

Test Plan Outline

2022-05-20 Version 0.1 Capstone Team 23 - Trail Nap Alarm
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White Box - Sub-Component Functionality

1. Verify amplification range through amplifier stages.
2. Verify frequency response through filter/amplifier stages.
3. Verify bias removal from reference probe.
4. Verify visible muscular and brain waves through scope.
5. Verify ADC sampling.
6. Test input impedance of probes using a known working system.
7. Verify the sound notification component.
8. Verify the detection of contact by the device.
9. Verify algorithmic detection of brain waves, sleep stages, and accumulation of sleep from recorded data.
10. Verify device records detected brainwaves during a session.
11. Verify charging of battery via micro usb connection.
12. Verify case water resistance.

Black Box - Device Functionality

- b1. Verify detection of contact and initial brainwaves after the device is attached to the head.
- b2. Verify detection of sleep stage accumulation and user wakeup.
- b3. Verify device powers down on loss of contact.
- b4. Verify device runtime good for 3 days of use.

Test Points / Inputs Needed

1. Attenuated Input into AD620 reduction of 10k times.

2. Attenuated input into AD620 reduction of 500 times.
3. Output of AD620
4. Output of Filter/Amplifier Stage 1
5. Output of Filter/Amplifier Stage 2
6. Input to ADC.