**System Tests**

**Test 1: Detection and Alert Messaging**

1. Place noise detection sensors within an area of 5 square miles.
2. Program the device to detect mountain lion noises.
3. Create a mountain lion like noise within said area, make sure the noise is strong enough to break the threshold for alerting.
4. Check if an alert message is sent to controlling computer, including type of noise detected, strength of detected noise, and the location of detected noise within 3 meters.
5. Check that the alarm sounds on the controlling computer, and that it continues until the ranger turns it off.
6. Check that if another noise is detected at a different location, the alarm will sound again.

**Test 2: Reporting and Classification**

1. Set off multiple simulated mountain lion noises within the detection area.
2. Check that the controlling computer saves all mountain lion alerts received with the last 30 days and a summary of alert information for data older than 30 days but received within one year.
3. Check that the ranger can classify each alert as definite, suspected, or false, showing the probability that a real mountain lion was detected.
4. Check that the control program allows the ranger to request several reports:
5. **Report #1**: Shows all mountain lion detections by date detected and by classification (definite, suspected, or false).
6. **Report #2**: Shows detections on at a specific sensor location.
7. **Report #3**: Shows detections on a map of the park and areas within 2 miles of the park.
8. **Report #4**: Shows a detection classification by ranger.
9. Check that the system can be easily reconfigured for other parks in the state of California.