

Test Procedures – Specs Verification

Goal

To conduct tests in order to verify that design of apparatus and test procedures are in compliance with Customer Needs 1-6, 8-12, 14-21, 23-24.

EM 5 / EM 11

Apparatus

Apparatus setup for curvilinear experiment

Yard stick

Weigh scale

Apparatus components for centripetal acceleration experiment

Procedure

1. Measure total square footage required to conduct roller coaster experiment for student group
2. Area must be less than 70 sqft per apparatus
3. Measure height of apparatus
4. Weigh components for centripetal acceleration experiment
5. Calculate total weight of apparatus for centripetal acceleration experiment

EM 14

Procedure

Review all lab procedures. Identify number of unique experimental runs for each experimental setup

EM 17 / EM 18 / EM 19 / EM 20 / EM 22

Apparatus

Sensor

DAQ device

Computer

Procedure A

1. Check specifications for data acquisition device for number of samples the DAQ device can collect
2. Count number of DAQ inputs

Procedure B

1. Connect DAQ device to computer
2. Connect sensor to DAQ device

3. Start Labview program. Begin data collection.
4. Stop data collection.
5. Open data file using Excel (perform activity to verify if data is transmitted to Excel)
6. Replicate data file and save under different name
7. Conduct each experiment using individual lab procedure directions as given
8. Collect data output
9. Verify if four individuals are able to view data output on computer screen simultaneously
10. Save data file and check file size.
11. Insert data output file into Microsoft Word (to verify if possible)
12. Perform theoretical calculations for expected values
13. Calculate percentage uncertainty between theoretical and actual value observed