CLAIMS

1 An EEG monitor for continuously monitoring the EEG of a user through capacitive coupling to the an ear canal of a user, the EEG monitor comprising an ear insert for positioning within the human ear canal, comprising at least two capacitive electrodes adapted for recording a signal, the electrodes being coated with a dielectricum for electrical isolation of the electrode, the electrode being connected to an amplifier wherein the amplifier has an input impedance matched to the impedance of the electrodes~~.~~, and wherein the connection between the electrodes and the amplifier comprises a signal wire and a shield.

2 The EEG monitor according to claim 1, adapted for measuring an EEG response.

~~3 The EEG monitor according to claim 1 or 2, where the connection between the electrodes and the amplifier comprises a signal wire and a shield.~~

43 The EEG monitor according to claim 1, ~~2,~~ or ~~3~~2, wherein the amplifier is located within the ear insert.

54 The EEG monitor according to any one of the preceding claims, wherein the amplifier is an Auto-Zero-Amplifier.

65 The EEG monitor according to any of the claims 1 to ~~4~~3, wherein the amplifier is a chopper-stabilized amplifier.

76 The EEG monitor according to any one of the preceding claims, wherein the amplifier has an input characteristic of a high pass filter, with a corner frequency at 1Hz.

87 The EEG monitor according to any one of the preceding claims, comprising an Auto-Zero-Amplifier for amplification of the EEG recorded at the electrodes.

~~98~~ The EEG monitor according to any one of the preceding claims, comprising a sample and hold circuit for keeping the shield at a potential close to the signal wire.

~~109~~ The EEG monitor according to any one of the preceding claims, comprising a test circuit for testing the capacitive connection, having a signal generator for generating a signal having a frequency outside the ~~frequency~~ EEG signal range ~~intended to measure~~.

~~1110~~ The EEG monitor according to any one of the preceding claims, wherein the entire monitor is located at an in ear device.

~~1211~~ The EEG monitor according to any one of the preceding claims, comprising a signal processor located at a behind-the-ear device.

~~1312~~ The EEG monitor according to any one of the preceding claims, wherein the power supply is located at a behind-the-ear device.

~~1413~~ A wearable EEG monitor according to any of the preceding claims, wherein the ear insert is made of a flexible material that adapts to the shape of the ear canal.

~~1514~~ The EEG monitor according to any one of the preceding claims, wherein the electrodes are fixed to an inner non flexible part, which is covered with an outer flexible part, which conforms to the shape of the ear canal.

~~1615~~ The EEG monitor according to any preceding claim, wherein the electrodes are distributed evenly over the circumference of the ear insert.

~~1716~~ The EEG monitor according to any of the preceding claims, wherein the electrode has a double curvature shape.

~~1817~~ A method of monitoring brain waves comprising

arranging a capacitive electrode coated with a dielectricum in an ear insert,

placing the ear insert within an ear canal of a human subject,

arranging at least one reference electrode coated with a dielectricum,

placing a processor adjacent the electrode of the subject,

connecting the electrodes to the processor, where said connection comprises a signal wire and a shield, and

using the processor to record and process the signals from the electrodes thereby monitoring the brain waves.