

Extended Runtime Test Plan

Objective:

The objective is to determine internal temperatures, power consumption and battery life of the laser pointer. The test bench will sweep frequencies and the laser pointer will continually correct for the angular displacement while temperature power consumption are monitored.

Equipment:

Test bench

2 Multi-meters

5 thermocouples

Processor

Gyroscope

Stopwatch

Laser pointer

Power supply

Function generator

Video camera

Procedure:

Attach laser pointer securely to the test platform, attach 2 multi-meters to the battery leads (one to measure voltage and one to measure the current). Attach the thermocouples to the NST processor, the Arduino processor, mirror modules, gyroscope and the surface of the case. Setup camera to record multi-meter and thermocouple output. Setup a stopwatch to record elapsed time, turn on laser pointer and stabilization. Power on test bench and continually sweep frequencies between 5 and 15Hz with a 5° amplitude. Allow system to run until battery voltage drops below 3.5V.