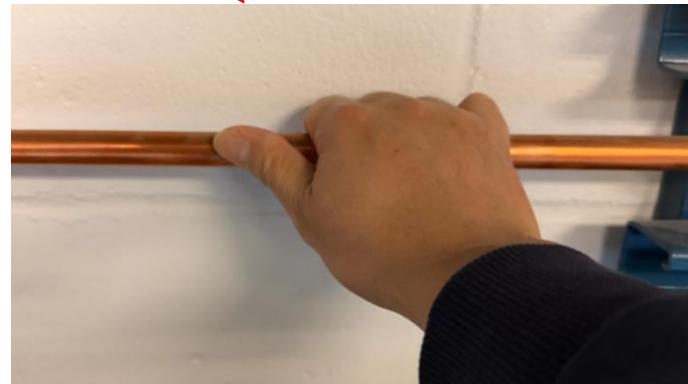
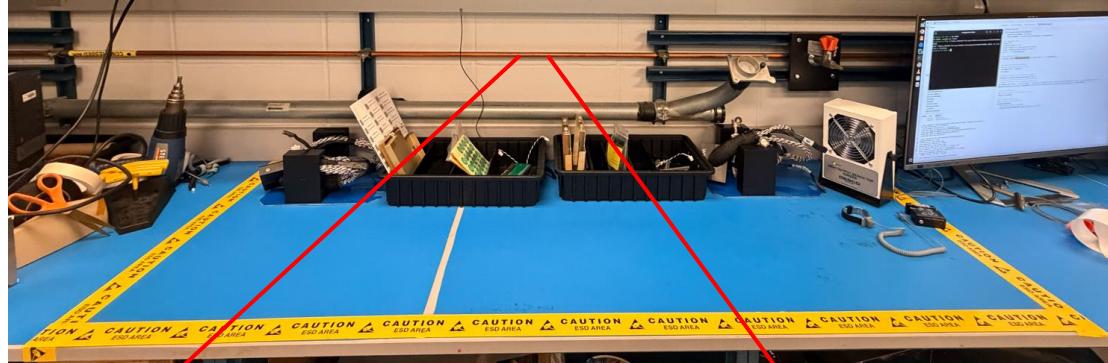


Pop-ups for FEMB QC Procedure

Karla Flores, Lingyun Ke



Discharge Yourself!



Both hands hold the bronze pipe firmly and softly for 3 seconds

(When you are **NOT** wearing on the wrist strap or ESG gloves, you **MUST** discharge yourself before you touch anything in the assembly area)

Initial Checkout

Please contact Tech Coordinator if any accessory is missing!



Safety First!



Long Sleeve Top

Long Pants

Closed Toe Shoes

ODH Monitor



ESD-safe Gloves



Cryogenic Gloves

Anti-static Wrist Strap

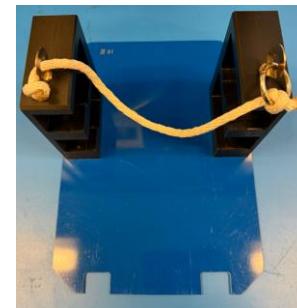
Cryogenic Face Mask



1: Assembly area

2: Place the assembled CE box support structure (to be tested in the next run)

Is the assembly area neat and clean?



2 CE box support structures



Cold cable bundle (2 sets)



2 accessory trays

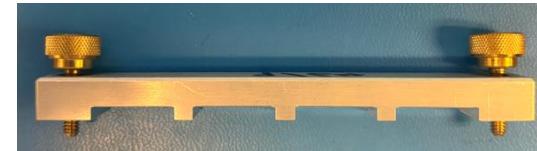
Checklist for accessory tray # 1

Please contact Tech Coordinator if any accessory is missing!

Item	Quantity
Screwdriver (PHILLIPS)	1
Allen wrench(3/16)	1
miniSAS cable clamp with 2 thumb nuts	1
Power cable clamp with 2 thumb nuts	1
Yellow Nylon Probe Pick Spudger	1
miniSAS cable clamp (VD)	2
M3x12 screws (VD)	>4
Thumb nut for miniSAS cable adapter (HD)	>4
miniSAS cable adapter	2
ToyTPC with cable attached	4
CE box fastener (2 unit/set)	2



screwdriver



miniSAS cable clamp



power cable clamp



Spudger



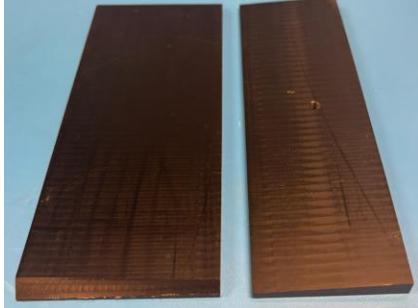
HD miniSAS
cable adapter



3/16 Allen wrench



CE box fastener (B)



CE box fastener (T)



Toy TPCs (B)



Toy TPCs (T)



VD M3x12

HD M3
thumb nuts

VD miniSAS
cable clamp

Checklist for accessory tray # 2

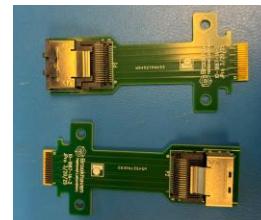
Please contact Tech Coordinator if any accessory is missing!

Item	Quantity
Screwdriver (PHILLIPS)	0
Allen wrench(3/16)	0
miniSAS cable clamp with 2 thumb nuts	0
Power cable clamp with 2 thumb nuts	0
Yellow Nylon Probe Pick Spudger	0
miniSAS cable clamp (VD)	2
M3x12 screws (VD)	>4
Thumb nut for miniSAS cable adapter (HD)	>4
miniSAS cable adapter	2
ToyTPC with cable attached	4
CE box fastener (2 unit/set)	2



In Tray#1

Check if teeth washers hold the thumb screws?



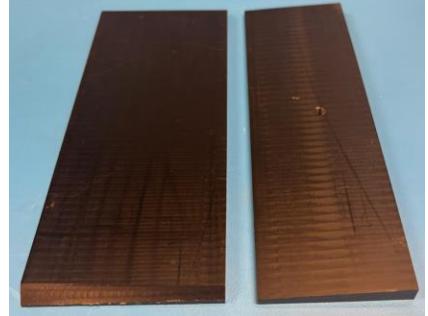
HD miniSAS cable adapter



CE box fastener (B)



Toy TPCs (B)



CE box fastener (T)



Toy TPCs (T)



VD M3x12

HD M3 thumb nuts

VD miniSAS cable clamp

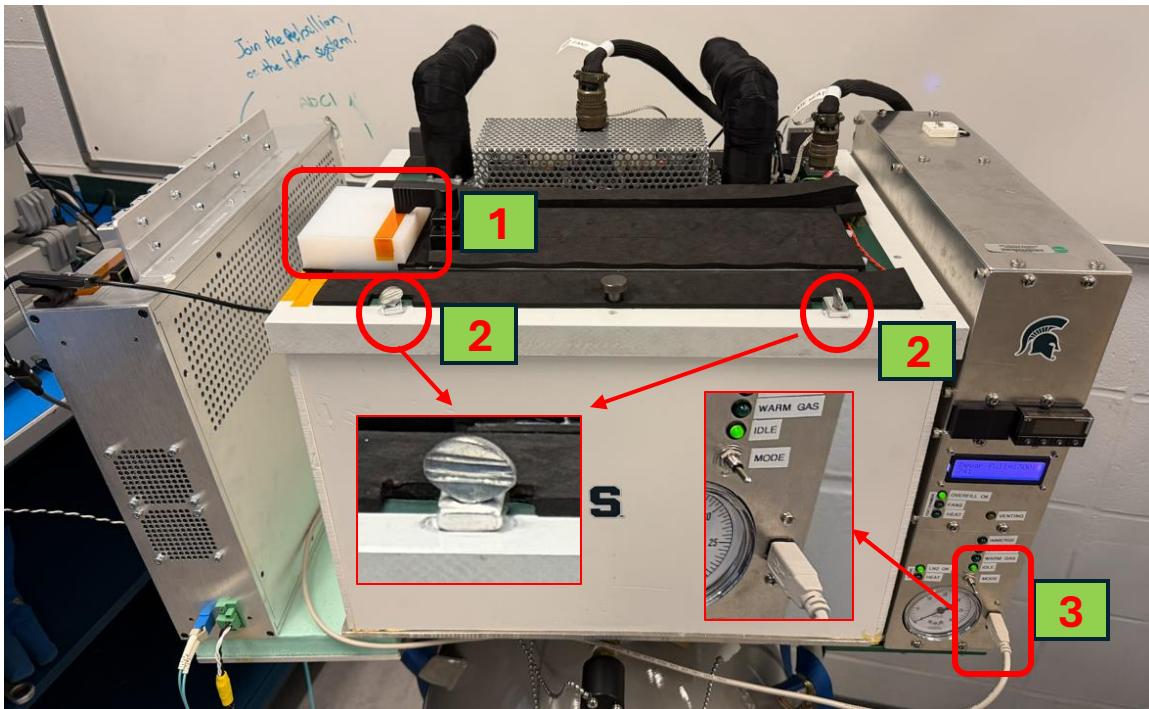
CTS Initial Checkout

12V for CTS is ON.

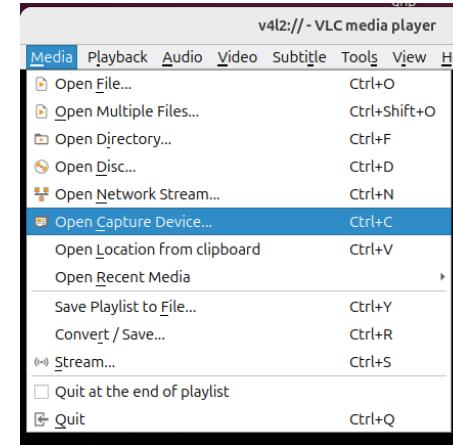
Is current between 0.5A and 2A?

Is CTS chamber top close?

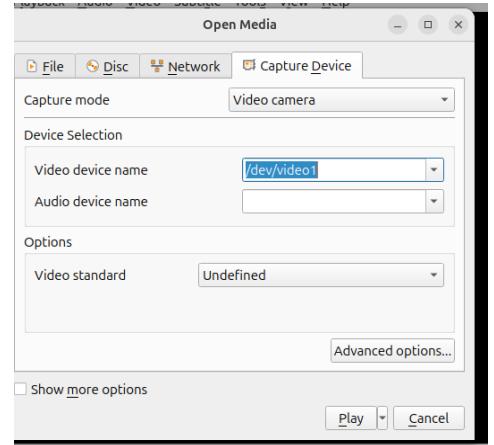
1. Is white block in position?
2. Is top locked?
3. LED 'IDLE' ON and USB connected?



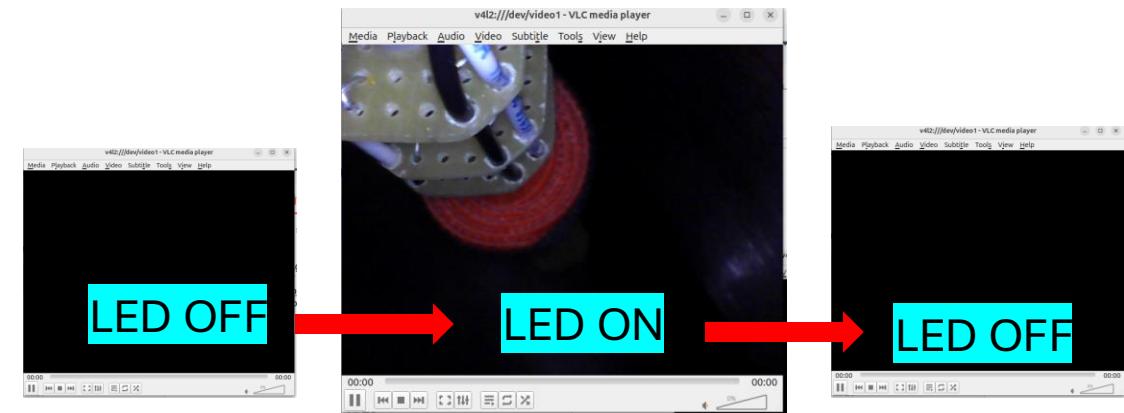
Is camera alive? (VLC player)
Turn on LED, check video and turn it off.



App VLC player
Open Capture Device...



Select video device



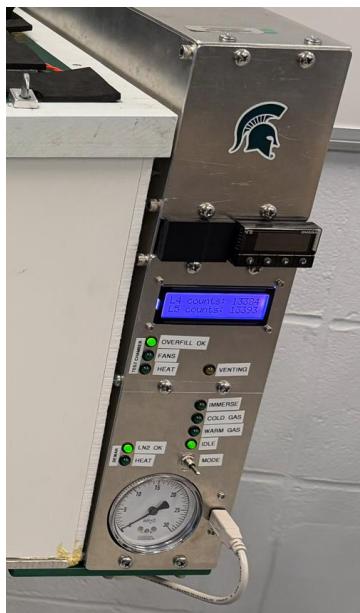
Computer to identify CTS device
Check LN2 level

LN2 Filling (STOP if you are NOT trained)

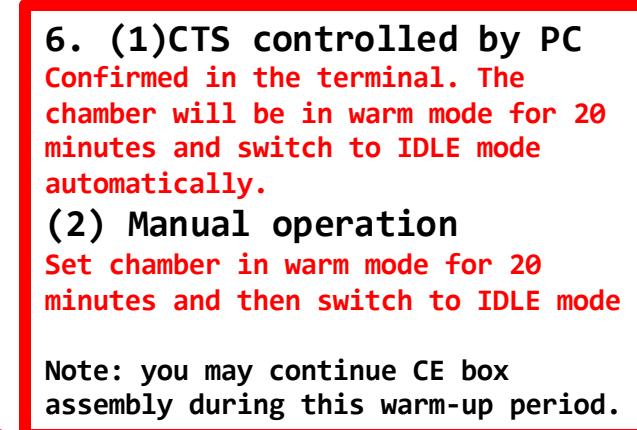
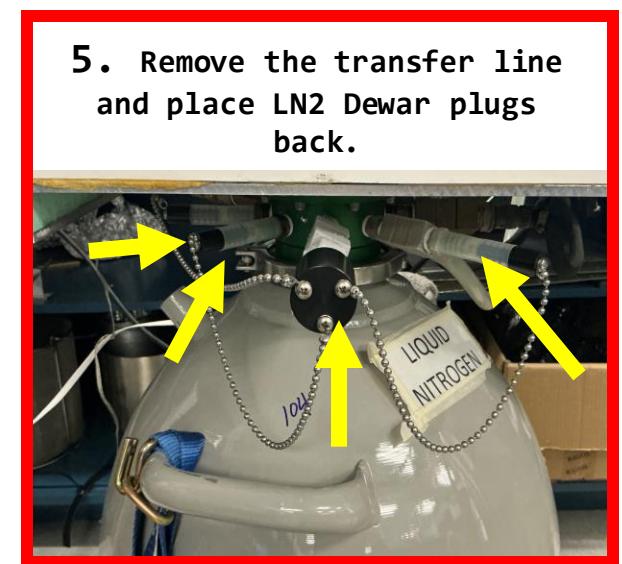
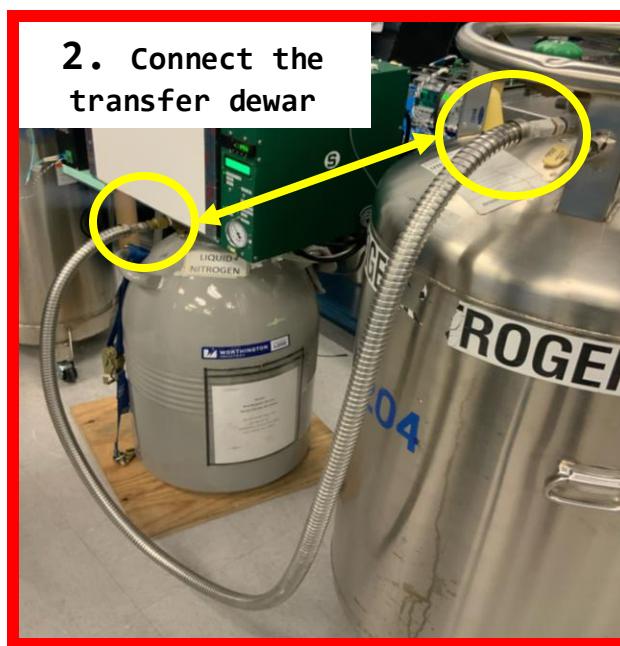
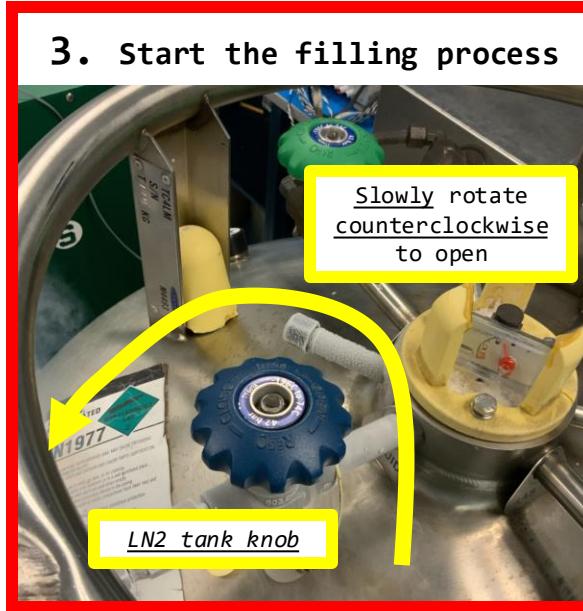
Follow these steps to fill the CTS dewar with LN2:



The top MUST be sealed!

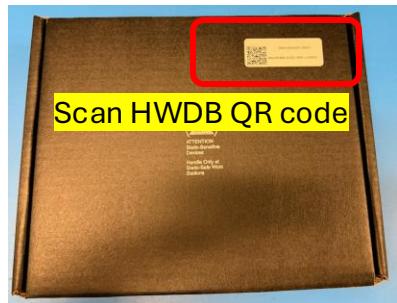


Power On!

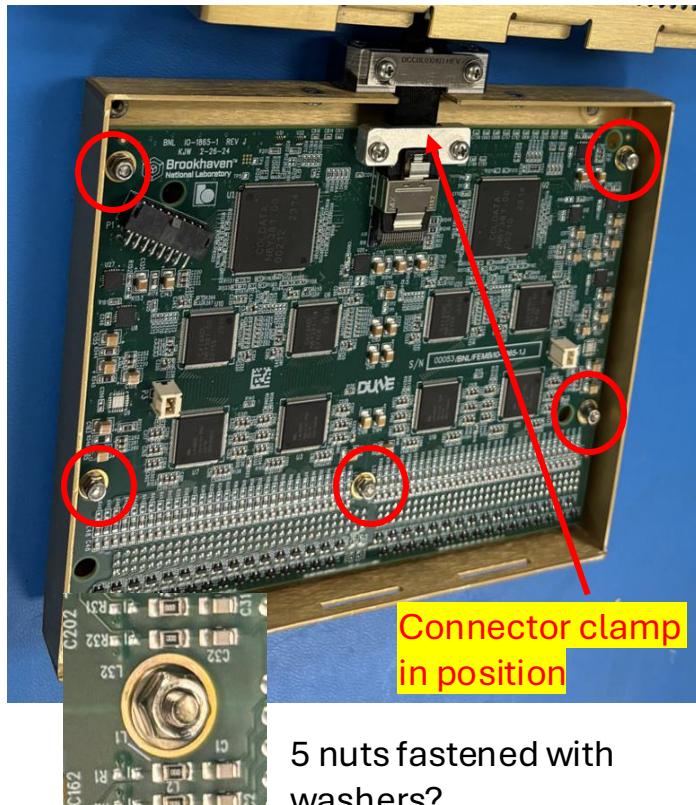


CE Box Visual Inspection

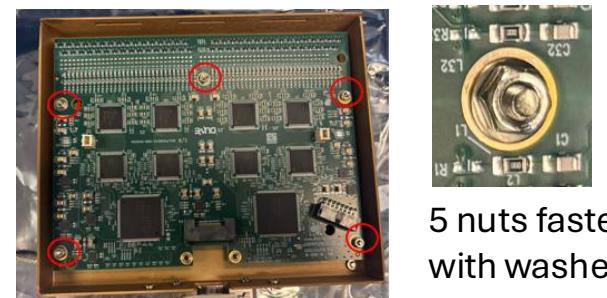
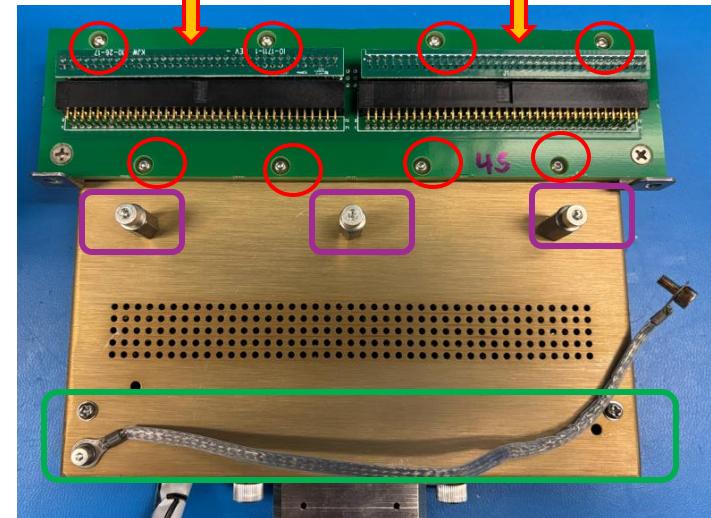
Please contact Tech Coordinator if abnormality is observed!



VD CE box (1865)

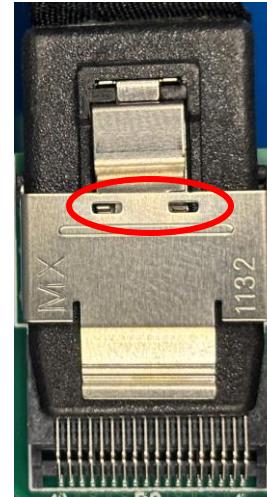
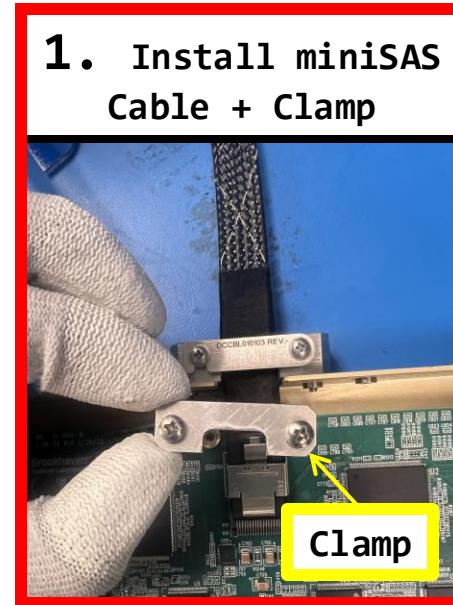
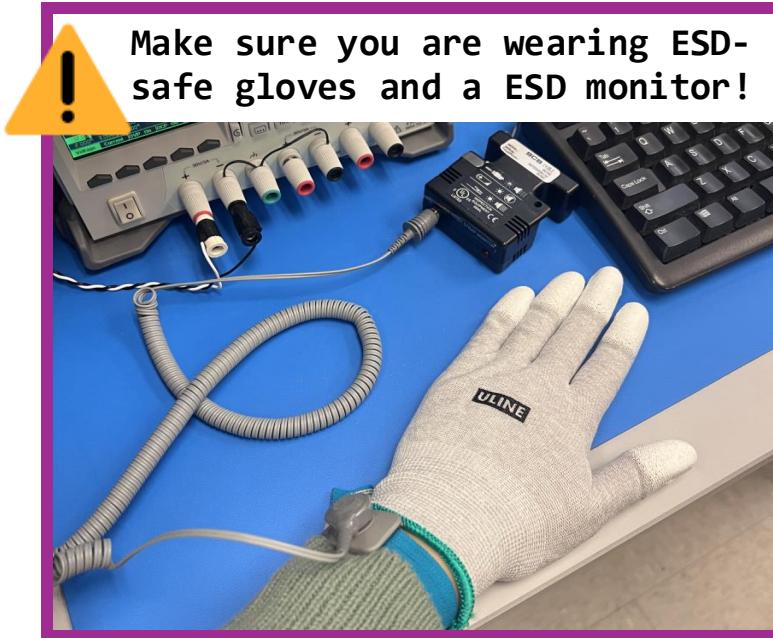


HD CE box (1826)

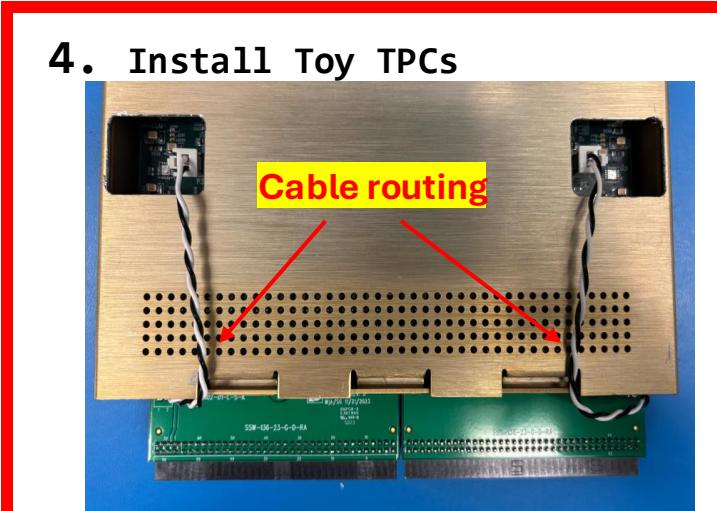
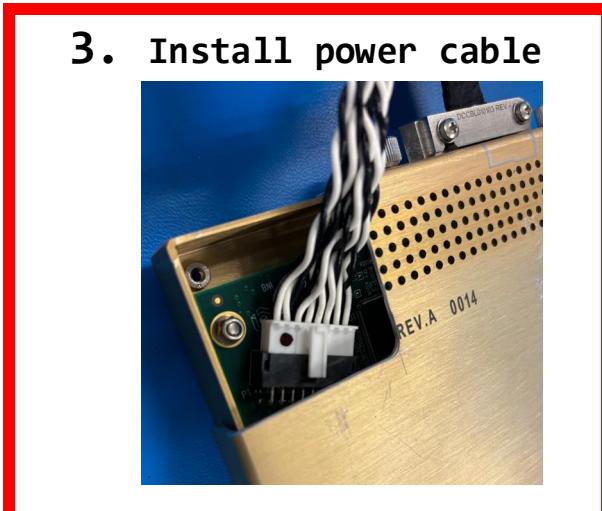


Bottom CE Box (VD) Assembly

Follow these steps to assemble the Bottom CE Box in the support structure:

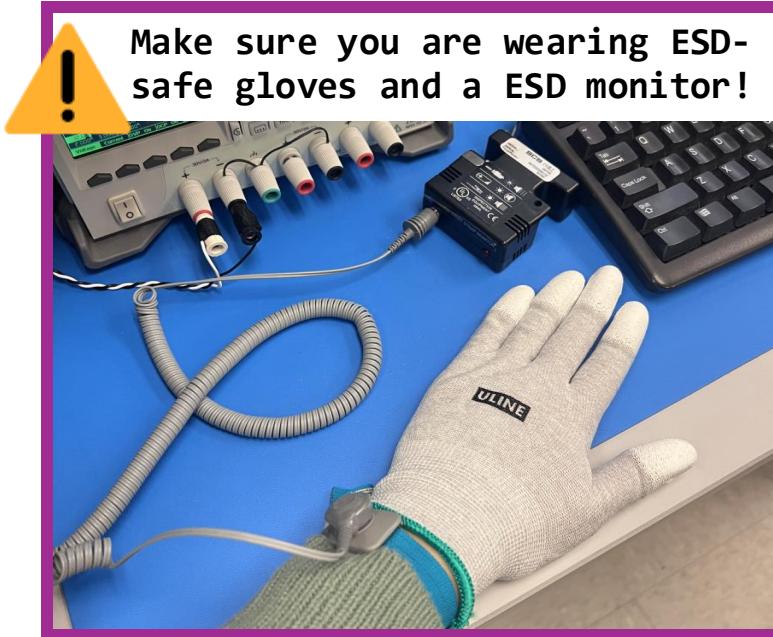


Locks in position

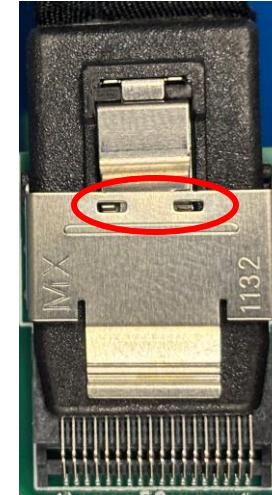
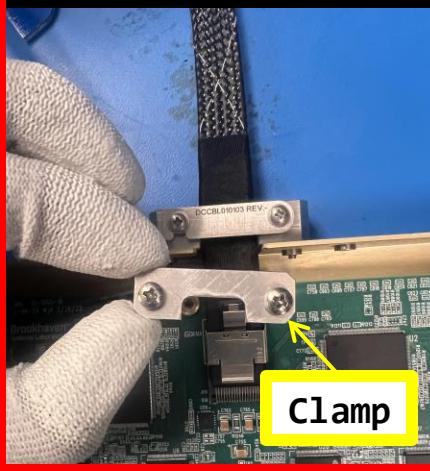


Top CE Box (VD) Assembly

Follow these steps to assemble the Top CE Box in the support structure:

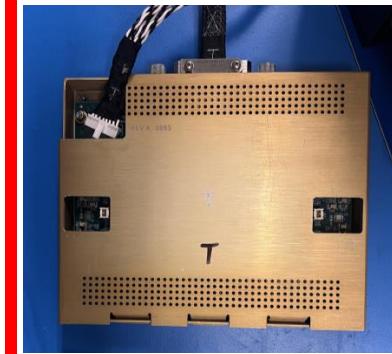


1. Install miniSAS Cable + Clamp



Locks in position

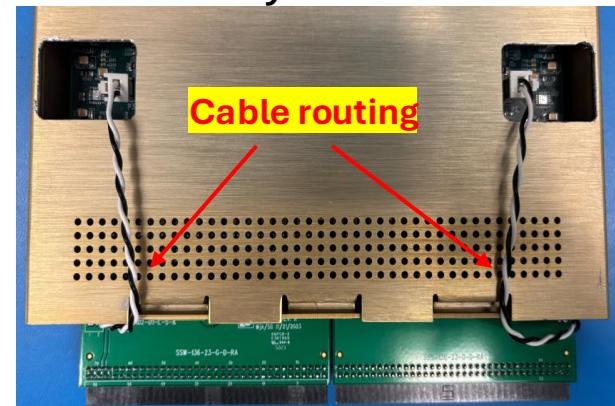
2. Install Test Cover



3. Install power cable



4. Install Toy TPCs



5. Insert into top Slot

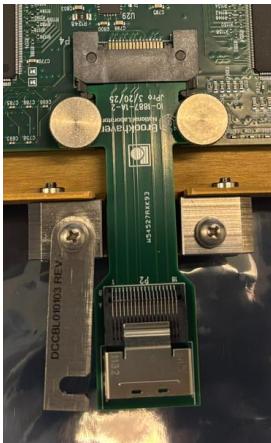


Bottom CE Box (HD) Assembly

Follow these steps to assemble the Bottom CE Box in the support structure:

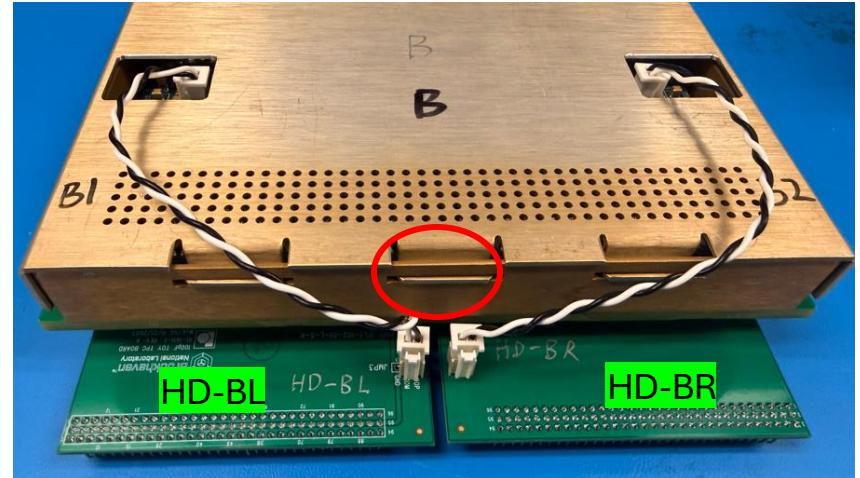


1. Install Adapter and test cover

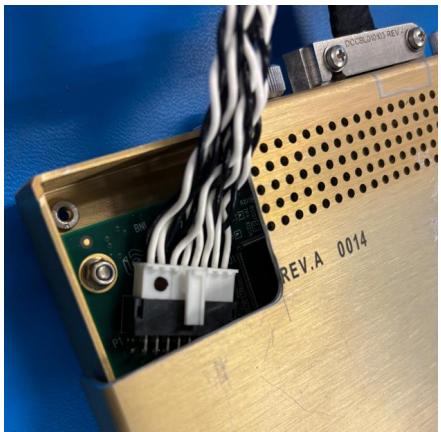
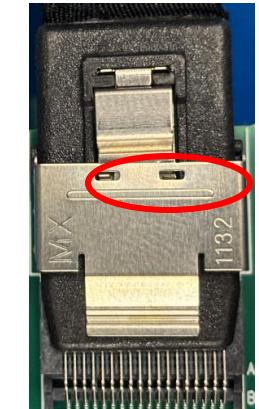


Change later

2. Remove FE terminators, install Toy TPCs

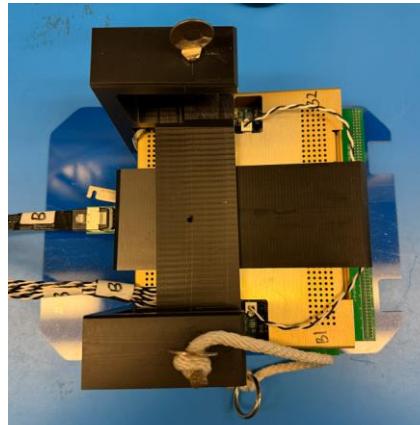


3. Install cables



Locks in position

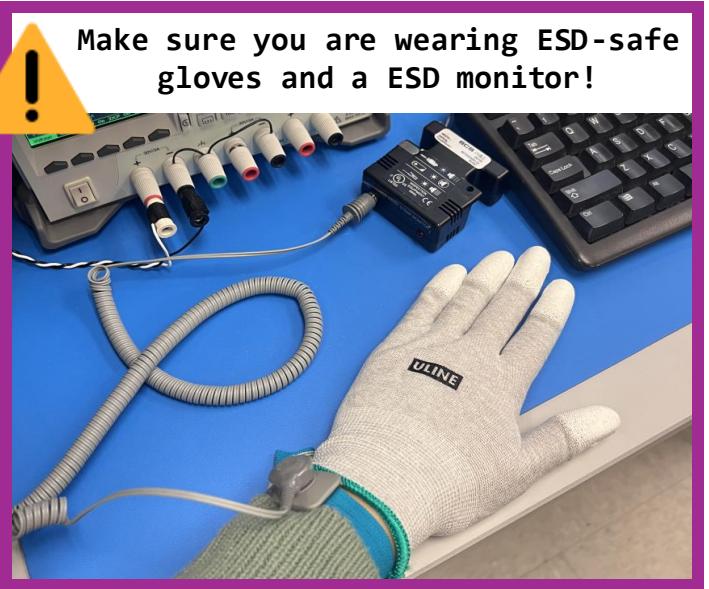
4. Insert into Bottom Slot and fasten CE box



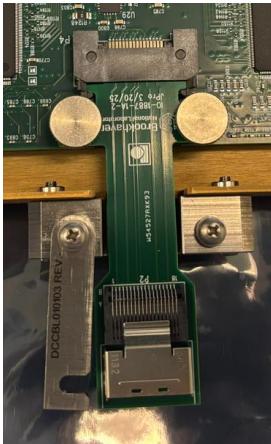
Top CE Box (HD) Assembly

Follow these steps to assemble the Bottom CE Box in the support structure:

Make sure you are wearing ESD-safe gloves and a ESD monitor!

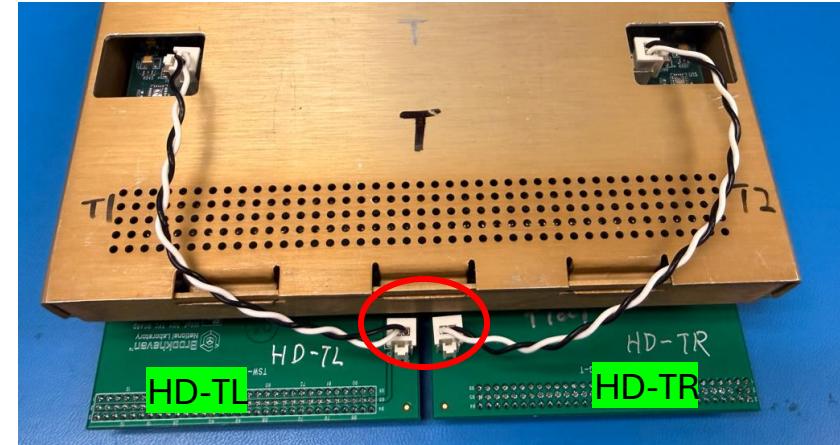


1. Install Adapter and test cover

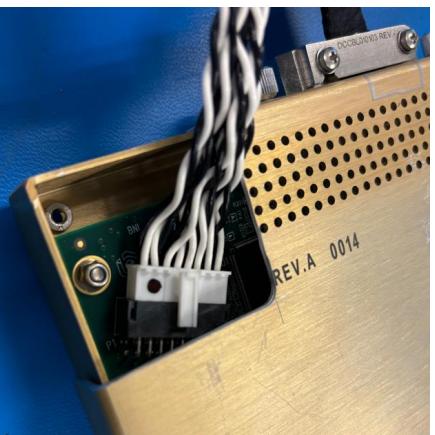


Change later

2. Remove FE terminators, install Toy TPCs

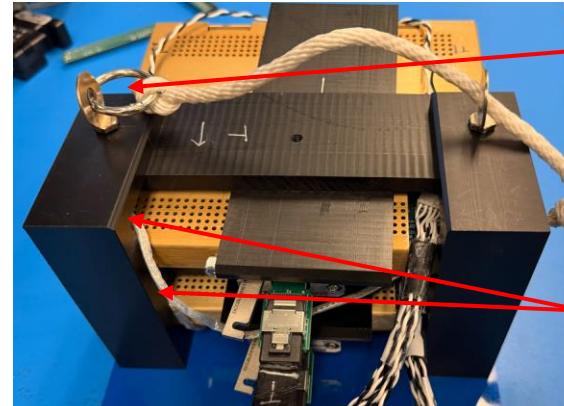
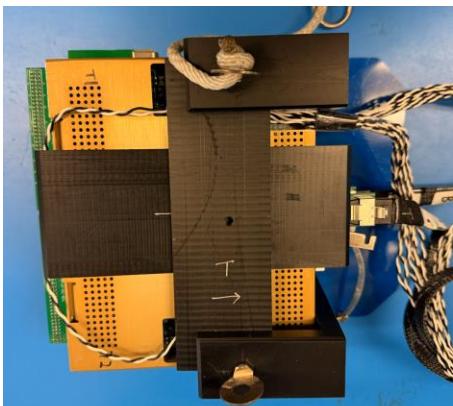


3. Install cables



Locks in position

4. Insert into top Slot and fasten CE box

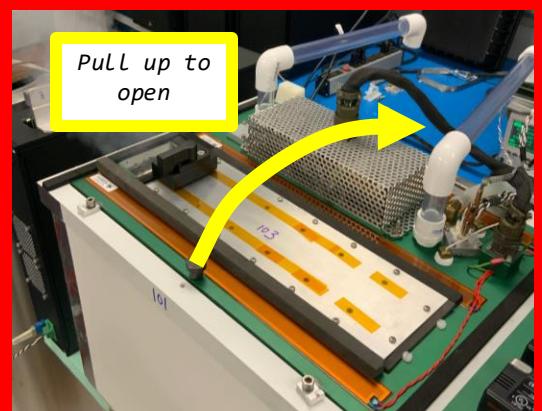


handle

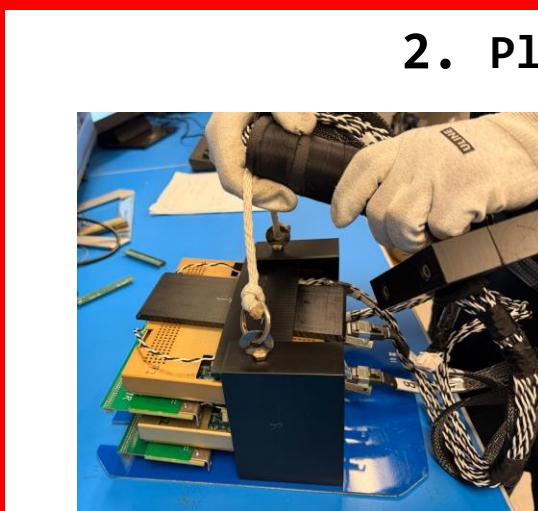
Ground strips

Place CE Boxes into CTS Chamber

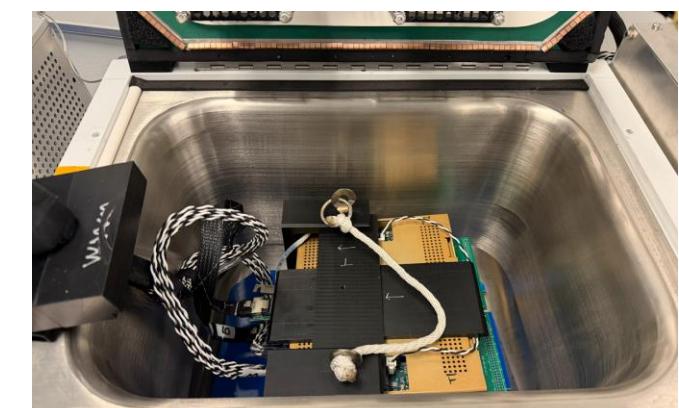
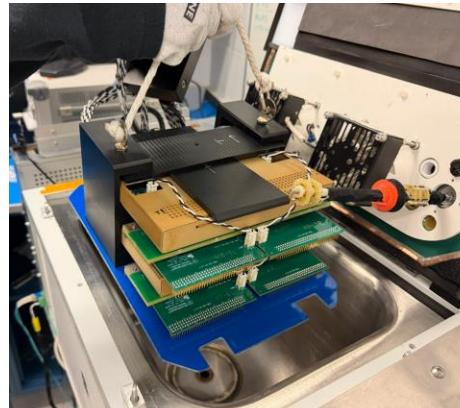
Follow these steps to install the FEMBs in the CTS:



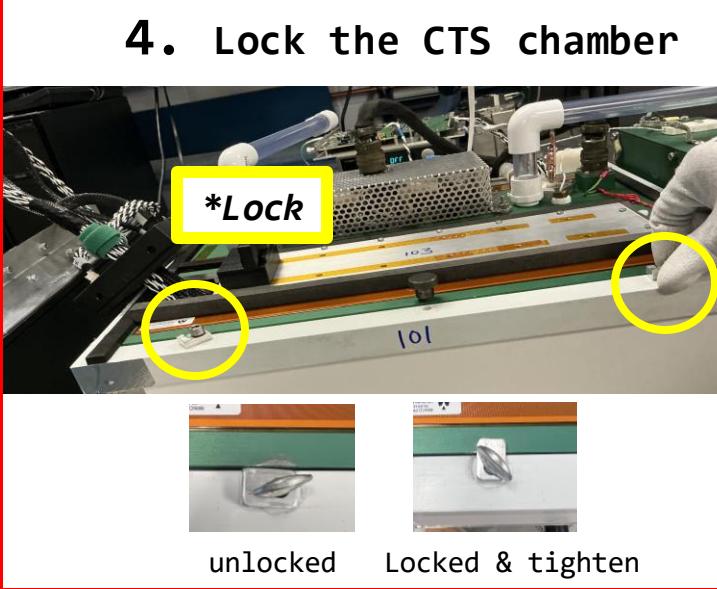
1. Open the CTS cover



2. Place CE boxes inside the CTS chamber

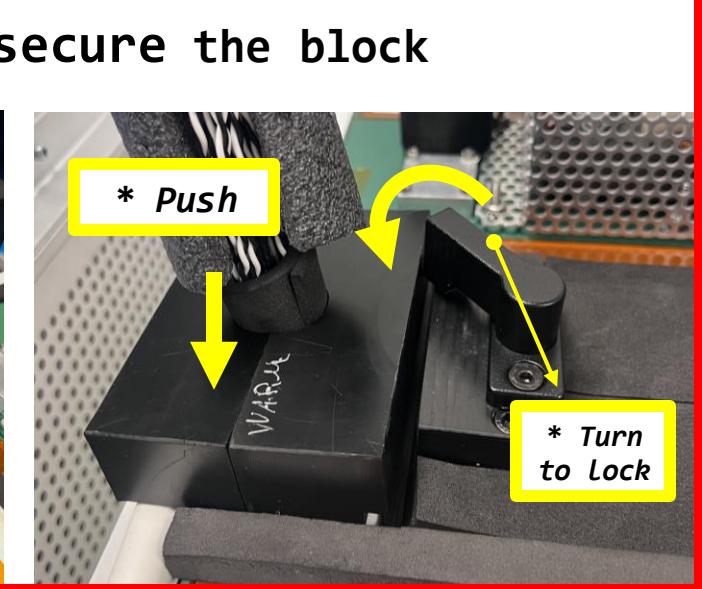


3. Carefully close the CTS cover



unlocked Locked & tighten

5. secure the block

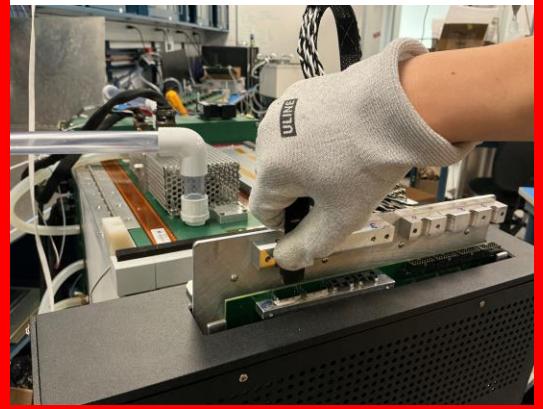


* Turn
to Lock

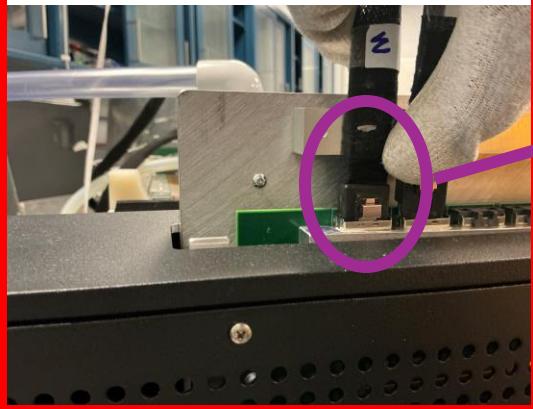
Cable Connection at WIB side

Follow these steps to connect the FEMBs to the WIB

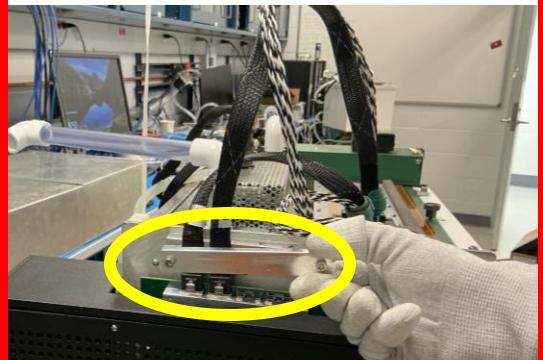
1. Place the Bottom Data Cable (B) in Slot B



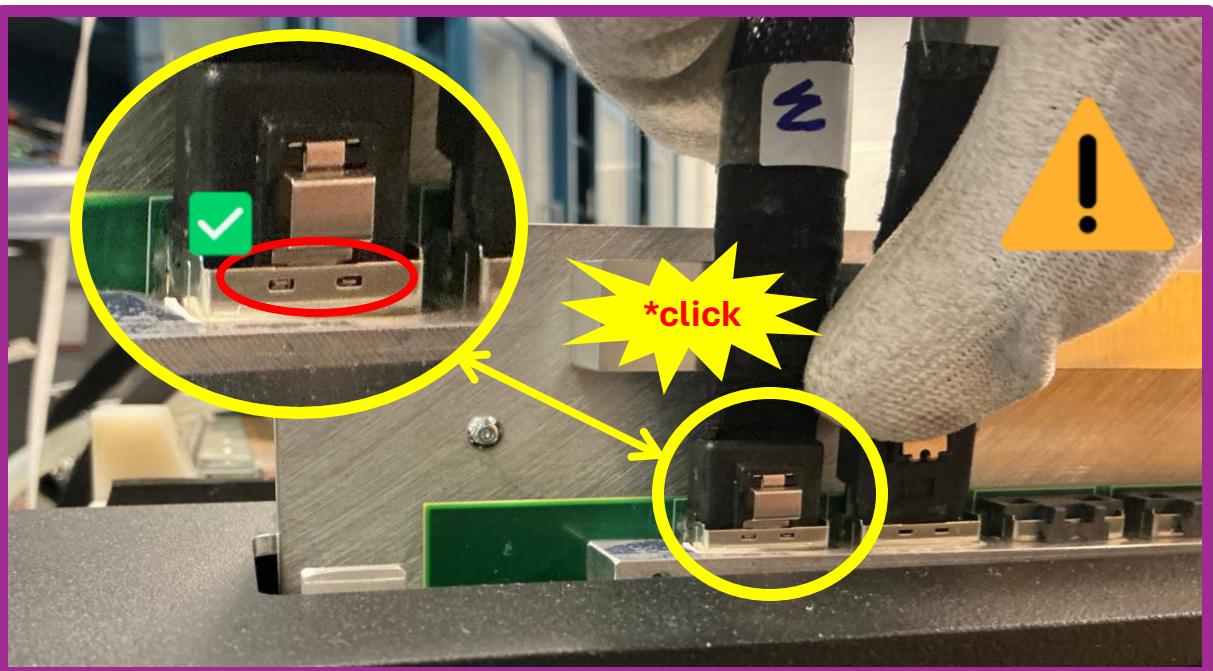
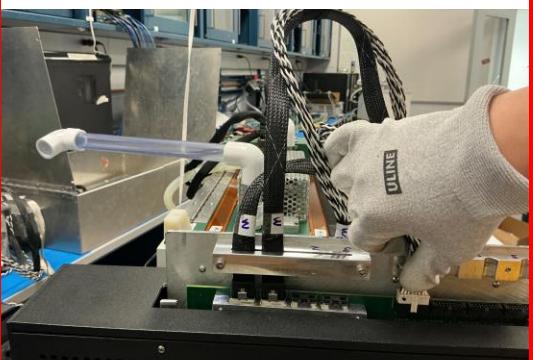
2. Place the Top Data Cable (T) in Slot T



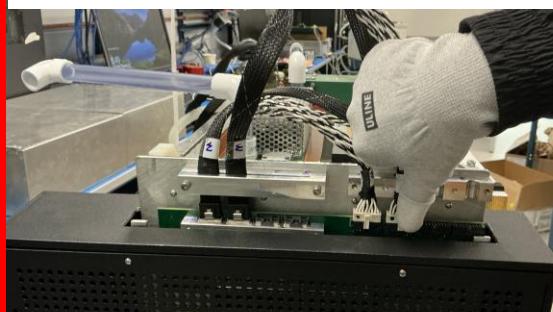
3. Install the Strain Relief Clamp



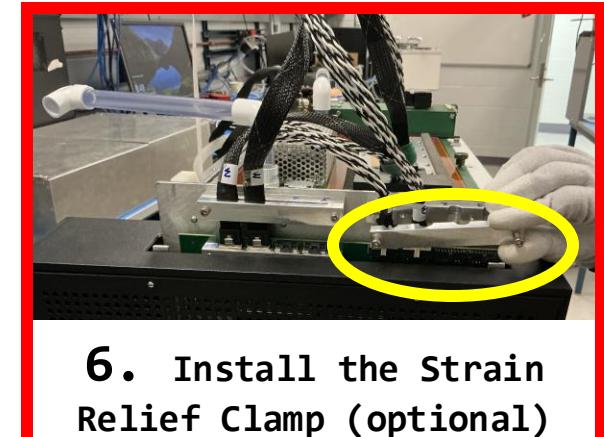
4. Install the Bottom Power Cable in Slot B



5. Install the Top Power Cable in Slot T



6. Install the Strain Relief Clamp (optional)



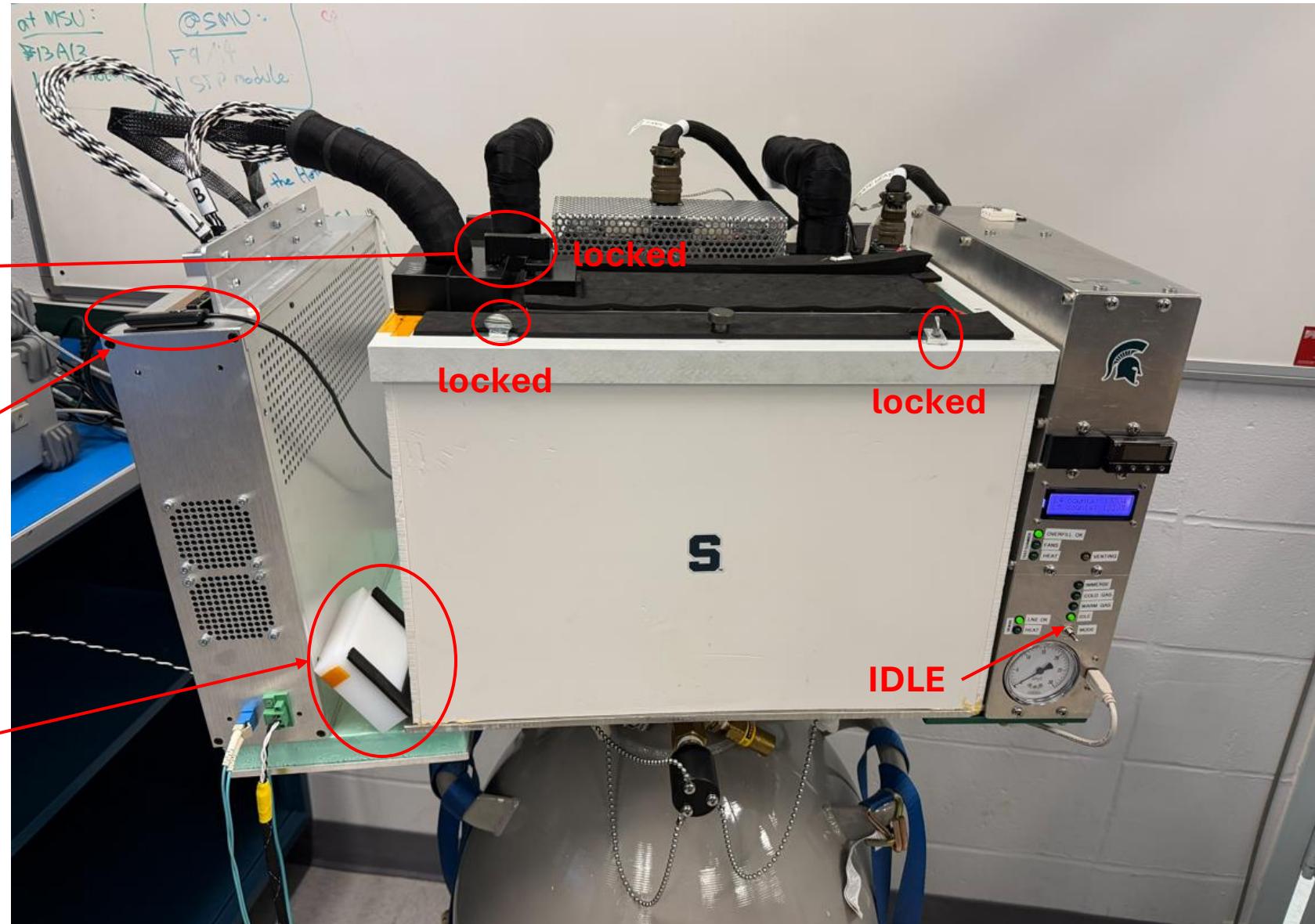
Make sure CTS is closed, locked and ready to use



No visible air gap!

Camera LED switcher

When the cold cable bundle is removed, this block should seal the cover all the time!



Take CE boxes out of the Chamber

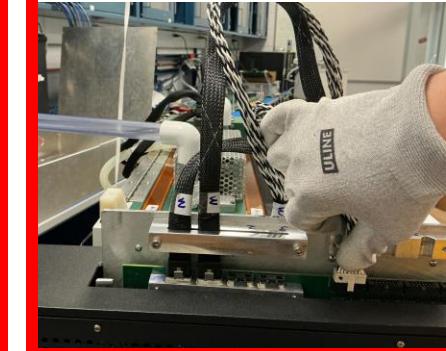
Remember to wear ESD-safe gloves and a ESD monitor!



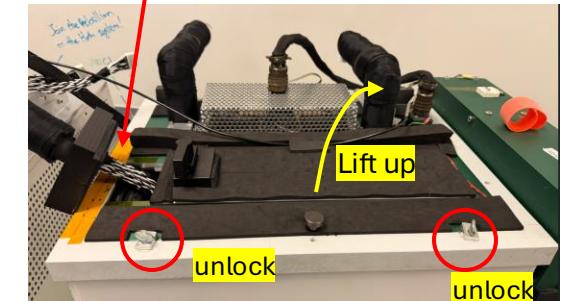
1. CTS in IDLE mode



2. Disconnect the Data and Power cables from the WIB

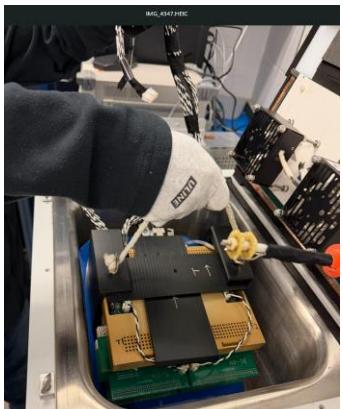


UnLock the cable bundle

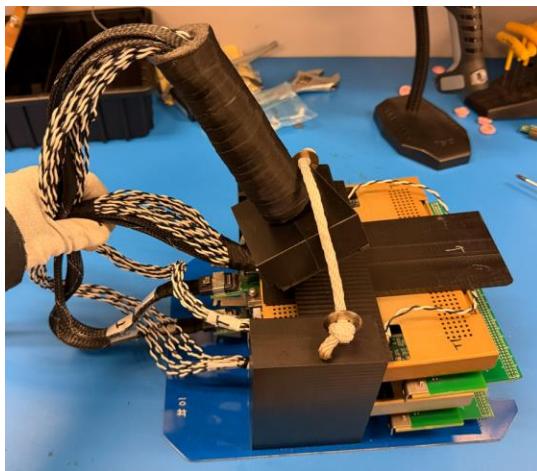


3. Open the CTS cover

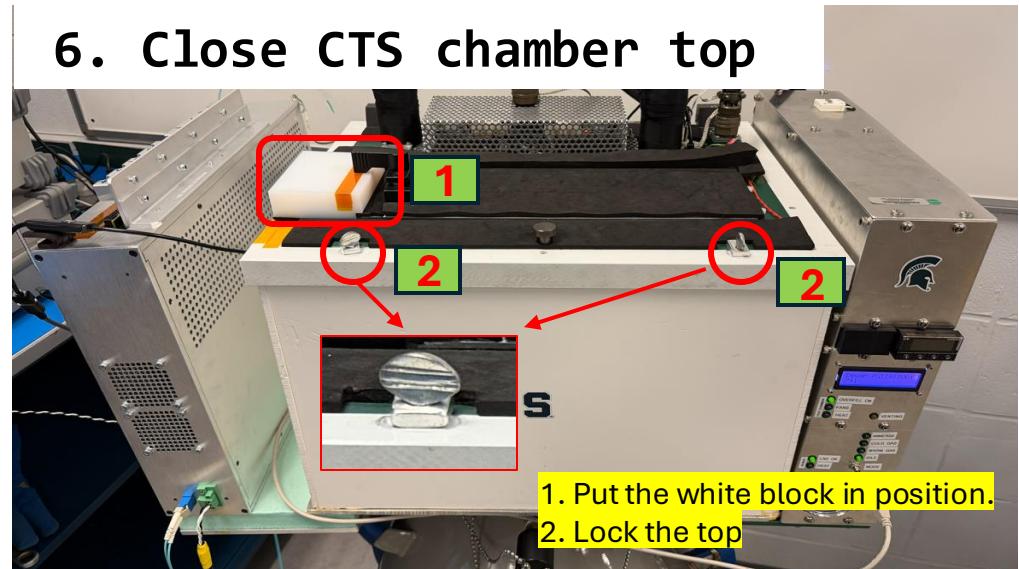
4. Hold the cable bundle, carefully lift up the CE boxes



5. Place it on the assembly area



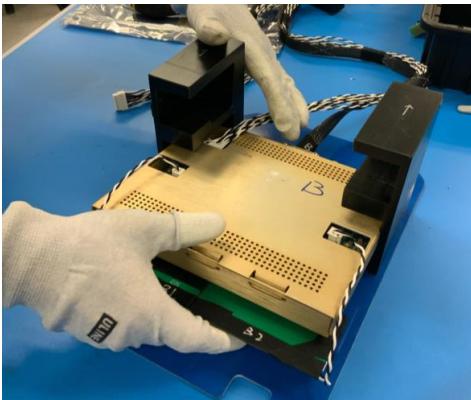
6. Close CTS chamber top



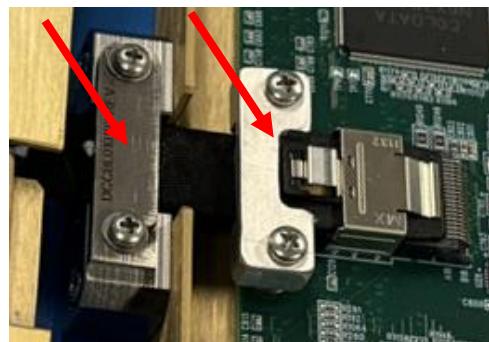
1. Put the white block in position.
2. Lock the top

Disassembly: CE box (VD)

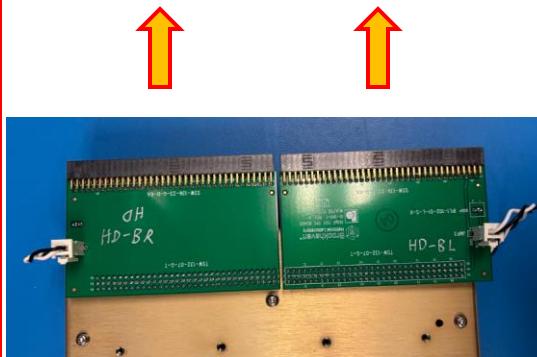
1. Remove the CE Box from the support structure



2. Remove Power Cable
3. Remove the test cover
4. Remove the miniSAS cable
5. Secure connector clamp and cable relief clamp



2. Remove Toy TPCs



7. Install the original CE box cover. Scan CE box QR code. Entry CE box cover SN last 4 digits.



8. Pack CE box in ESD Bag and Foam Box



Scan HWDB QR code!

 “PASS” or “NG” 



10. Put accessories back to tray!



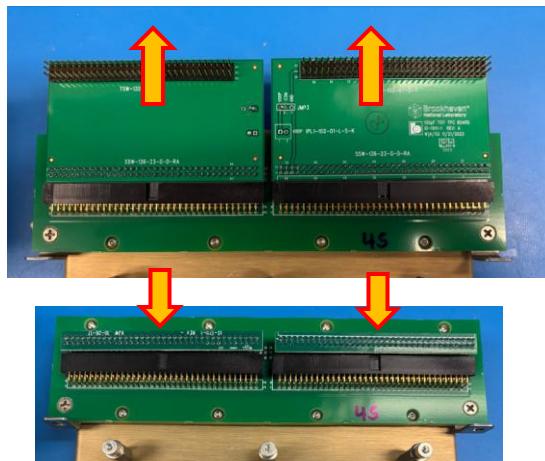
Maintain the assembly area neat and clean!

Disassembly: CE box (HD)

1. Remove the CE Box from the support structure
2. Remove Power Cable
3. Remove the test cover

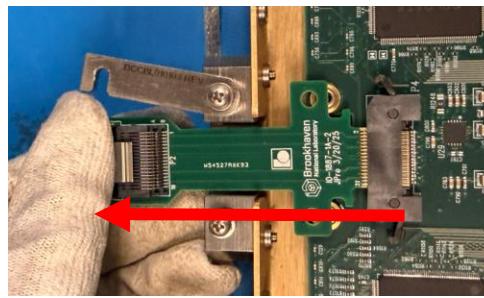


4. Remove Toy TPCs and install FE terminators back



5. unscrew, Slide out the miniSAS adapter board

6. Secure cable relief clamp



7. Install the original CE box cover. Scan CE box QR code. Entry CE box cover SN last 4 digits.



8. Pack CE box in ESD Bag and Foam Box



Scan HWDB QR code!



Store it!

10. Put accessories back to tray!



Maintain the assembly area neat and clean!

Put Accessories back to original positions



1: Assembly area

2: Place the assembled CE box support structure (to be tested in the next run)

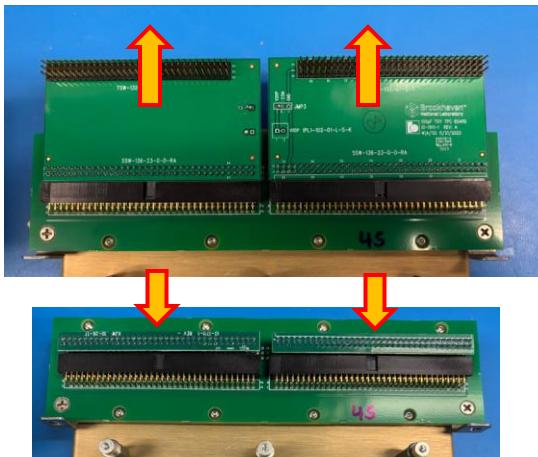
Is the assembly area neat and clean?

Disassembly: CE box (HD)

1. Remove the CE Box from the support structure



2. Remove Toy TPCs and install FE terminators back



3. Remove Power Cable
4. Remove the test cover
5. Remove the miniSAS cable and its adapter board
6. Secure cable relief clamp



7. Install the original CE box cover



8. Pack CE box in ESD Bag and Foam Box



“PASS” or “NG”



9. Put accessories back to tray!



How to convert each slide in a PowerPoint (.pptx) file into a .png image file — one image per slide.

<https://drive.google.com/file/d/1LLRxvgbRMVB5utvlPry4vlhtx9JX7j-2/view?usp=sharing>

If you're on **Windows** and have **Microsoft PowerPoint** installed, you can use the `comtypes` automation library to export slides directly to images.

backup

Initial Checkout List (FEMB-VD)

Locate the following items before starting:



Safety First!



Long Sleeve Top

Long Pants

Closed Toe Shoes

ODH Monitor



ESD-safe Gloves

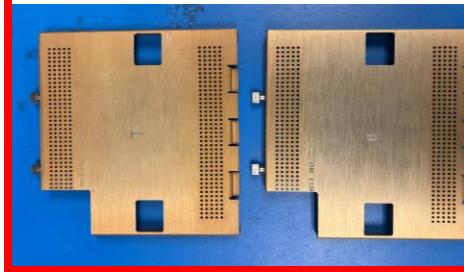


Cryogenic Gloves

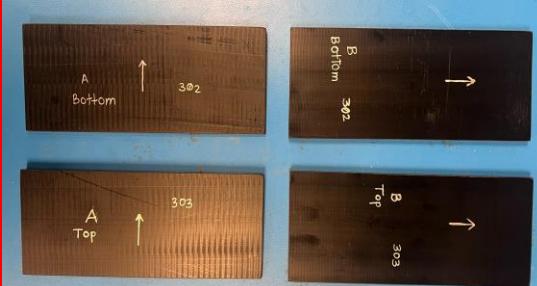
Anti-static Wrist Strap

Cryogenic Face Mask

Top & Bottom Test Covers



Top & Bottom Clamps



Data cable clamps (x2)



Support Structure

Toy TPC with Cables (2 pairs)



Lingyun: Replace with new picture



1m Cable Bundle

Lingyun: Replace with new picture

Initial Checkout List (FEMB-HD)

Locate the following items before starting:



Safety First!



Long Sleeve Top

Long Pants

Closed Toe Shoes

ODH Monitor



ESD-safe Gloves

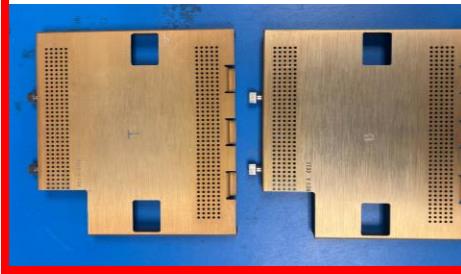


Cryogenic Gloves

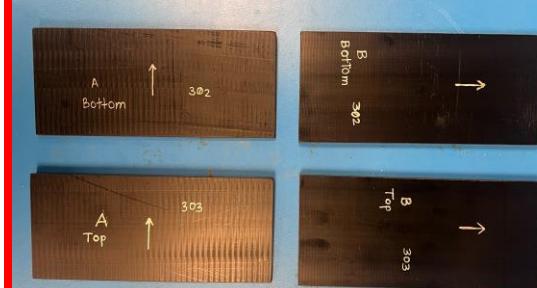
Anti-static Wrist Strap

Cryogenic Face Mask

Top & Bottom Test Covers



Top & Bottom Clamps



Lingyun: MiniSAS cable adapter and thumb-nuts

Data cable clamps (x2)

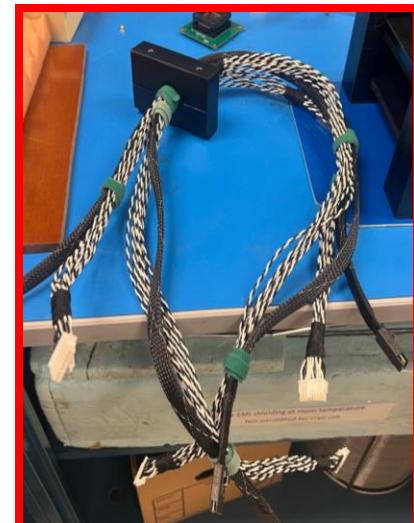


Support Structure

Toy TPC with Cables (2 pairs)



Lingyun: Replace with new picture

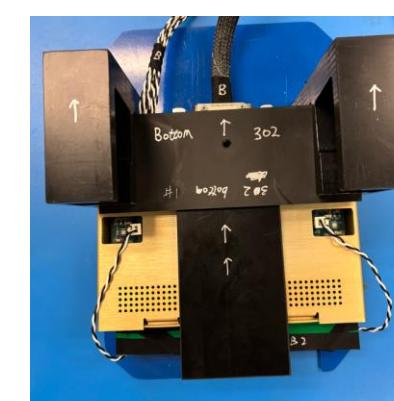
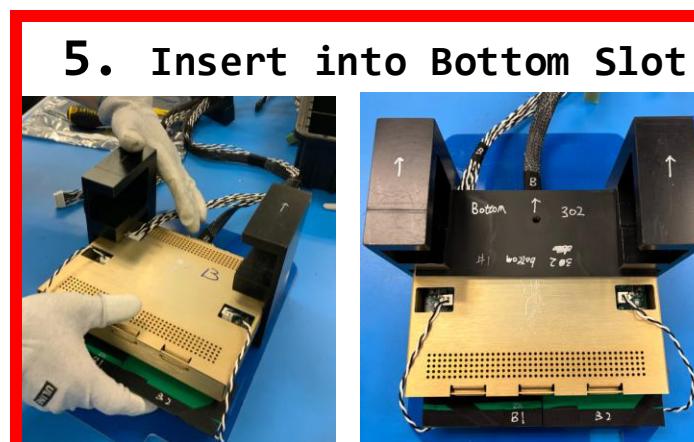
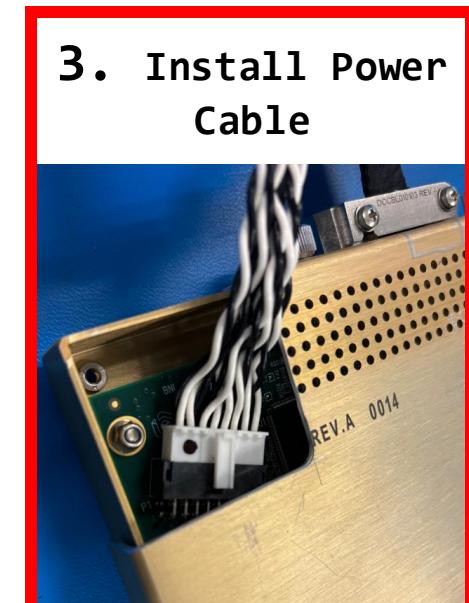
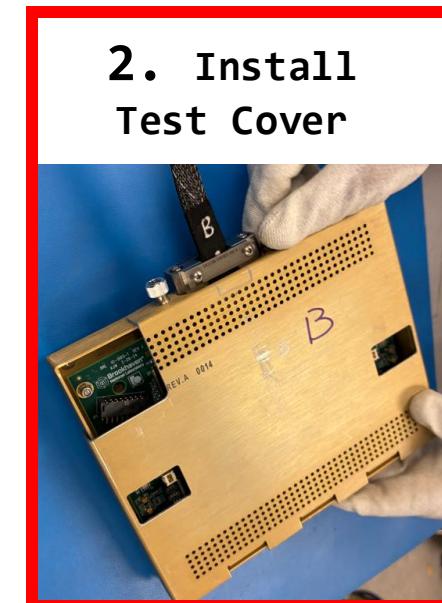
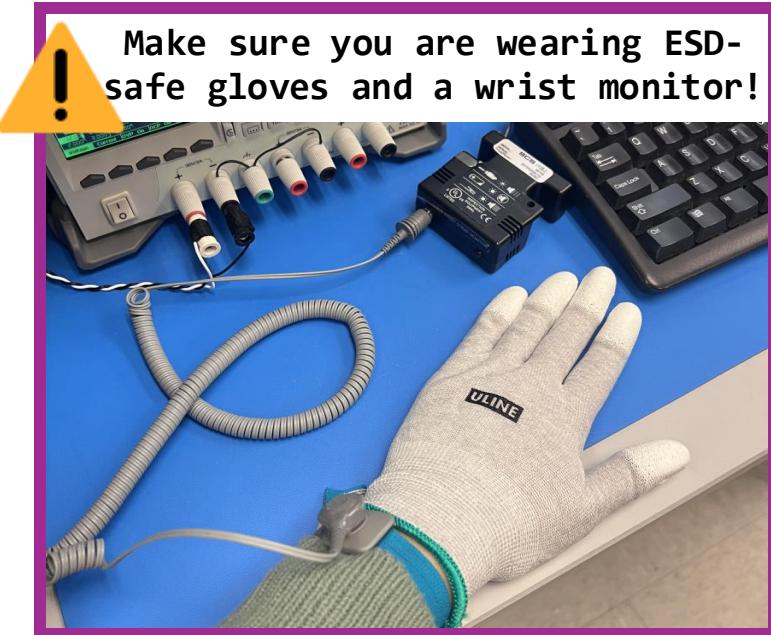


1m Cable Bundle

Lingyun: Replace with new picture

Bottom CE Box (VD) Assembly

Follow these steps to assemble the Bottom CE Box in the support structure:

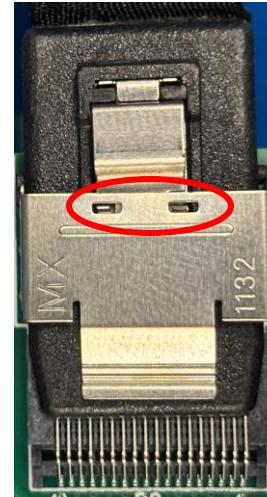
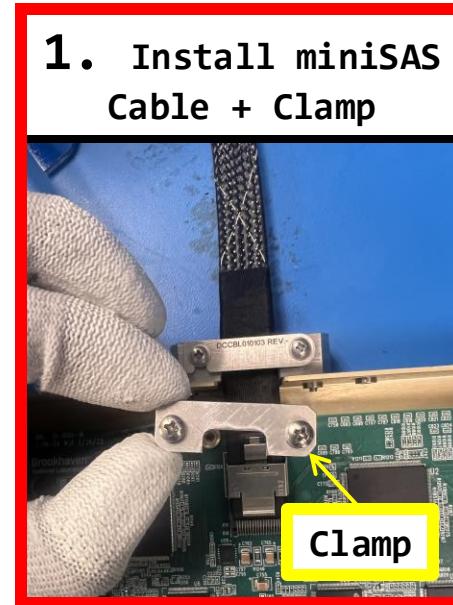
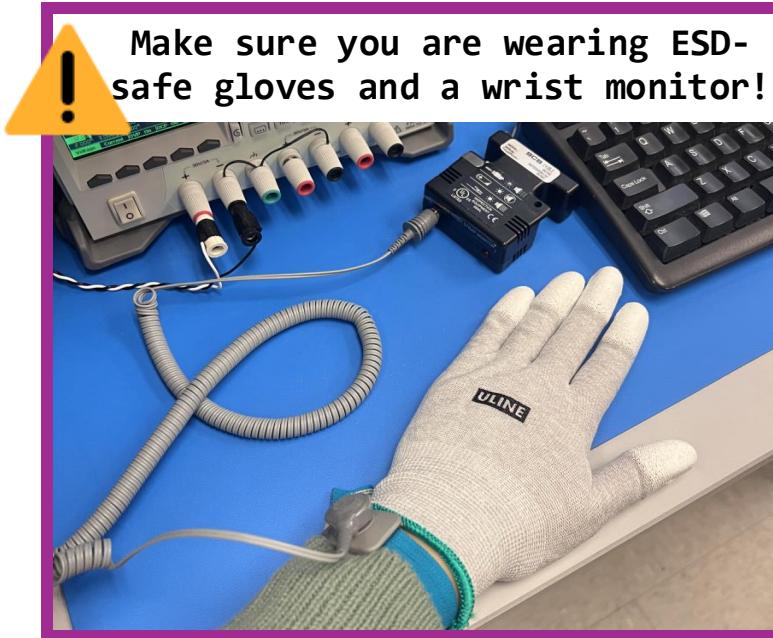


Done

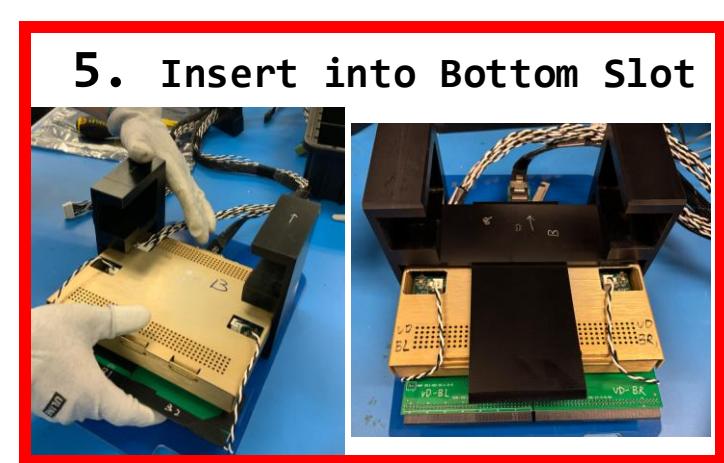
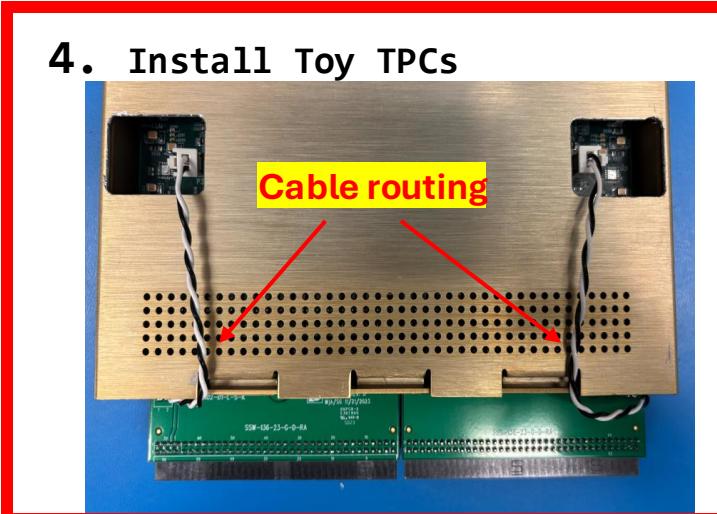
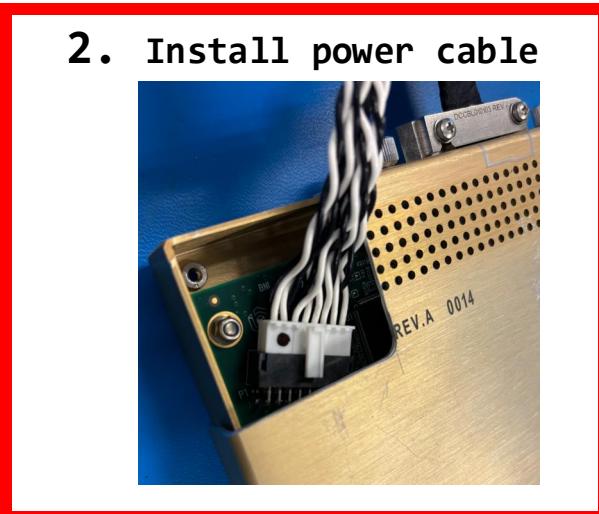
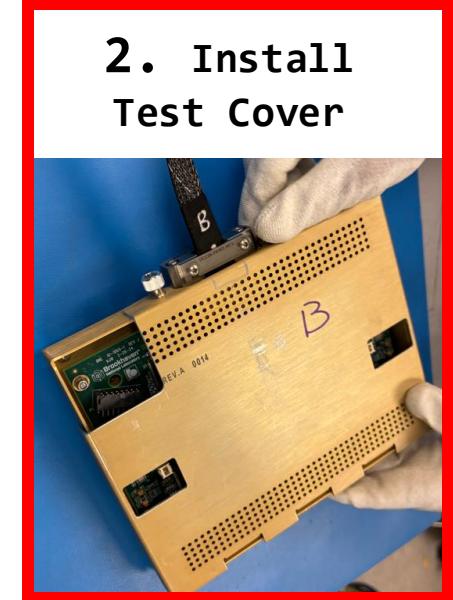
@Lingyun, Provide the routing of cables between ToyTPCs and FEMB?

Bottom CE Box (VD) Assembly

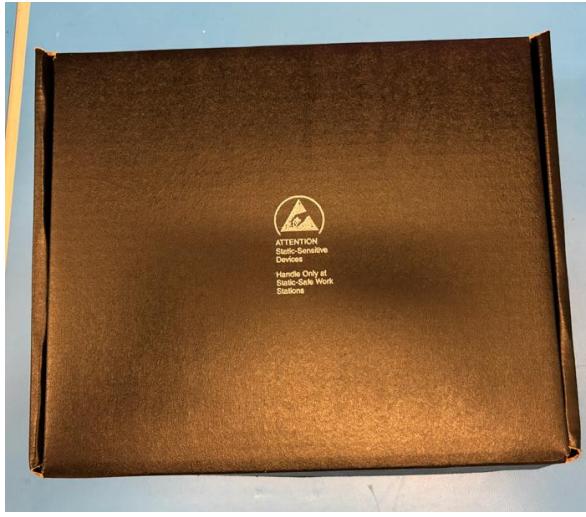
Follow these steps to assemble the Bottom CE Box in the support structure:



Locks in position



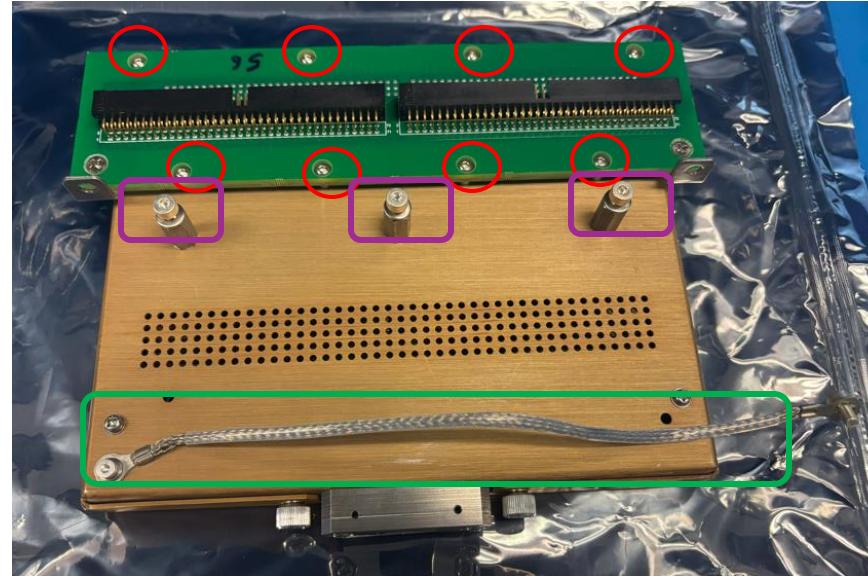
Bottom CE Box (HD) Visual Inspection



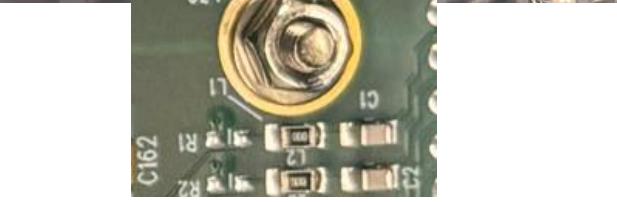
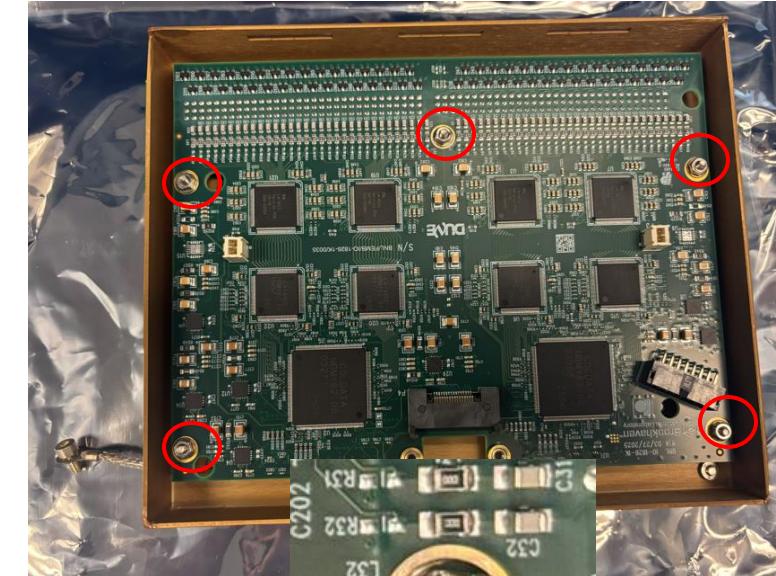
If foam box was broken?



CE box enclosed by ESD bag?



Nuts for CR-RC adapter board in position?
3 sets of lock nut and washer in position?
Ground strip in position?



Are these 5 nuts fastened
with washers?

Bottom CE Box (HD) Assembly

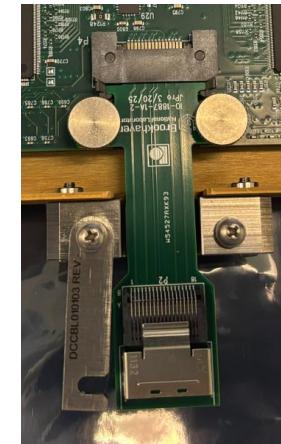
Follow these steps to assemble the Bottom CE Box in the support structure:



Make sure you are wearing ESD-safe gloves and a wrist monitor!



1. Install Adapter + miniSAS Cable



2. Install Test Cover
3. Install Power Cable

3. Install Power Cable



4. Connect Toy TPCs

Update for HD

5. Insert into Bottom Slot

Update for HD

Update for HD

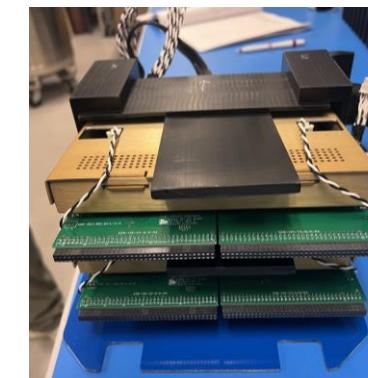
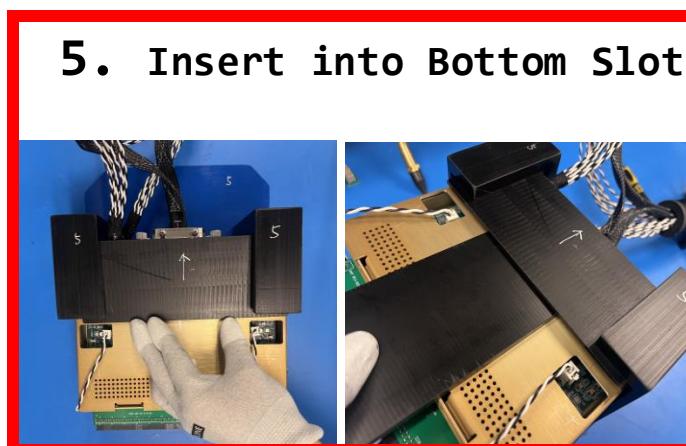
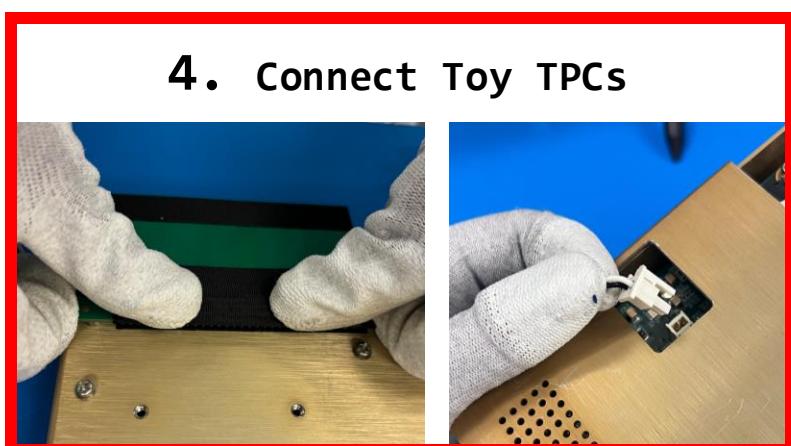
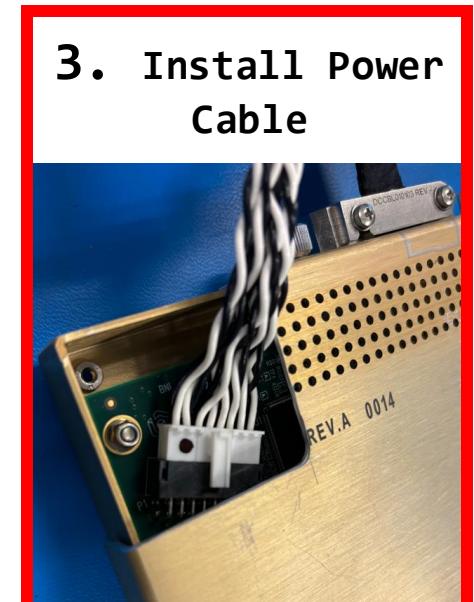
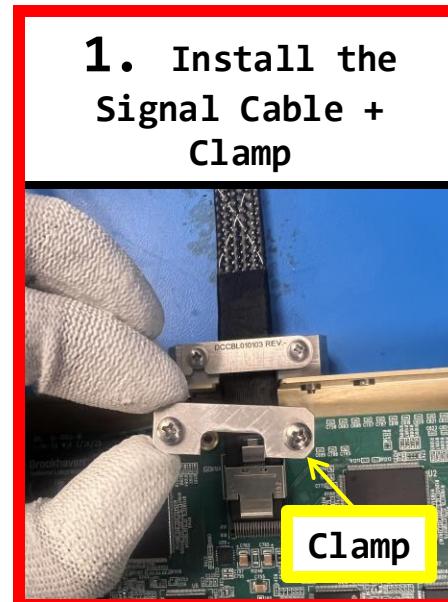
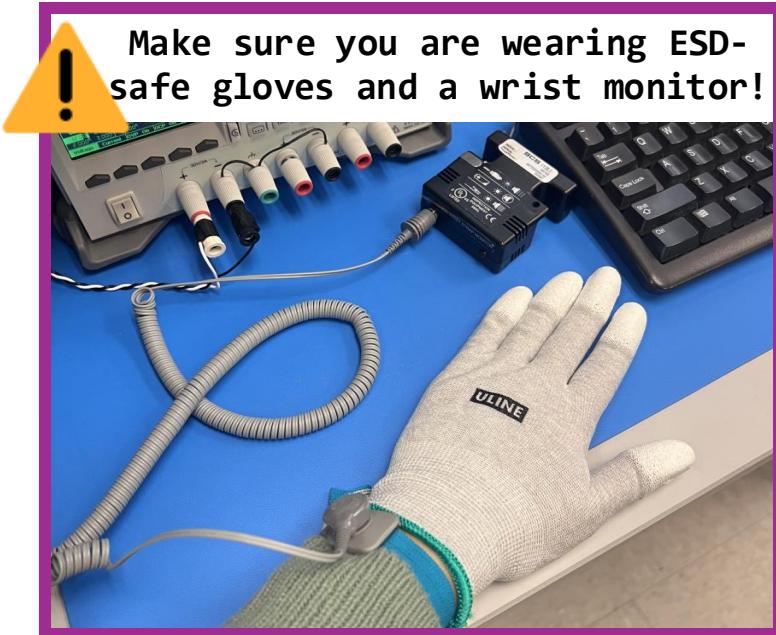


Done

@Lingyun, Provide the routing of cables between ToyTPCs and FEMB?

Top CE Box (VD) Assembly

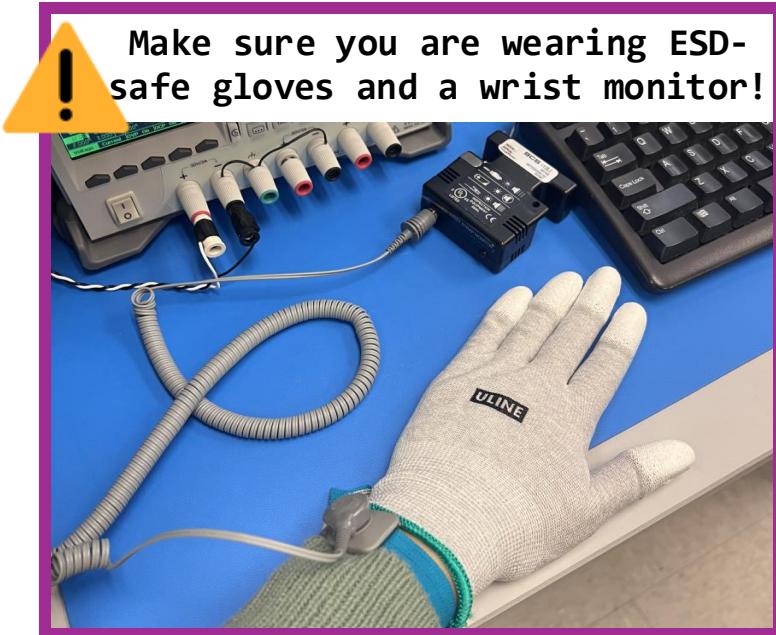
Follow these steps to assemble the Top CE Box in the support structure:



Done

Top CE Box (HD) Assembly

Follow these steps to assemble the Top CE Box in the support structure:



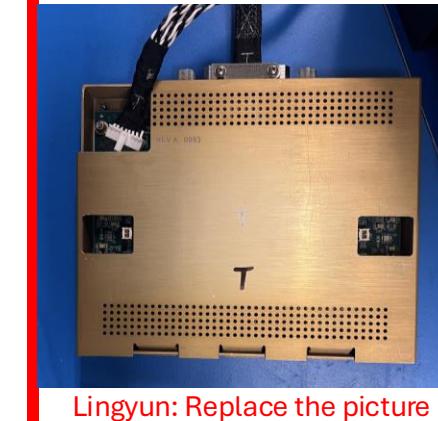
Make sure you are wearing ESD-safe gloves and a wrist monitor!

1. Install the Signal Cable + Clamp

Update for HD



2. Install Test Cover



Lingyun: Replace the picture

3. Install Power Cable



4. Connect Toy TPCs

Update for HD

5. Insert into Bottom Slot

Update for HD

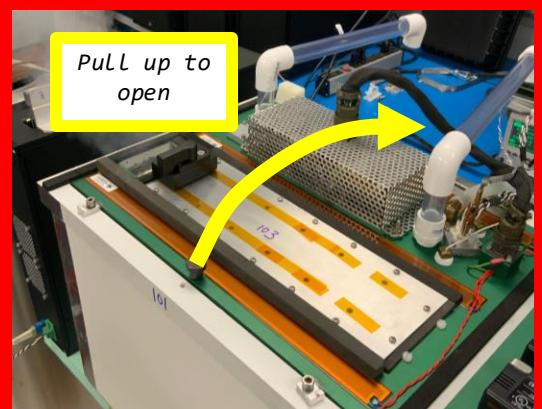
Update for HD



Done

Place CE Boxes into CTS Chamber

Follow these steps to install the FEMBs in the CTS:



1. Open the CTS cover



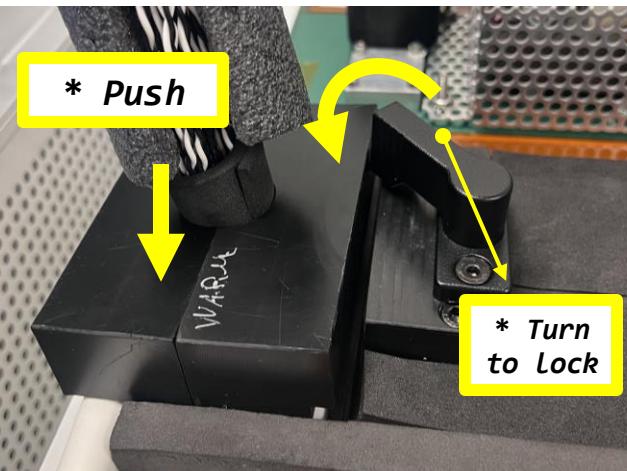
2. Place the CE Box Structure inside the CTS chamber



3. Carefully close the CTS cover

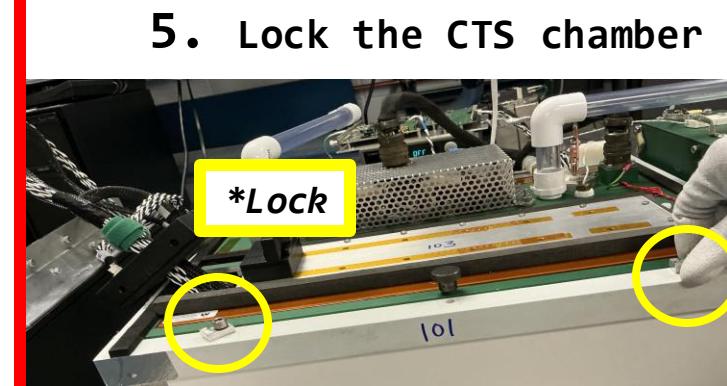


4. Set up cable bundle



* Push

* Turn to Lock



*Lock

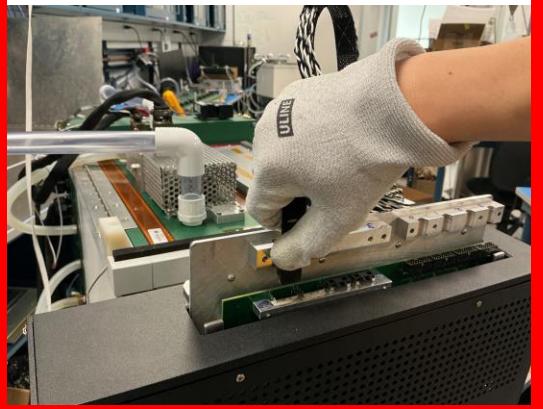
unlocked

locked

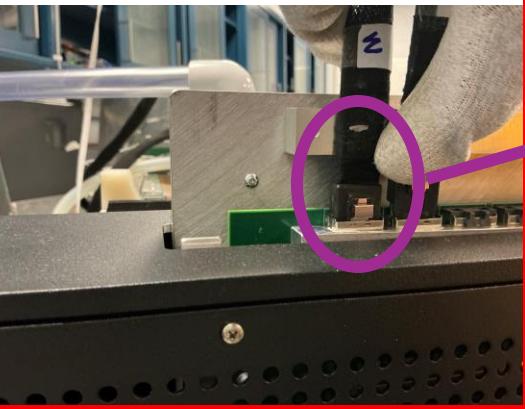
WIB Cable Connection

Follow these steps to connect the FEMBs to the WIB

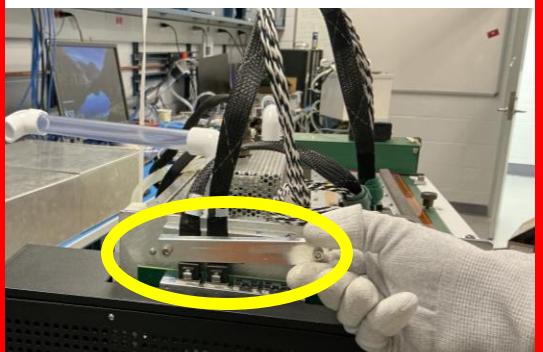
1. Place the Bottom Data Cable in Slot B



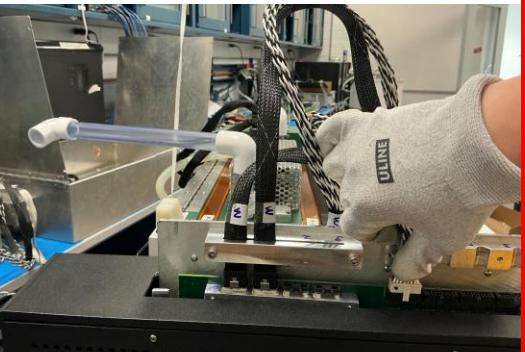
2. Place the Top Data Cable in Slot T



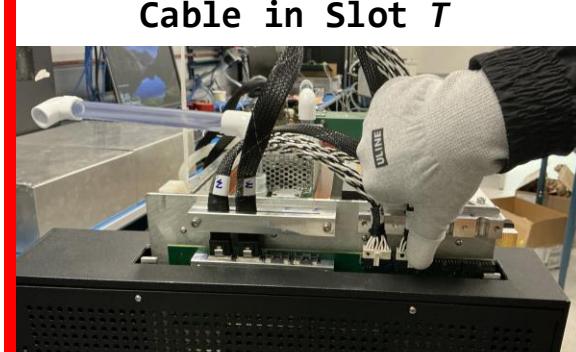
3. Install the Strain Relief Clamp



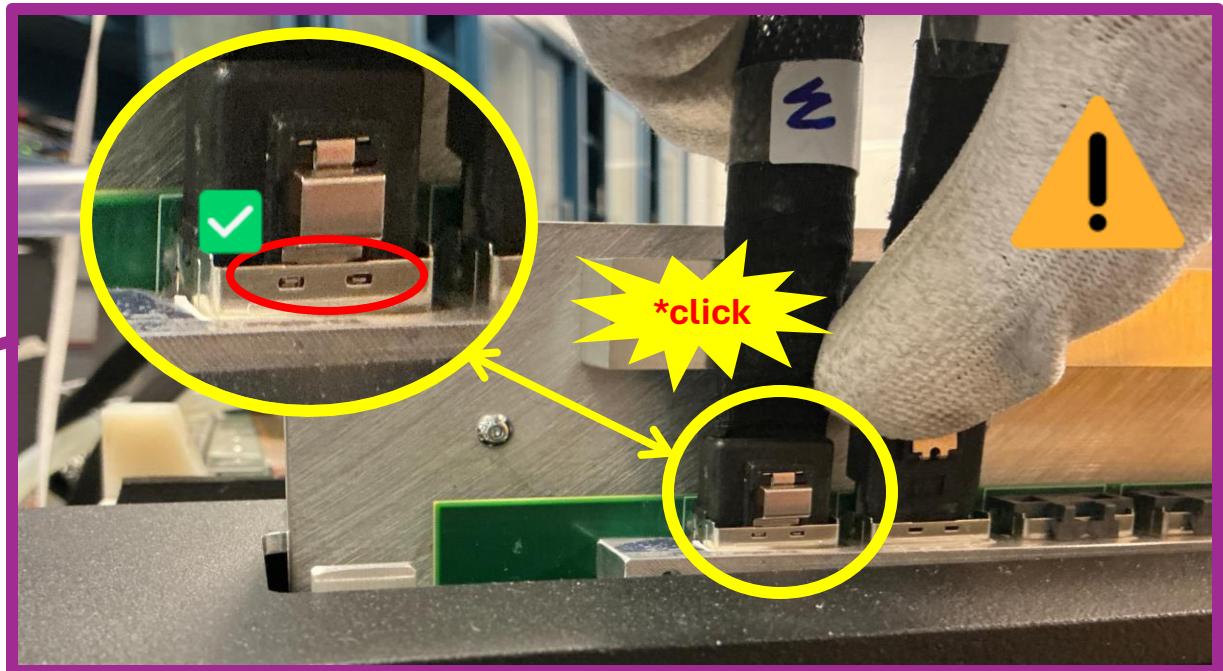
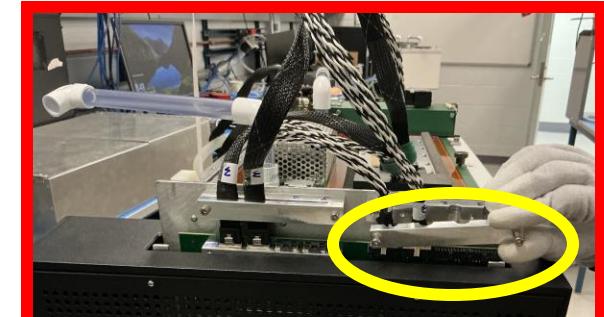
4. Install the Bottom Power Cable in Slot B



5. Install the Top Power Cable in Slot T

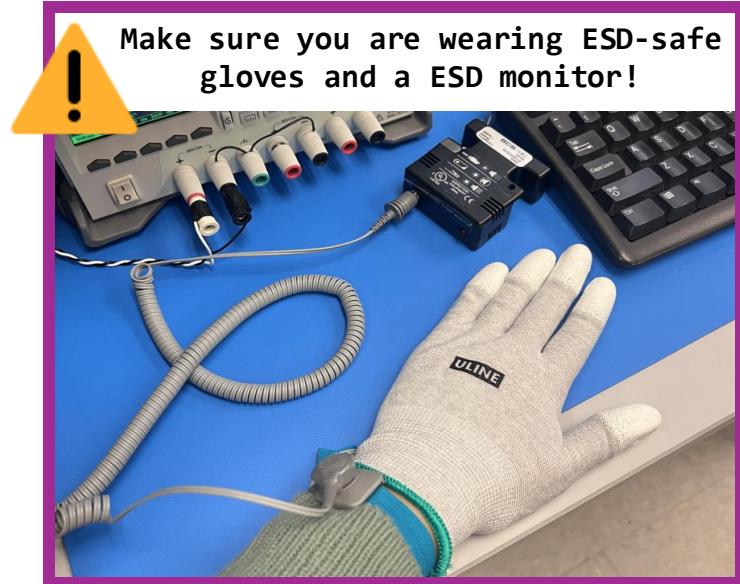


6. Install the Strain Relief Clamp

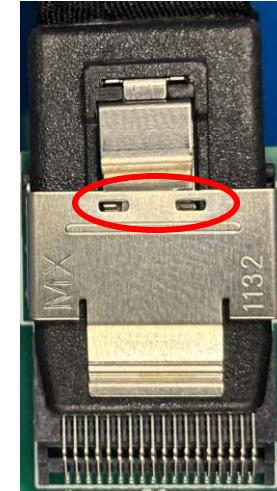


Top CE Box (HD) Assembly

Follow these steps to assemble the Top CE Box in the support structure:



1. Install Adapter + miniSAS Cable

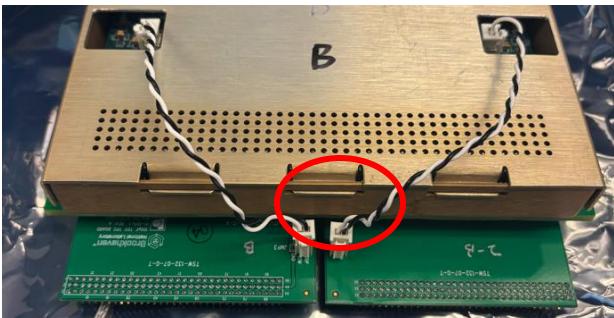


Locks in position

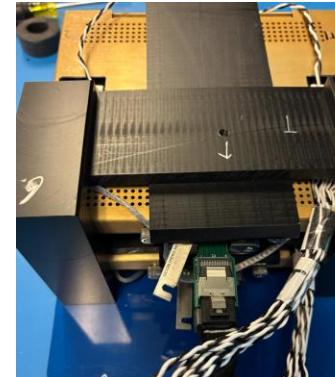
2. Install Test Cover 3. Install Power Cable



3. Remove FE terminators and install Toy TPCs



4. Insert into top Slot and fasten CE box (secure ground strips)



Make sure CTS is closed, locked and ready to use

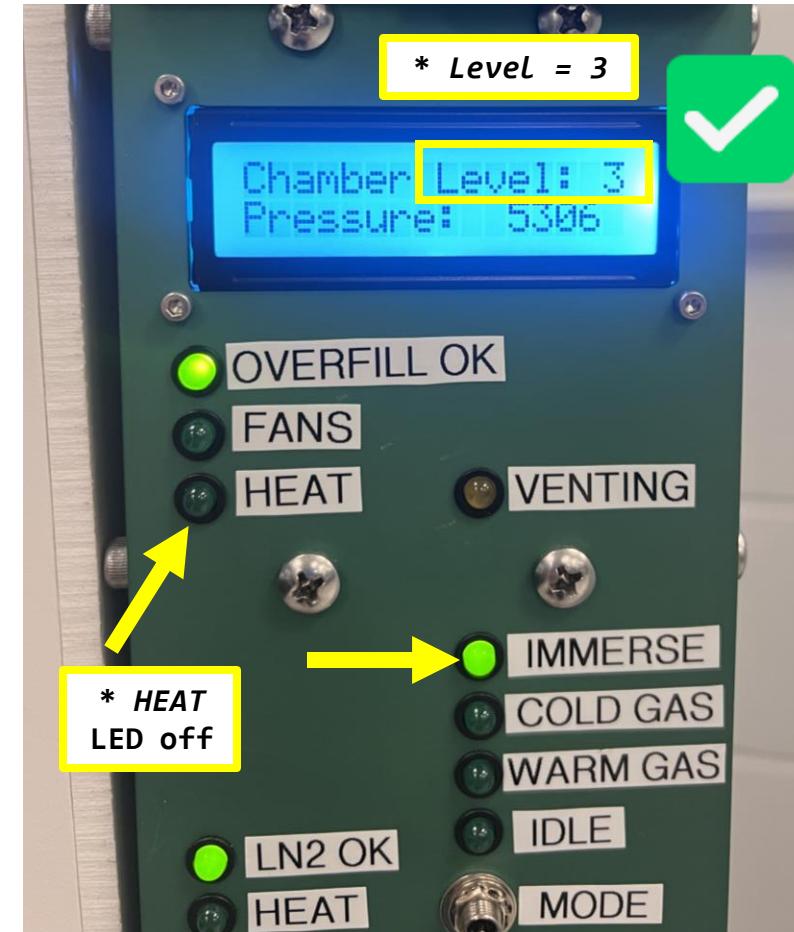


Preparation for Cold QC: CTSCooldown

1. Switch to *COLD GAS* for 5 minutes

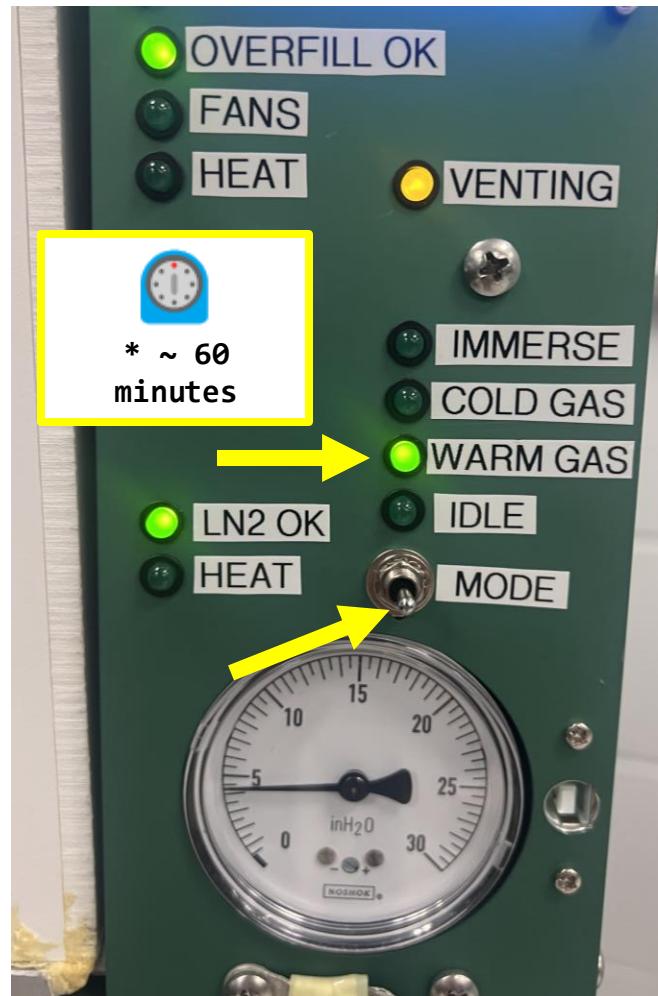


2. Switch to *IMMERSE* and wait for *Level 3* + Heat LED Off



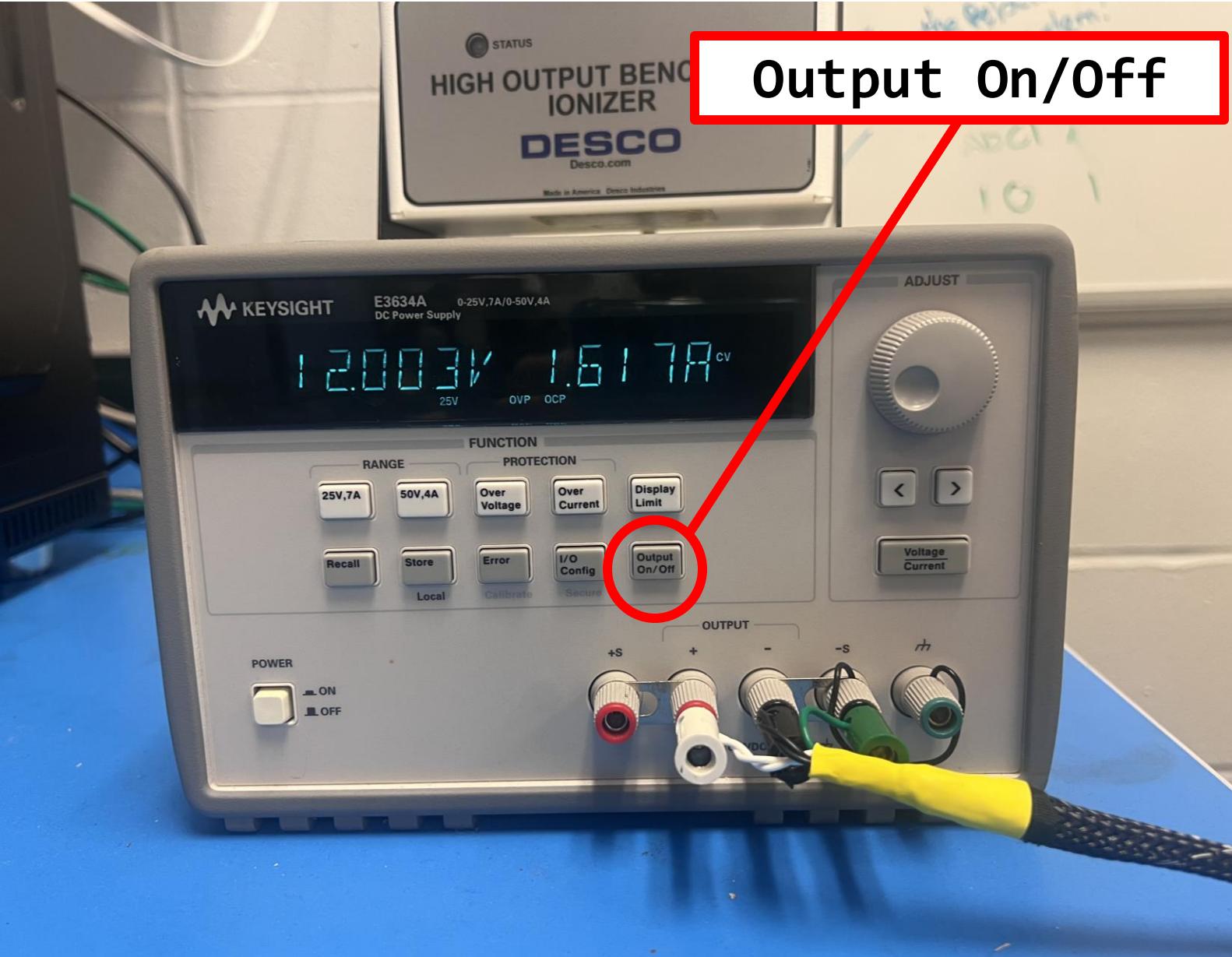
Post-Cold QC: Switch CTS to WARM

Switch to **WARM GAS** and
wait 60 minutes



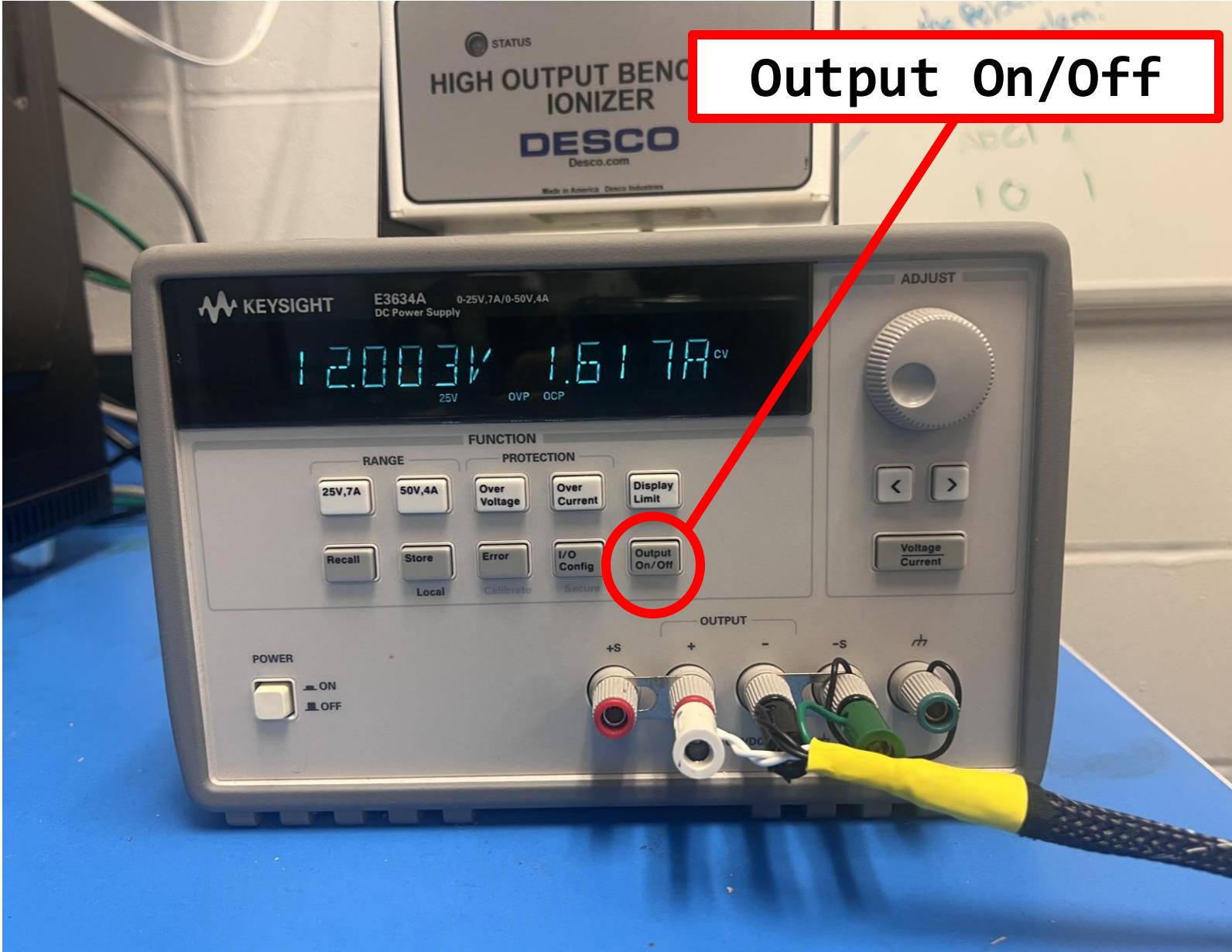
Lingyun: Rigol power supply will be in use, so that computer can control 12V ON/OFF for WIB.
The pop-windows related to power supply should be removed.

Warm QC: Power On WIB



Output On/Off

Warm QC is Done! Power Off WIB



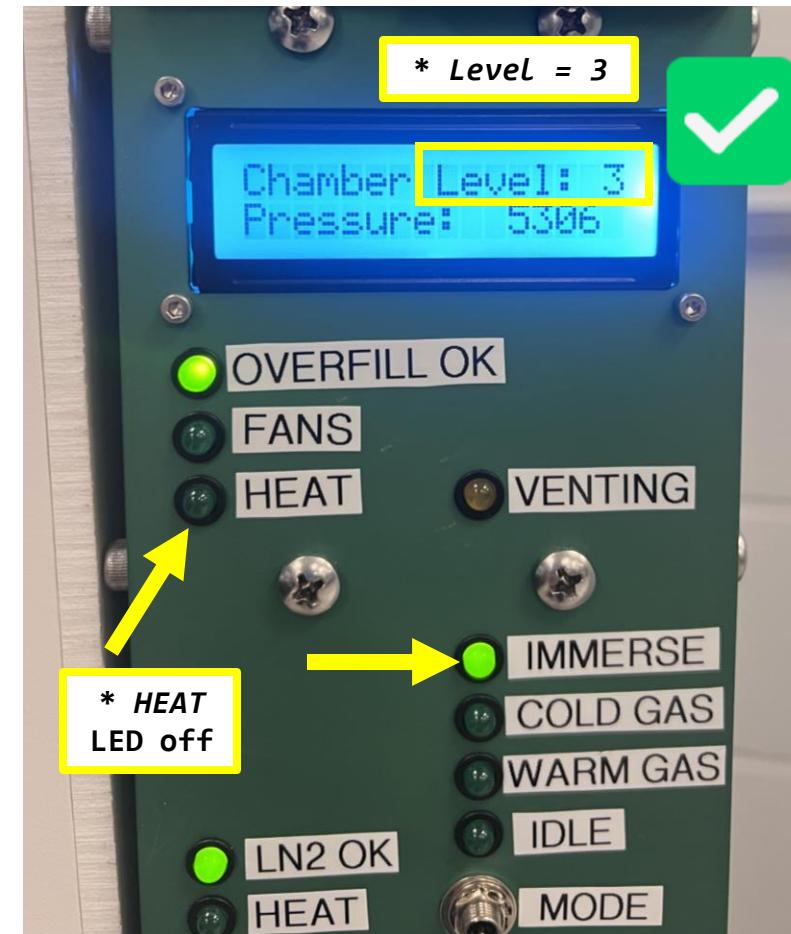
Output On/Off

Preparation for Cold QC: CTSCooldown

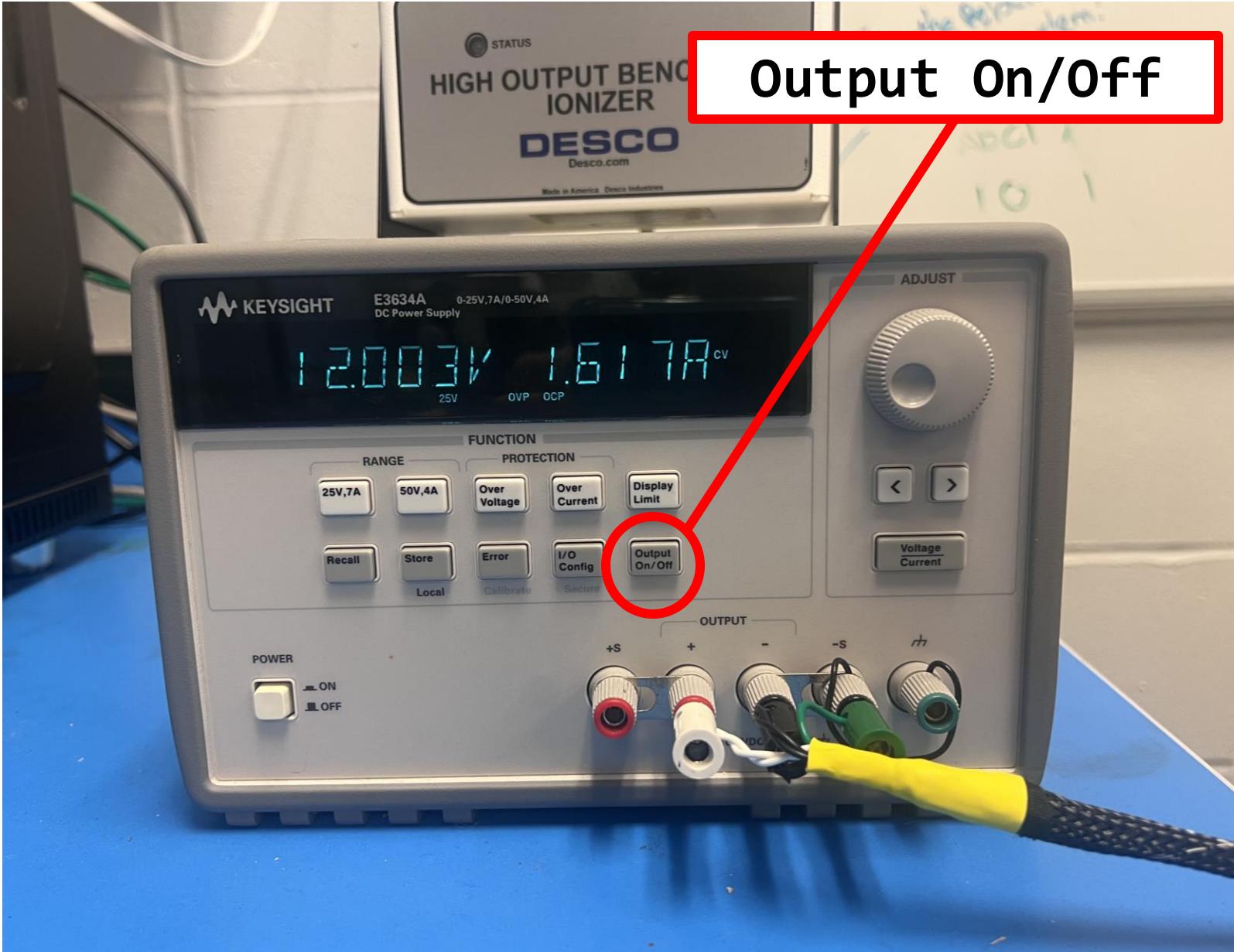
1. Switch to *COLD GAS* for 5 minutes



2. Switch to *IMMERSE* and wait for Level 3 + Heat LED off

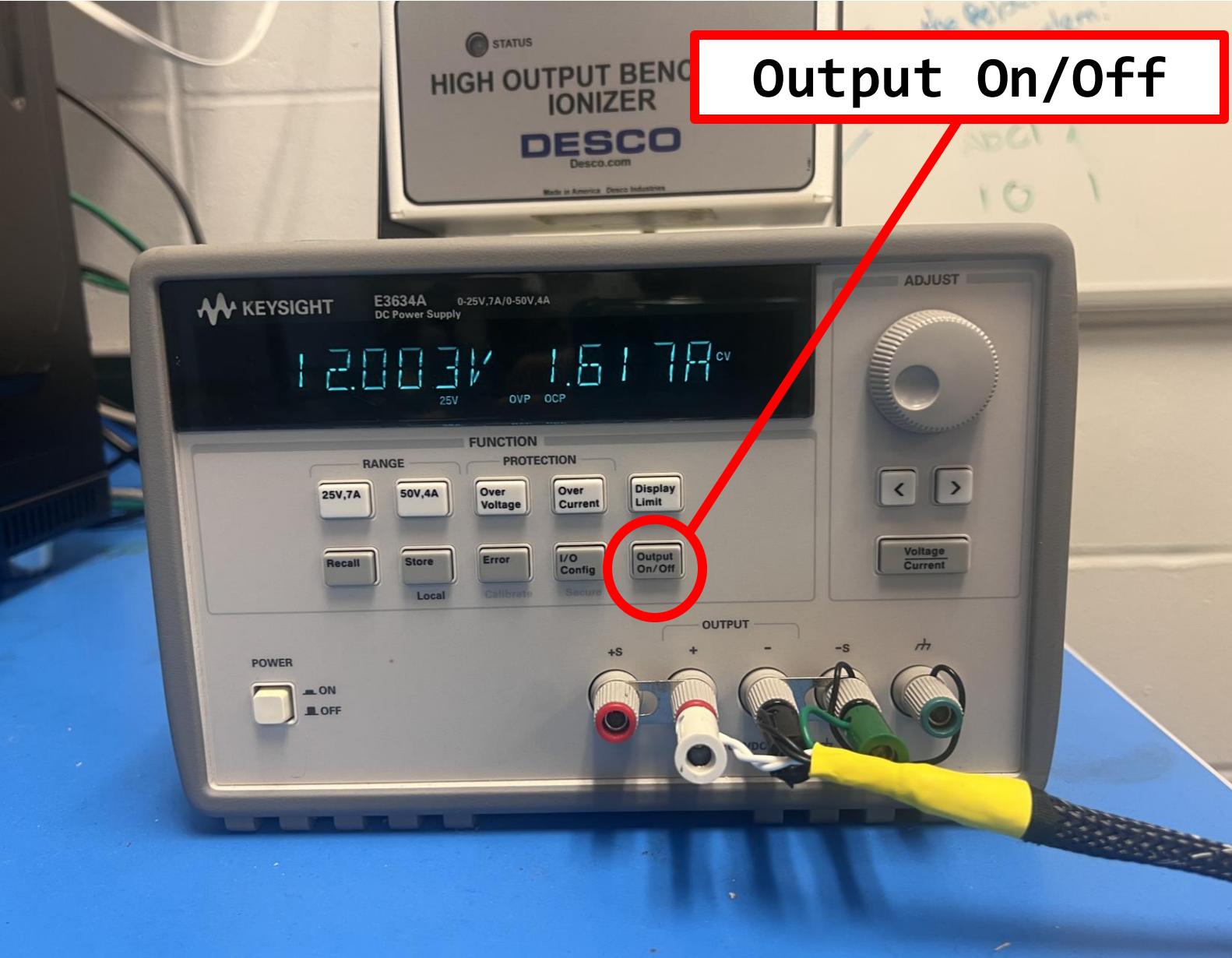


Cold QC: Power On WIB



Output On/Off

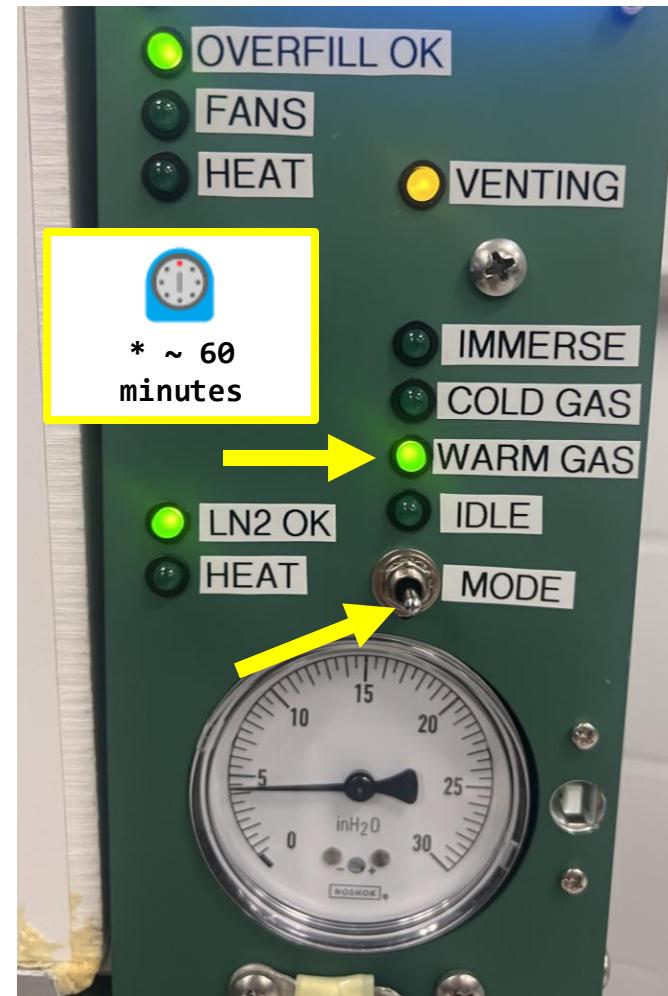
Cold QC is Done! Power Off WIB



Output On/Off

Post-Cold QC: Switch CTS to *WARM*

Switch to *WARM GAS* and
wait 60 minutes or
~~until the temperature
reaches 45°C~~



LN2 Filling (STOP if you are NOT trained)

Follow these steps to fill the CTS dewar with LN2:

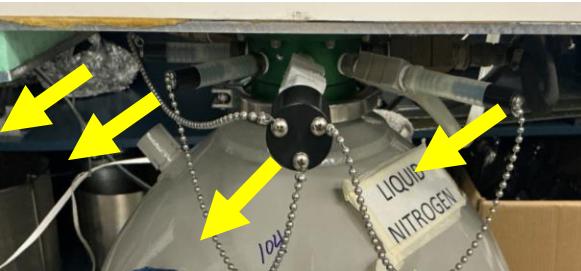
1. Turn On CTS Controller and set in IDLE



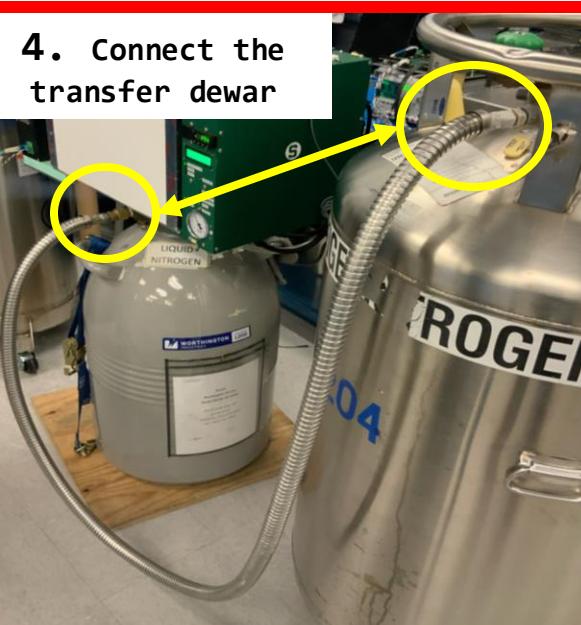
2. If value for "Dewar Full" is less than 1800, refill. Follow steps 3-10



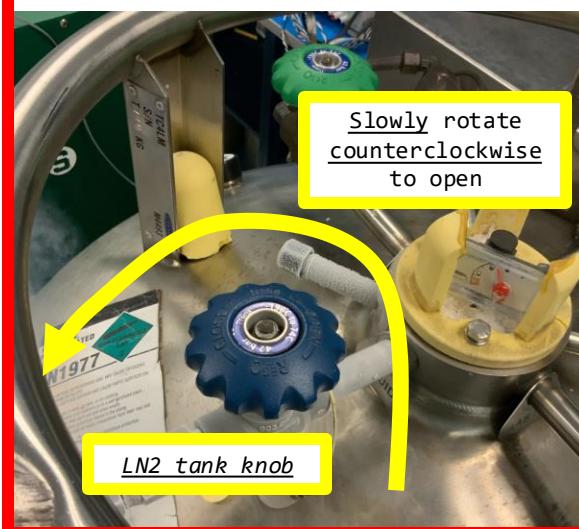
3. Remove the LN2 Dewar plugs
Keep CTS cover close



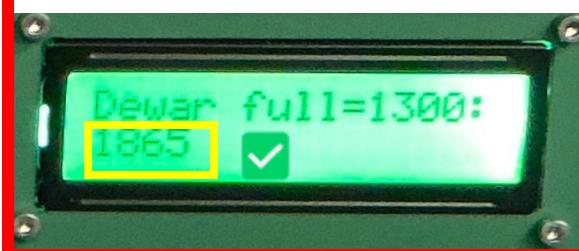
4. Connect the transfer dewar



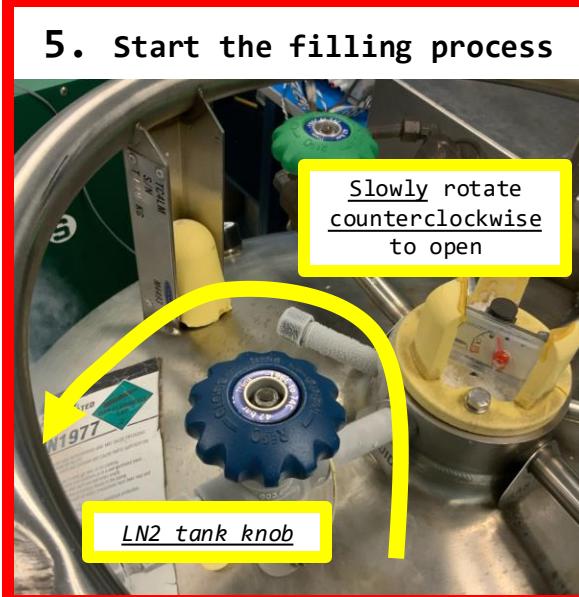
5. Start the filling process



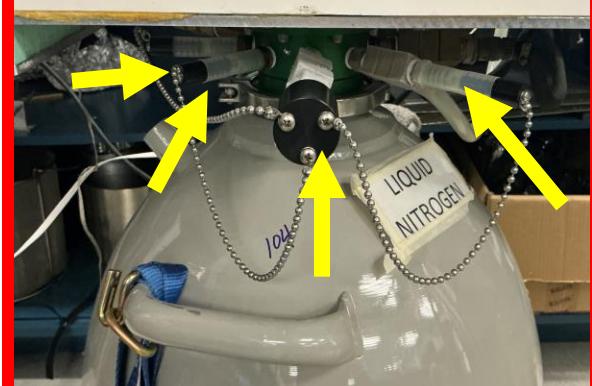
6. Monitor until "Dewar Full" > 1800



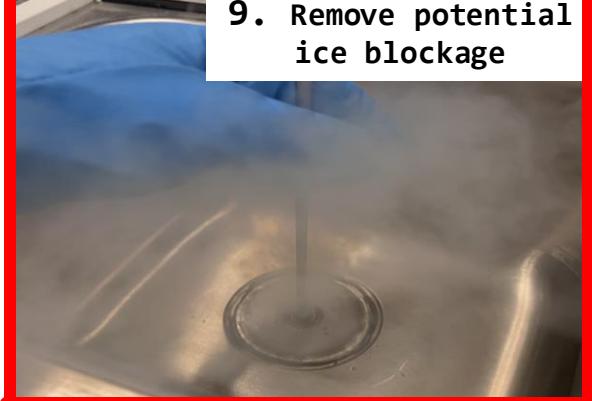
7. Stop the filling process (rotate LN2 tank knob clockwise)



8. Remove the transfer line and place LN2 Dewar plugs back.



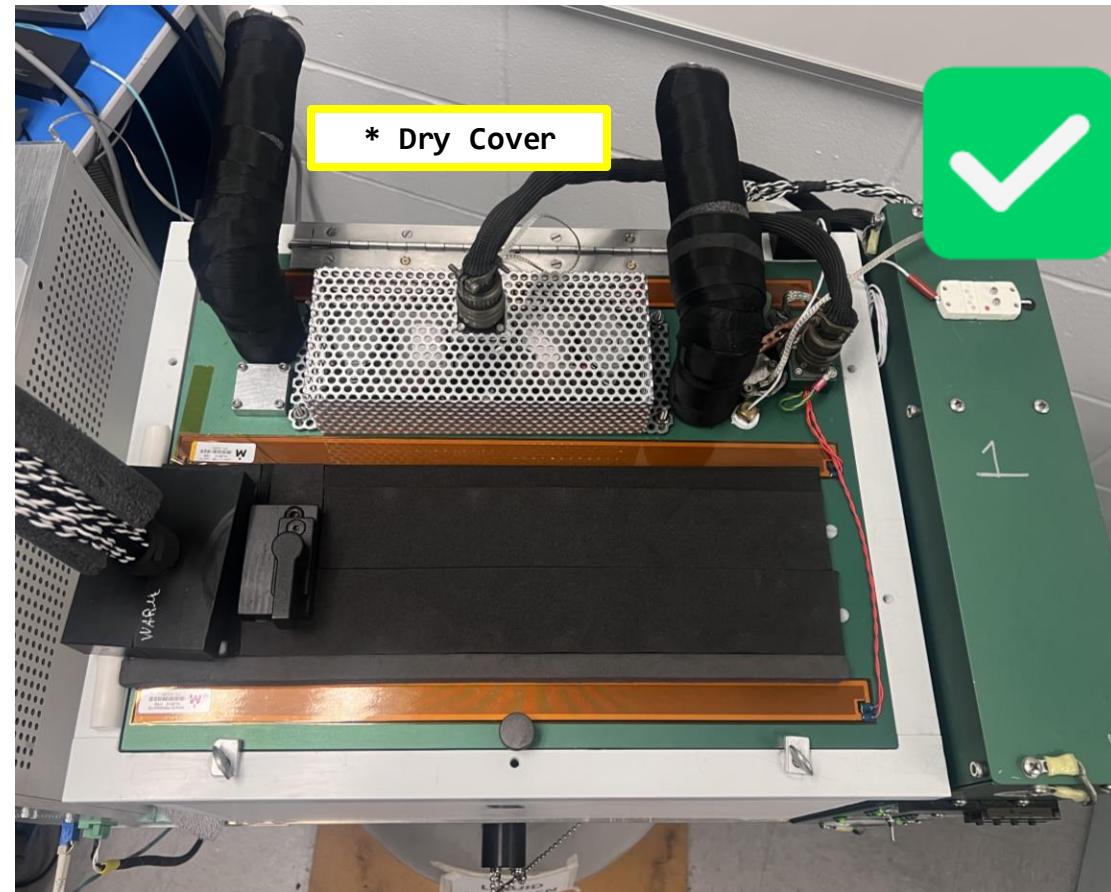
9. Remove potential ice blockage



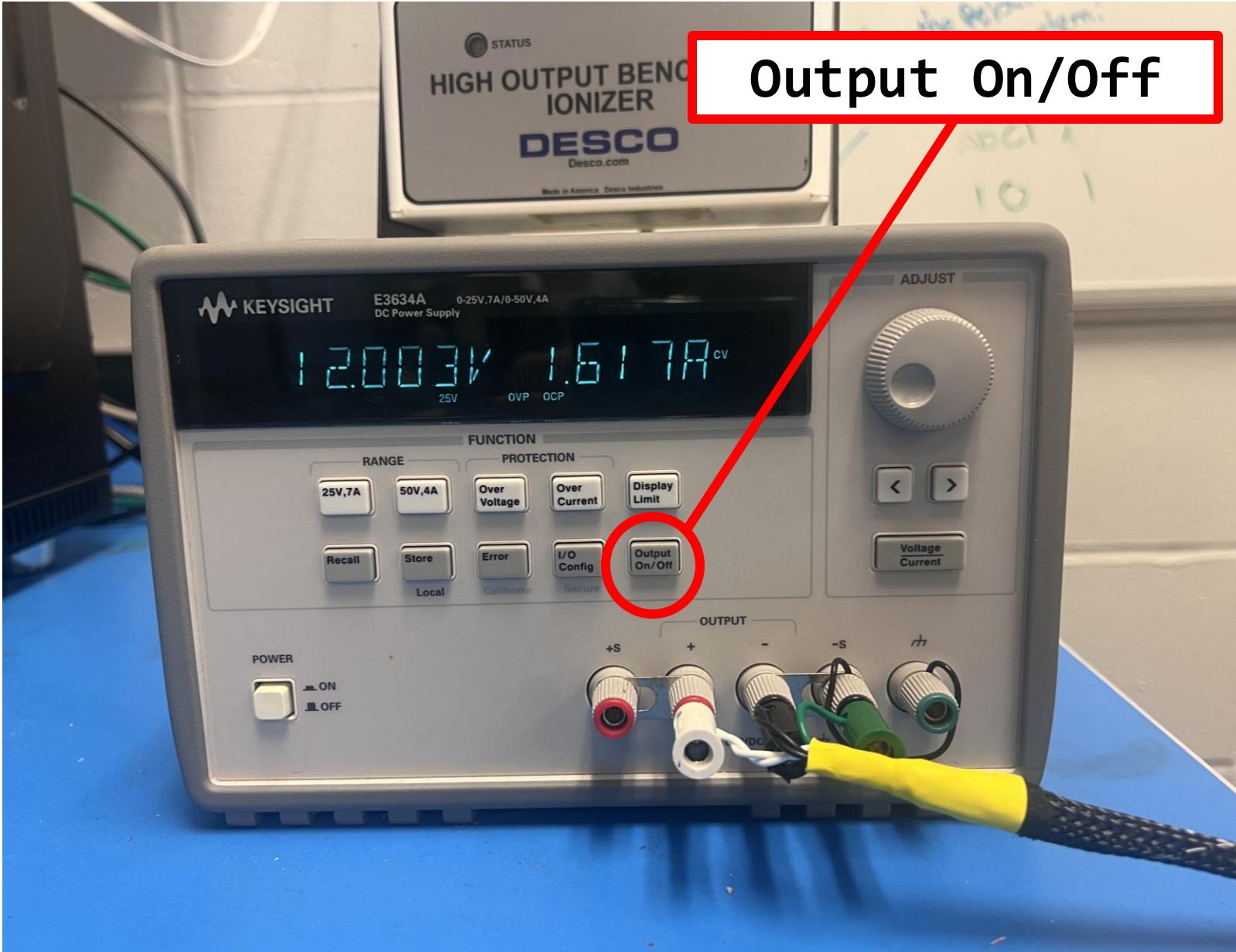
10. Set chamber in warm mode for 15 minutes and then turn CTS OFF.

Post-Warm Up Check

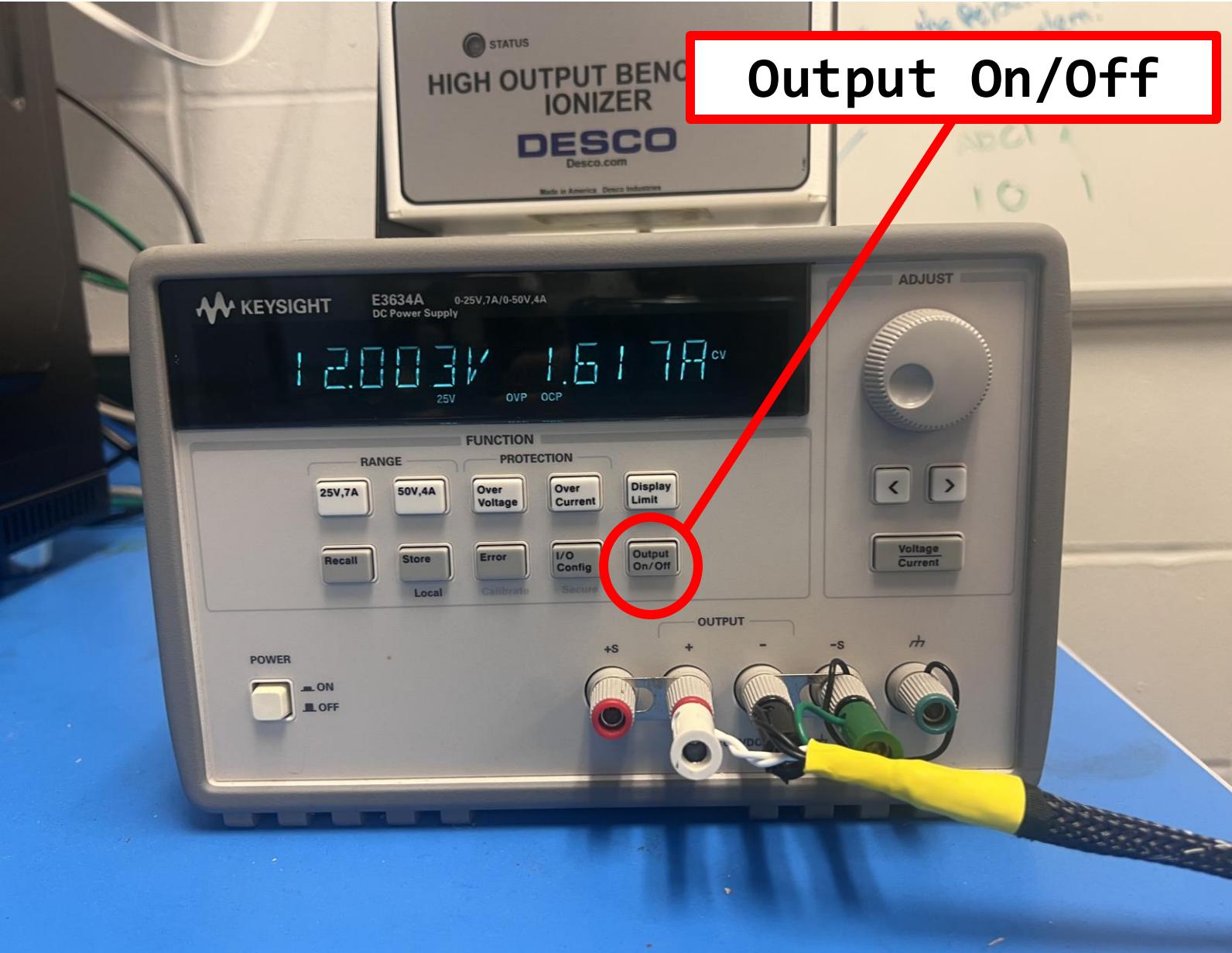
Make sure there is no water on the CTS cover. If there is, wipe it off.



Final Checkout: Turn On WIB



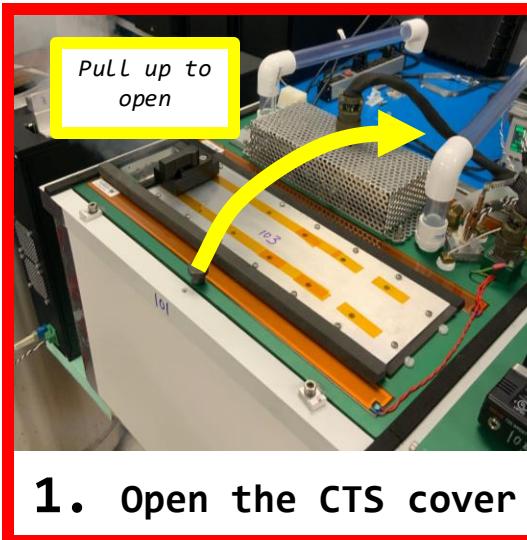
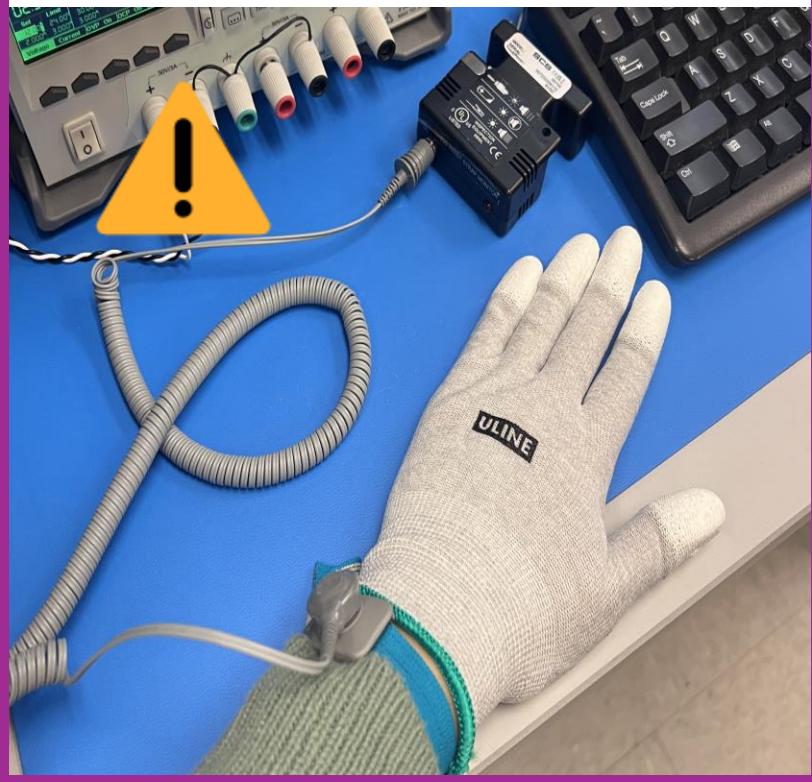
Final Checkout is done! Turn Off WIB



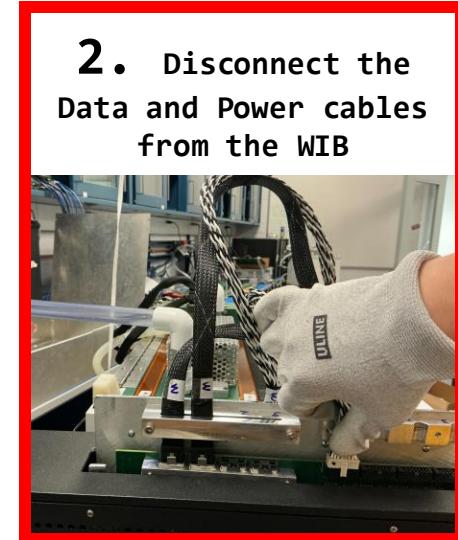
Output On/Off

Take the FEMBs out of the CTS Chamber

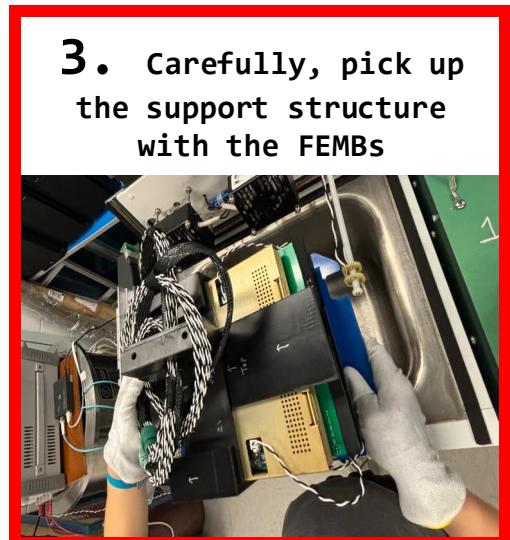
Remember to wear ESD-safe gloves and a wrist monitor!



1. Open the CTS cover



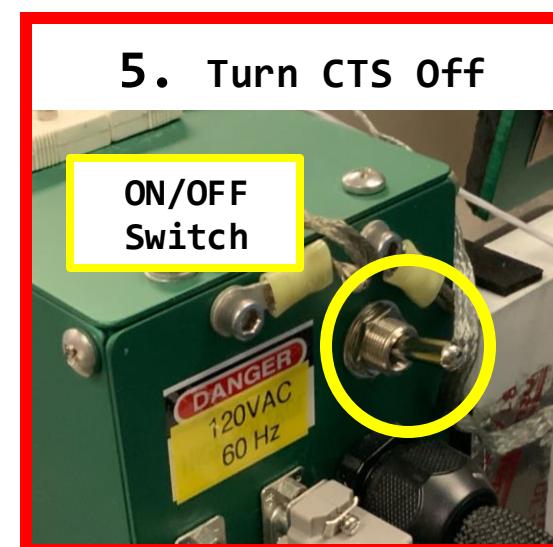
2. Disconnect the Data and Power cables from the WIB



3. Carefully, pick up the support structure with the FEMBs



4. Place it on the desk



5. Turn CTS Off

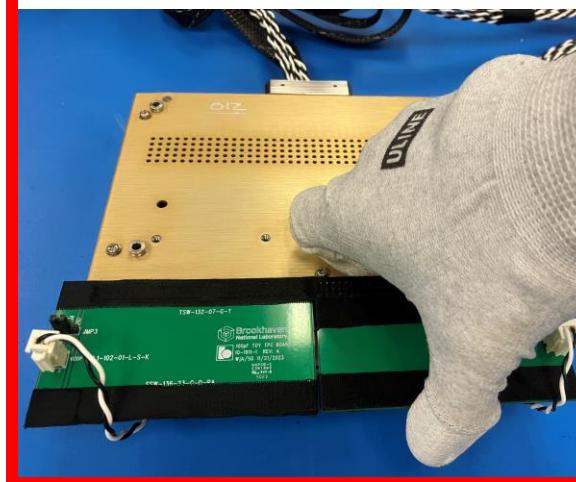
ON/OFF
Switch

Disassembly: Top FEMB

1. Remove the Top CE Box



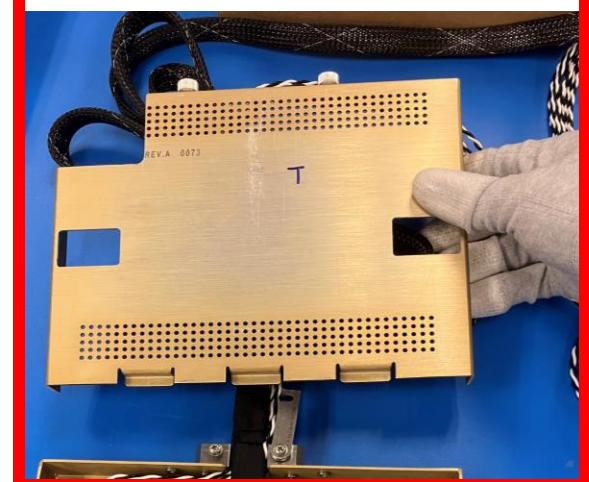
2. Remove Toy TPCs



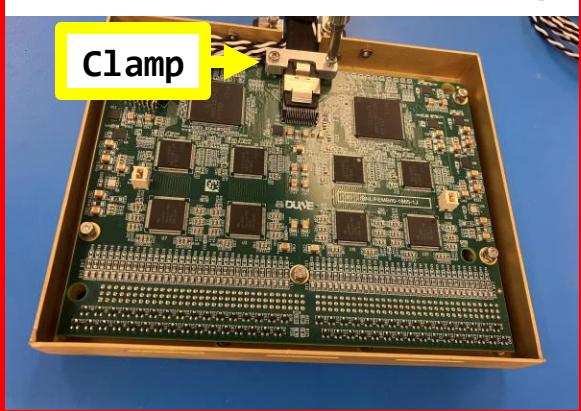
3. Disconnect the Power Cable



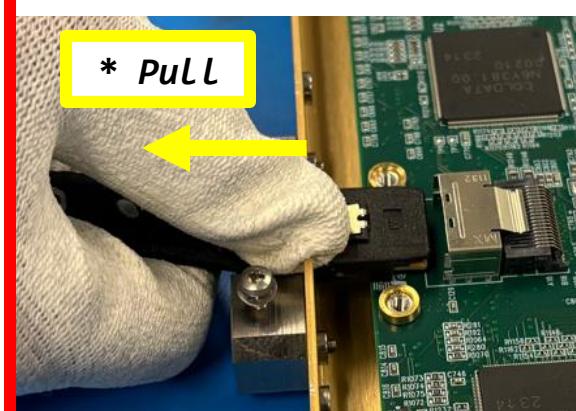
4. Remove the test cover



5. Remove the cable clamp



6. Disconnect the Data cable



7. Install the original CE box cover



8. Pack FEMB in ESD Bag and Foam Box

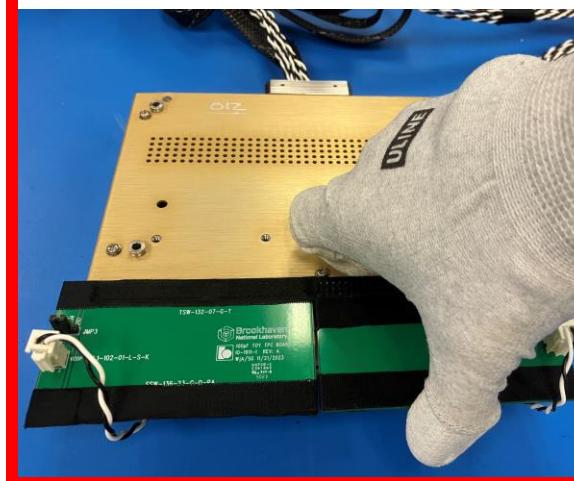


Disassembly: Bottom FEMB

1. Remove the Bottom CE Box



2. Remove Toy TPCs



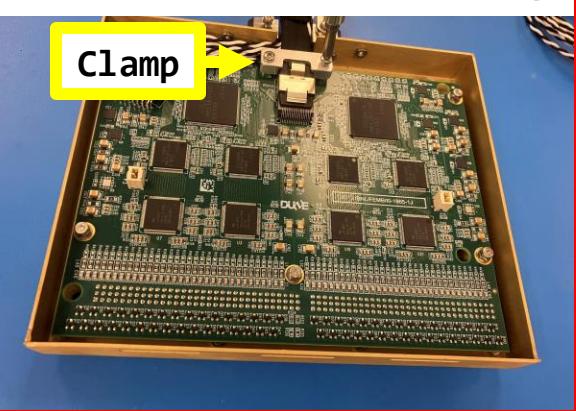
3. Disconnect the Power Cable



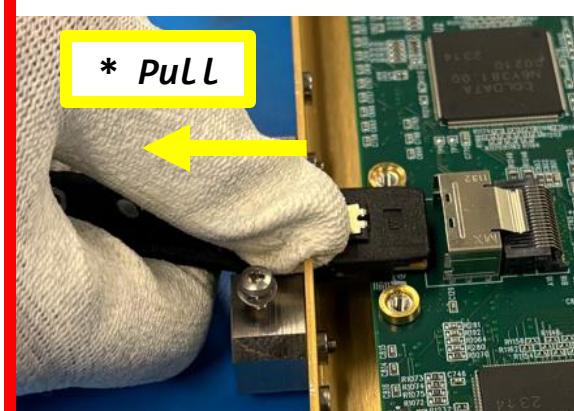
4. Remove the test cover



5. Remove the cable clamp



6. Disconnect the Data cable



7. Install the original CE box cover



8. Pack FEMB in ESD Bag and Foam Box



CE Box Visual Inspection

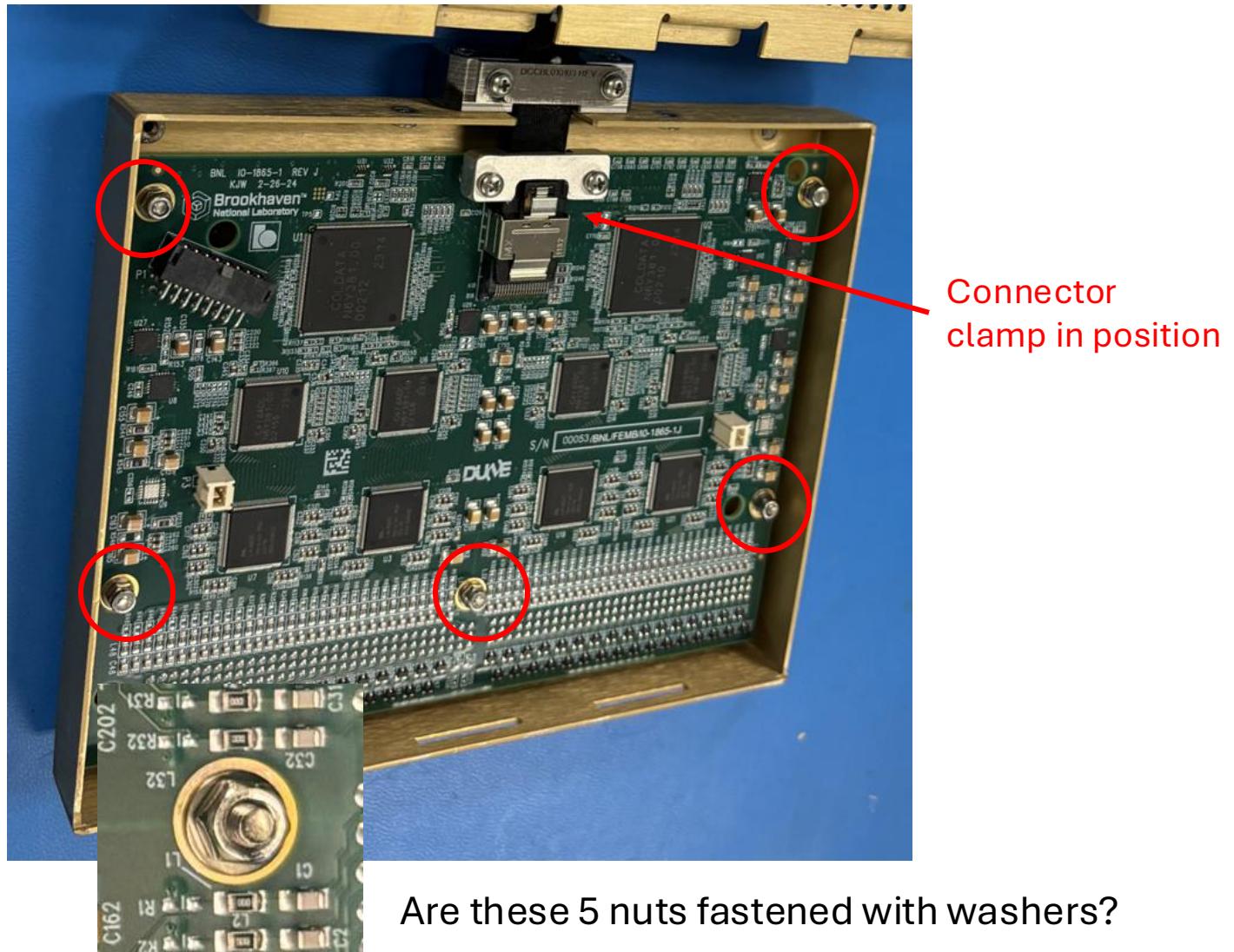


If foam box was broken?

If HWDB QR sticker was missing?



CE box enclosed by ESD bag?



Bottom CE Box (HD) Visual Inspection

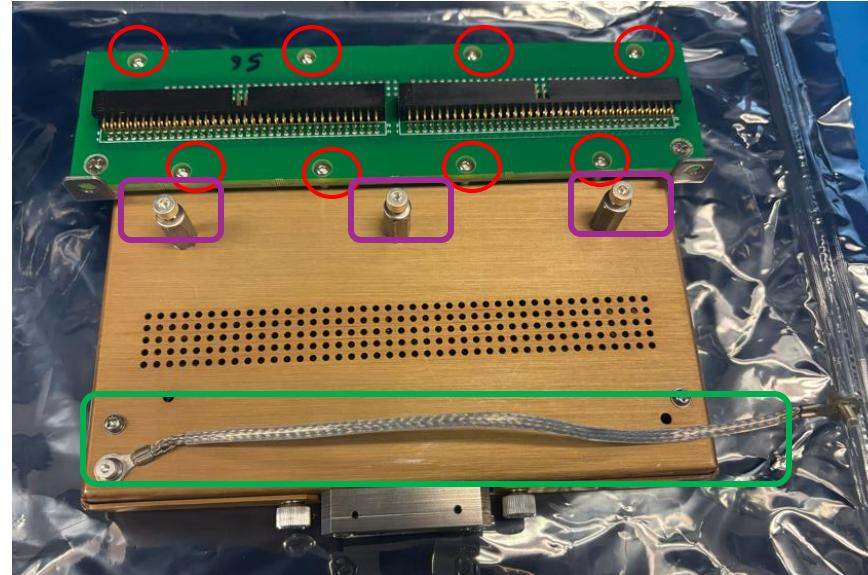


If foam box was broken?

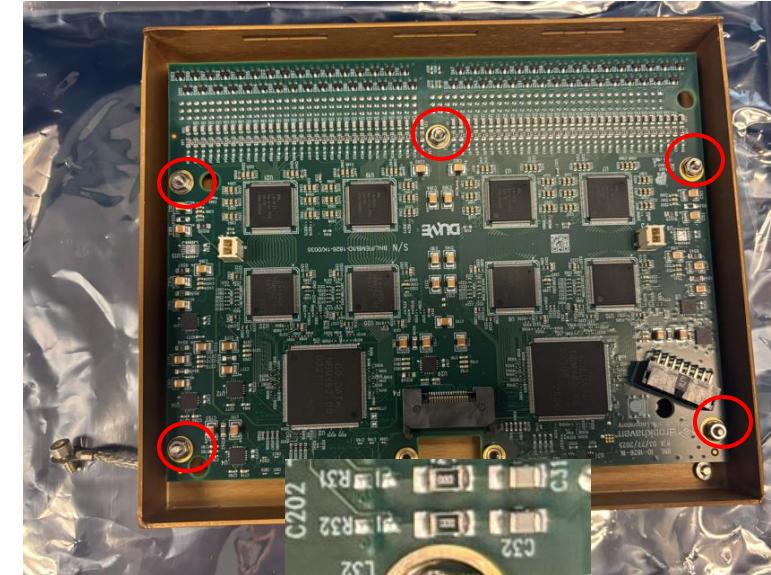
If HWDB QR sticker was missing



CE box enclosed by ESD bag?



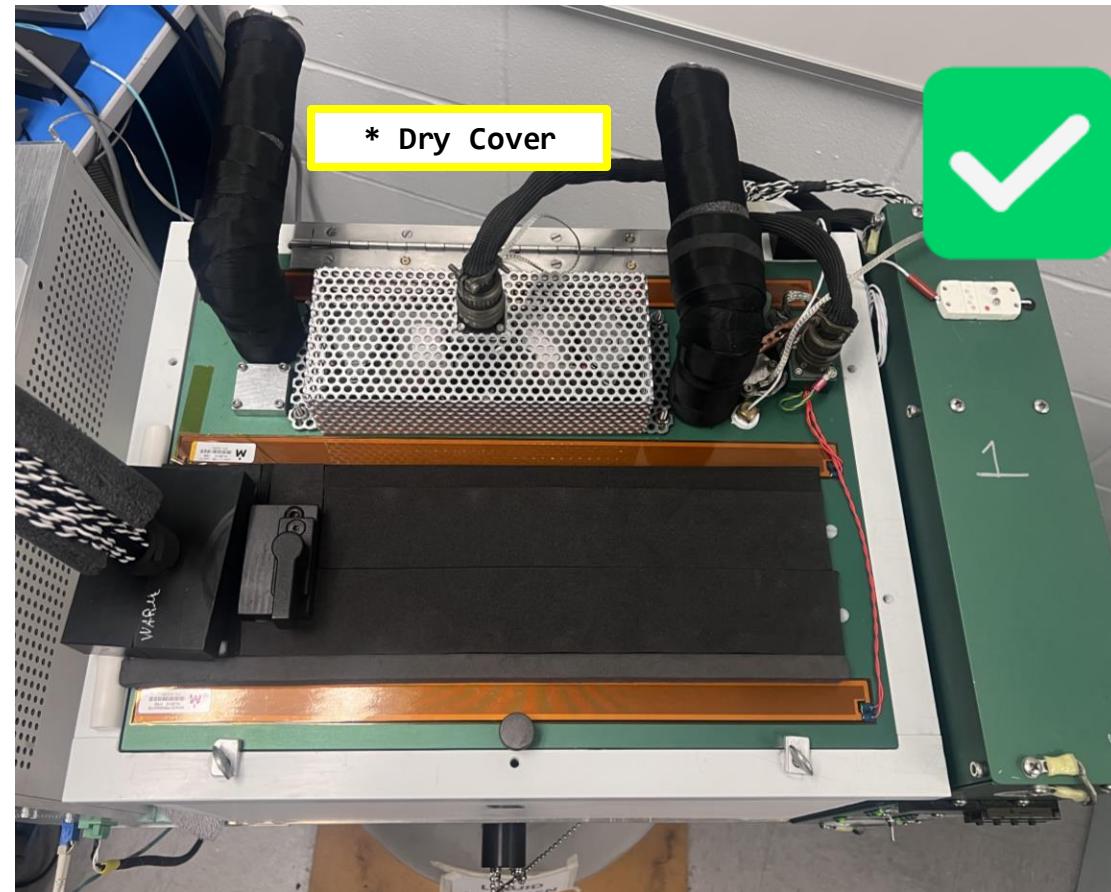
Nuts for CR-RC adapter board in position?
3 sets of lock nut and washer in position?
Ground strip in position?
FE input terminator in position



Are these 5 nuts fastened
with washers?

Post-Warm Up Check

Make sure there is no water on the CTS cover. If there is, wipe it off.



Disassembly: Bottom CE box (HD)

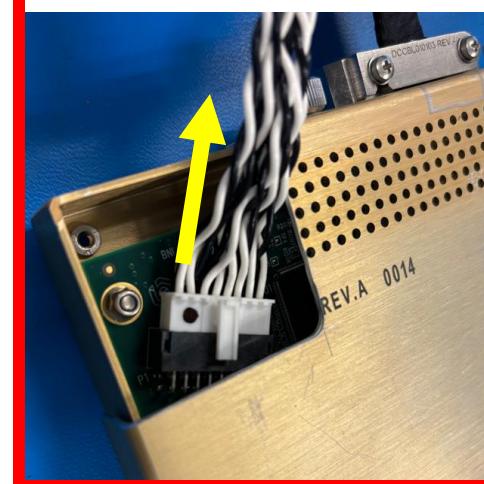
1. Remove the Bottom CE Box



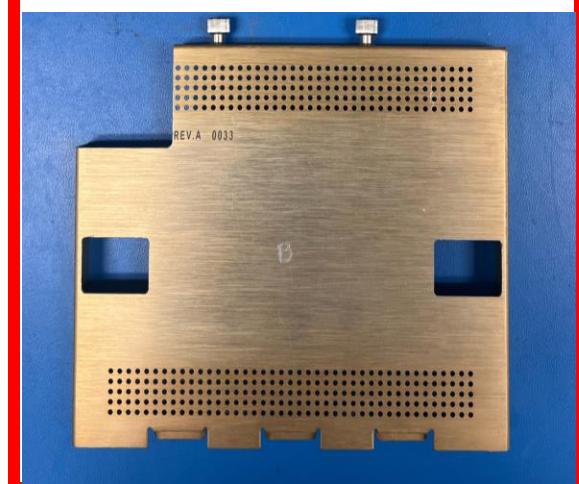
2. Remove Toy TPCs



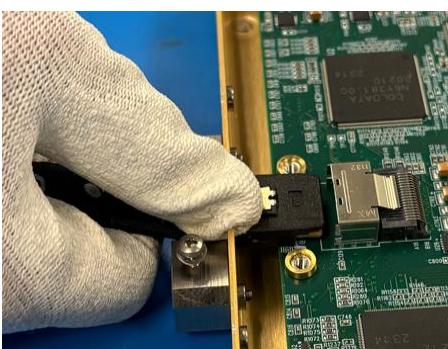
3. Disconnect the Power Cable



4. Remove the test cover



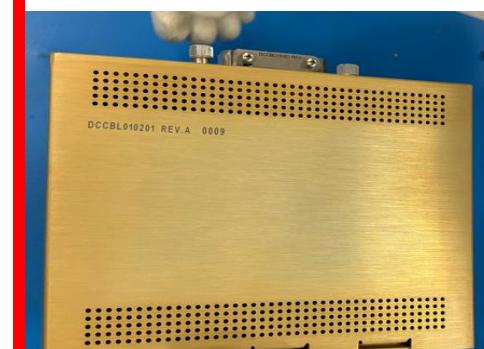
5. Remove the miniSAS cable



6. Place the connector clamp back on FEMB if it comes with CE box



7. Install the original CE box cover



8. Pack FEMB in ESD Bag and Foam Box

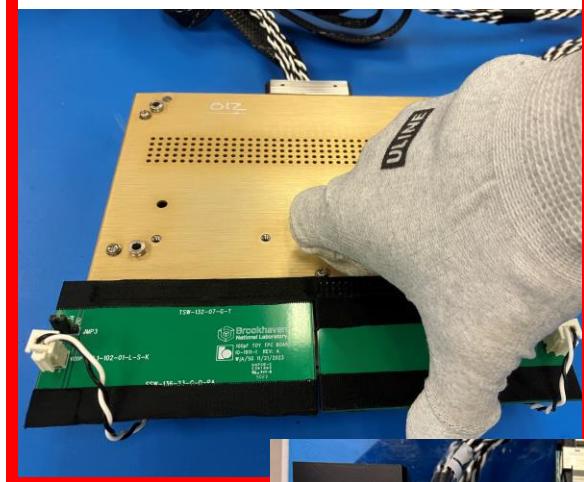


Disassembly: Top CE box (VD)

1. Remove the Top CE Box



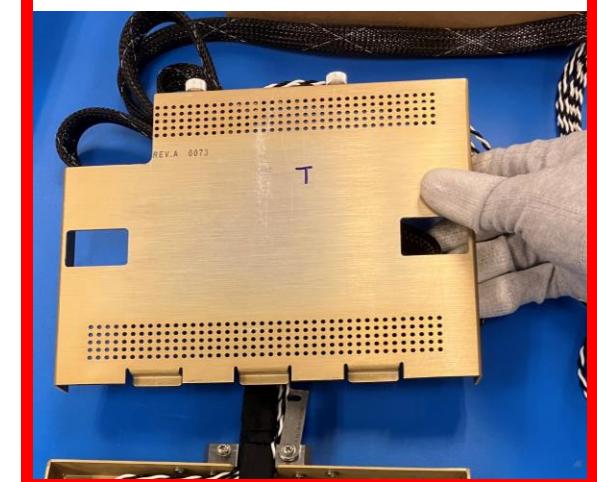
2. Remove Toy TPCs



3. Disconnect the Power Cable



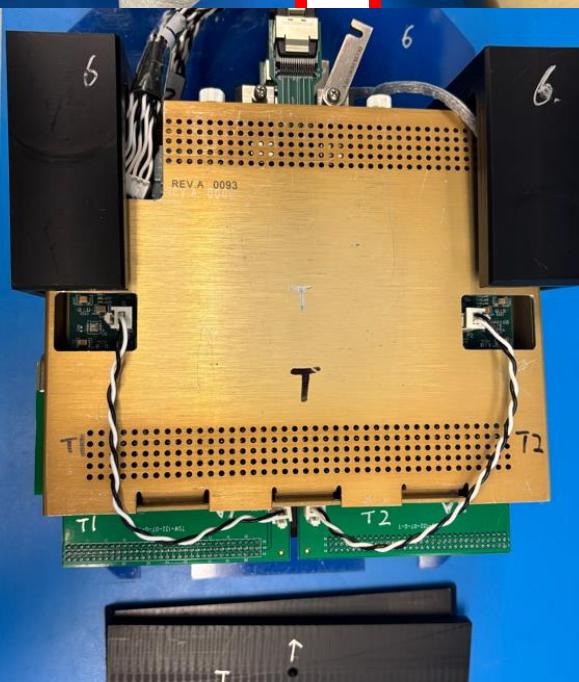
4. Remove the test cover



5. Remove the miniSAS cable



6. Place the back on FEMB CE box



7. Install the box cover



8. Pack FEMB in ESD Bag and Foam Box

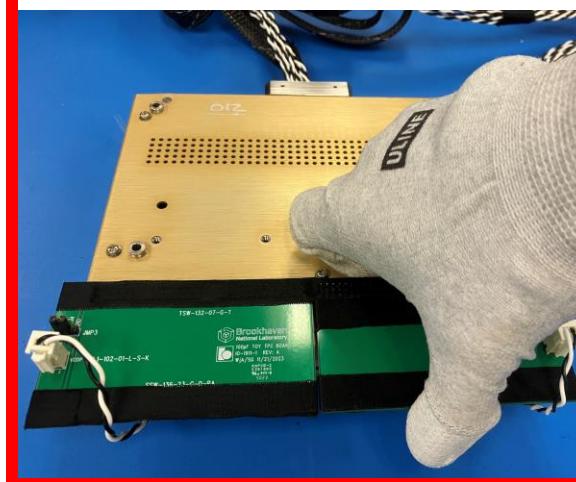


Disassembly: Bottom CE box (VD)

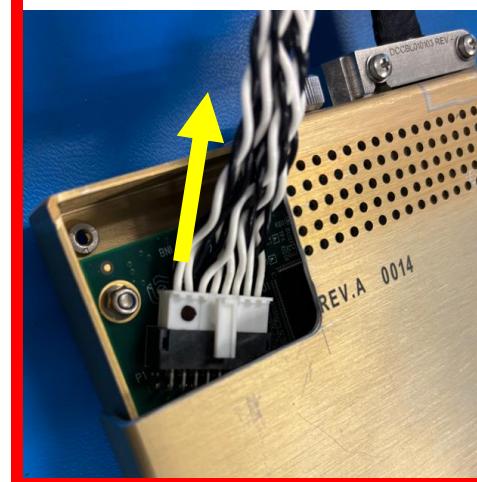
1. Remove the Bottom CE Box



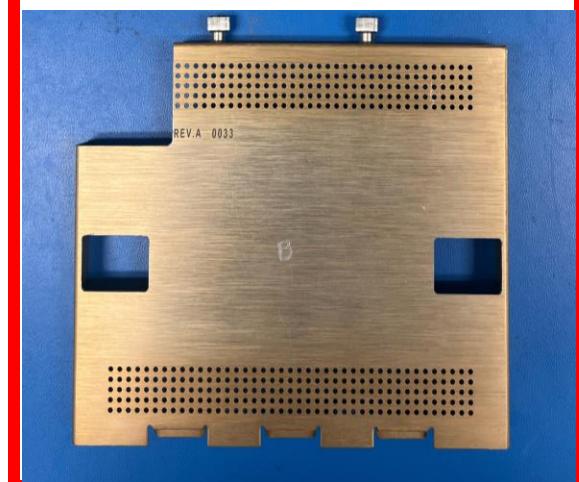
2. Remove Toy TPCs



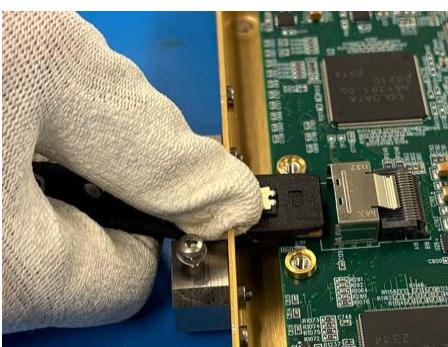
3. Disconnect the Power Cable



4. Remove the test cover



5. Remove the miniSAS cable



6. Place the connector clamp back on FEMB if it comes with CE box



7. Install the original CE box cover



8. Pack FEMB in ESD Bag and Foam Box



CE Box Visual Inspection

Please contact Tech Coordinator if abnormality is observed!

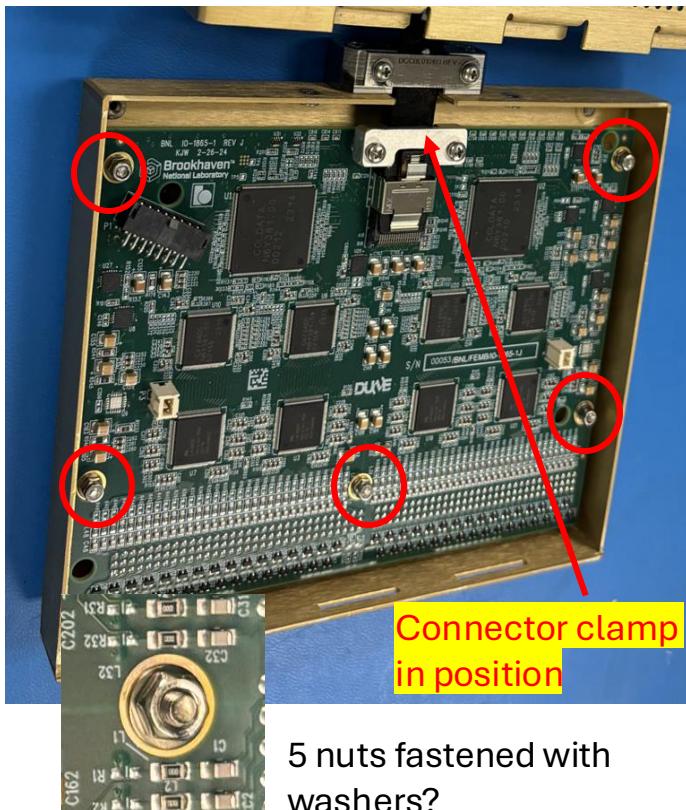


If foam box was broken?
If HWDB QR sticker was missing?



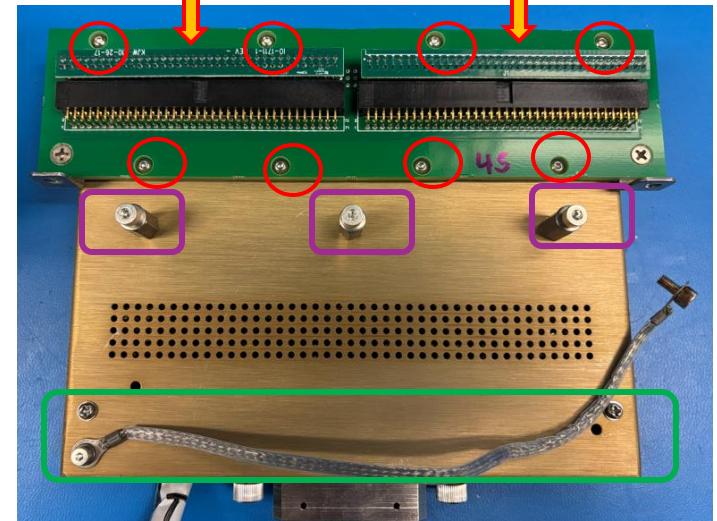
CE box enclosed by ESD bag?

VD CE box (1865)

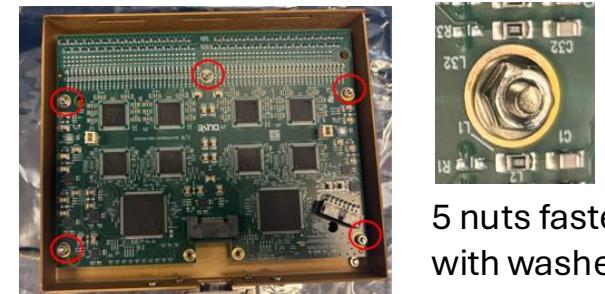


5 nuts fastened with
washers?

HD CE box (1826)



6 Nuts for CR-RC adapter board?
3 sets of lock nut and washer?
1 Ground strip?
2 FE input terminators?



5 nuts fastened
with washers?