Veeuro

MINDVIEWER

User Manual

March 2025

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MindViewer Overview

MindViewer is a visualization tool for Neeuro SenzeBand*, an EEG (Electroencephalogram) device that lets you understand your mental states in real-time while doing your day-to-day activities such as studying, working, or just taking a break.

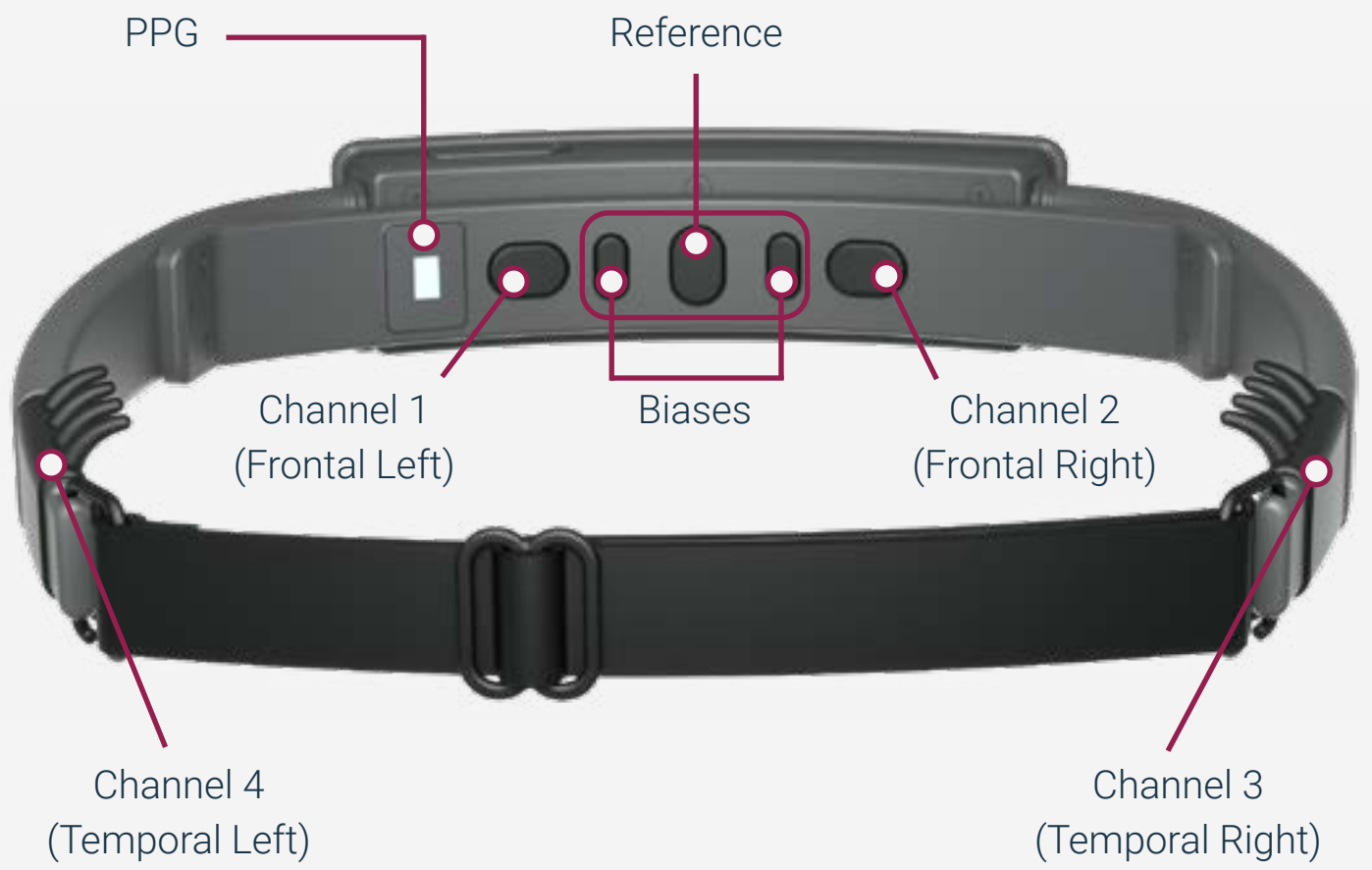
MindViewer can measure your brain signals (EEG), gauge your mental states (attention and relaxation) and compare the relative strength of your frequency bands including delta, theta, alpha, beta and gamma waves.

Alongside the application, it uses a brain signal sensor device, the SenzeBand*, to analyse the brain signals received, to understand the mental state of the user. The user's mental state is then tracked throughout the duration of use.

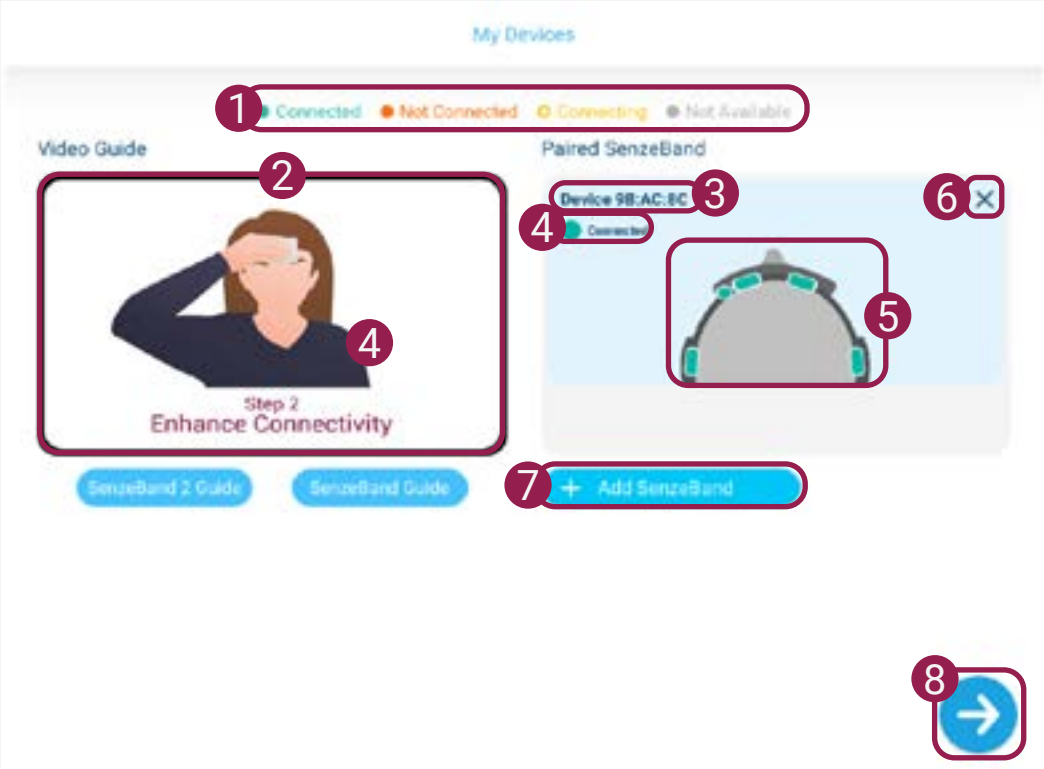
MindViewer is an application that is designed to fit mobile devices. The application is available for Android and iOS.

*Neeuro SenzeBand or Neeuro SenzeBand 2

SenzeBand 2


PPG
Reference
Channel 1
(Frontal Left)
Biases
Channel 2
(Frontal Right)
Channel 4
(Temporal Left)
Channel 3
(Temporal Right)

MindViewer - SenzeBand Connection Panel



1. **SenzeBand Availability Legend**
   - Defines the different SenzeBand availability
2. **SenzeBand Guide**
   - SenzeBand Connection Video Guide
   - Select to view options menu
3. **SenzeBand ID Number**
4. **SenzeBand Availability and Bluetooth connection status**
   – Refer to 1
5. **Sensor Contact Indicator**
   – Green/Red
6. **Remove SenzeBand Button**
   – Remove currently connected SenzeBand
7. **Add SenzeBand Button**
8. **Proceed Button**
   – Access and begin using MindViewer

MindViewer - Main Panel

1 Panel Tabs
– Toggle between different panels

2 Back Button
– Return to SenzeBand Connection panel

3 Help Button
– MindViewer Guide

4 Activity Screen
– Display the selected panel activity

5 Elapsed time
– Live recording duration

6 Live Feed Button
– Toggle between ON/OFF to start and stop data recording. In Live Feed is ON, data recording is ongoing. Press button to stop recording session and save data into CSV.

7 Statistics
– View the time the session started and the time the user checked the statistic panel.

– Show summary of the user's mental states and frequency band.

MindViewer Overview

EEG Panel

1 PPG sensor
- Heart rate (bpm)
- Oxygen level (%)

2 Live EEG signals Waveforms
- Live EEG signals monitored from each of the 4 individual channels

3 Impedance Check Button
- Enter/Exit the signal quality check mode.
- Off (White button) / ON (Blue button)

4 More information Button
- Explanation on what the “Impedance Check” means and how it affects the SenzeBand’s signal sensitivity is displayed.

Frequency Band Panel

1 EEG Individual Channel Buttons

– Left: Temporal Left
– Center Left: Frontal Left
– Center Right: Frontal Right
– Right: Temporal Right

2 Frequency Band Waveforms

– Displays all 5 frequency bands of each Individual channels.

3 Frequency Band Buttons

– Legend to define each graph representation
– Toggle to ON/OFF the graphs

Gamma (>31Hz)

Gamma increases when a person is in stress or high arousal.

Beta (14-30Hz)

High Beta indicates heavy mental workload, also increases when the user pays attention. May also infer inability to relax.

Alpha (8-13Hz)

High Alpha is related to a relaxed state of mind.

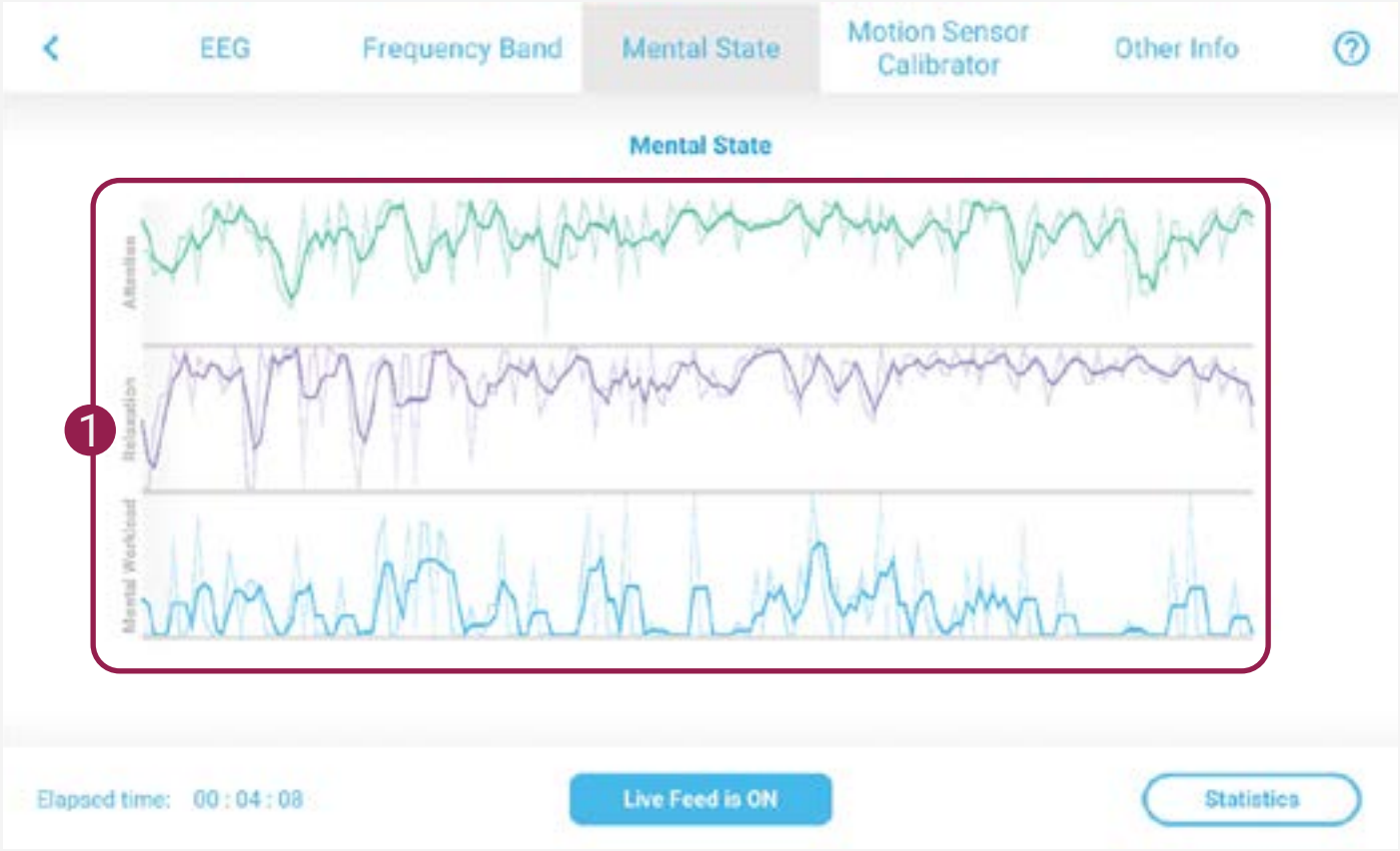
Theta (4-7Hz)

Related to the person's intuition, creativeness, and feeling of emotions.

Delta (1-3Hz)

Increases when a person is in deep sleep; more common in infants.

Mental State Pannel



1 Mental States Waveforms

– Displays the attention, relaxation and metal workload values of the user.

– The user can manipulate the high and low values of the mental states with the following activities stated on the right.

Attention

–Try not to have any type of distraction nearby.

–Focus on one task at a time

–Drink a cup of coffee or tea

Relaxation

– Listen to a piece of soothing music

– Take a deep and slow breath

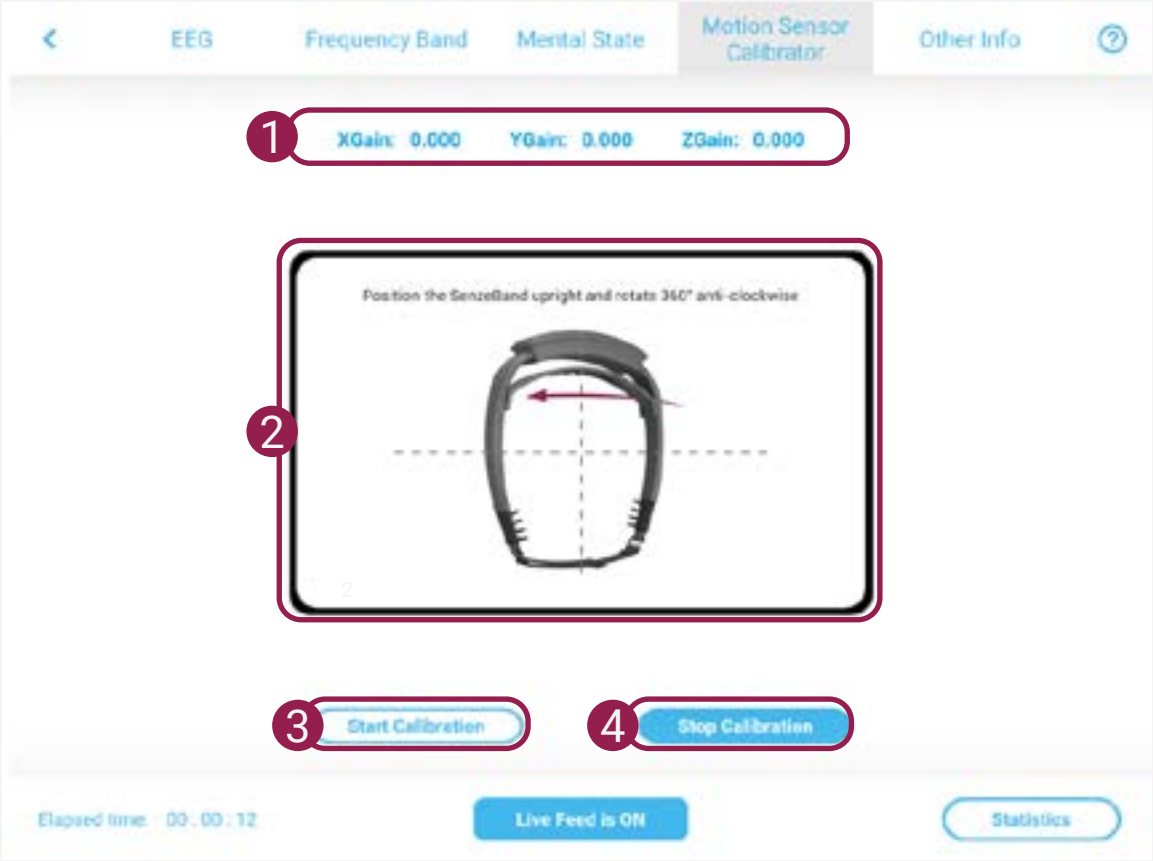
– Close your eyes

Mental Workload

– Learning something new

– Enough rest and keeping fit can increase mental workload efficiency

Motion Sensor Calibrator Panel



1 Calibration parameters

– For best accuracy, the parameters after calibration shall be as close as 1

2 SenzeBand 2 Calibration Guide

– SenzeBand 2's motion sensor calibration guide video

3 Start Calibration Button

– Enter calibration mode

– Flashing LED power indicator

4 Stop Calibration Button

– Exit calibration mode

– Solid LED power indicator

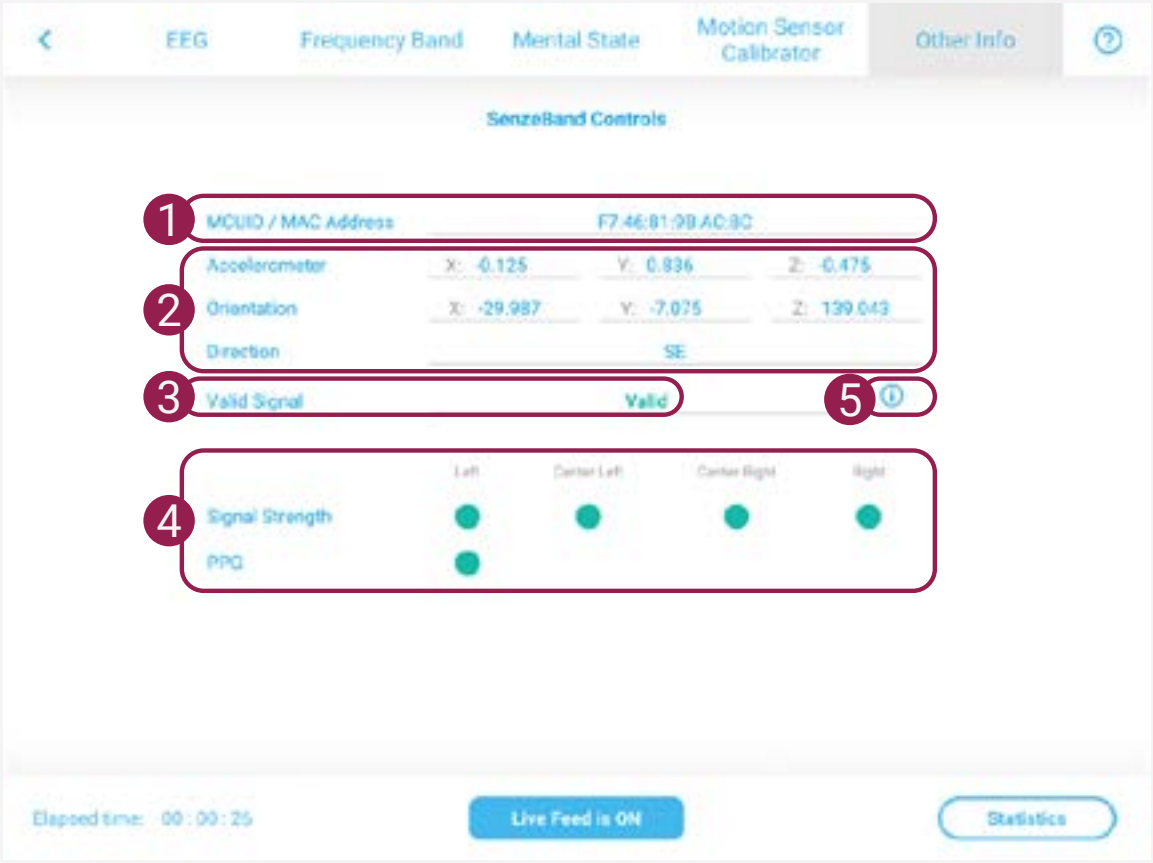
Note:

– Avoid compromising the accuracy of the SenzeBand 2's calibration by moving away from all the magnetic sources (metal items, electronic gadgets and power socket).

– Recommended to perform calibration at first-time using the new SenzeBand.

– Thereafter, only perform calibration if you feel there is an inaccuracy in your collected motion sensor data.

Other Info Panel



1 SenzeBand ID Number

– SenzeBand 1 displays MCUID

– SenzeBand 2 displays MAC Address

2 Motion Sensor Data

– XYZ axes acceleration

– XYZ axes orientation

– Ordinal and cardinal directions (8 points)

3 Valid Signal Status

– Valid / Invalid

4 Sensors Contact Status

– Signal Strength: EEG sensors contact status

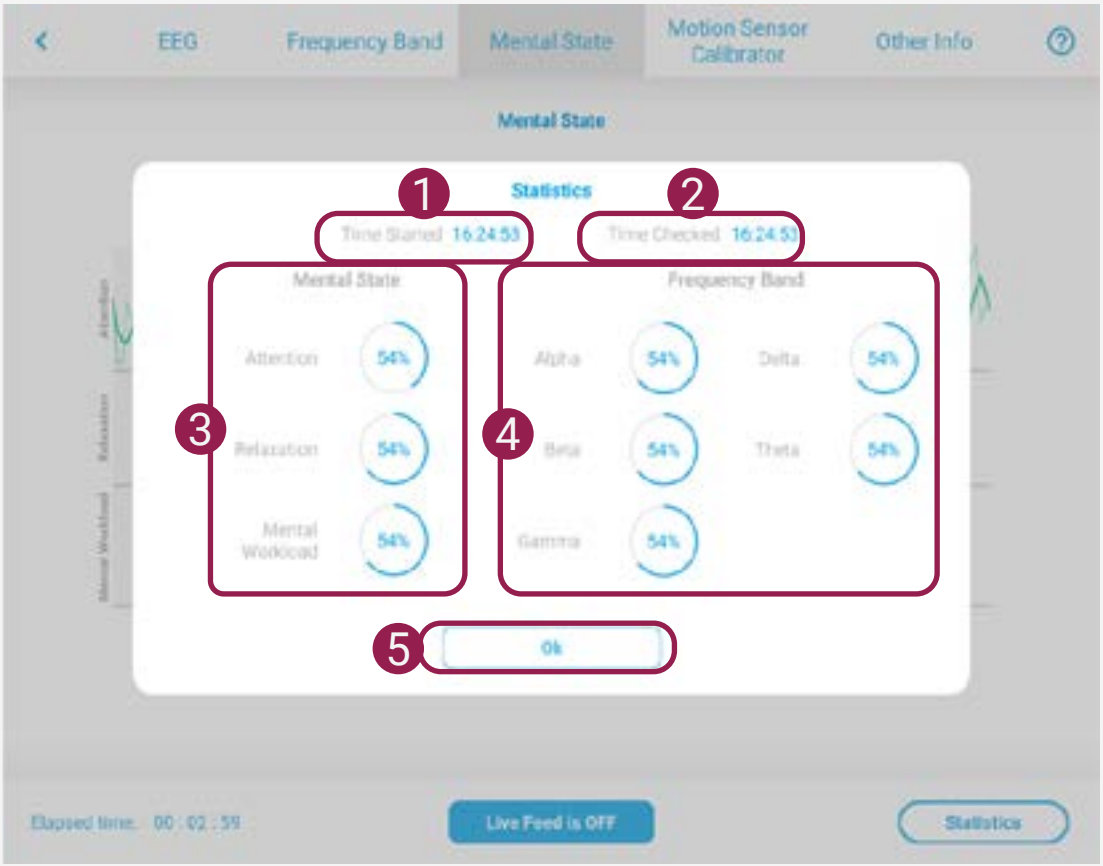
– PPG: PPG sensor contact status

5 More information Button

– Explanation on what Valid Signal Status means in SenzeBand 1 versus SenzeBand 2

– Explanation on what the '50-60Hz noise signal' and 'Gamma frequency signal power' means and how it affects the SenzeBand's signal sensitivity is displayed

Statistics Panel



1 Time Started
– The time the session started

2 Time Checked
– The time the user checked the statistic panel

3 Summary of Mental States
– Attention, Relaxation and Mental Workload scores in percentage

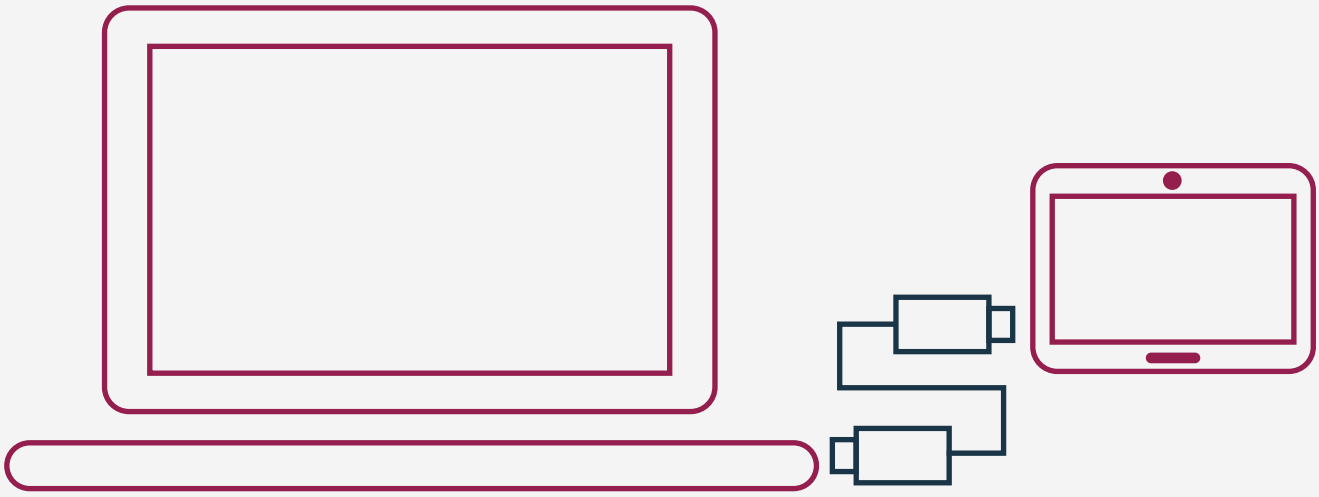
4 Summary of Frequency Band
– Alpha, Beta, Delta, Theta, and Gamma scores in percentage

5 Ok Button
– Close the statistics panel

Retrieving EEG Data

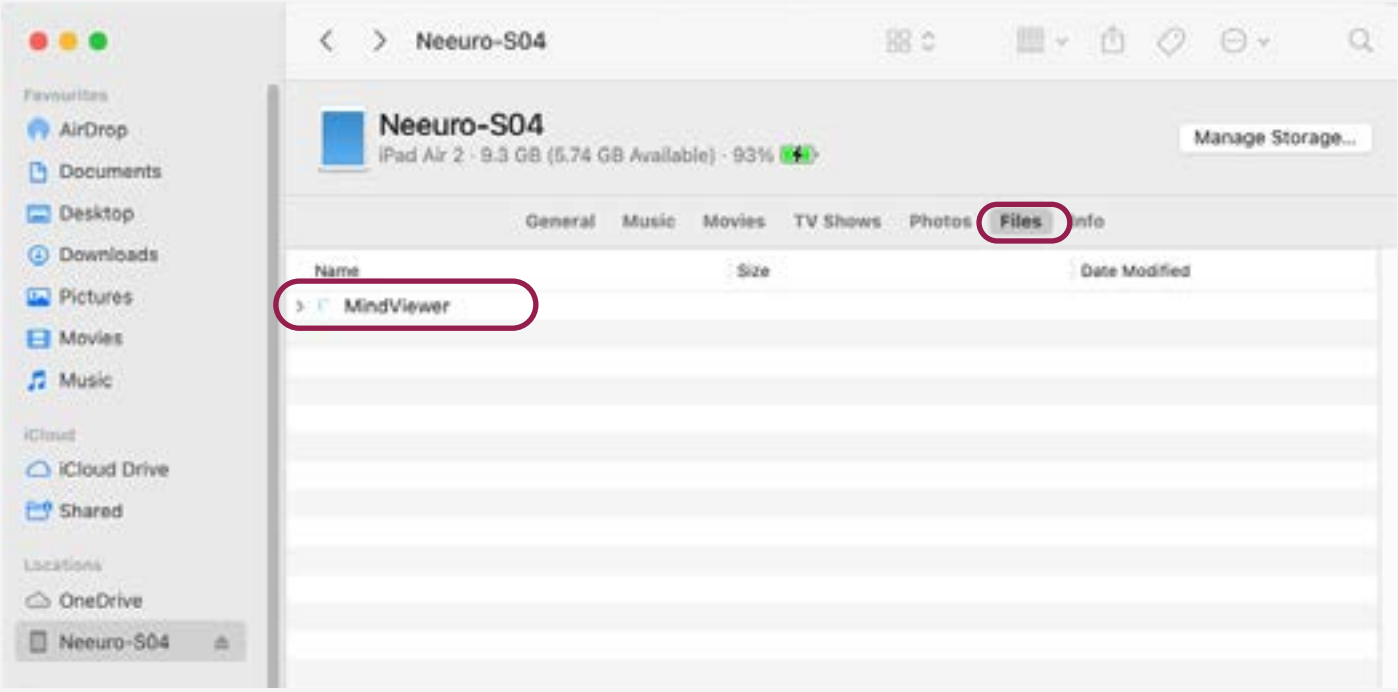
Retrieving EEG Data from iOS Device using Mac

1. After getting the EEG data from MindViewer App, connect device to a computer.



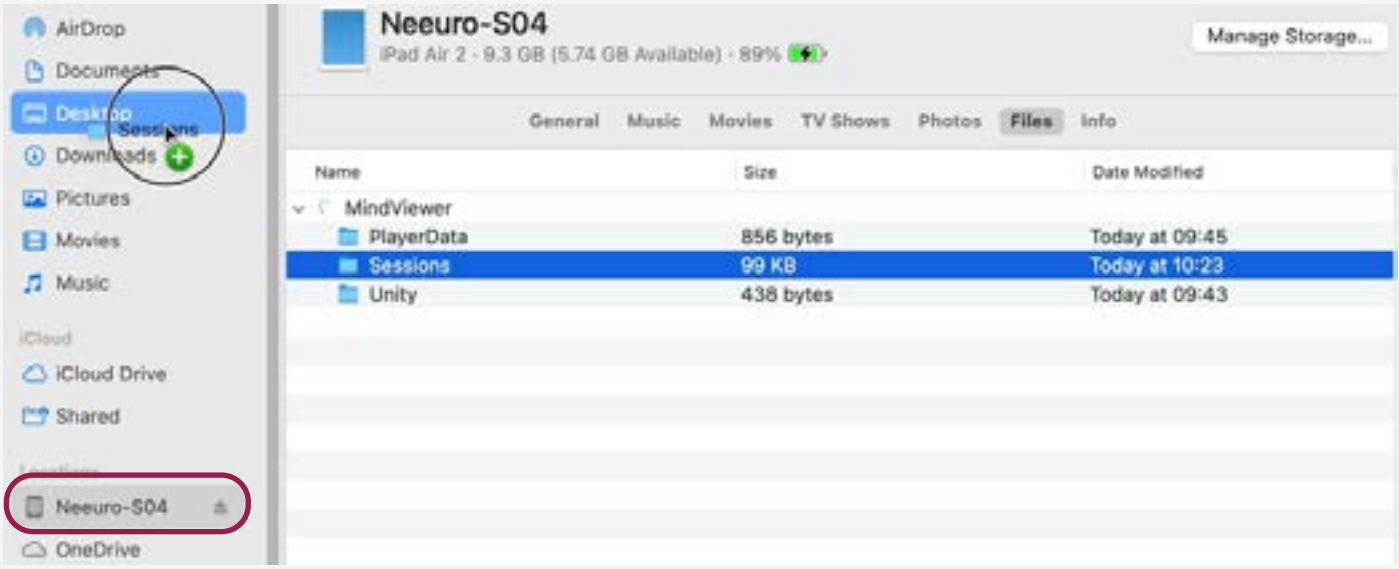
2. Select the connected device under ‘Locations’ in Finder.

3 Select on the 'Files' tab. You should be able to see a MindViewer folder.

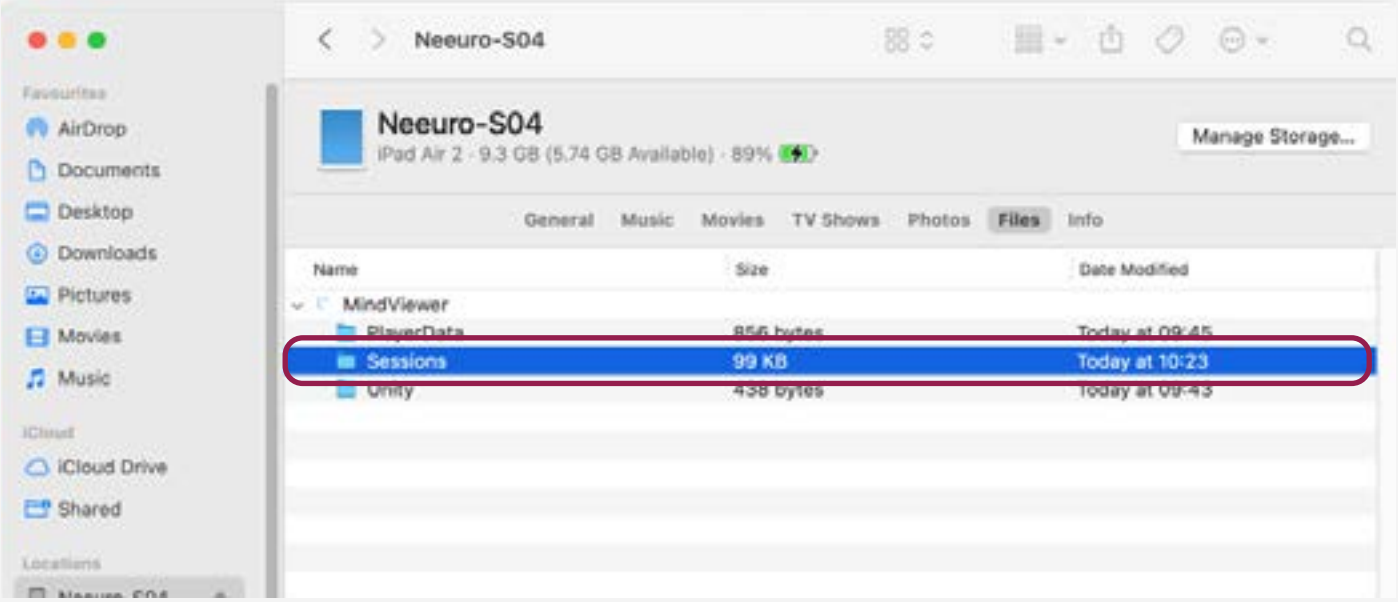


4 Double-click on MindViewer. You should be able to view the following MindViewer folders.

5 Click on the 'Sessions' folder and drag it into Desktop, or your desired location.

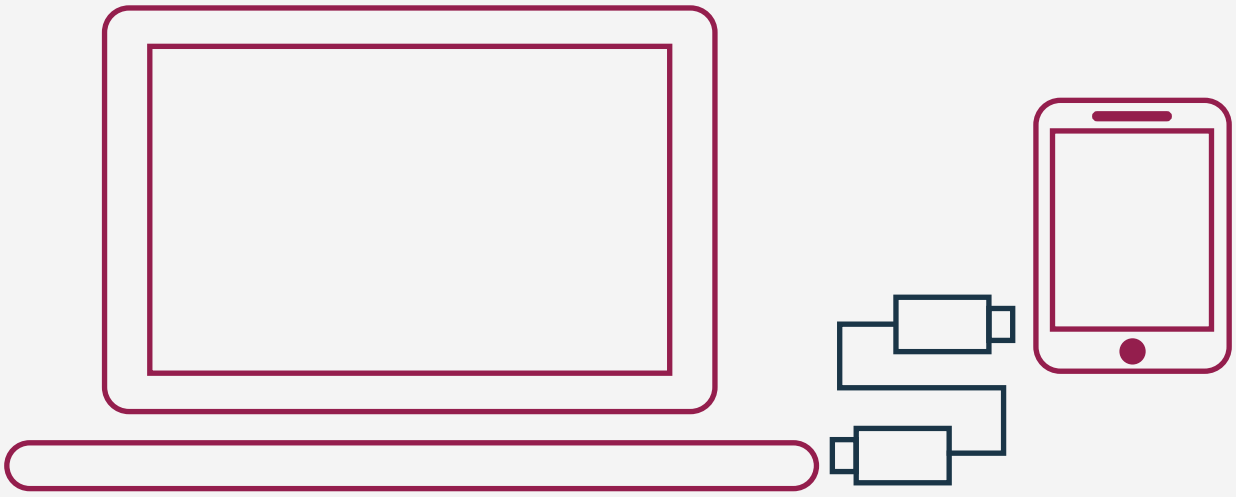


6 You should be able to open and view the contents of the 'Sessions' folder.

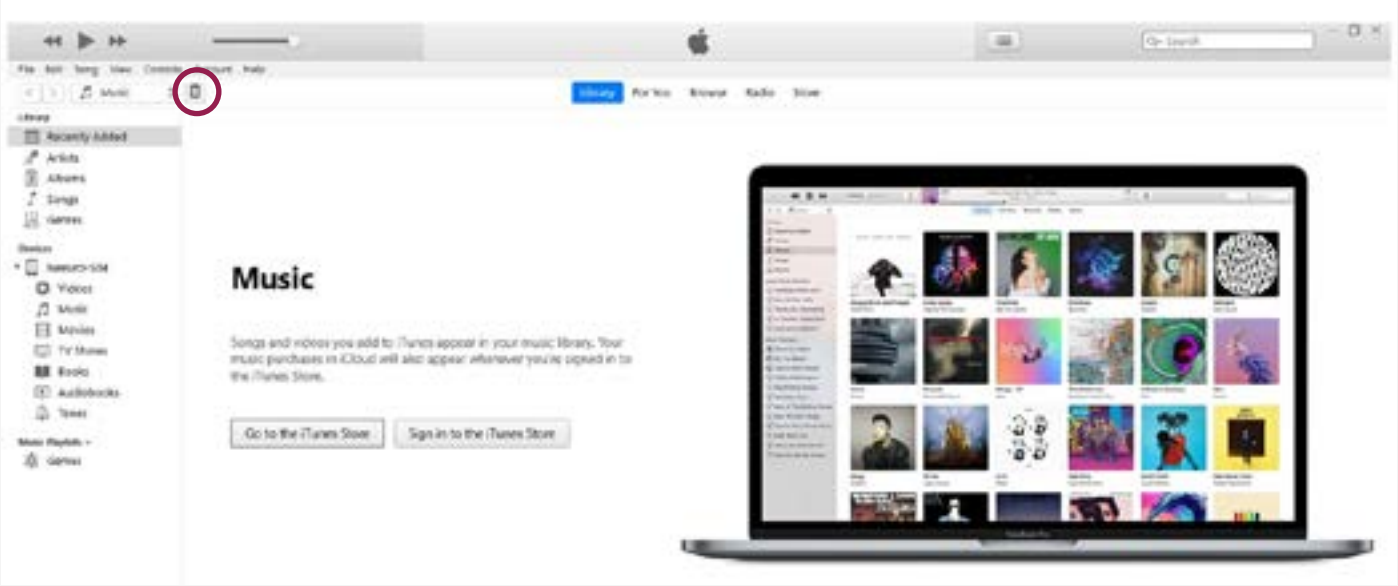


Retrieving EEG Data from iOS Device using Windows

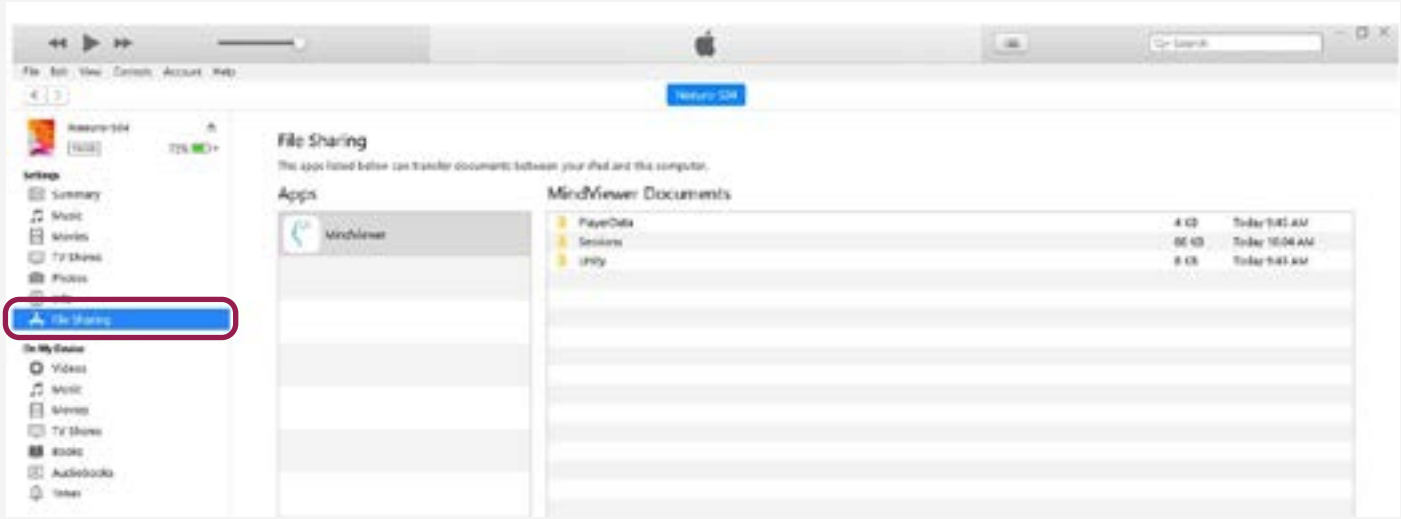
1. After getting the EEG data from MindViewer App, connect device to a computer.



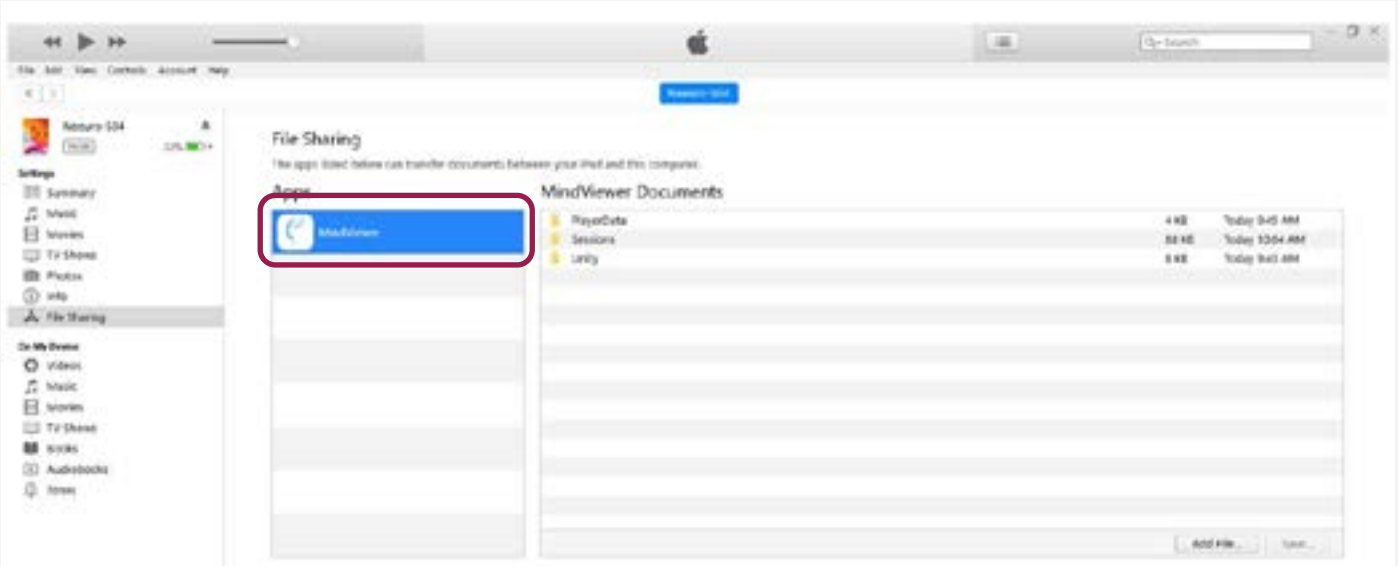
2. Open ‘iTunes’ application on your computer. Select the connected device.



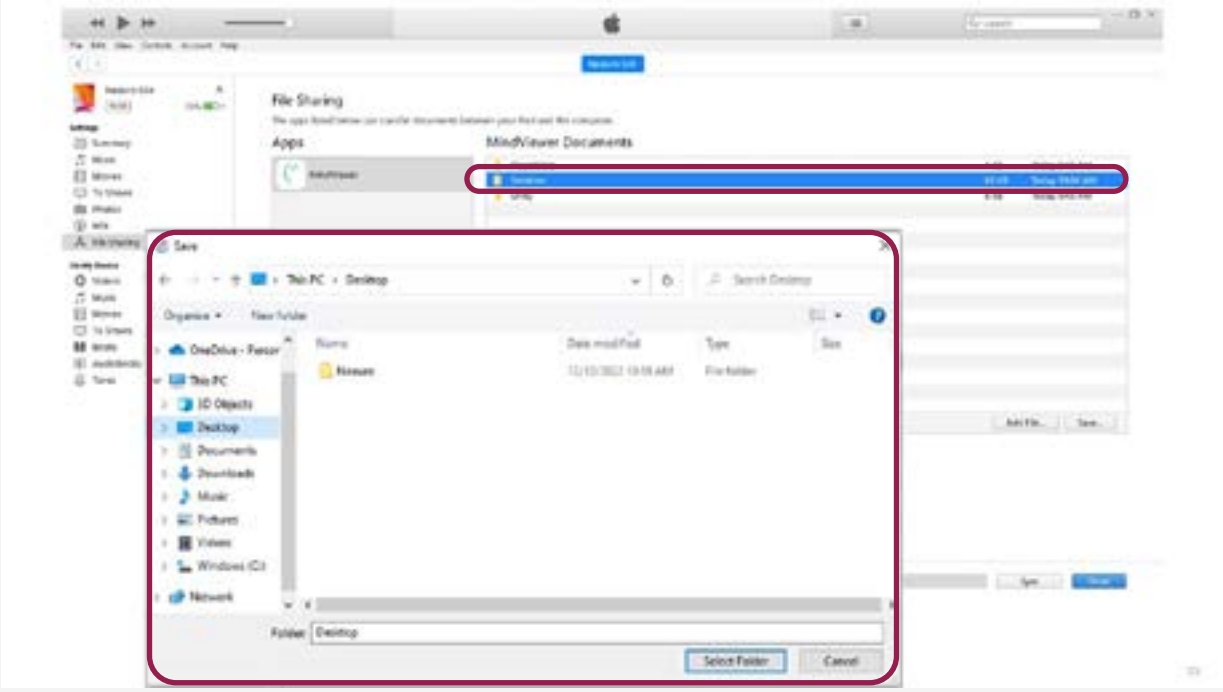
3 Under Settings, select ‘File Sharing’.
You shall see the following screen.



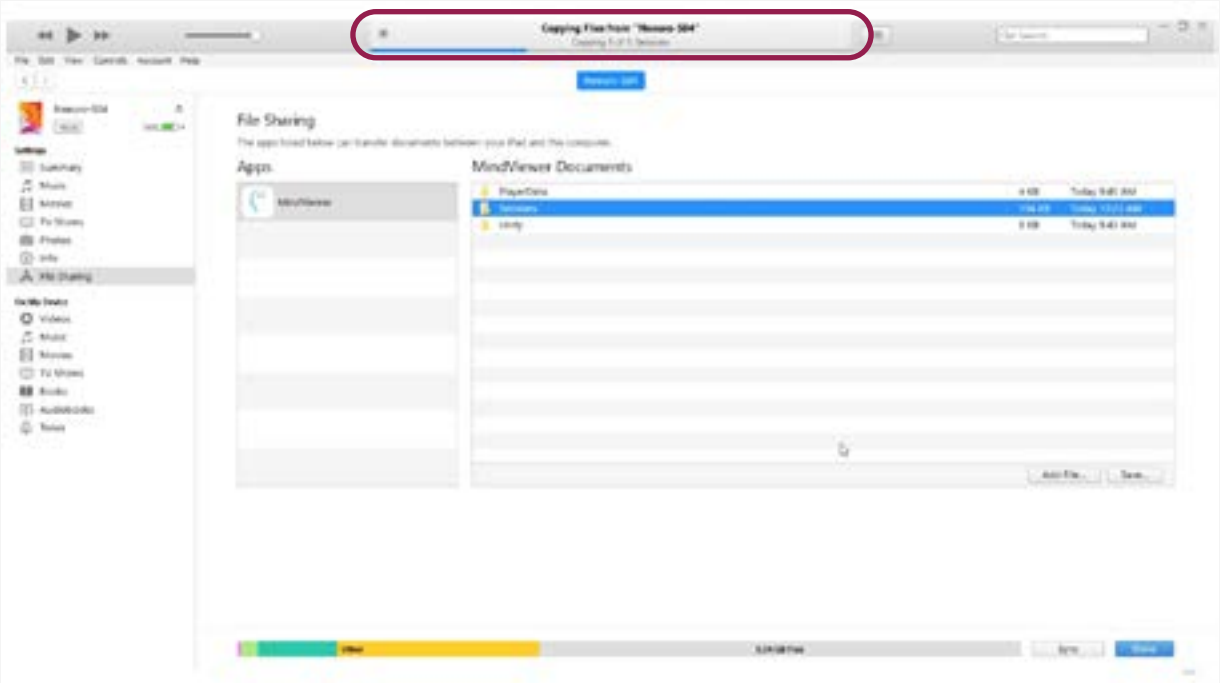
4 Under Apps, select ‘MindViewer’.
You should be able to see a MindViewer folder.



5 Click on the “Sessions” folder, followed by “Save…”. Save the folder into your Desktop, or your desired location.

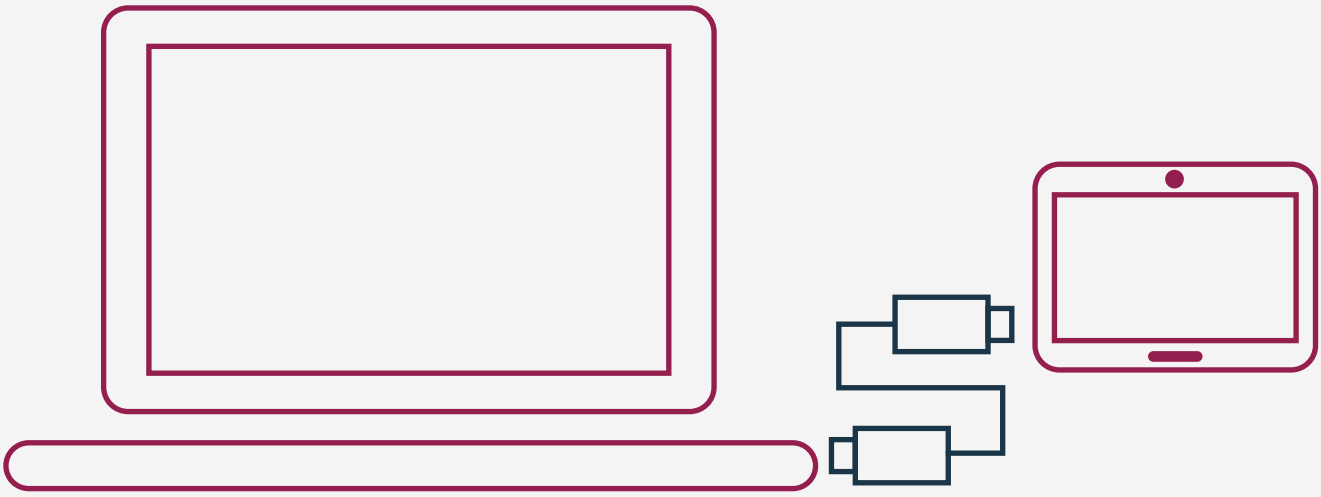


6 Once the folder is saved to your destination. You should be able to open and view the contents of the ‘Sessions’ folder.

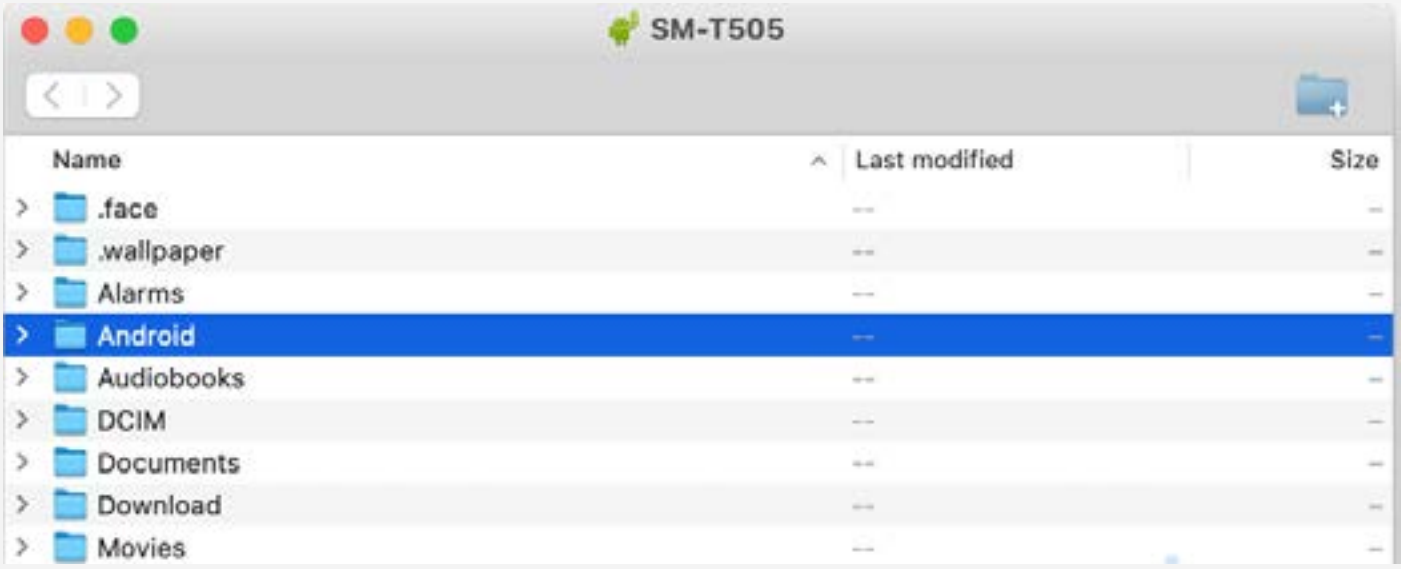


Retrieving EEG Data from Android Device using Mac

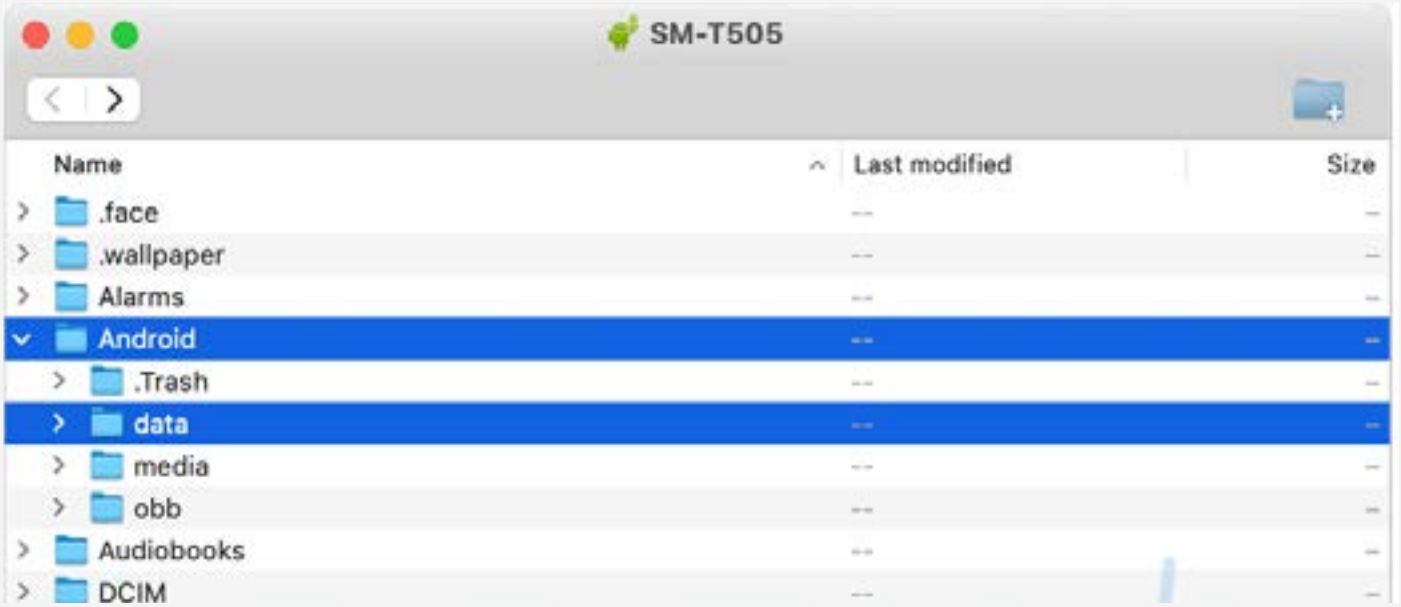
1. After getting the EEG data from MindViewer App, connect device to a computer.

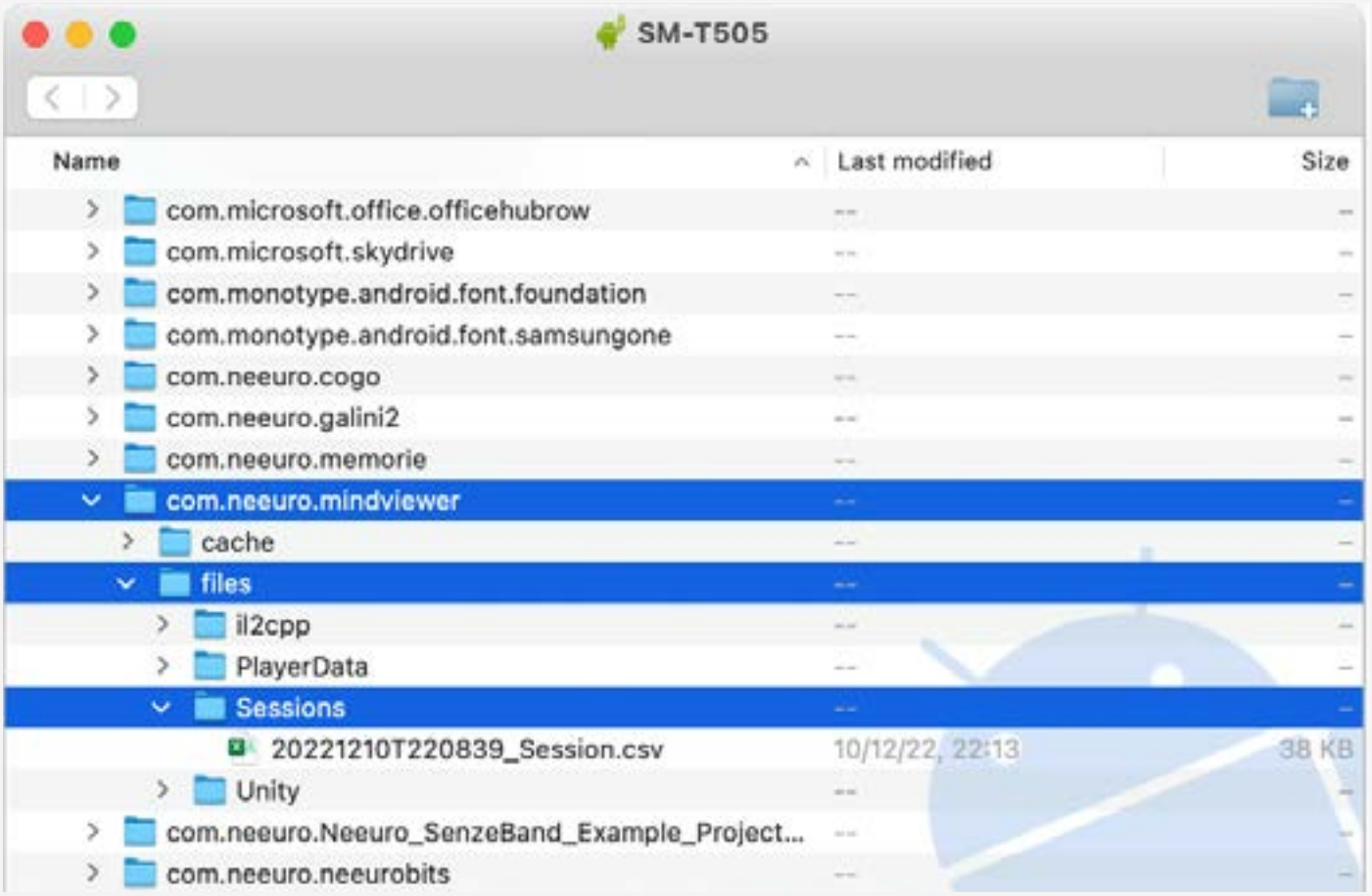


2. Open 'Android File Transfer', a third party application, to browse and transfer files between Mac computer and Android device.

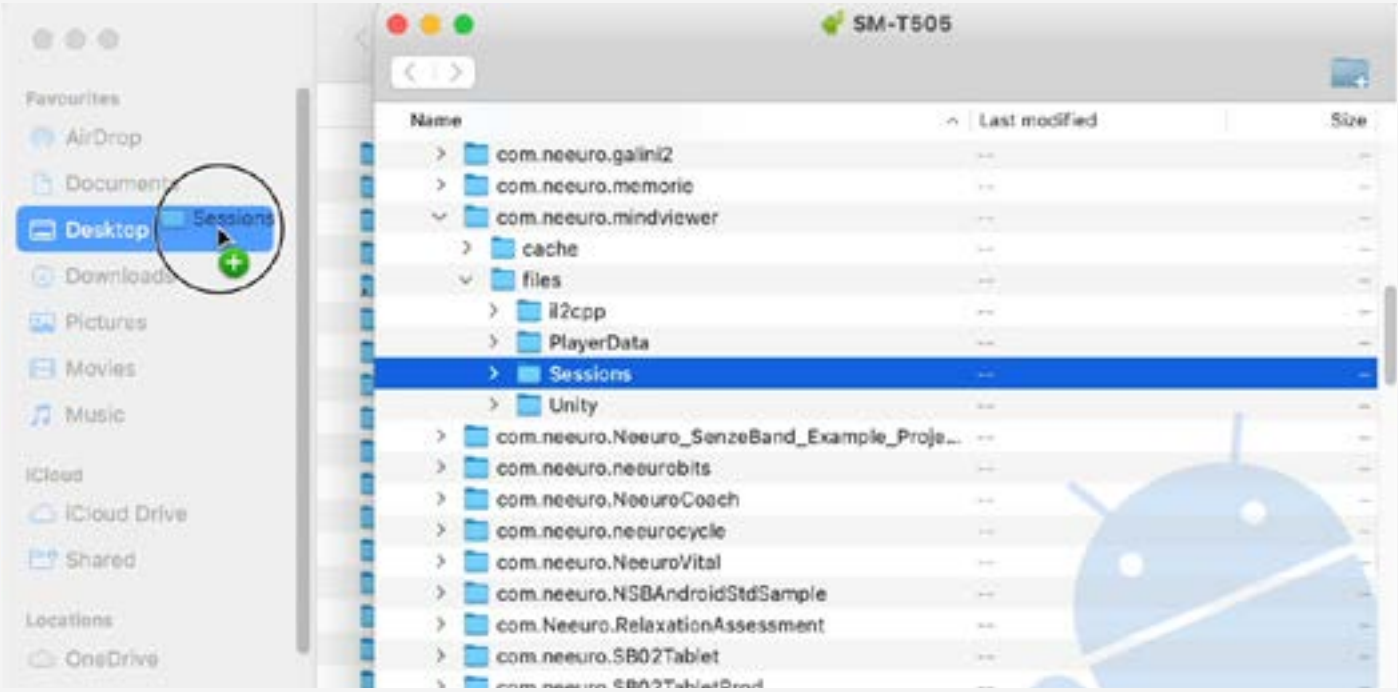


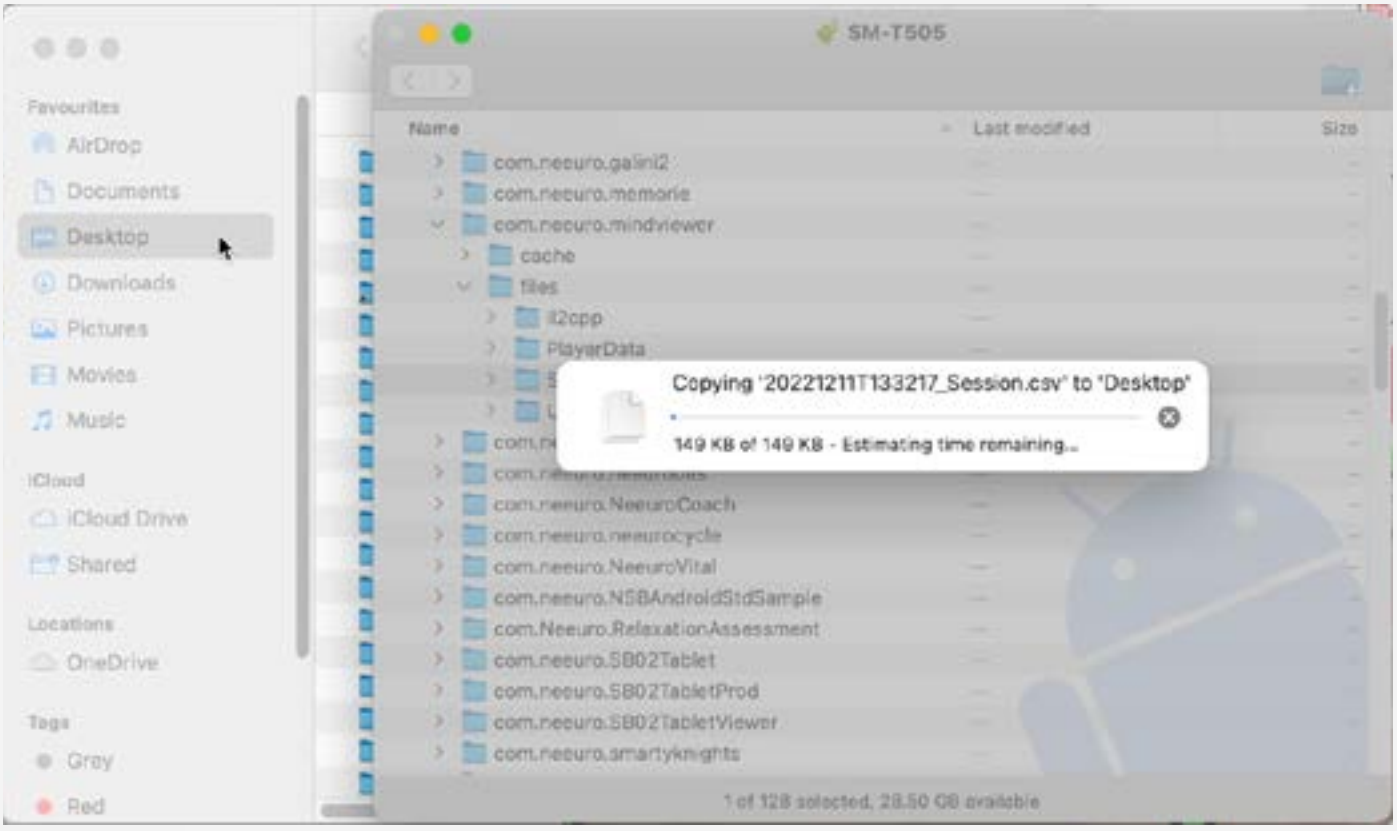
3 Use the following folder path to retrieve your EEG data from MindViewer App:
'Android > data > com.neeuro.mindviewer > files > Sessions'





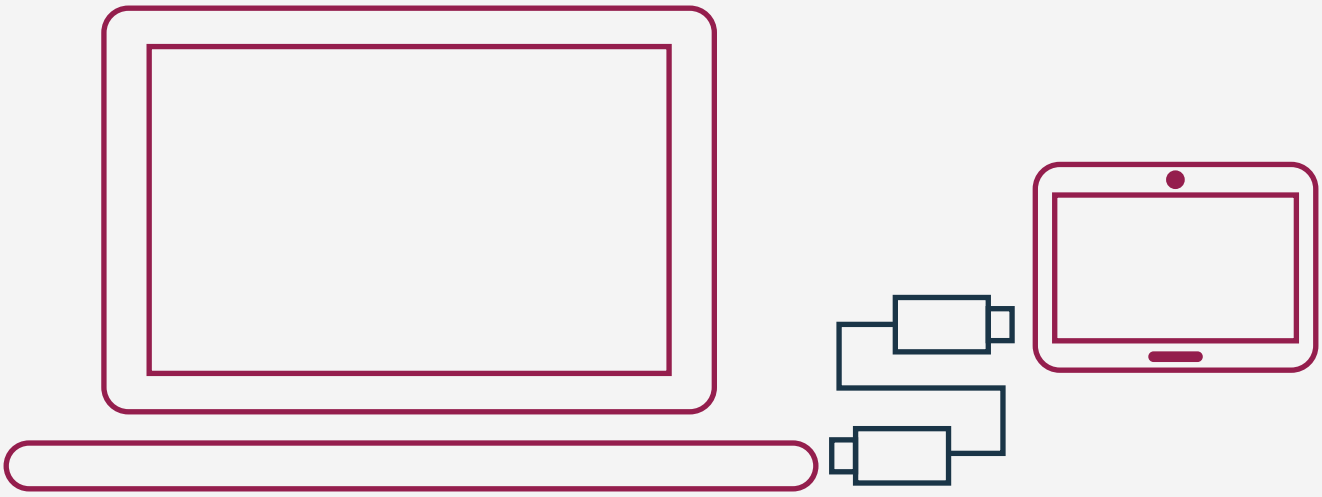
4 Click on the ‘Sessions’ folder and drag it into Desktop, or your desired location. You should be able to open and view the contents of the ‘Sessions’ folder.



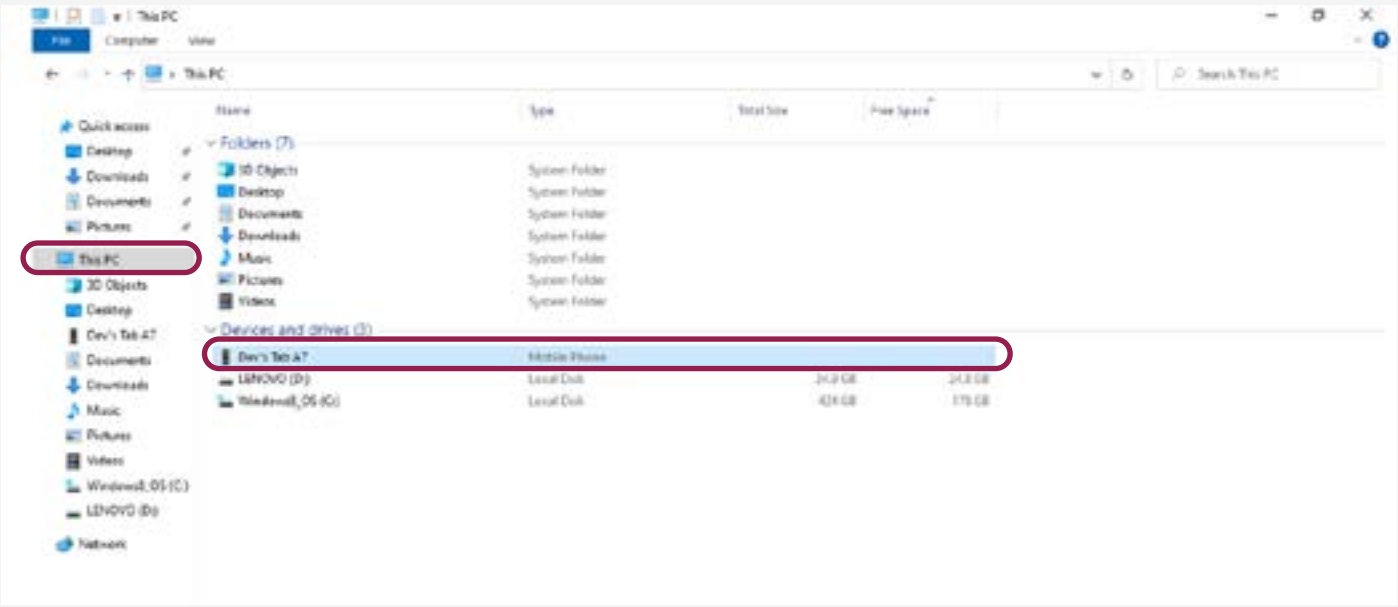


Retrieving EEG Data from Android Device using Windows

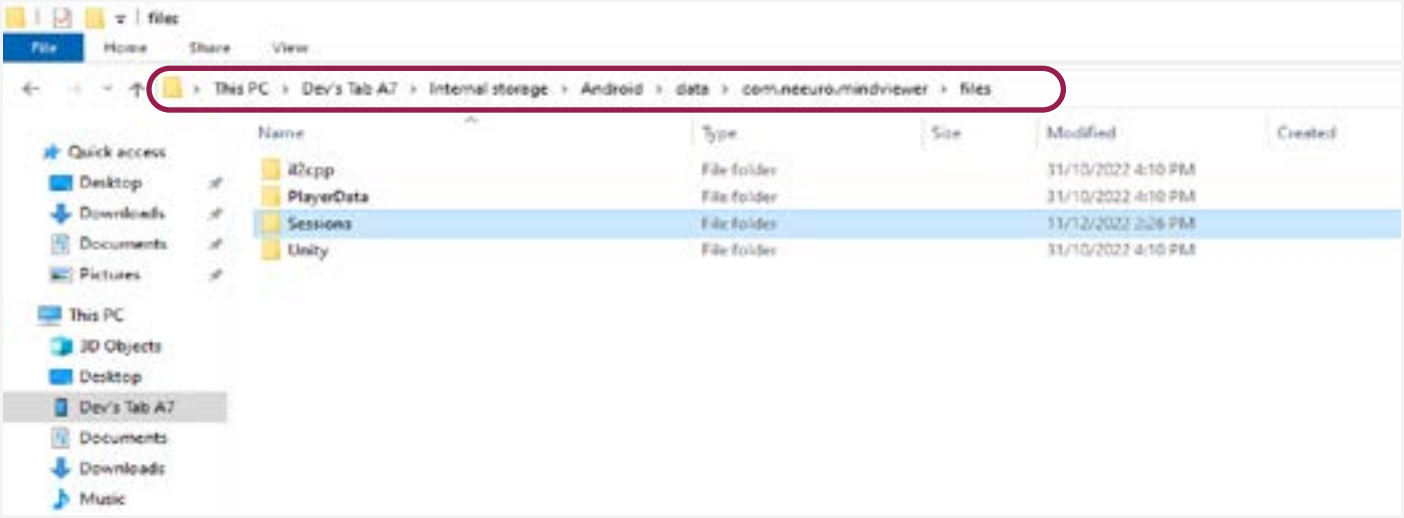
1. After getting the EEG data from MindViewer App, connect device to a computer.



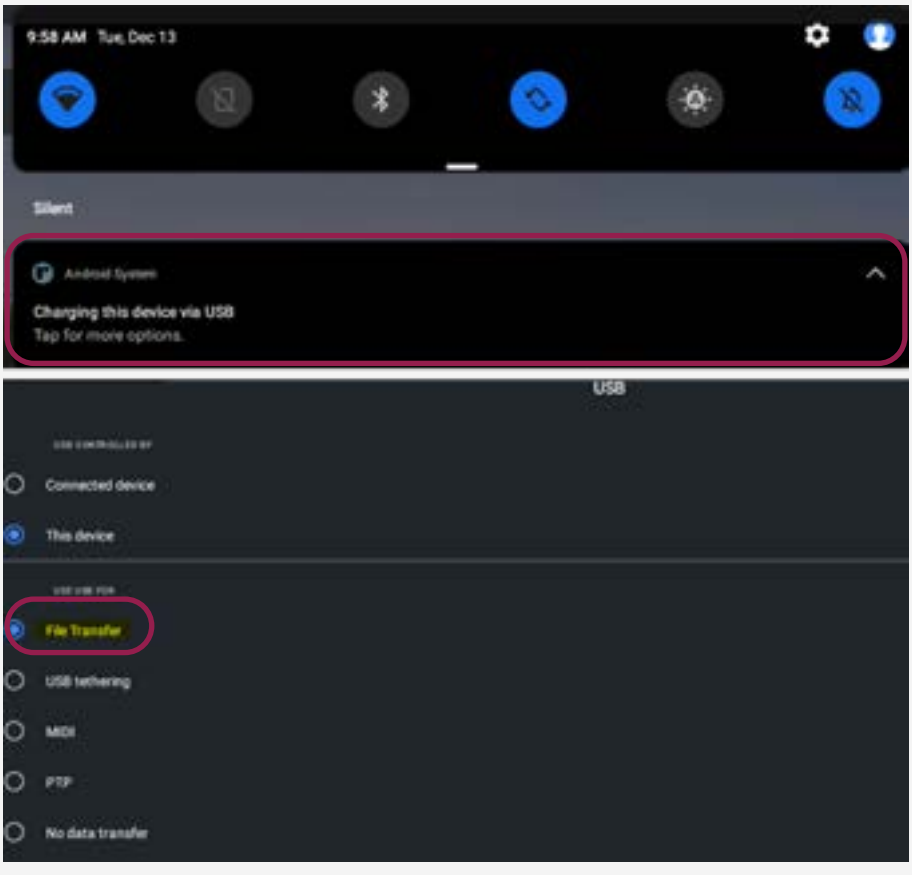
2. Select the connected device under ‘This PC’ in the file explorer.



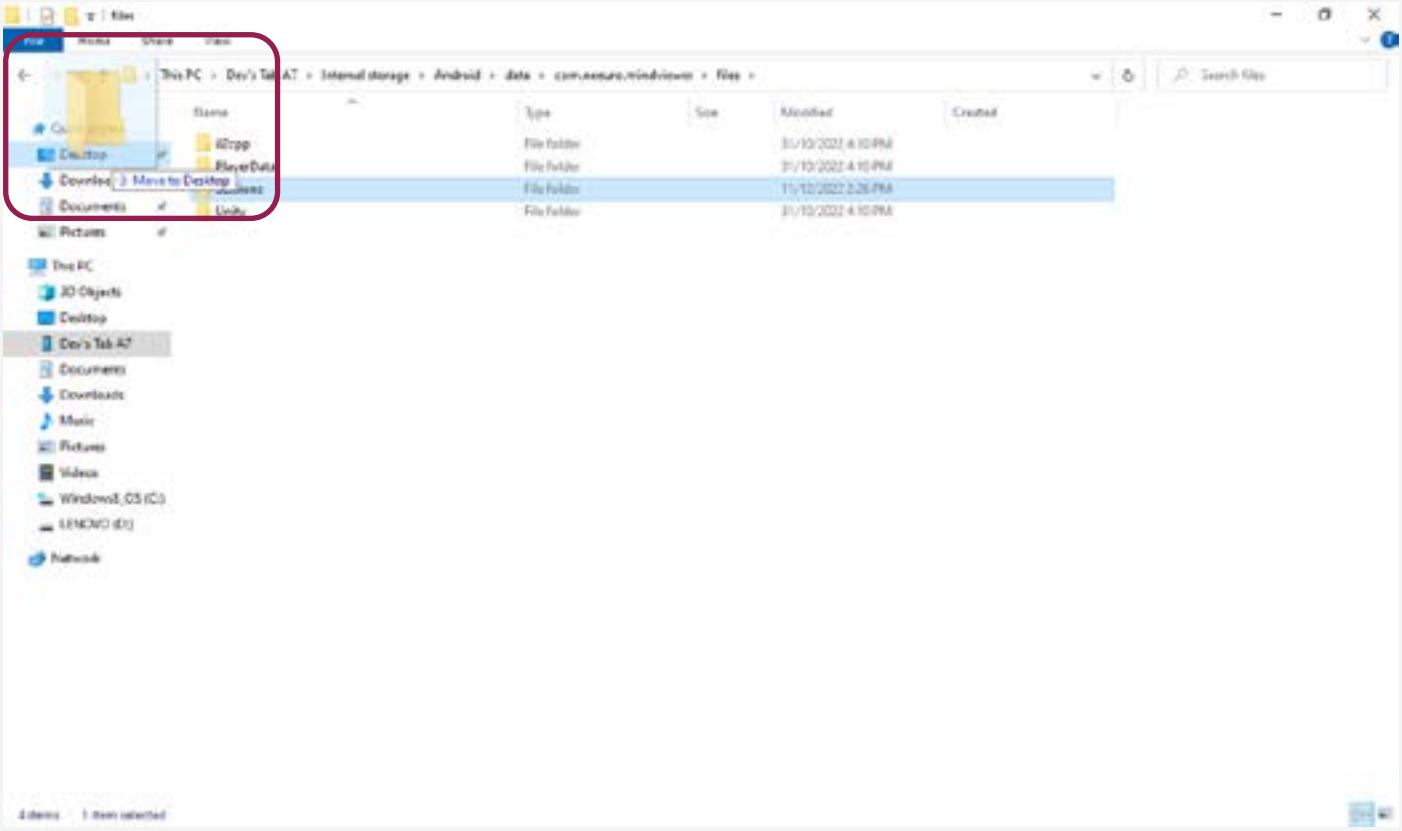
3 Use the following folder path to retrieve your EEG data from MindViewer App:
'Internal Storage > Android > data > com.neeuro.mindviewer > files > Sessions'



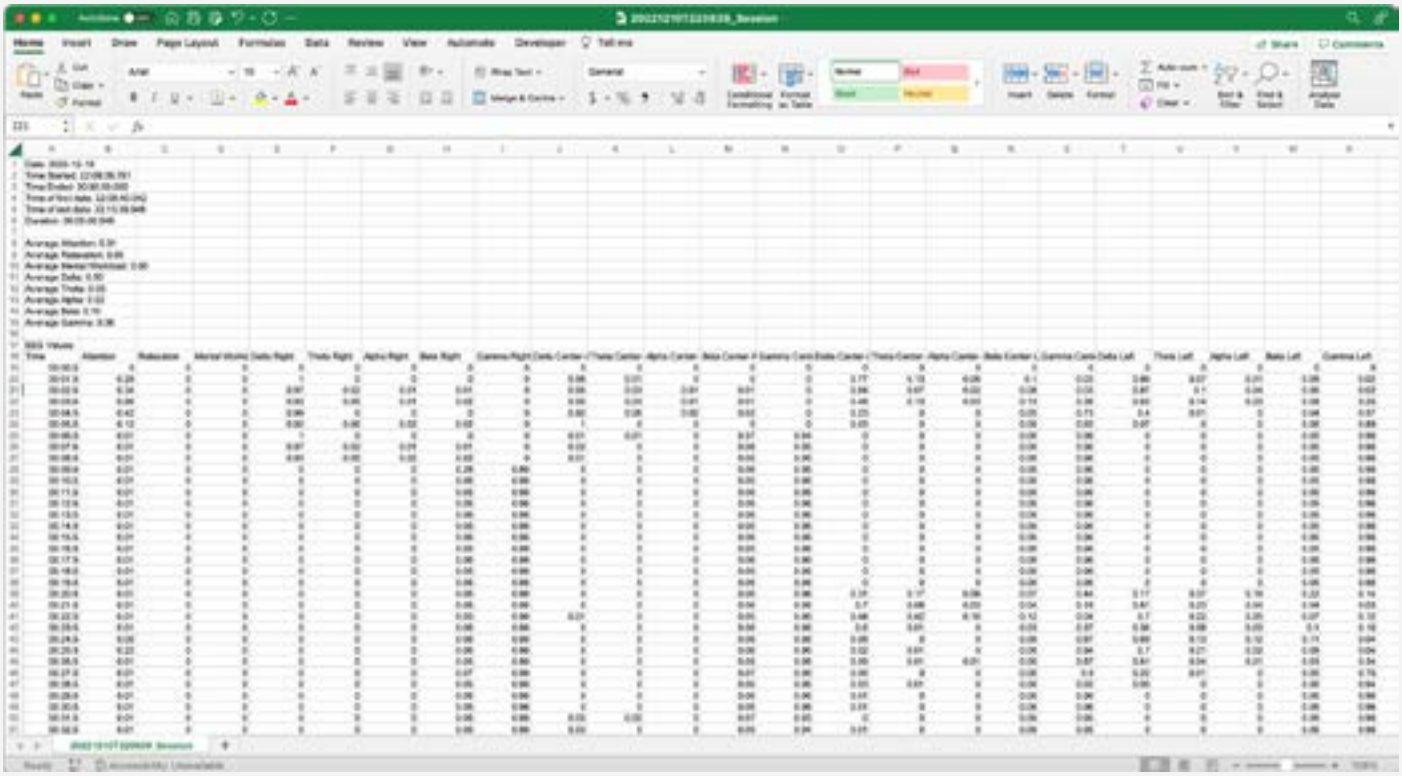
NOTE: If after connecting the tablet to the PC you don't see any files, make sure that file sharing on the Android tab is enabled. Swipe down the tab's Menu and Select Android System. Then select File Transfer.



4 Click on the ‘Sessions’ folder and drag it into Desktop, or your desired location. You should be able to open and view the contents of the ”Sessions” folder.



EEG Data CSV file



1. Mental State classification values and Frequency Band power density derived from EEG data are recorded in CSV files.
2. For Mental States, it is in a range from 0 to 1, the closer to 1 means the user is hitting closer to that particular Mental State.
3. For Frequency Bands, it is about power spectral density – X% of brain wave power in which frequency band will add up to 100%.

GO TO TOP

Neeuro Pte. Ltd.
(Company Registration: 201302274H)

100H Pasir Panjang Road
#04-03, OC @ Pasir Panjang
Singapore 118524