Avatar EEG Solutions Inc.
503 815 First St SW
Calgary, AB T2P 1N3
Tel: 403.650.0466
Fax: 403.668.9896
www.avatareeg.com
contact@avatareeg.com

Avatar EEG Android App User Guide

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The Avatar EEG Android app is designed to allow you to view live EEG data from your Avatar EEG Recorder in real time. The app connects to an Avatar recorder over Bluetooth, and plots data on an oscilloscope as it is read by the recorder.

Installing the app

To install the Avatar EEG app, locate it on the android marketplace (here), tap install and follow the installation instructions.

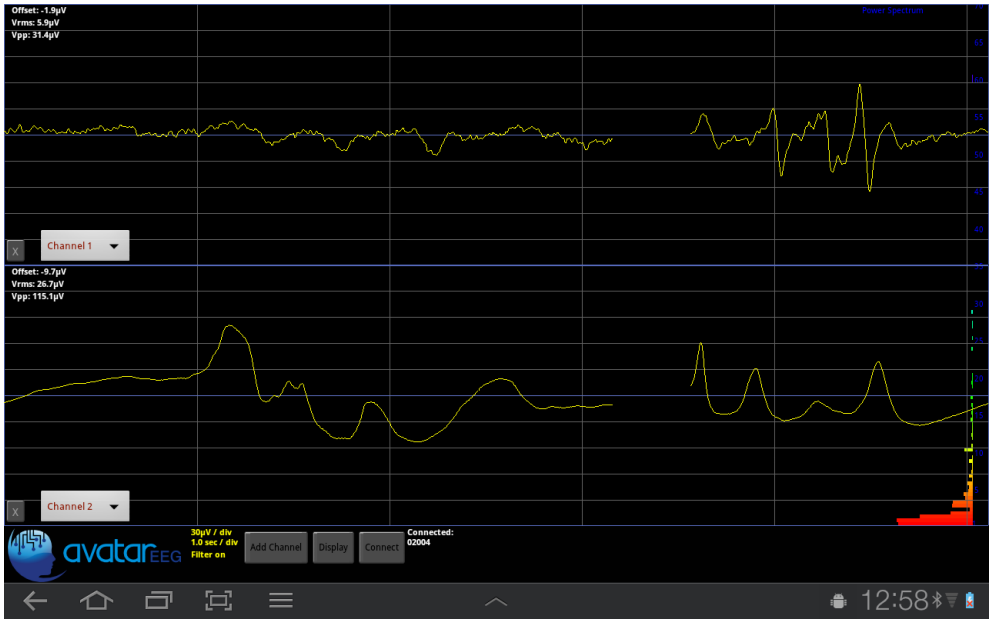
Connecting to a device

After installing the app on your Android device, ensure that Bluetooth is enabled on the Android device (see your device's manual for specific instructions on enabling Bluetooth). With Bluetooth enabled, launch the Avatar EEG app and press the connect button. If your device is not listed in the paired devices menu, tap "scan for devices" to locate it. Note that you must pair your Avatar recorder with your Android device in order for it to appear in the paired devices menu.

Navigating the app

Changing the scale and pausing the display

The signal received from the recorder is displayed in an oscilloscope, which takes up most of the screen. By default, the vertical scale (amplitude of the signal) is 100 microvolts per division, and the horizontal scale (time) is 1 second per division. The vertical scale can be changed by pinching with two fingers on the oscilloscope. The horizontal scale can be changed by swiping with one finger on the oscilloscope. Swipe left to slow the signal down (increase the time per division) and swipe right to speed the signal up (decrease the time per division). Note that at the highest speed—0.5 seconds per division—the signal is drawn at 500Hz, the sampling rate of the avatar recorder. At slower speeds the displayed signal is down sampled. To pause the displayed signal, double tap the screen.



Changing, adding, and removing channels

The channel selector in the bottom left corner of the oscilloscope displays the current channel. Tap it to select a different channel. Adding a channel is as simple as tapping the "Add Channel" button. Similarly, to remove a channel, tap the "x" button in the lower left corner of an oscilloscope.

Display options

Tap the display button at the bottom of the screen to see a list of display options

- **Apply Filter**: if checked, the data are filtered as they are received using a 500Hz Butterworth band pass 2nd order, .05 – 35Hz filter.
- **Show Power Spectrum**: If checked, a normalized power spectrum is displayed on the left side of the screen. The vertical axis is Hz, the horizontal axis is percentage of the signal (up to 50%). For quick reference, the plotted bins are coloured according to their Hz value:
  - Red corresponds to delta waves.
  - Orange to theta waves.
  - yellow to alpha waves.
  - Green to beta waves.
  - Blue to gamma waves.

  Note: if multiple channels are displayed, the power spectrum always corresponds to the data displayed by the uppermost channel.
- **Show RMS**: If checked, the root mean square of the signal is displayed in the upper left corner of each oscilloscope.
- **Show VPP**: If checked, the peak to peak value of the signal is displayed in the upper left corner of each oscilloscope.
- **Show DC Offset**: If checked, the DC offset (the mean distance of the signal from zero) is displayed in the upper left corner of each oscilloscope.

Test Mode

If the app is started with Bluetooth turned off, it will enter test mode. Test data are generated on the first three channels as follows:

- Channel 1: a 2Hz, 50µV amplitude sin wave with 60 Hz noise, offset by 50µV.
- Channel 2: a 2Hz, 50µV amplitude sin wave with 60 Hz noise and no offset.
- Channel 3: a 5Hz, 200mV amplitude sin wave with no noise, offset by 100mV.