

Objective:

This test is designed to test that all components of the system are operating correctly. After the system is finally assembled this first test will allow for any flaws to be revealed prior to the major testing. By testing the physical system without any of specifications in mind it will allow for the engineers to focus on each component of the design and make sure it is functioning properly. If at the end of the procedure any component is still not achieving its required functionality, then that component must be redesigned and the Systems Test should be repeated after the new component is installed.

Each mechanical component of the design will be observed during testing. The performance will be rated as Satisfactory or Poor. Any components ranked Poor during the first test will be adjusted by the engineers before the second test.

The second test will be run after all required adjustments are made.

Component	Test 1 Ranking	Test 2 Ranking
CPC envelopes	satisfactory	satisfactory
CPC threaded end of pipe	satisfactory	satisfactory
CPC bottom manifold	satisfactory	satisfactory
CPC top manifold	satisfactory	satisfactory
CPC valve	poor	satisfactory
CPC frame	satisfactory	satisfactory
Still Base	poor	satisfactory
Still Collection Trough	poor	satisfactory
Still Float Valve	satisfactory	satisfactory
Waste Collection	satisfactory	satisfactory
Usable Water Connection	satisfactory	satisfactory
Input Water System	poor	satisfactory
Tube Connections	satisfactory	satisfactory
Still Sealing around glass	satisfactory	satisfactory
Insulation (securing)	satisfactory	satisfactory
Cart	satisfactory	satisfactory

Rankings:
Satisfactory
Poor

Objective:

The goal of the data acquisition test is to verify that all devices which measure/record data are functioning properly before and after they are installed on the system. These devices include, but are not limited to, flow meters, thermometers, salinity measuring devices and manometer
Each device will be listed, and will be labeled either "Pass" or "Fail" for each of the two tests. If any devices fail the test, the team will decide if the test should be run again or if a new device is needed to replace the current, non-functioning one.

Measuring Device	Test 1 (Prior to Installation)	Test 2 (Post Installation)
Thermocouple 1	Pass	pass
Thermocouple 2	Pass	pass
Pyranometer	Pass	pass
Hydrometer	Pass	pass

Rankings:
Pass
Fail

Objective:

This test will be the most intensive and require the most amount of time because it will determine the nominal values for each specification. operate for a typical day time period and all specifications will be measured and recorded. This test will Using the defined engineering specifications the device will be re-run until all engineering specifications are satisfied.

Outline:

The system will be run for the daytime period after all measurement and control devices are installed. Using these controls all required measurements for each specifications will be taken.

This value will then be ranked using the following scale:

Above Nominal	Better than the Target Value
Nominal	The Target Value
Marginal	In Acceptable Value Range
Below Marginal	Unacceptable, Specification not met

0.002

Specification	Measure of Performance	Device for Measuring	Nominal Value	Marginal Value	Value for Test 1	Ranking for T1	Value for Test 2	Ranking for T2	Value for Test 3	Ranking for T3
Reduce Salt Content	% Salinity	Hydrometer	1%	5%-10%	0%	above nominal	0%	above nominal	0%	above nominal
Harness Renewable Resource	% Power Used from Renewables		100%	60%	100%	nominal	100%	nominal	100%	nominal
Remove Useable Water	ml/min	Graduated Cylinder	21	3.5	1.3	below Marginal	5.7	marginal	5.84	marginal
Remove Waste	Days Between Cleaning	Calendar	7	1	1	marginal	1	marginal	1	marginal
Effectively Demonstrate engineering Principles	Theoretical Models Used		5	2	7	above nominal	7	above nominal	7	above nominal
Intuitive to Operate System	# HRs training required	Train a person and time using a clock	1	2	3	above nominal	3	above nominal	3	above nominal
Operate Safely	# Hazards	Hazards List	0	3	3	Marginal	2	marginal	2	marginal
Measure Salinity	Accuracy (uS/cm)	Hydrometer	1	50	50	Marginal	50	Marginal	50	Marginal
Control Water Input	Accuracy of height of water in Still (cm)	Clear Ruler in Still	0.25	1	0.1	above nominal	0.1	above nominal	0.1	above nominal
Measure Temperature	Accuracy (C)	From Data Sheet	0.1	1	1 C	Marginal	1 C	Marginal	1 C	Marginal
Measure Supply Level	Accuracy of water height in storage tank (cm)	Clear Ruler in tank	0.5	2	0.1	above nominal	0.1	above nominal	0.1	above nominal
Input Water from unusable Waste Source	Maintain water level (cm)	Clear Ruler in Still	2	±1	NA	Na	2.25	marginal	1.25	marginal
Guarantee water supply to system	Maintain Volume in Storage Tank (liters)		6	8 to 10	6	nominal	6	nominal	6	nominal