Proof of Concept Test Demo Sheet[[1]](#footnote-1) (Example)[[2]](#footnote-2)

**TEAM NAME: Ocean’s 7 (-1) Test Date & Time: 12/8/16**

**Test # and Name (from PoC plan) 2.A. Board-to-Board Connectivity Test Type: Feasibility Testing**

1. **Purpose of Test and How it Relates to Project (Brief, concise, but complete, description):**

Critical Functionality Demonstrated: Subsystem boards will be able to connect to the backplane, via a board to board connector and be able to draw current from the power systems through the backplane.

Relation to Overall System:  The impetus for developing the backplane is to reduce the use of wire harnesses and standardize integration and connectivity of submodules to the CU RoboSub.  Success in this test means that subsystems will be able to be attached to and powered through the backplane.

1. **Test Setup, Pre-conditions, and Procedure (Brief, concise, but complete, description):**

Test Setup: Oscilloscope, power supply, and test load provided

Preconditions: Power supply set to output 14.8V at 3A, Oscilloscope set to measure voltage up to 50V, and voltage conversion board soldered functioning and inserted into merge board

Procedure:

* Slot the power systems test board into the power systems slot on the backplane test board
* Attach the Voltage source’s high and low voltage lines to the input and ground pins, respectively, of the backplane test board.  Turn on voltage source.
* Using the multimeter, measure the voltage difference between ground and the following test points on the power systems board:
  + 5V Test
  + 12V Test
  + 19V Test
  + 48V Test-1
  + 48V Test-2
* Using the multimeter, measure the voltage difference between ground and the following test points on the backplane test board,:
  + 5V Test
  + 12V Test
  + 19V Test
  + 48V Test-1
  + 48V Test-2
  + Turn off voltage source
* Using the multimeter set to measuring resistance, adjust the rheostat to 5 Ohms +/- 1%, attach between 5V Test and ground on the backplane test board
  + Using the multimeter, measure the voltage drop across the rheostat
  + Turn off voltage source, remove the rheostat.
* Using the multimeter set to measuring resistance, adjust the rheostat to 12 Ohms +/- 1%, attach between 12V Test and ground on the backplane test board
  + Turn on voltage source.
  + Using the multimeter, measure the voltage drop across the rheostat
  + Turn off voltage source, remove the rheostat
* Using the multimeter set to measuring resistance, adjust the rheostat to 6 Ohms +/- 1%, attach between 19V Test and ground on the backplane test board
  + Turn on voltage source
  + Using the multimeter, measure the voltage drop across the rheostat
  + Turn off voltage source, remove the rheostat
* Using the multimeter set to measuring resistance, adjust the rheostat to 48 Ohms +/- 1%, attach between 48V Test-1 and ground on the backplane test board
  + Turn on voltage source
  + Using the multimeter, measure the voltage drop across the rheostat
  + Turn off voltage source, remove the rheostat
* Using the multimeter set to measuring resistance, adjust the rheostat to 96 Ohms +/- 1%, attach between 48V Test-2 and ground on the backplane test board
  + Turn on voltage source
  + Using the multimeter, measure the voltage drop across the rheostat
  + Turn off and remove the voltage source.  Remove the rheostat

1. **Success Criteria (feasibility) / Selection Criteria (alternatives) / Design Info (gathering): (Concise, complete, quantitative):**

Voltage outputs on the power systems test board:

5V Test measures 5V +/- 1%

12V Test measures 12V +/- 1%

48V Test 1 measures 48V +/- 1%

48V Test 2 measures 48V +/- 1%

Voltage outputs on the backplane test board:

5V Test measures 5V +/- 1%

12V Test measures 12V +/- 1%

19V Test measures 19V +/- 1%

48V Test 1 measures 48V +/- 1%

48V Test 2 measures 48V +/- 1%

Voltage drop across rheostat on the power systems test points

5V Test measures 5V +/- 1%

12V Test measures 12V +/- 1%

48V Test-1 measures 48V +/- 1%

48V Test-2 measures 48V +/- 1%

1. **Instructional Team Notes:**
2. **Test outcome and what was learned (toward finalizing design):**

1. One sheet for each test of your prototyping plan. So if your team has 5 numbered tests, you will turn in 5 sheets. [↑](#footnote-ref-1)
2. It is not mandatory to follow this exact format (including using color), but each section above must appear in your sheet and in this order. Fill in headings and sections 1-3 in your word processor before the test and before you distribute this sheet to the instructional team. Sections 4 & 5 will be used by the instructors. [↑](#footnote-ref-2)