BNL FEMB Testing Procedures

Log in as operator on hothdaq1. Environment will be automatically set up for the nominal femb_python version.
If you want to use a release other than the default:
“source /opt/sw/releases/femb_python_x/sourceme”
export FEMB_CONFIG=”wib_sbnd_v109_femb_protodune_v308”

For full test (to certify board for shipment):
Receive CE box with cables attached and traveler signed off
Use wrist strap connected to ground of power supply.
Connect toy TPCs to PSL adapter on outside of CE box. Orientation matters: match the empty 8 pins to the side of the connectors in the middle of the box.
Place CE box in styrofoam holder inside the basket hanging above the dewar. The WIB/power supply ground should be connected to the basket via a grounding strap.
Connect cold data cable (thick blue cable) to WIB adapter board.. “Samtech” writing on connector should be facing up.
Connect LV/config cable (black/white twisted pair cable) to WIB adapter board (slot must be same as data slot). Keyed so only goes on one way.
Turn on LV power supply output. Current draw should be ~1A before you start taking data.
You may remove wrist strap now as you should no longer be touching the board.
Make sure ethernet connection between WIB and hothdaq is plugged in.
femb_read_reg 5 - any output fine, just a check to make sure you have network connection. If not, check the arp table (“arp”). If it is incomplete, do “sudo restart-network.”
If cold test:

(1) Lower basket so board is in cold gas above liquid, but not touching the liquid. Wait 15 minutes.
(2) Lower basket so bottom of basket is touching liquid. Wait 5 minutes.
(3) Lower basket so the box is half submerged in the liquid. Wait 5 minutes.
(4) Lower basket to the box is fully submerged. Wait 5 minutes.

femb_prod_gui: fill in your name, check the WIB slot you are using, room/cryo temperature, and fill in all the information requested for the slot you are using. You will find all the information (except the toy TPC numbers written on the toy TPC boards) on the travelers that come with the board. For the ASICs, you must enter 8 numbers separated by spaces. Please do not comma separate!
Press “Start Tests” now.
Current draw will go up to ~1.7A when board is powered.
Running under sumatra, test takes about 1 hour to complete (can vary)
Output will be written to
/dsk/n/data/oper/femb/wib_sbnd_v109_femb_protodume_v308/TIMESTAMP - keep an eye on the output as it is being written.
Do not expect identical noise measurements given different lab conditions. Do expect all channels working.

Enter runs in the Google Doc logbook, noting whether or not the data is good.
https://docs.google.com/spreadsheets/d/1rtJYg5v41rcLxmTQlQDLlz46yUhW3eCRTdfQpMe2leg/edit#gid=1712213243
Sign off “Passed Warm/Cold Test” on traveler if data looks good.
Turn off LV power supply output and put wrist strap back on.
Remove toy TPCs and disconnect cables from WIB adapter.
Pass CE box and traveler to Ken to prepare for shipment.