

# P11216 Wandering Ambassador

## Electrical Test Plans & Test Results

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## P11216 Wandering Ambassador Electrical Engineering Preliminary Test Plan

### 1. MSD I: WKS 8-10 PRELIMINARY TEST PLAN

#### 1.1. Sub-Systems/ Functions/ Features

Major Sub-Systems/ Features/ Function
1. Navigation Sensors
2. Plant Sensors
3. Motor Control
4. I <sup>2</sup> C Communication

#### 1.2. Test Plans

##### 1.2.1. Navigation Sensors

Date Completed:  
Performed By:  
Tested By:

Engr. Spec. #	Specification (description)	Unit of Measure	Marginal Value	Ideal Value	Comments/Status
P11216—ES1	Range of sonar sensors	Ft	0.5	2	
P11215 – ES7	Field of view of sonar sensors	°	90	180	
P11215 – ES8	IR detection of edge	Binary	Y	Y	
P11215 – ES9	Resolution of compass	°	6	1	
P11215 – ES22	Force needed to trigger bump sensor	N	100	20	

##### 1.2.2. Plant Sensors

Date Completed:  
Performed By:  
Tested By:

Engr. Spec. #	Specification (description)	Unit of Measure	Marginal Value	Ideal Value	Comments/Status
P11216—ES6	Resolution of battery contents	%	20	10	
P11215—ES25	Moisture sensor works	Binary	Y	Y	
P11215—ES28	Temperature sensor accuracy	°F	5	2	
P11216—ES22	Light sensor accuracy	lumens	200	100	
P11215—ES46	Solar panel operational	Binary	Y	Y	

##### 1.2.3. Motor Control

Date Completed:  
Performed By:  
Tested By:

Engr. Spec. #	Specification (description)	Unit of Measure	Marginal Value	Ideal Value	Comments/Status
P11215 – ES77	Time to respond to stop command	S	1	0.1	
P11216—ES28	Motor encoders accurate	Binary	Y	Y	

##### 1.2.4. I<sup>2</sup>C Communication

Date Completed:  
 Performed By:  
 Tested By:

Engr. Spec. #	Specification (description)	Unit of Measure	Marginal Value	Ideal Value	Comments/Status
P11216—ES19	Beagleboard/MSP430 communication operational	Binary	Y	Y	

### 1.3. Test Equipment

Engr. Spec. #	Instrumentation Required
P11215 – ES7	Protractor
P11215 – ES8	None
P11215 – ES9	Protractor
P11215 – ES22	Force gauge
P11215—ES25	None
P11215—ES28	Thermometer
P11215—ES46	Voltmeter
P11215 – ES77	Stop watch
P11216—ES1	Meter stick or measuring tape
P11216—ES6	None
P11216—ES19	None
P11216—ES22	Light meter
P11216—ES28	None