sixfloor	thuu	2015-12-22 10:46:00	00:00:26	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
7	ngoc	thuy_epoc	2015-12-29 16:02:44	00:02:25	<input type="checkbox"/>	<input checked="" type="checkbox"/>
8	ngoc	epoc_plus1	2016-01-04 14:14:13	00:00:00	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
9	thuyvy	thuy	2015-12-22 11:25:18	00:00:21	<input type="checkbox"/>	<input checked="" type="checkbox"/>
10	ngoc	epoc_plus1	2016-01-04 14:15:06	00:00:00	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>

**Replay Session**

**Download from Cloud**

**Export**

**Remove from Local**



SubjectID and RecordID columns: store name you entered at recording.

Start Time: time when you begin recording session include date and hour.

Duration(s): period of time from start to stop recording.

Local: This box ticks sessions is available on local cache, if not you need download from cloud to local.

Cloud: With sessions were uploaded to cloud successfully will be ticked in this column.

Below table is four button:

Replay Session: when you select one session and click Replay Session button. A window Playback Controller will display to reload all session on screen.

The screenshot shows the EPOC Insight software interface. At the top, there is a navigation bar with the EMO TIV logo, a dark button labeled 'EPOC', and the text 'Insight'. On the right side of the navigation bar, the user name 'thuyvy' and a 'Sign Out' link are visible. The main interface is divided into several sections:

- CONTACT QUALITY:** A diagram of a head with colored dots representing electrode positions.
- EEG, FFT, Gyro, Motion, Data Packets:** A series of real-time data plots.
- OPTIONS:** A panel with 'Channel Spacing' set to 200 uV and 'Max Amplitude'.
- Recorded Sessions:** A table with columns 'SubjectID' and 'RecordID'. Below the table are buttons for 'Replay Session' and 'Download from Cloud'.
- EVENT LOG:** A log of system events such as 'Headset (user) 0 connected.' and 'Start playing back data.'.
- Playback Controller:** A modal window with an 'Open File' button, input fields for 'File path', 'Subject ID', 'Record ID', 'Date', and 'Start time', a progress slider, a timer showing '00.00:51', and 'Play', 'Pause', and 'Stop' buttons.

Download from Cloud: if a session only store on cloud, we need download that session to local to replay, export and remove from local.

Export: that means you can select a session is available on local in Recorded Session, then you can export as EDF or export as CSV to folder as your option. Then you can open that file for view data, research...



Remove from Local: delete the file in local cache so that user can free up some local space and this action only enables if session has been uploaded to cloud.

If you have more than 10 sessions, there is a button ">" at the right corner to go to next page.

### 3.2 EEG Suite

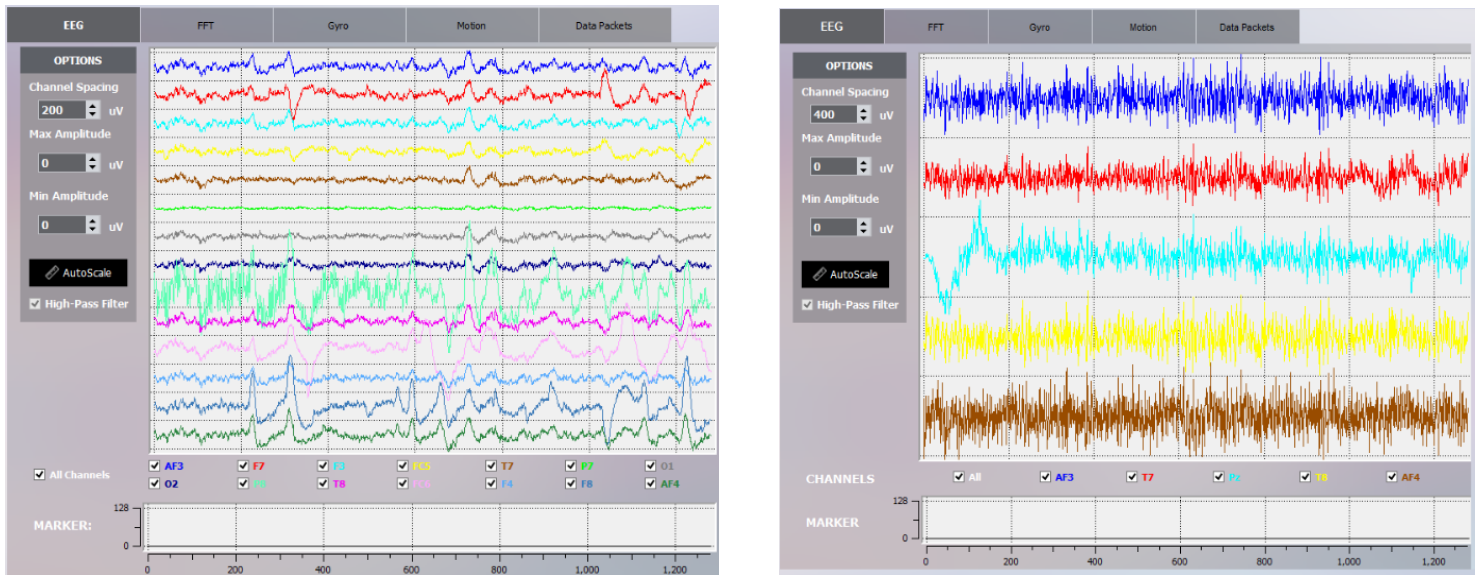


Figure 3 EEG Suite

#### 3.2.1 EEG Suite Introduction

The EEG Suite reports real time changes in the subjective emotional experiences by the users. EEG shows brainwave signals of 14 channels with Epoc/Epoc+ headset (AF3, F7, F3, FC5, T7, P7, O1, O2, P8, T8, FC6, F4, F8, AF4) and 5 channels with Insight headset (AF3, T7, T8, AF4, Pz). In this mode, the users can choose to display one or more channels, and if users choose to display one channel, you can use AutoScale button. The main function of AutoScale button is automatic alignment of the upper and lower limits consistent with the current channel values.

You can set the vertical scale when more than one channel is displayed by changing the Channel Spacing value, which changes the vertical scale so that the difference between successive channel displays is equal to the number displayed in the box (to double the vertical resolution, change the number to 100  $\mu$ V)

### 3.2.2 Understanding the EEG Panel Display

On the right-hand side of the EEG panel is a series of graphs, indicating the various channels' detection event signals. The first graph displays selected brainwave signals with different colors, the signals will change following the experience of users. The second graph displays Marker events, when users want to mark important signal slots to review. This graph helps users to easily review and take note.

On the left-hand side of the EEG panel is the function buttons which change the parameters of two graphs.

Channel selection check boxes: Select "All channels" or uncheck that box to display selected channels.

Channel Spacing: The width of display area of a channel, in the multi-channel display mode. This changes the vertical resolution of the display when more than one channel is selected.

Max Amplitude: Upper limit of the value displayed in single channel display mode.

Min Amplitude: Lower limit of the value displayed in single channel display mode.

Auto Scale: Automatically aligns the upper and lower limit in line with the current channel values (lower limit is +/- 100  $\mu$ V).

High-Pass Filter (activated by default): Removes the DC offset by applying a 0.16Hz high-pass filter. This filter can only be removed for single-channel display.

### 3.3 FFT Suite

#### 3.3.1 FFT Suite Introduction

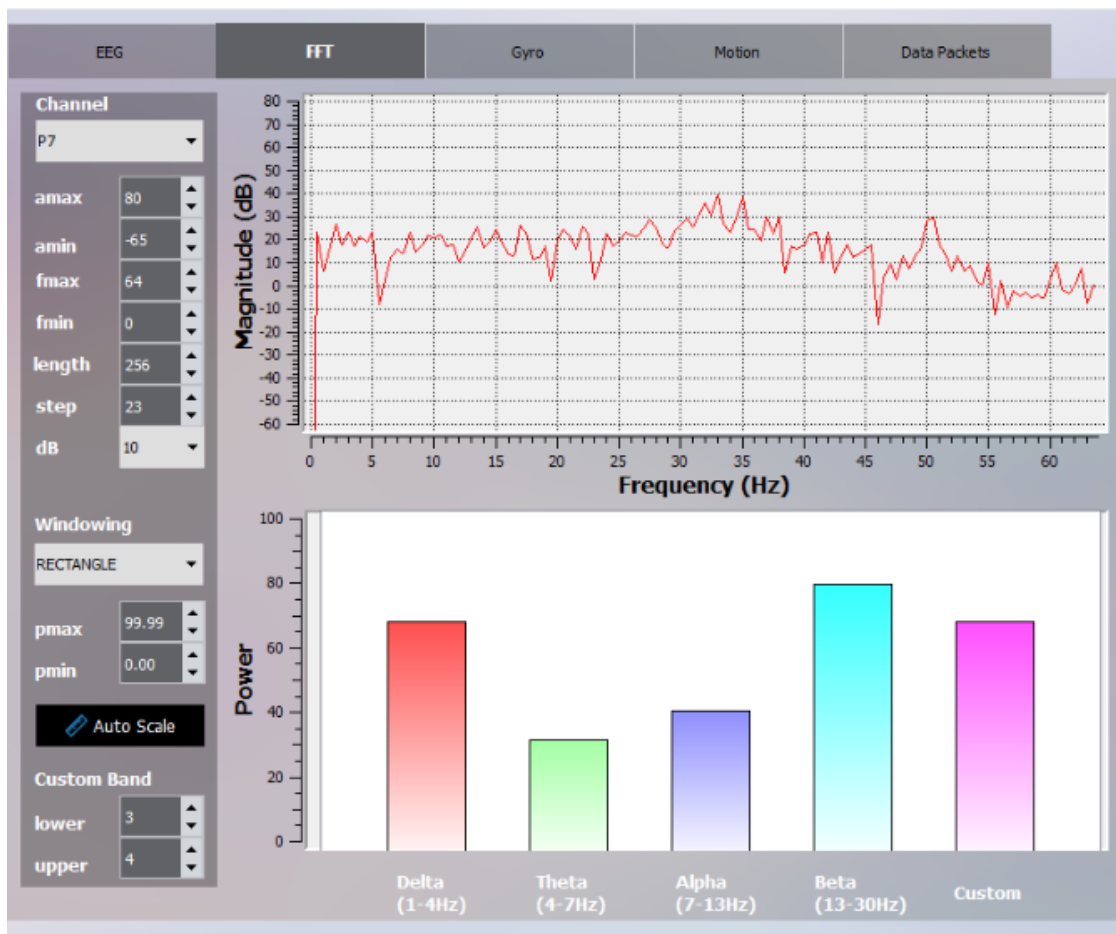


Figure 4 FFT Suite

The FFT Suite shows EEG graphic the frequency domain and the power of signal in the frequency band

### 3.3.2 Understanding the FFT Panel Display

On the right-hand side of the FFT panel is a series of graphs, indicating the power spectrum of the selected channel in real time. The second graph displays the Power of signal in specific frequency bands: Delta (1-4Hz); Theta (4-7Hz); Alpha (7-13Hz); Beta (13-30Hz); and one user-defined Custom band.

On the left-hand side of the FFT panel are the function buttons which change the parameters of the graphs.

**The functions for the first graph are:**

**Channel:** Choose channel to show (only one channel at a time may be viewed). In playback mode you can pause the display and switch between channels to compare them.

**Amax:** The upper limit of the display in dB

**Amin:** The lower limit of the display in dB

**Fmax:** The upper frequency limit for the display (limited to 64Hz for EPOC)

**Fmin:** The lower frequency for the display

**Length:** The sampling window length. This is the total number of samples used to calculate the FFT -the default is 256 samples = 2 seconds. If you are interested in very low frequencies, make sure your sample length is at least 10 cycles of the lowest frequency of interest - so if you want to look at 1Hz, collect at least 10 seconds (1280 samples) or preferably go up to the next power of 2 since the FFT algorithm works best for those sample sizes- in this case 1024 or 2048 samples would be OK for measuring 1Hz with reasonable accuracy.

Step: The sliding step sampling - this is the number of samples that elapse between successive calculations for display. A step length of 16 means the calculation is performed and the display is updated 8 times per second.

dB: the dB basis for calculation - dB=10 for power scale (default), dB= 20 for voltage scale

Windowing: Choose the FFT filter window type. Generally not necessary.

**The functions of the lower bar graph are:**

Pmax: The upper display limit of power

Pmin: The lower display limit of power

Auto Scale: Automatically aligns the upper and lower limit in line with the current channel values

Custom Band: Adjust the upper and lower limit of the frequency band of the Custom bar

Lower: The lower of the frequency band of Custom

Upper: The upper of the frequency band of Custom.

## 3.4 Gyro Suite

### 3.4.1 Gyro Suite Introduction

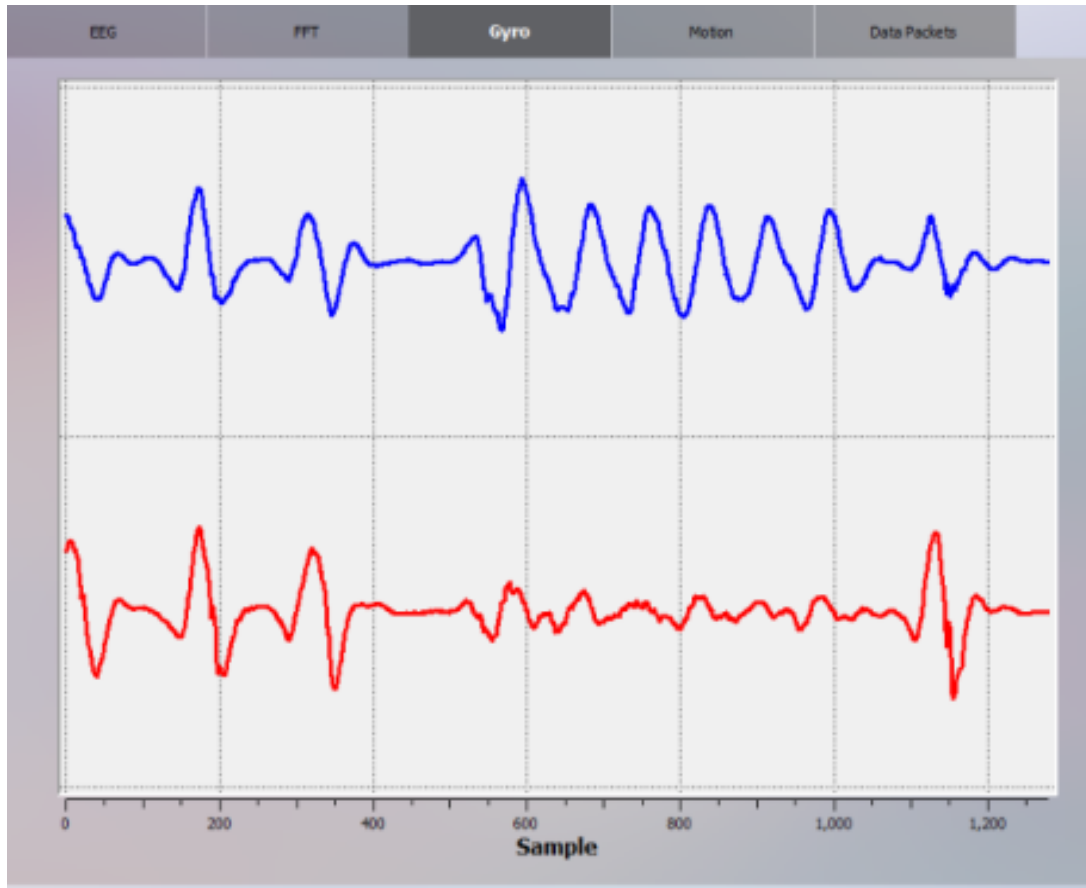


Figure 5 Gyro Suite

The Gyro Suite displays the rotational acceleration of the head in horizontal and vertical axes.

### 3.4.2 Understanding the Gyro Panel Display

The graph has two signal lines:

Gyro X: the upper signal shows signal moving in the horizontal axis

Gyro Y: the lower signal shows signal moving in the vertical axis

### 3.5. Motion tab

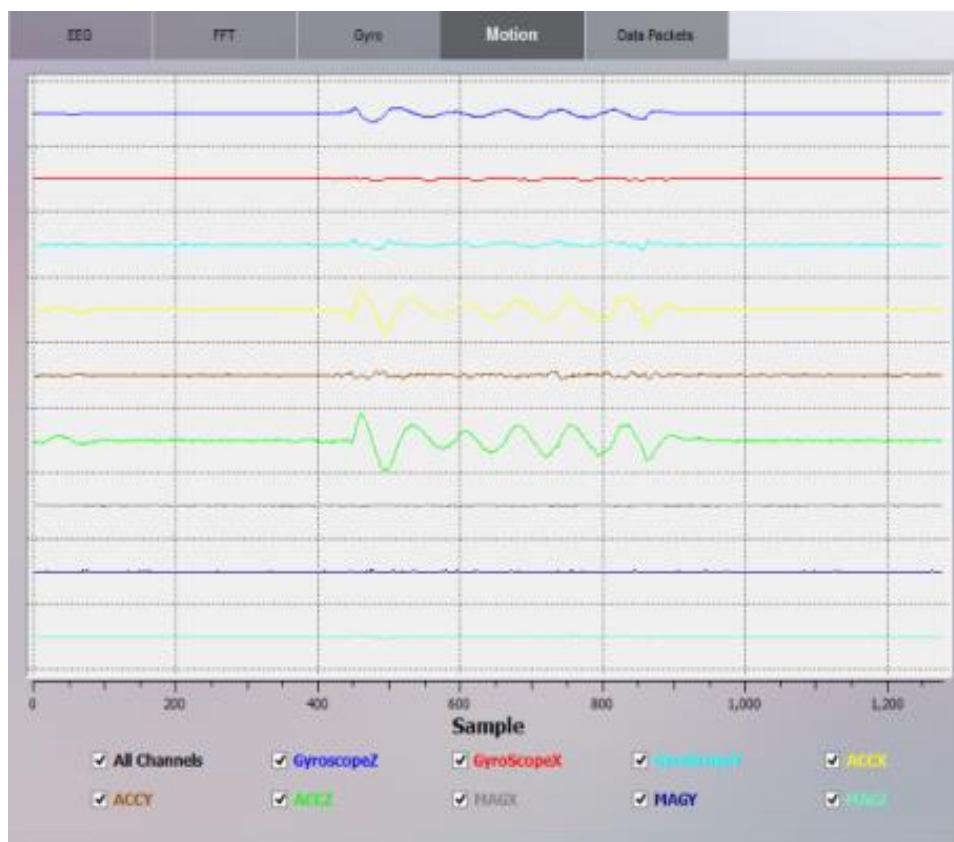


Figure 6 Motion tab

#### 3.5.1 Motion tab Introduction

The Motion reports real time changes in the rotational acceleration of the head in GyroScopeX, GyroScopeY, GyroScopeZ, ACCX, ACCY, ACCZ, MAGX, MAGY, MAGZ axes. In this mode, the users can choose to display one or more channels.

Motion panel is a series of graphs, indicating the various channels detection event signals. This graph displays selected signals with different colors, the signals will change following the motion of users.

### 3.6 Data Packets Tab

#### 3.6.1 Data Packets Suite Introduction

The Data Packets Suite shows the data packet counter and the lost packet indicator. You can clearly see any wireless drop-outs.

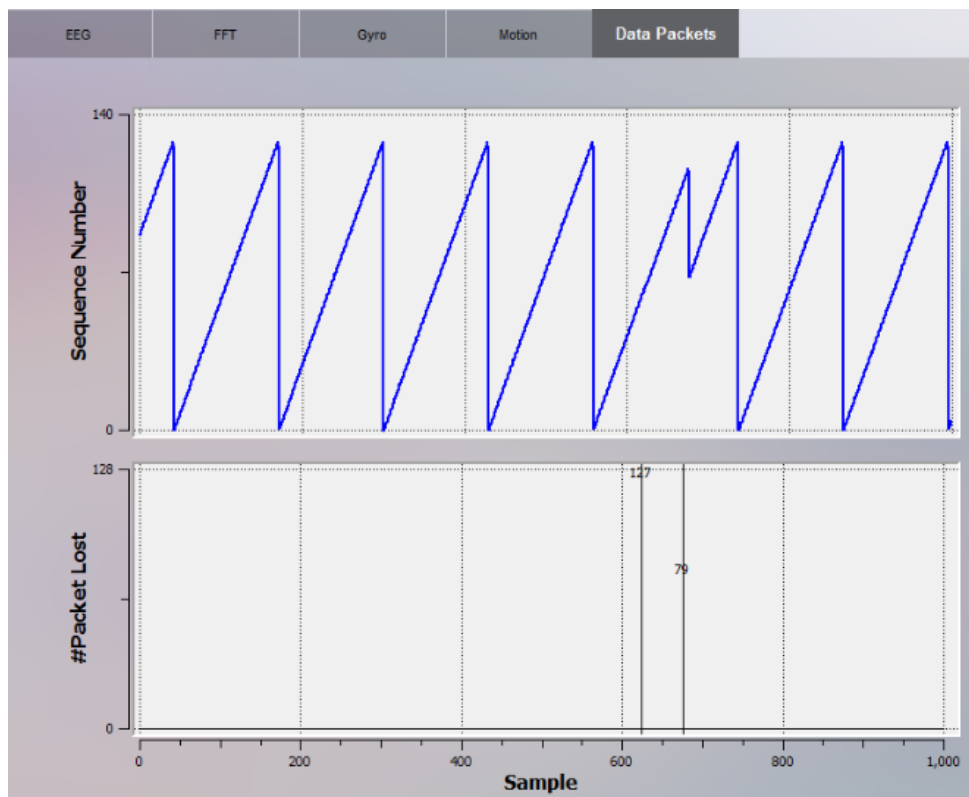


Figure 7 Data Packet Counter and Packet Loss Display



## 3.6.2 Understanding the Data Packets Panel Display

First chart: specifies clearly the packet number is read.

Second chart: displays the number of packets lost

## 4. Data File Format

### 4.1 Introduction

Data is stored by Pure.EEG in a standard binary format, EDF, which is compatible with many EEG analysis programs such as EEGLab. Following the initial information line, each successive row in the data file corresponds to one data sample, or  $1/128$  second time slice of data. Successive rows correspond to successive time slices, so for example one second of data is contained in 128 rows. Each column of the data file corresponds to to an individual sensor location or other information tag.

### 4.2 Descriptive Tags

The file consists of a single line containing reference information for the remainder of the file, arranged as information tags. Each tag consists of a tag name, a colon (:), and information separated by one whitespace character. There are seven tags in the following format:

**title: Demonstration**

This is the title of the file entered in the recording window.

**recorded: 28.07.15 11.14.10**

Date and time (local format) the recording was started.

**sampling: 128**

Sampling rate in samples per second.

**subject:Geoff**

Subject ID as entered in the recording window.

**labels:** COUNTER INTERPOLATED AF3 F7 F3 FC5 T7 P7 O1 O2 P8 T8 FC6 F4 F8 AF4 RAW\_CQ  
GYROX GYROY MARKER SYNC TIME\_STAMP\_s TIME\_STAMP\_ms CQ\_AF3 CQ\_F7 CQ\_F3  
CQ\_FC5 CQ\_T7 CQ\_P7 CQ\_O1 CQ\_O2 CQ\_P8 CQ\_T8 CQ\_FC6 CQ\_F4 CQ\_F8 CQ\_AF4  
CQ\_CMS CQ\_DRL (Epoc mode)

**labels:** COUNTER INTERPOLATED AF3 T7 Pz T8 AF4 RAW\_CQ GYROX GYROY MARKER  
SYNC TIME\_STAMP\_s TIME\_STAMP\_ms CQ\_AF3 CQ\_T7 CQ\_Pz CQ\_T8 CQ\_AF4 (Insight  
mode)

These are the headings for each data column (see below).

**chan:39**

Count of the total number of information columns in the remainder of the file (note - this includes all columns, not just EEG data).

**units:emotiv**

Measurement units. One emotiv unit is almost exactly one microvolt.

## 4.3 Column Headings

### COUNTER

Packet counter- use as a timebase, The counter runs from 0 to 128 (note there are 129 counter values - it takes one sample longer than a second to cycle around the full count)

## **INTERPOLATED**

This is a flag which shows if a packet was dropped and the value interpolated from surrounding values. FLAG=0 means the sample was good.

## **AF3..AF4**

EEG channels

## **RAW\_CQ**

This is a multiplexed conductivity measurement used to derive the contact quality indicator lights. It is possible to demultiplex this channel if more accurate conductivity measurements are required. The multiplexer cycles twice through the electrode in each 129-sample cycle.

## **CQ\_AF3..CQ\_AF4**

These numbers show the colour of the CQ Map indicators, where 0=BLACK, 1=RED, 2=ORANGE, 3=YELLOW, 4=GREEN (Epoc mode) sOr 0=BLACK, 1=RED, 2=ORANGE, 3=GREEN (Insight mode)

## **CQ\_CMS, CQ\_DRL**

The colours for the the reference locations- either RED (1) or GREEN (4)

## **GYROX, GYROY**

Horizontal and vertical difference readings since the previous sample.

## **MARKER**

Timing markers manually or automatically entered in the file. If no marker was detected at the particular timing sample, a value of zero is added into the file, otherwise the number associated

with the marker button, or the byte transmitted to the COM port, is entered in the MARKER column for that sample.

## 4.4 Notes on the Data

### DC Offset

EEG data is stored as floating point values directly converted from the unsigned 14-bit ADC output from the headset. This means that the (floating) DC level of the signal occurs at approximately 4200  $\mu\text{V}$ , negative voltages are transmitted as positive values less than the average level, and positive voltages are transmitted as positive values greater than the average. In order to remove the DC offset, especially before performing any kind of analysis such as Fast Fourier Transform (FFT) it is necessary to apply some kind of DC offset removal. The simplest method is simply to subtract the average from the entire data channel, although this is the least accurate. Ideally you should apply a high-pass filter which matches the characteristics of the electronics -that is, you should use a 0.16Hz first order high-pass filter to remove the background signal (this also removes any longer term drift, which is not achieved by the average subtraction method). Another method is to use an IIR filter to track the background level and subtract it an example is shown below in Matlab pseudocode, assuming the first row has been removed from the array `input_data()`:

```
IIR_TC = 256;
```

2 second time constant- adjust as required

```
EEG_data = input_data( : ,3:16 );
```

select out only the EEG data

```
[rows columns]= size(EEG_data);
```

rows= number of data samples, columns= 14

```
AC_EEG_data = zeros(rows, columns);
```

reserve space for the output data file

```
back= EEG_data( 1, : );
```

copy the first row of data into the background file

```
for r = 2 : rows
```

```
back= (back* ( IIR_TC- 1 ) + EEG_data( r,:)) / IIR_TC;
```

```
AC_EEG_data = EEG_data( r,:)- back;
```

```
end
```

This demonstration code is not efficient in memory and assumes the entire file is available. It is quite straightforward to modify the code to replace the data in the source array rather than making a separate AC-coupled array, and also to run the IIR filter in open-ended form for processing in real time.

Note the vectorised form of the background recalculation at each iteration - each individual channel background average is retained in the relevant column of "back". At each step the running average is reestimated using the new input value. Note also that the first IIR \_TC samples are biased towards the initial value but this settles down after about  $2 * IIR\_TC$  samples.

It is very important to remove the background signal before performing an FFT - you should also apply a tapered window function such as a HANNING transform before executing the FFT to ensure there are no wrapping artefacts where the FFT treats the data as an infinitely repeating sequence, and any mismatch between the first and last samples appears as a STEP FUNCTION in the analysis, injecting noise across the spectrum.

## 5. Offline Mode

### 5.1 Introduction Self-hosted Feature in Pure.EEG and APIs

- Self-hosted feature allows user to save/load EEG data from Pure.EEG or Emotiv SDK libraries.
- User install Pure.EEG, and activate the offline recording mode. Pure.EEG display dialog to show a generated client id (unique for each device), and a dialog to ask for EmotivID, and license key.
- User can buy the self-hosted license from the Emotiv web store. After successful transaction they will need to submit the unique client id generated from Pure.EEG, and EmotivID in order to generate a valid license key based on the subscription information.
- User registers the license key and EmotivID in Pure.EEG to activate the self-hosted feature which enable offline recording.

### 5.2 Features

- A "session" is defined as a continuous recording of 30 minutes or less. If the session is longer than 30 minutes, it is counted as 2 or more sessions.
- User can upgrade their license if they need more recording capacity.  
For example: User has a license for 50 sessions, and have made 30 recordings.  
He can upgrade to a license for 100 sessions, and he will have  $100 - 30 = 70$  sessions left.
- Each license key is for a particular device under a particular EmotivID, and may be valid to be used for a specific headset only.
- If you have the self-hosted license, you can record offline and online.
- If you have the hosted license, then you can record online only.
- For Pure.EEG, auto SyncToCloud with all edf file that record in offline mode after login online mode is success