CLAIMS

1. A device for transcranial alternating current (tACS) stimulation, comprising:

a controller including a processor configured to generate and transmit an electrical current,

two electrodes configured to contact opposing lateral sides of a patient's scalp and to receive the electrical current to deliver a therapeutic dose of tACS for a predetermined treatment time;

wherein the generated electrical current has a constant, an average amplitude of about 2.2 mA and a bidirectional square waveform utilizing a carrier waveform having a frequency of about 15 kHz, a first modulating waveform having a frequency of about 15 Hz, and a second modulating waveform having a frequency of about 500 Hz;

wherein the generated current includes a plurality of sub-bursts within a burst duration, the burst duration including a burst on duration of about 50 ms including the plurality of sub-bursts followed by a burst off duration of about 16.7 ms without the plurality of sub-bursts;

wherein the current switches polarity after each burst duration;

wherein each sub-burst includes a plurality of pulses within a sub-burst duration, the sub-burst duration including a sub-burst on duration of 1 ms including the plurality of pulses followed by a sub-burst off duration of about 1 ms without the plurality of pulses;

wherein each pulse of the plurality of pulses extends for about 33.33 μs followed by a pause of about 33.33 μs.

2. The device of claim 1,

wherein each of the two electrodes is positioned on the squamous temporal bone, above the posterior aspect of the zygomatic arch and maintained in place during delivery of the therapeutic dose of tACS for the treatment of Major Depressive Disorder (MDD) or Generalized Anxiety Disorder (GAD);

wherein the diameter of each of the electrodes is about 36 mm; and

further comprising retrieving, by the processor, the predetermined treatment time from a memory in communication with the processor, wherein the predetermined treatment time is about 20 minutes;

measuring a treatment time during which the therapeutic dose of tACS is delivered to the patient;

comparing the treatment time to the predetermined treatment time; and

ceasing transmission of the generated electrical current when the elapsed time is equal to the predetermined treatment time.

3. The device of claim 2, further comprising administering the therapeutic dose of tACS to the patient twice daily for the predetermined treatment time, wherein one administration occurs within two hours or less after waking from sleep and another administration occurs within two hours or less prior to sleeping.