Dispersion Testing

Each of the manufacturers' elctrodes, eSwallow, VitalStim, and Guardian were subjected to a dispersion test. The dispersion test was performed using a low current power supply, electrode and conductive, illuminating thermal membrane. Each manufacturer's electrode was applied to the membrane. The power supply positive terminal was connected to the electrode the negative terminal was connected to the frame of the thermal membrane. The power supply was then powered on to generate a current flow through the electrode and the thermal membrane. The flow of current from the electrode into the thermal membrane generates heat which causes discoloration of the thermal membrane. Figure 1 shows a picture of the dispersion test setup.

Figure 1. Picture of the Dispersion Test setup.

Figure 2 is a picture of the conductive, illuminating thermal membrane during the Dispersion Test. The Guardian electrode is on the far left, the eSwallow in the middle and the VitalStim on the right on the thermal membrane. As you can see the eSwallow electrode has a bigger illuminated circle showing that the current is spread evenly across the entire electrode. The Guardian has a small circle showing current concentrated in a much smaller area than the eSwallow electrode. The VitalStim has an oval heated area larger than the Guardian but less than half of the surface area of the eSwallow electrode.

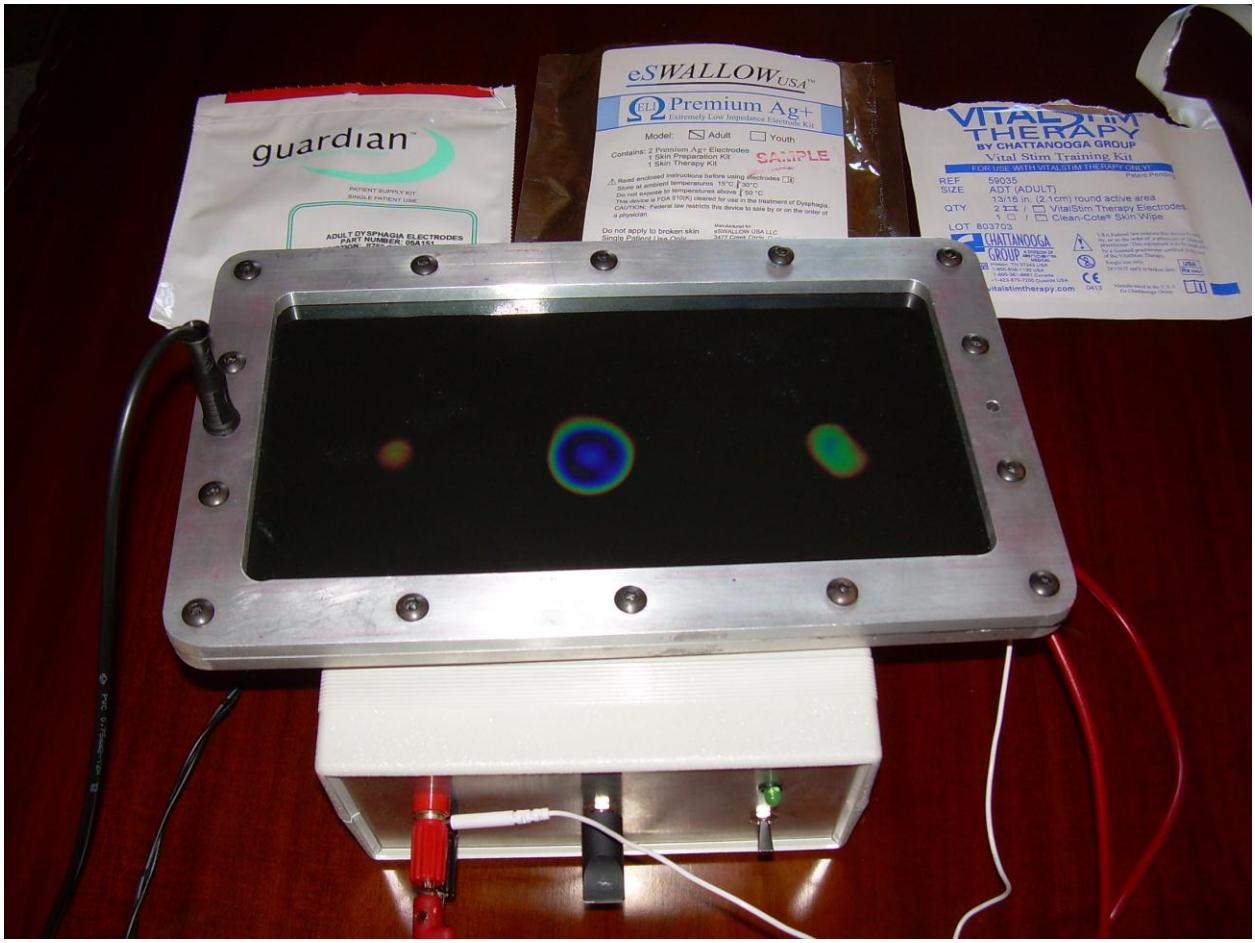

Figure 2. Picture of the illuminated, conductive thermal membrane during the Dispersion Test.