# Function Testing

testArray1 = (1,2,3,4,5,6,7,8,9,10) - 10 values  
testArray2= (-5,-4,-3,-2,-1,0,1,2,3,4,5) - 11 values  
testArray3= (-110000,-105000,-1000,-100,-10,-1,0,1,10,100,1000,150000, 195000) - 13 values  
testArray4= (-25,-15,-20,5,-5,20,0,1,5,10,9,10,9,5,-10,10) - 16 values   
testArray5= (-5,5,-4,4,-3,3,-2,2,-1,1,0) - 11 values  
testArray6= (5,10,4,6,8,1,0,4,9,5) - 10 values  
testArray7= (-5,-10,-4,-6,-8,-1,0,-4,-9,-5) - 10 values  
testArray8= (-10,10,-5,“A”,5,“B”,-3,3,-2,”C”) - 10 values

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Array | getVelocity  Expected | getVelocity  Actual | getFrequency  Expected | getFrequency  Actual |
| testArray1 | 5.5 | 5.5 | 0 | 0 |
| testArray2 | 0 | 0 | 0 | 0 |
| testArray3 | 10000 | 10000 | 0 | 0 |
| testArray4 | .5625 | .5625 | 37.45 | 37.5 |
| testArray5 | 0 | 0 | 49.10 | 49.09 |
| testArray6 | 5.2 | 5.2 | 29.94 | 30 |
| testArray7 | -5.2 | -5.2 | 29.94 | 30 |
| testArray8 | Not valid | NaN | Not valid | 18 |

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Array | getAcceleration Expected | getAcceleration Actual | getAmplitude Expected | getAmplitude Actual |
| testArray1 | 1 | 1 | 0 | NaN |
| testArray2 | 1 | 1 | 0 | NaN |
| testArray3 | 25416.666 | 25416.666 | 0 | NaN |
| testArray4 | 2.333 | 2.333 | 10.4 | 10.4 |
| testArray5 | .5 | .5 | 2.777 | 2.777 |
| testArray6 | 0 | 0 | 3.56 | 3.56 |
| testArray7 | 0 | 0 | 3.56 | 3.56 |
| testArray8 | Not valid | NaN | Not valid | NaN |

|  |  |  |
| --- | --- | --- |
| Values  (x1,x2,y1,y2,z1,z2) | getEuclidian Expected | getEuclidian Actual |
| 1,2,1,2,1,2 | 1.73 | 1.73205 |
| 2,5,3,9,5,1 | 7.81 | 7.81024 |
| -4,-2,-8,6,-10,2 | 18.55 | 18.54724 |

Testing code:

var testArray1=new Array(1,2,3,4,5,6,7,8,9,10);  
var testArray2=new Array(-5,-4,-3,-2,-1,0,1,2,3,4,5);  
var testArray3=new Array(-110000,-105000,-1000,-100,-10,-1,0,1,10,100,1000,150000, 195000);  
var testArray4 = new Array(-25,-15,-20,5,-5,20,0,1,5,10,9,10,9,5,-10,10);  
var testArray5 = new Array(-5,5,-4,4,-3,3,-2,2,-1,1,0);  
var testArray6 = new Array(5,10,4,6,8,1,0,4,9,5);  
var testArray7 = new Array(-5,-10,-4,-6,-8,-1,0,-4,-9,-5);  
var testArray8 = new Array(-10,10,-5,'A',5,'B',-3,3,-2,'C');

# Test Notes

When moving hand up and down a large amount the frequency stays very low but other values seem to calculate correctly

Acceleration does not seem to be working correctly, always stays an incredibly low value

Darker environments do not capture data as efficiently. Fluorescent lights seem to work best

0 point for Z axis seems to be ineffective for Leap Motion, when putting hand in ideal range it sometimes makes the finger flicker as if it is too far forward. Maybe move the ideal Z position back slightly

Model hand not very accurate test. Every test with the hand seems to produce a frequency of about 30Hz

Glove does not seem to make any difference

The Finger 4 value always seems to be noticeably higher than the other fingers

Sleeve does not seem to be a problem if its tight. If it is loose or opened (buttoned sleeve) the device has trouble capturing data

Rings can be worn when using the application. Only extremely loose or extremely tight rings that can’t slide all the way down the finger are an issue

Watches can be worn easily without any issues as well

Bracelets that dangle or are loose cause the sensor some issues, tight bracelets are fine

Watches, rings and bracelets can also be used with gloves. This includes under the glove and over the glove.