

## **Engineering Specification #2 – Tilt Range**

The purpose of this test is to determine the maximum degree of tilt from the vertical position that the bike is able to reach. The ideal value for this spec is 0 to 15 degrees or greater range, and the marginal value is 0 to 8 degrees.

**Start Date:** 5/14/08

**Finish Date:** 5/14/08

**Engineers set-up experiment:** Jonathan Bawas, Carl Mangelsdorf, James Nardo, Jeffrey Tempest, Jen Zelasko

### **Equipment Needed:**

1. Protractor
2. Plum-bob

### **Experiment Set-up:**

- 1.) **Place protractor at center of vertical handlebar post, and calibrate protractor to zero when bike is in the upright locked position.**
- 2.) **Tilt the bike frame to the left to the maximum allowable degree.**
- 3.) **Tilt the bike frame to the right to the maximum allowable degree.**

Max Degree of rotation to the left: 12.5 degrees

Max Degree of rotation to the right: 12.5 degrees

### **Conclusions:**

The usable tilt range was found to be 10.5 degrees maximum from center. While the ideal value of 15 degrees has not been met for this spec, actual range (10.5 degrees) that will be used during patient riding has been accommodated. The marginal value for this specification has been met, however the larger range specified in the ideal value has been found through preliminary test to be excessive.