- HPF: allows frequencies higher than a certain cutoff to pass through, greatly attenuating lower frequencies. Checking the blue box indicates that this filtering option is enabled and parameters can be selected, as shown in Figure 5.3.2.4-27.

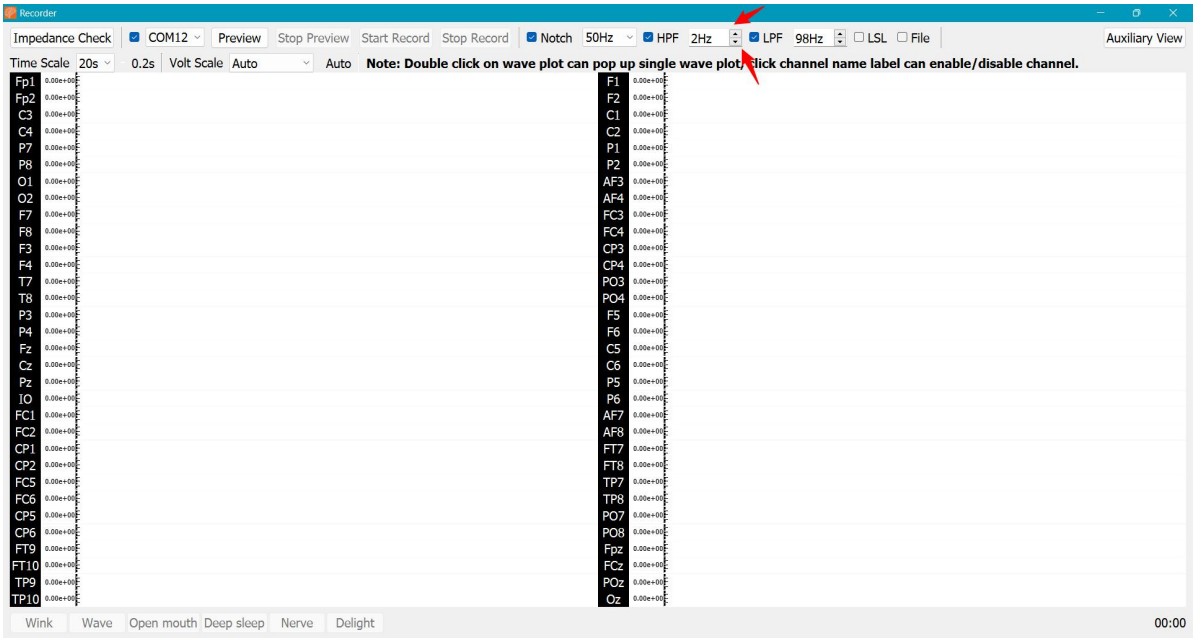

Figure 5.3.2.4-27

- LPF: An electronic filtering device that allows signals below the cutoff frequency to pass, but signals above the cutoff frequency cannot pass. Checking the blue box indicates that this filtering option is enabled and parameters can be selected, as shown in Figure 5.3.2.4-28.

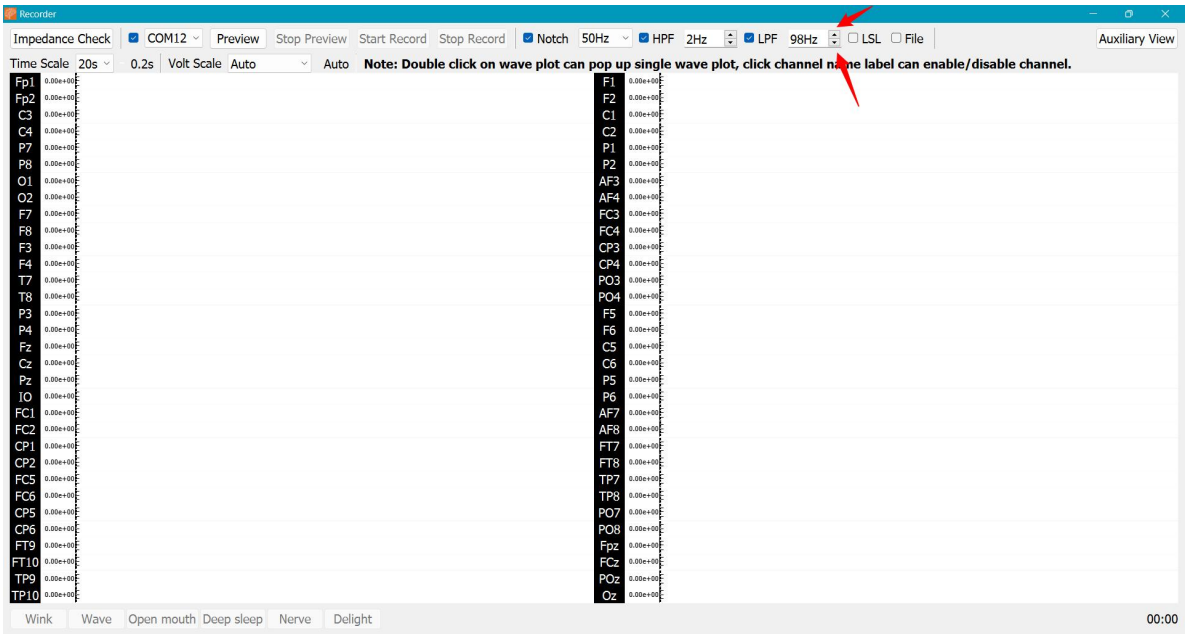

Figure 5.3.2.4-28

- LSL: After selection, the data sent by the LSL protocol is the waveform after filtering.

- File: After selection, the waveform after filtering can be recorded, usually selected; Not selected, the recorded waveform is the waveform before filtering.

5) Scale parameter

Click on the "Time Scale" and "Voltage Scale" options to modify the parameters, as shown in Figures 5.3.2.4-29 and 5.3.2.4-30.

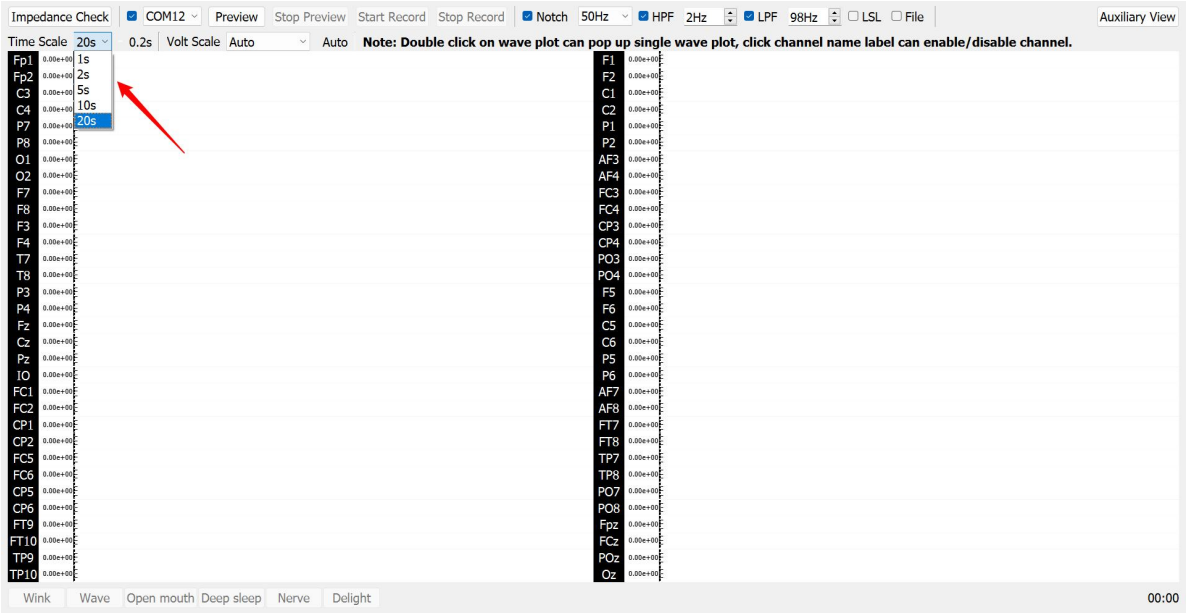

Figure 5.3.2.4-29

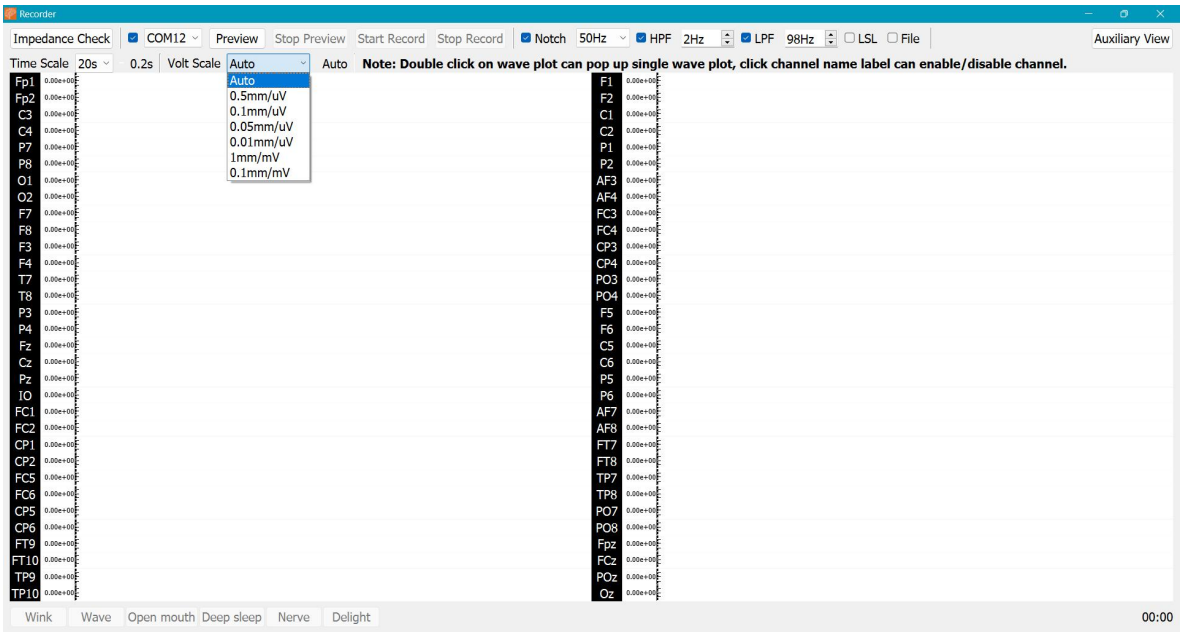

Figure 5.3.2.4-30

6) Auxiliary View

Click on "Auxiliary View" to open the auxiliary view, as shown in Figure 5.3.2.4-31; Click "Hide" to close the auxiliary view, as shown in the figure.

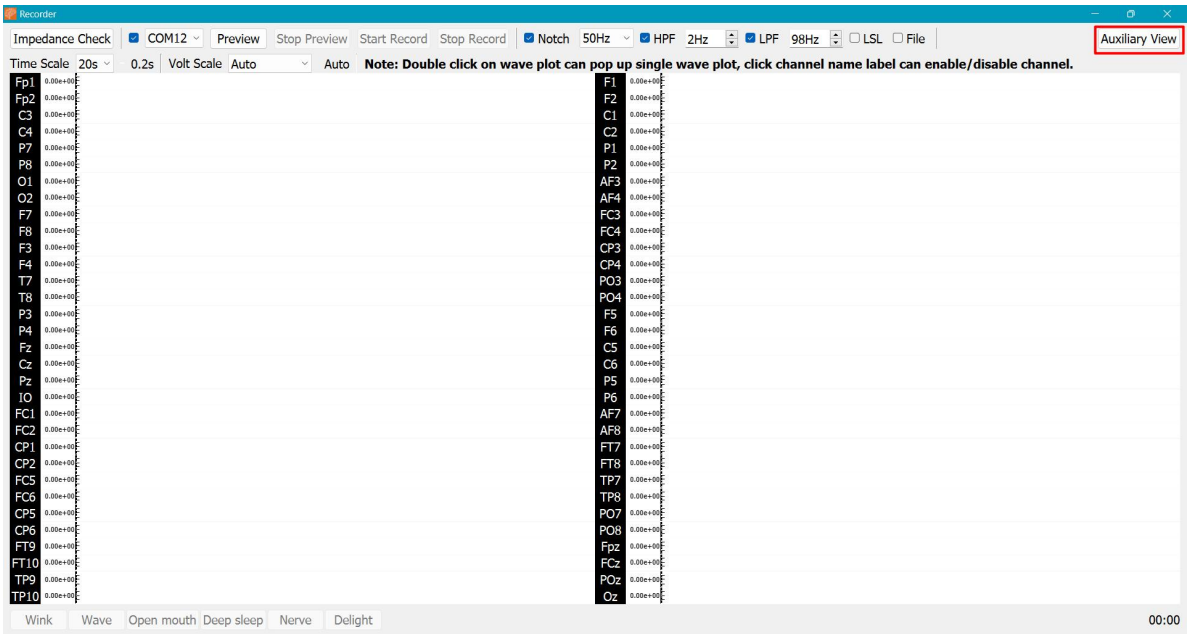

Figure 5.3.2.4-31

Click on the view name and select the view you want to view from the drop-down list, including four views: FFT Plot, IMU Plot, Band Power, and Head Plot, as shown in Figures 5.3.2.4-32, 5.3.2.4-33, 5.3.2.4-34, and 5.3.2.4-35.

Two views can be selected simultaneously, but cannot be selected repeatedly.

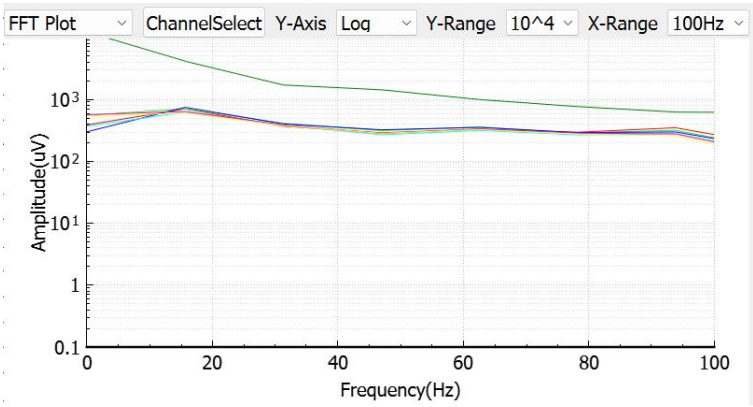

Figure 5.3.2.4-32

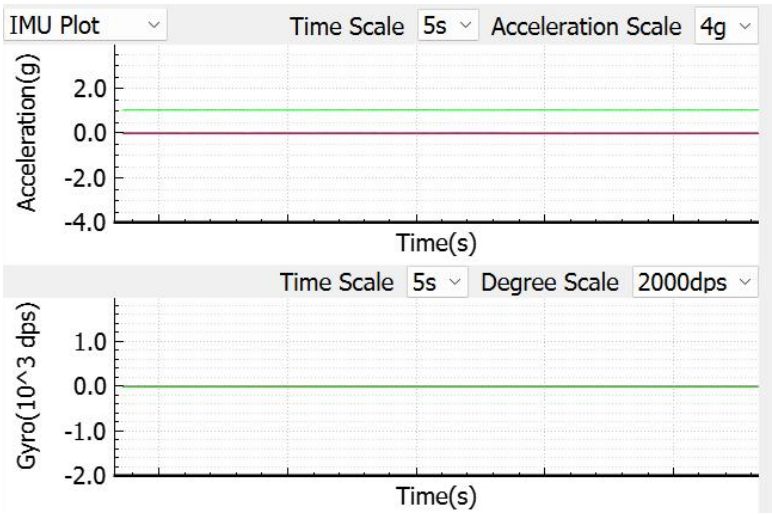

Figure 5.3.2.4-33

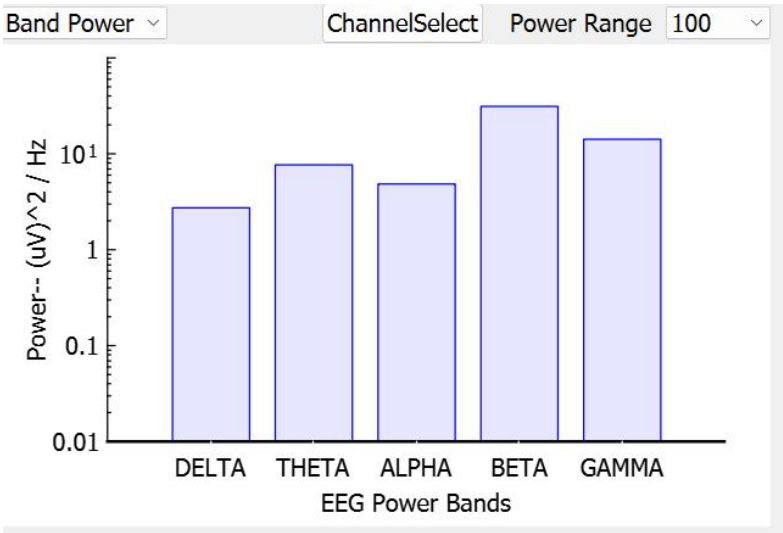

Figure 5.3.2.4-34

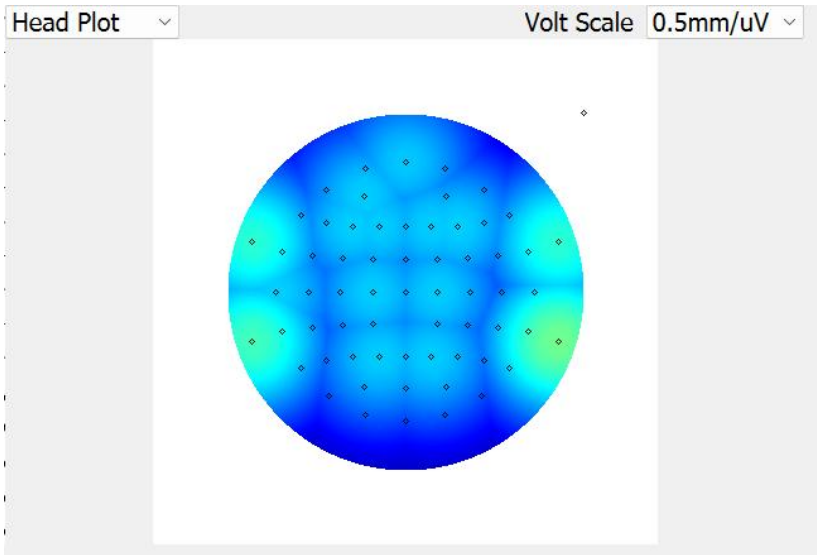

Figure 5.3.2.4-35

7) Auxiliary View Options Modification

FFT Plot: Click "Channel Select" to select up to eight channels, as shown in Figure 5.3.2.4-36;

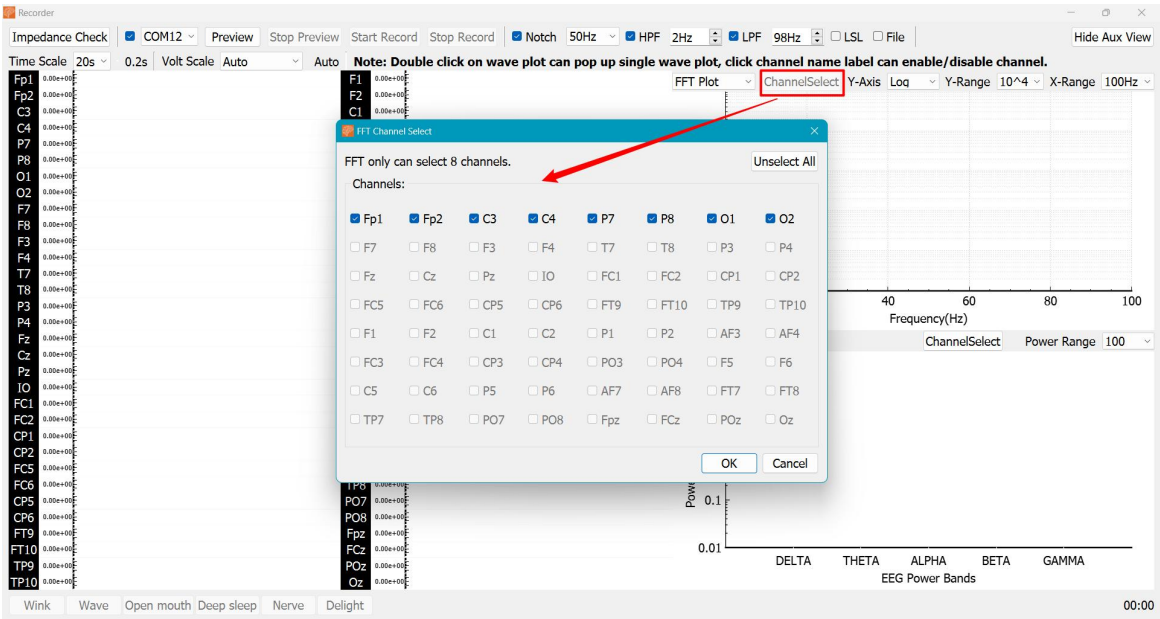

Figure 5.3.2.4-36

Click on "Y-Axis" to select "Linear" or "Log" as shown in Figure 5.3.2.4-37;

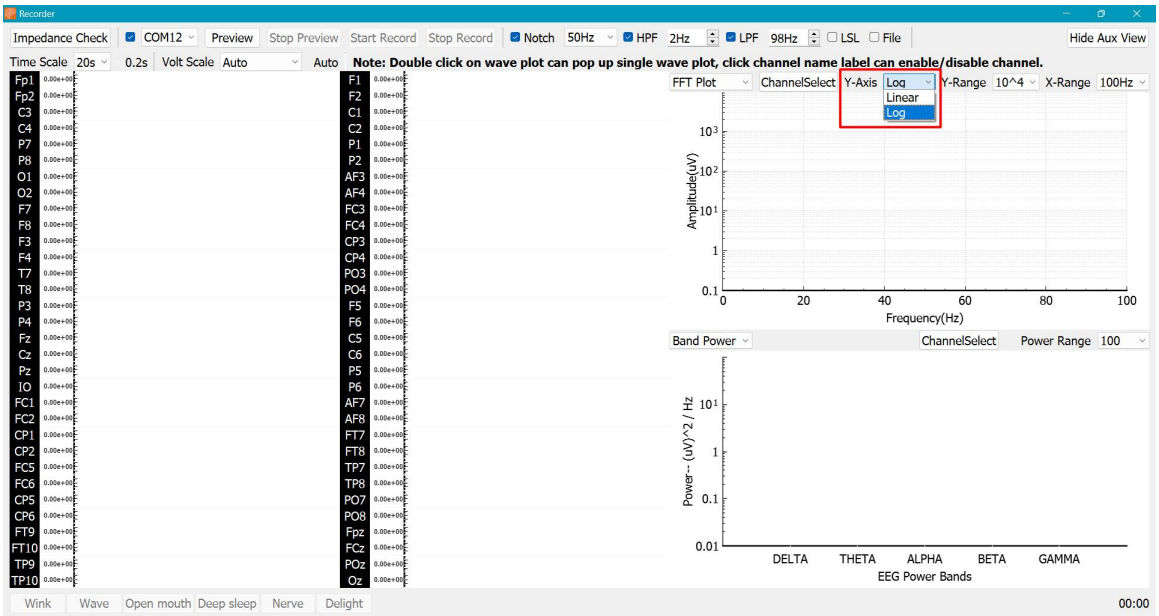

Figure 5.3.2.4-37

Click on "Y-Range" to select 10 ^ 1, 10 ^ 2, 10 ^ 3, 10 ^ 4, 10 ^ 5, and 10 ^ 6, as shown in Figure 5.3.2.4-38

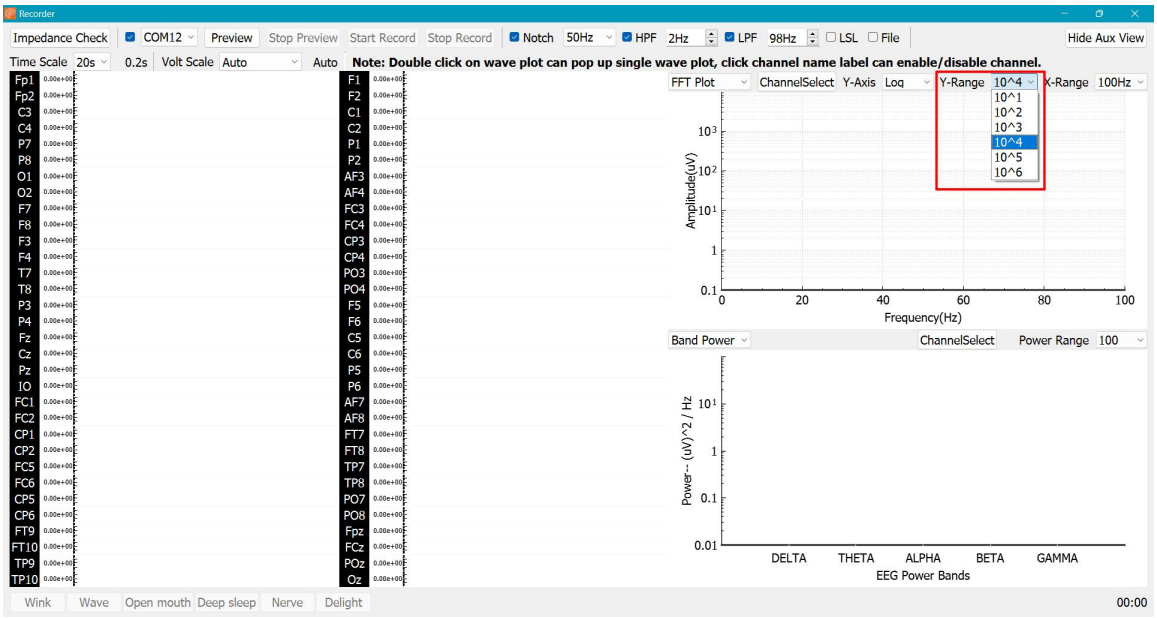

Figure 5.3.2.4-38

Click on "X-Range" to select 20Hz, 40Hz, 60Hz, 80Hz, 100Hz, 500Hz, as shown in Figure 5.3.2.4-39.

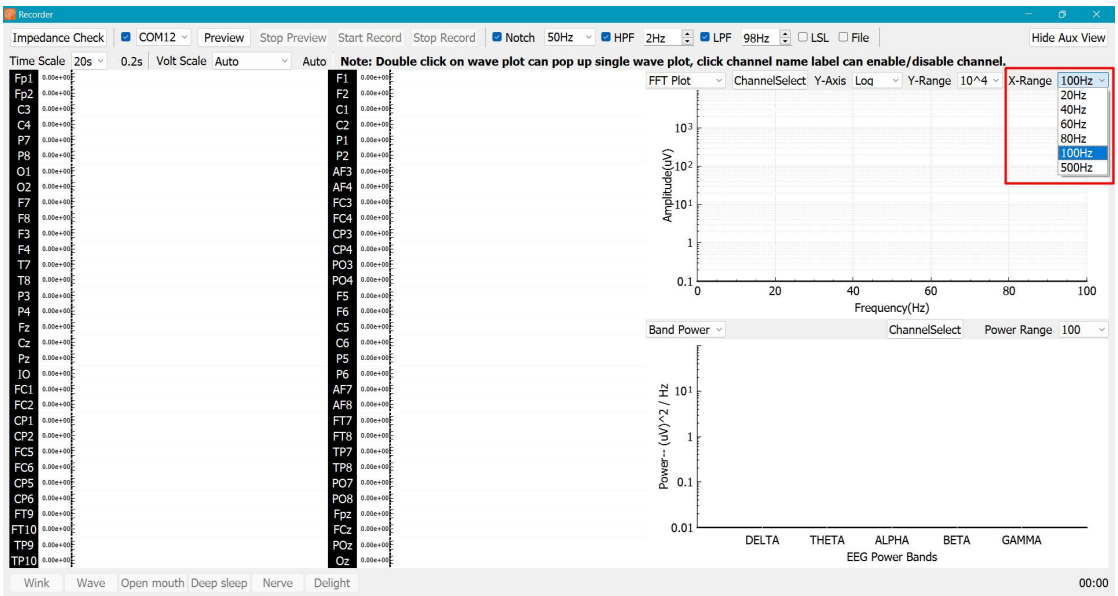

Figure 5.3.2.4-39

IMU Plot: divided into acceleration plot and gyroscope plot.

Acceleration:

Click on "Time Scale" to select 1s, 2s, or 5s, as shown in Figure 5.3.2.4-40;

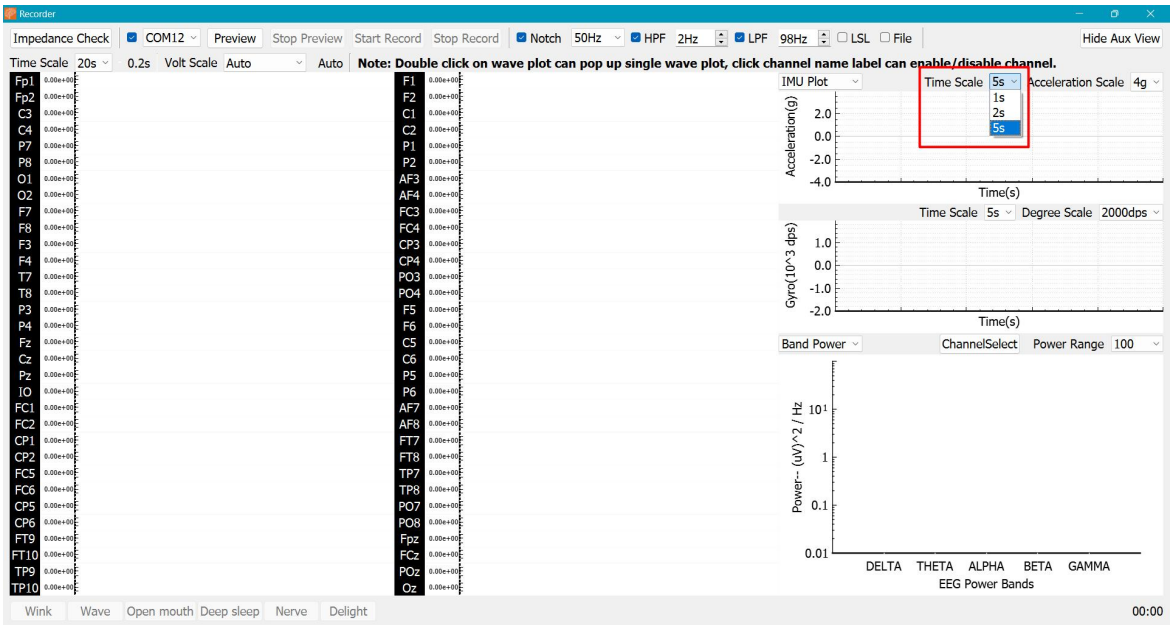

Figure 5.3.2.4-40

Click on "Acceleration Scale" to select 1g, 2g, 4g, 8g, and 16g, as shown in Figure 5.3.2.4-41.

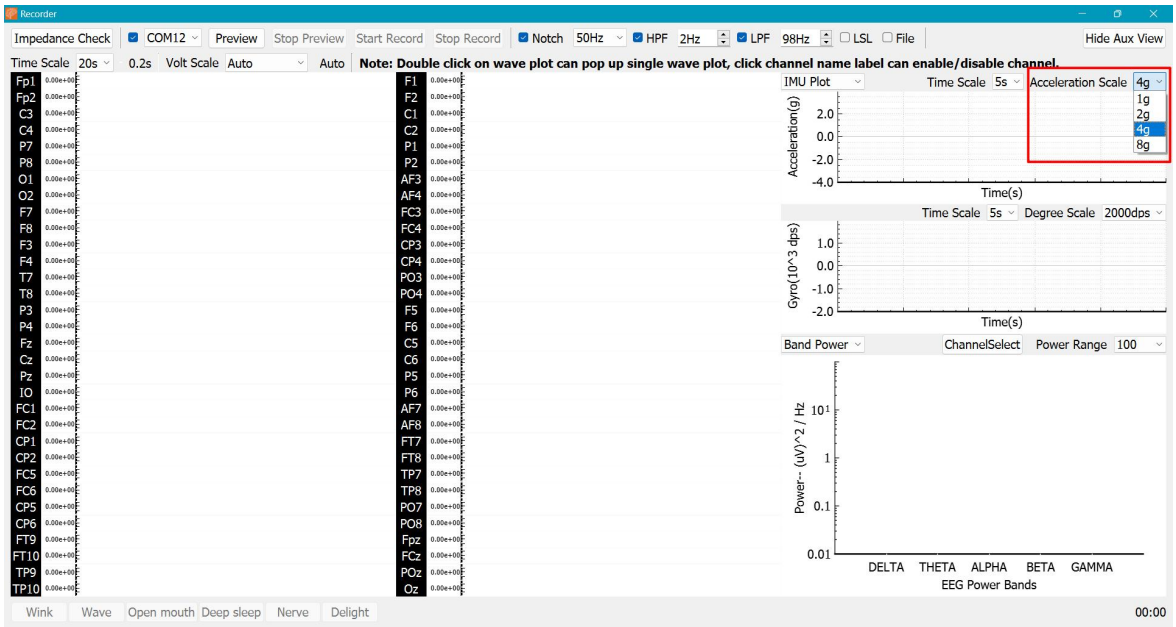

Figure 5.3.2.4-41

Gyroscope:

Click on "Time Scale" to select 1s, 2s, or 5s, as shown in Figure 5.3.2.4-42;

Click on "Degree Scale" to select 500dps, 1000dps, 2000dps, 4000dps, and 8000dps (dps: degrees per second), as shown in Figure 5.3.2.4-43.

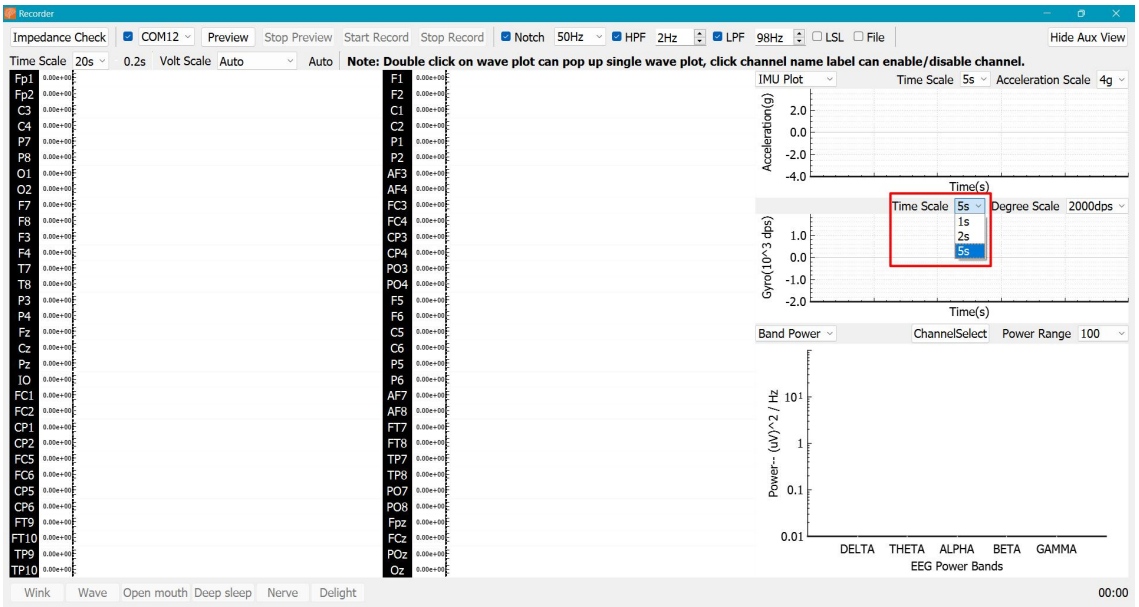

Figure 5.3.2.4-42

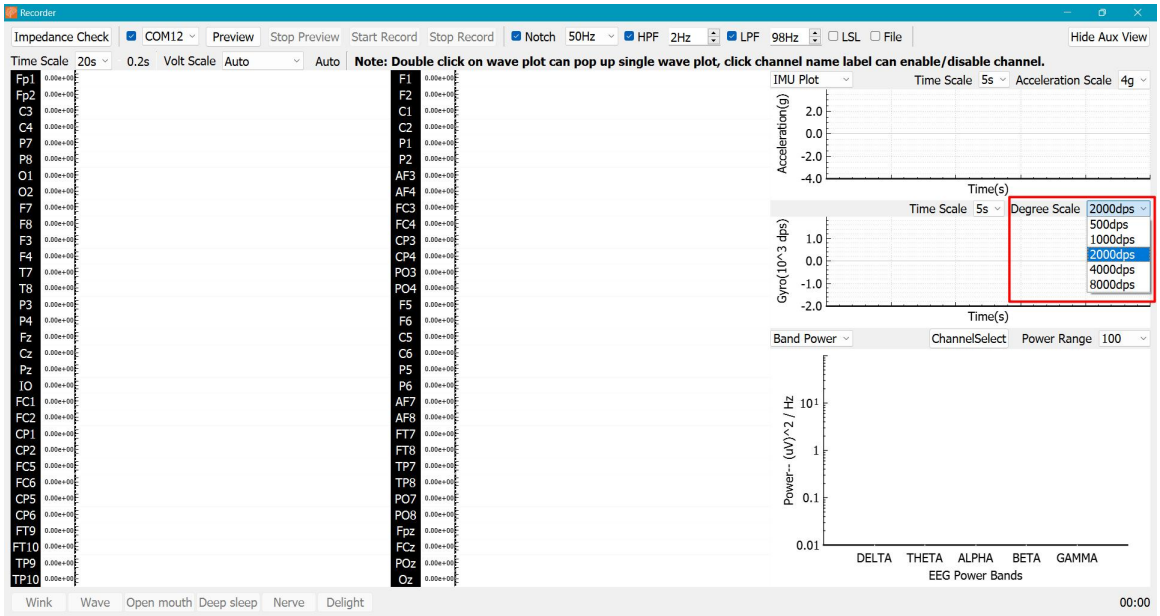

Figure 5.3.2.4-43

Band Power:

Click on "ChannelSelect ", as shown in Figure 5.3.2.4-44;

Click on "Power Range" to select 100, 1000, and 10000, as shown in Figure 5.3.2.4-45.

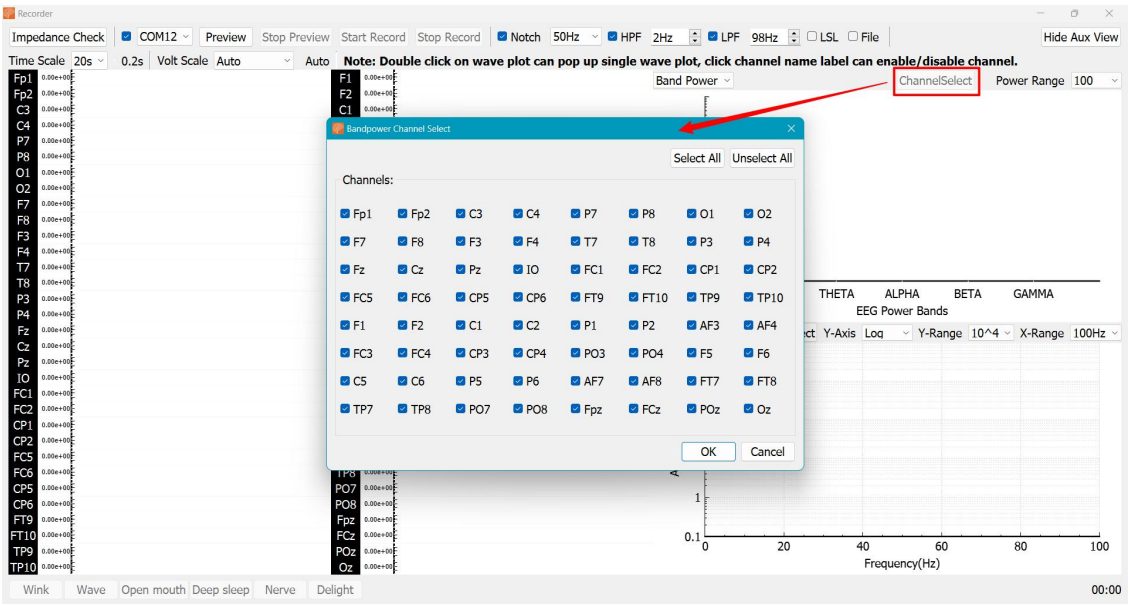

Figure 5.3.2.4-44

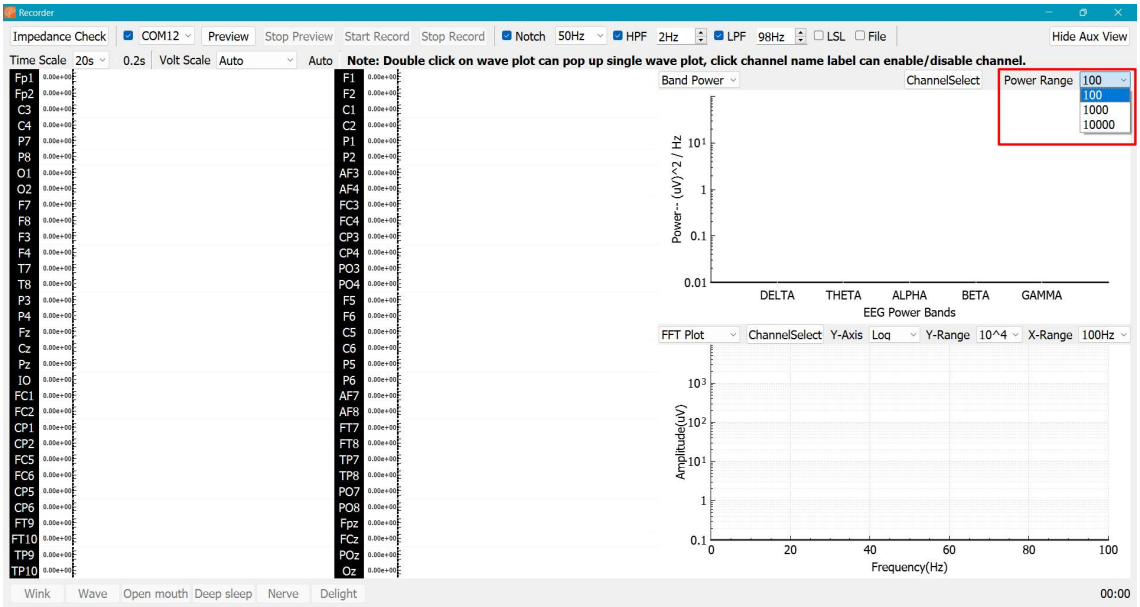

Figure 5.3.2.4-45

Head Plot: Click on "Volt Scale" to select 0.5mm/uV, 0.1mm/uV, 0.05mm/uV, 0.01mm/uV, 1mm/mV, 0.1mm/mV, as shown in Figure 5.3.2.4-46.

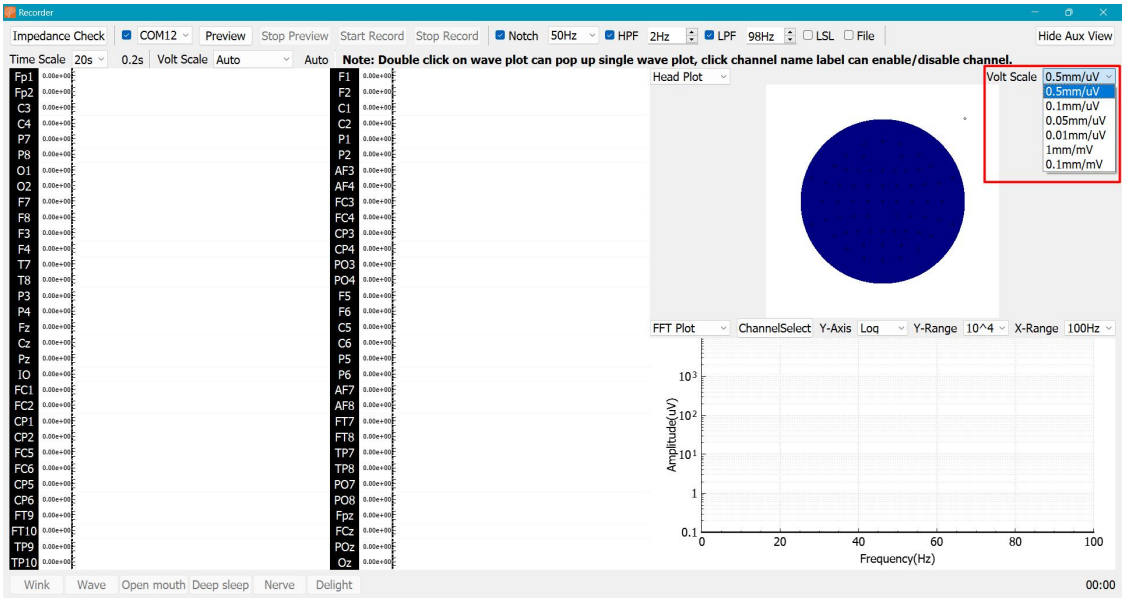

Figure 5.3.2.4-46

8) Start Record

Click "Preview" to start collecting; After waiting for the waveform to stabilize, click "Start Record" to record the acquisition process, as shown in Figures 5.3.2.4-47 and 5.3.2.4-48;

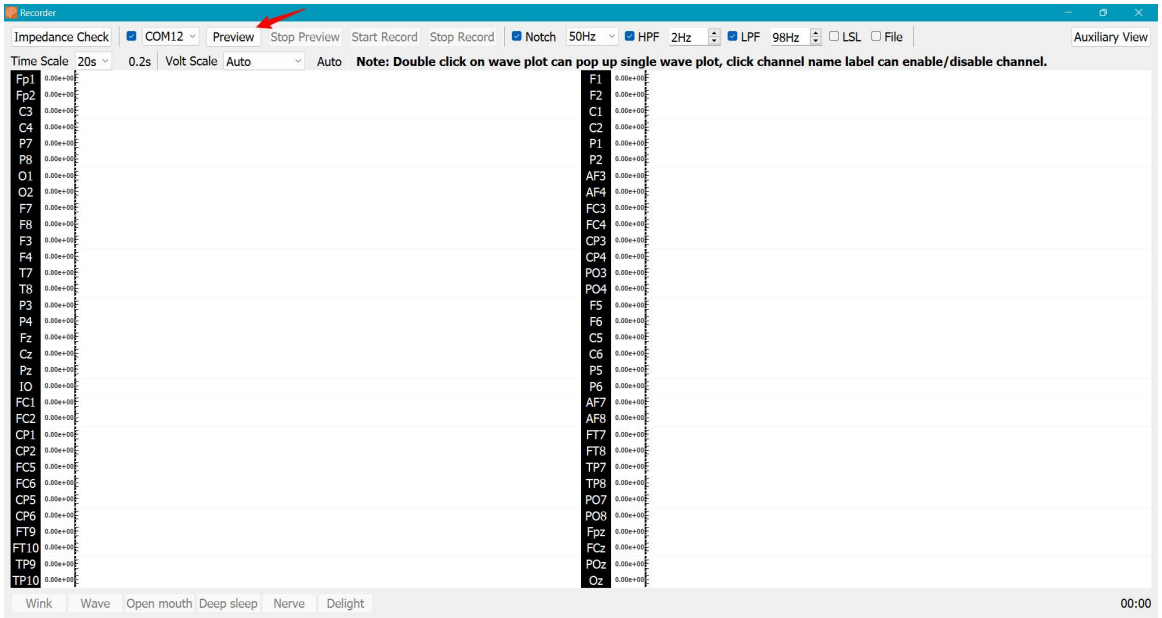

Figure 5.3.2.4-47

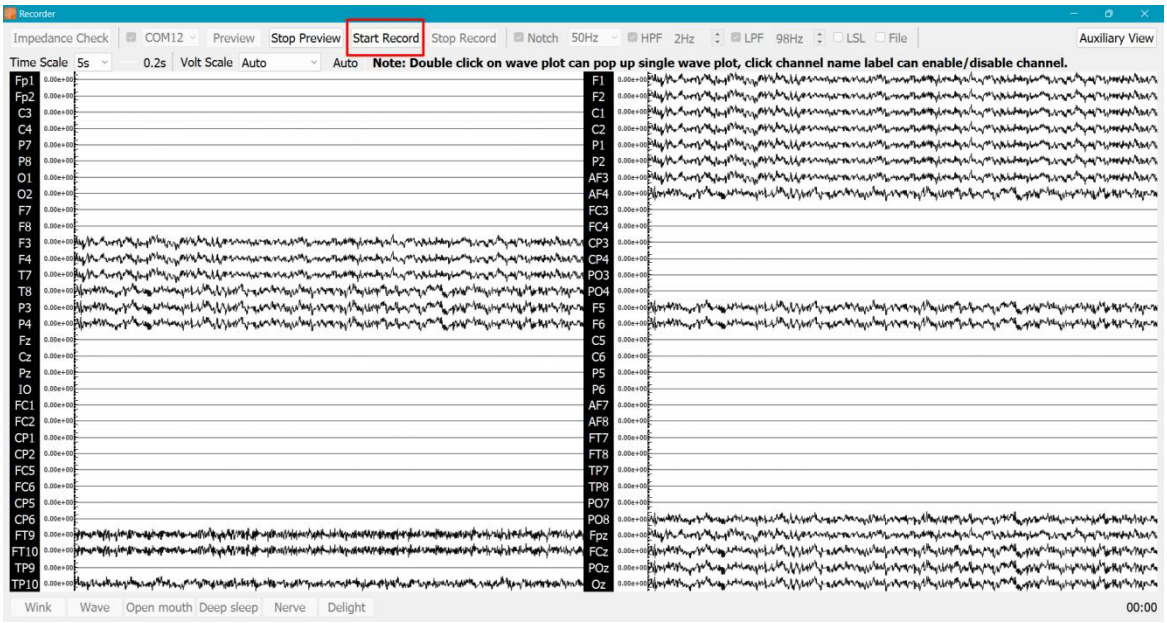

Figure 5.3.2.4-48

9) Event triggered

① Tag software events:

Operate in online mode.

After starting the collection, click the "Start Record" button, and the software event list at the bottom of the collection window will become clickable. At this time, software events can be marked.

Clicking once is the start time of the software event, and the label is displayed in blue as shown in Figure 5.3.2.4-49; Click again to indicate the end time of the event, which will be recorded in the file.

Note: If there are certain events that are not marked with an end time when clicking "Stop Record" or closing the recording window directly, the default is "Stop Record" or the time when the recording window is closed is the end time of the event.

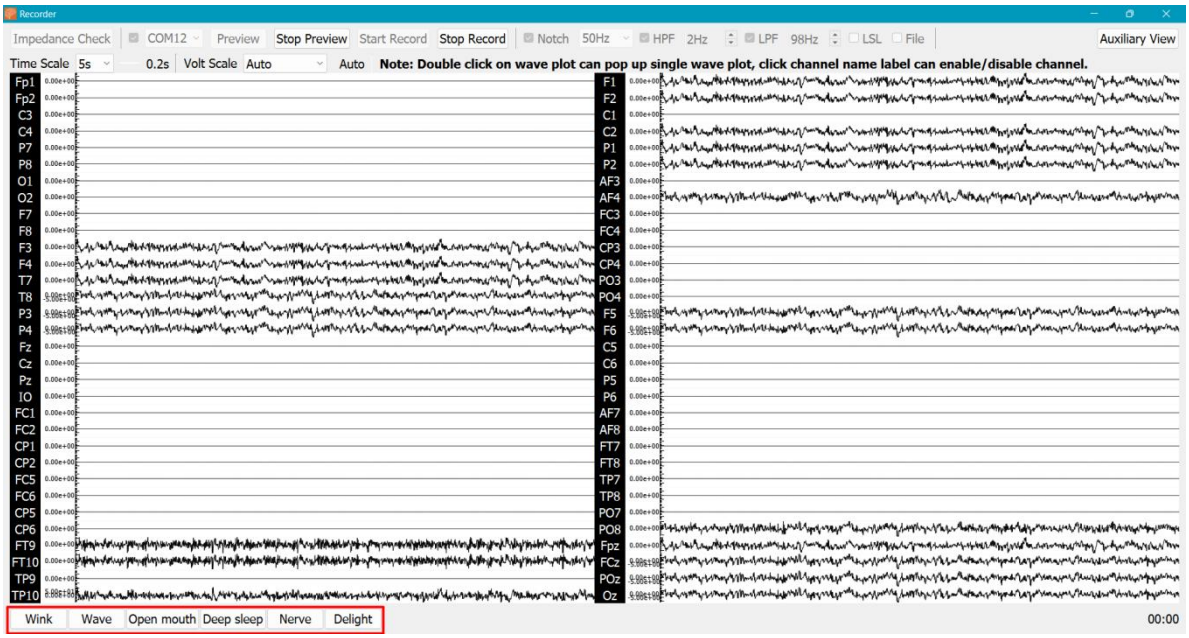

Figure 5.3.2.4-49

② Tag hardware events:

Both online and offline modes can be operated.

After starting the collection, click any button on the event button module to mark the hardware event. The start time of a hardware event is the time when a button is pressed, and the end time is the time when the button is released.

Note: Since offline information only stores the most basic hardware events, the OYMEEG List is used by default.

- **Offline mode**

Offline mode: During the collection process, it is automatically recorded and stored in the MicroSD card, which means playing back the recording process.

In this mode, the device defaults to recording the "Record Settings" information from the previous online mode. If you need to adjust the "Record Settings" information, you need to adjust the collection settings information in online mode in advance and click "Preview" on the collection interface to avoid invalid settings.

The offline mode is set by the user to operate the amplifier, and the specific steps are as follows:

① Ensure that there is already a MicroSD card in the device, complete the "Record Settings" in online mode, and click "Preview" on the collection interface;

② Start collection - Long press and hold the offline data collection and storage button until the MicroSD card storage and transmission indicator lights are constantly on;

③ Stop Collection - Press and hold the offline data collection and storage button, and the data transmission indicator light will turn off;

④ After removing the MicroSD card and opening OBS-1000 to import offline data, the record can be viewed in the playback window.

⚠Caution

MicroSD cards do not support midway removal. Please ensure that the MicroSD card is successfully installed before turning on.

5.3.2.5 About

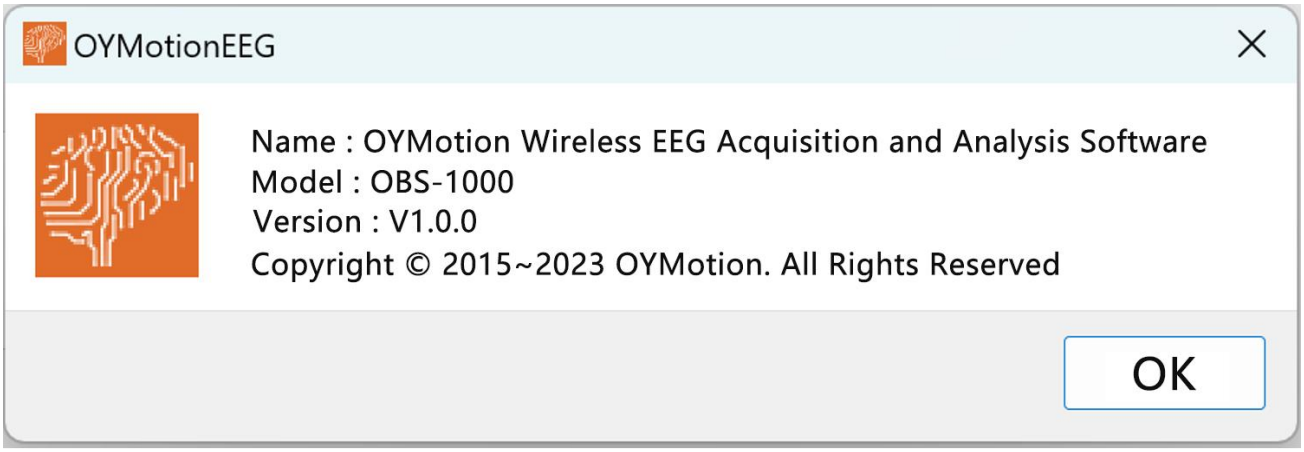

Figure 5.3.2.5-1

5.4 Shutdown

(1) Disconnect the device after stopping data transmission (refer to the recording and connecting device window instructions);

(2) Click the close button in the upper right corner of the software to close it;

(3) Press and hold the power switch for more than 2 seconds, and the device indicator light will turn off, indicating that the OB-1000 EEG machine has been turned off.

(4) Separate the OB-1000 EEG amplifier from the non-invasive EEG electrode (EEG cap)

signal interface, and remove the battery from the amplifier. If necessary, please charge the battery promptly.

Chapter Ⅵ Maintenance and Repair

6.1 Maintenance

Equipment management personnel must regularly maintain the components of the electroencephalogram machine.

6.1.1 Regular maintenance

1. Regularly (it is recommended to use a clean, soft, and slightly damp cloth every week or if necessary) to wipe away the plastic dust on the amplifier and cable.
2. Maintain the computer according to the relevant instructions in its manufacturer's user manual.
3. When the battery level is low, please replace the battery and charge it in a timely manner. For specific disassembly and assembly of batteries, please refer to 4.5.3 Equipment Installation.

⚠ Caution

- The maintenance of this equipment must be carried out by experienced professionals.
- Before cleaning and maintenance, please confirm that the equipment has been disconnected from the power supply.
- All components and accessories of this equipment must undergo regular maintenance and repair (at least once every six months).
- The components of this device do not require regular replacement during their useful life.
- It is recommended to check the cables and connectors on the wireless EEG electrode (EEG cap) every day to confirm if there are any signs of wear. If so, please contact OYMotion Technology or a dealer for repair.
- It is prohibited to wipe the amplifier with a damp cloth to prevent electric shock and damage to the equipment.

6.1.3 Cleaning, Disinfection, and Sterilization

The OB-1000 Electroencephalogram Machine is a non sterile product that only cleans the surface of its components. If there is pollution, it should be cleaned first and then disinfected in a timely manner. To avoid long-term damage to the product, we recommend disinfecting only when

necessary.

The specific cleaning method is as follows:

(1) Non invasive EEG electrode (EEG cap)

a. After completing the EEG detection, remove the non-invasive EEG electrode (electrode cap) from the subject's head and soak it in warm water for 30 minutes. After the conductive paste dissolves, use the included electrode cleaning brush to wash the remaining small amount of conductive paste on the electrode head.

b. Hang the cleaned non-invasive EEG electrode (EEG cap) in a ventilated area and dry it in the shade.

(2) Other equipment components

Use a clean, soft, slightly damp cloth to wipe and remove dust from components other than non-invasive EEG electrodes (EEG caps), such as amplifiers, computers, cables, event button modules (if any), etc.

The specific disinfection method is as follows:

(1) Non invasive EEG electrode (EEG cap)

1. Disinfectant selection:

A. It is recommended to use quaternary ammonium salt disinfectants (such as benzalkonium bromide disinfectant, with a benzalkonium bromide content of 4.5% to 5.5%)

After diluting the electrode cap in a 1:14 ratio of liquid to water, soak the cleaned electrode cap in this diluted solution for 10 minutes for effective disinfection.

B. It is recommended to use 84 disinfectant (with an effective content of 4.5% to 5.5%), diluted in a ratio of 1:500 between the original solution and water,

Soak the cleaned electrode cap in this diluted solution for 30 minutes for effective disinfection.

2. Rinse the disinfected and soaked EEG electrode cap with clean water 2-3 times.

3. Hang the rinsed EEG electrode cap in a ventilated area and dry it in the shade for later use.

(2) Other equipment components

It is recommended that users soak a clean dry gauze in 70% (volume ratio) isopropanol disinfectant, and then use this gauze to wipe the surface of the part that needs to be disinfected twice

for 3 minutes. Use a clean and dry cloth to wipe off the residual disinfectant.

⚠Caution

- Be sure to turn off all system power before cleaning, otherwise it may cause a risk of electric shock or abnormal system function.
- Do not use volatile liquids such as diluents or gasoline, as these substances can cause the equipment to melt or crack.
- Avoid touching the connector end with water and disinfectant during cleaning.
- The non-invasive EEG electrode (electrode cap) soaked in disinfectant must be thoroughly rinsed with water.
- Improper or frequent disinfection can shorten the service life of the product.
- After cleaning, the electrode cap should be placed in a cool and dry place, avoiding direct sunlight. The equipment components should be completely dried before being packed into the packaging box.

6.2 Maintenance

⚠Caution

Warranty with purchase of EEG machine invoice and warranty card.

⚠Caution

Warranty period: 1 year.

⚠Caution

Warranty coverage:

1） Quality issues with company products;

2） Only limited to the instrument host, excluding consumables such as accessories that require regular replacement;

3） During the warranty period, if the EEG machine is damaged due to human factors, it cannot be carried out in accordance with the warranty regulations and repair fees need to be charged; After the warranty period, please contact Shanghai OYMotion Technologies Co., Ltd. directly to provide service guarantee;

4） To repair the electroencephalogram machine, please contact Shanghai OYMotion Technologyies Co., Ltd. Do not repair it without authorization. In the case of self opening, our company cannot carry out repairs in accordance with the warranty regulations.

5） The replacement of components may cause the EEG machine to not meet basic safety and performance requirements. Do not replace components without authorization. The replacement of components must be carried out by professional personnel from OYMotion Technologyies Co., Ltd.

Chapter Ⅶ Common Faults and Troubleshooting Methods

The following is a list of common faults, cause analysis, and handling methods for Electroencephalogram Machine. If users still cannot eliminate the fault according to this method, or need more technical support from OYMotion Technologyies Co., Ltd., please call the after-sales service department of Shanghai OYMotion Technologyies Co., Ltd.

⚠Caution

1) When there is an abnormal situation with the Electroencephalogram Machine, it should be immediately stopped from use. If there is smoke or burning smell, there is a risk of fire or electric shock if continued use.
2) Except for our company's maintenance personnel and authorized maintenance personnel, no other personnel are allowed to disassemble, unload, modify, or repair this electroencephalogram machine. Any violation will result in our company being unable to perform normal warranty and maintenance on this electroencephalogram machine. Our company will not be responsible for any potential personal injury, fire, electric shock, and other risks caused by this.

Number	Common faults	Cause analysis	Processing method
1	Unable to power on	No battery installed	Install the battery into the device according to 4.5.3 Device Installation
		Insufficient pressing time	Release the button after the power indicator light is on
		Low battery level	Fully charge the battery in a timely manner; Replace the battery and operate again
		Machine error	Returning to the factory for repair
2	MicroSD card cannot be inserted	Insertion direction error	Reinsert in a different direction
3	Battery cannot be inserted	Insertion direction error	Reinsert in a different direction
4	A certain channel or	Poor contact of the electrode in	Check the contact between the electrode and the skin, and add conductive paste

	several channels have significant waveform interference or approximate straight lines	this channel; Lead wire breakage or electrode aging	appropriately; If it cannot be improved, replace the lead wire and electrode with a new one
5	All channel waveforms are straight lines	Poor contact of the reference or ground electrode; aging	Check the contact between the electrode and the skin, and add conductive paste appropriately; If it cannot be improved, replace the lead wire and electrode with a new one
6	All channels have high AC interference	High contact impedance of reference or ground electrode; Aging;	Check the contact between the electrode and the skin, and add conductive paste appropriately; If it cannot be improved, replace the lead wire and electrode with a new one
		Is there any interference source nearby	Please investigate the source of interference
7	The software cannot be opened or run	Running other Windows applications	Close all Windows applications and remove any programs that conflict with the software
8	The software interface is stuck and cannot continue recording	Logic error in the program itself	Restart the software, make relevant settings, and continue checking; If the above steps are invalid, restart the computer, reconnect, set up, and check again; If all the above operations are ineffective, please contact professional technical support personnel for resolution
		Operation product crashes	
		User interface error	

Attention: If the above operation instructions still cannot solve the problem, please stop the operation and contact the after-sales service department of OYMotion Technologyies Co., Ltd.

Chapter Ⅷ Product after-sales service

8.1 Free Services

Our company provides a one-year warranty for the hardware products of the OB-1000 electroencephalogram machine. If any quality issues occur within one year from the date of sale, our company will be responsible for repairing materials and resolving equipment performance issues. The obligations under this commitment do not include shipping and other expenses. No free service will be provided for direct, indirect, or ultimate damage and delay caused by:

This commitment does not apply to the following situations:

- Damage caused by improper use due to human factors, such as incorrect connections, modifications, unauthorized repairs, etc;
- Damage caused by accidents, such as object compression, liquid immersion, etc;
- Damage caused by uncontrollable factors such as earthquakes, floods, fires, lightning strikes, chemical corrosion, etc;
- Damage caused by unauthorized upgrades, additions, and deletions;
- Other damages caused by unexpected use.

8.2 Instructions for replacing accessories

When there are problems with the accessories of the EEG machine and consumables that need to be replaced regularly, please contact OYMotion Technologyies Co., Ltd. for paid replacement;

8.3 Waste disposal

This product must not be disposed of together with conventional waste. Users are responsible for handing over their discarded equipment to designated recycling points for used electrical and electronic equipment.

Collecting and recycling waste equipment separately during disposal will help protect natural resources and ensure recycling in a way that protects human health and the environment.

Equipment or scrapped accessories that have exceeded their service life should be disposed of in

accordance with local laws, regulations, and other relevant regulations.

Chapter Ⅸ FCC Statement

Any Changes or modifications not expressly approved by the party responsible for compliance could void the user’s authority to operate the equipment.

This device complies with part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) This device may not cause harmful interference, and

(2) This device must accept any interference received, including interference that may cause undesired operation.

Note: This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

—Reorient or relocate the receiving antenna.

—Increase the separation between the equipment and receiver.

—Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.

—Consult the dealer or an experienced radio/TV technician for help.

This device meets the government's requirements for exposure to radio waves. This device is designed and manufactured not to exceed the emission limits for exposure to radio frequency (RF) energy set by the Federal Communications Commission of the U.S. Government.

The exposure standard for wireless devices employs a unit of measurement known as the Specific Absorption Rate, or SAR. The SAR limit set by the FCC is 1.6 W/kg. The highest SAR value for the device as reported to the FCC when worn on the body, as described in this user guide, is 0.093W/kg