

350MHz RF Test Stand Operator ACIS Training

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Applicable Documents

310503-00014 RF Test Stand ACIS Operational Procedures

310503-00015 RF Test Stand Search Procedure

If working from a hard copy of these procedures, verify that you have the current revision at:

https://www.aps.anl.gov/Internal/Policies_and_Procedures/procedures.html

Important Items to Remember to Avoid an Inadvertent Trip and SR Beam Loss

- **Transition of shutters from open to closed or closed to open, should only be performed with the Test Stand Bunker in a secured (Beam Permit), state and RF1 turned off.**
- **Opening the shutters with the cavity blowers off will cause a trip of the RF6 Waveguide Air Personnel Safety System.**

To Open the Bunker From a Secured State

1. Shut Down RF1
 - 1.1. Turn off RF drive
 - 1.2. Lower beam current to 4A
 - 1.3. Turn off mod-anode
 - 1.4. Lower cathode voltage to 10kV
 - 1.5. Turn off cathode voltage
 - 1.6. Turn off RF1 Kalmus amplifier
2. Close Shutters
 - 2.1. Turn shutter enable keys to the right to enable control power (Figure 1)
 - 2.2. Close shutter #1 (Mega) using the Test Stand PLC (OP screen)
 - 2.2.1. Verify shutter closure via the shutter mounted flag position indicator (perpendicular to the shutter), the shutter #1 junction box tally lamp, and the PLC (Figures 2-4)
 - 2.3. Close shutter #2 (Dielectric) using the Test Stand PLC (OP screen)
 - 2.3.1. Verify shutter closure via the two ACIS chains A & B “shutter closed” lamps on the control box on top of the shutter (Figure 5), the shutter #2 junction box tally lamp, and the PLC
 - 2.4. Verify ACIS agreement that the shutters are closed and it is safe to continue (two green LED's on ACIS panel) (Figures 6 & 7) ***NOTE: ACIS will only give a closed indication if BOTH shutters are closed***
 - 2.5. For additional explanation of ACIS panel indications, see RF Test Stand ACIS Operational Procedure sections 3.1 – 3.3.2



Figure 1

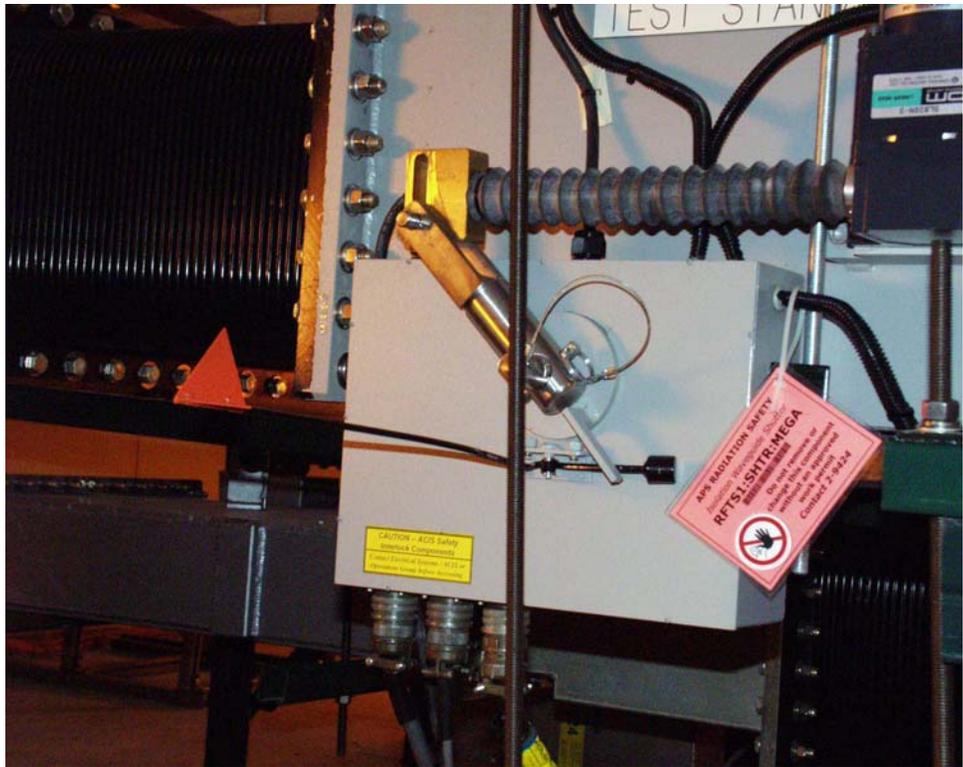


Figure 2



Figure 3



Figure 4

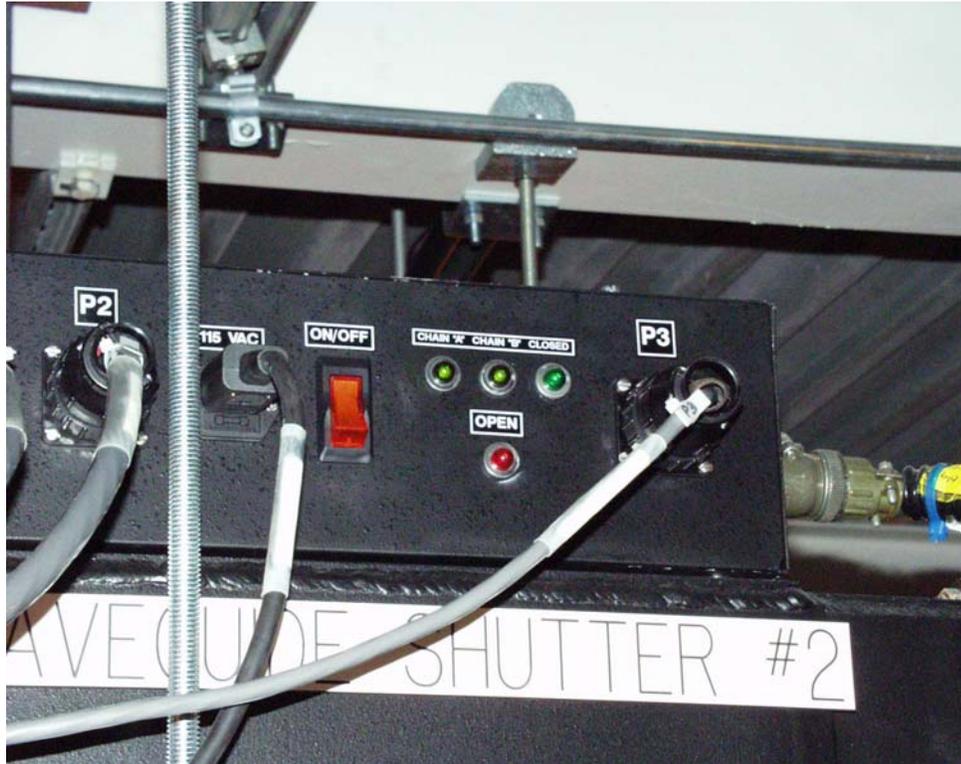


Figure 5

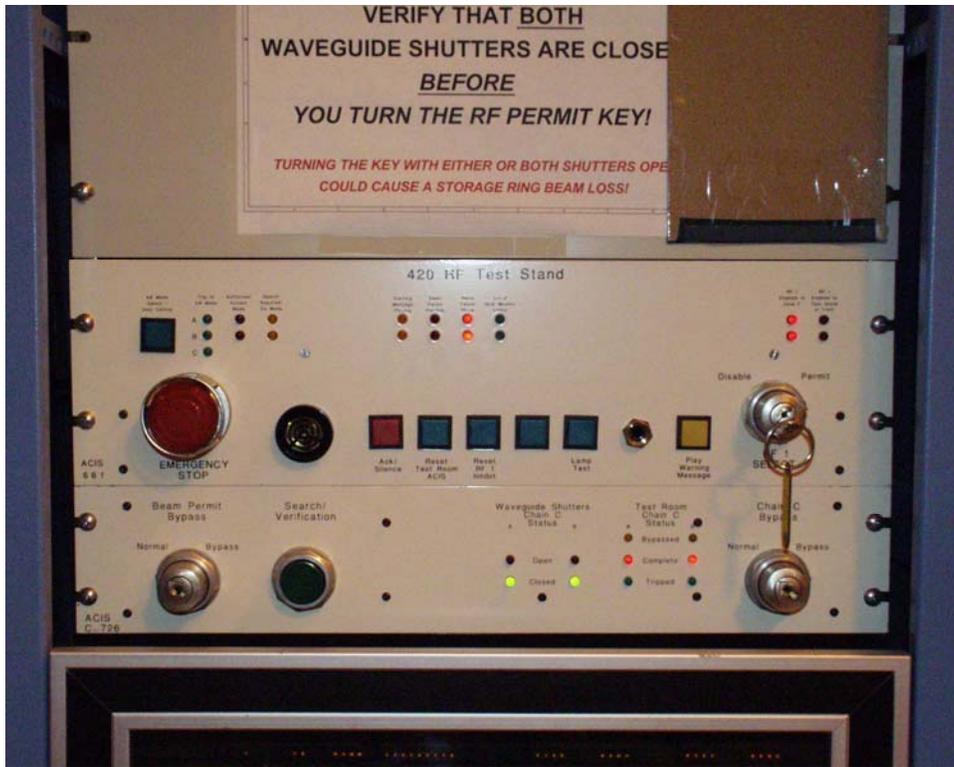


Figure 6

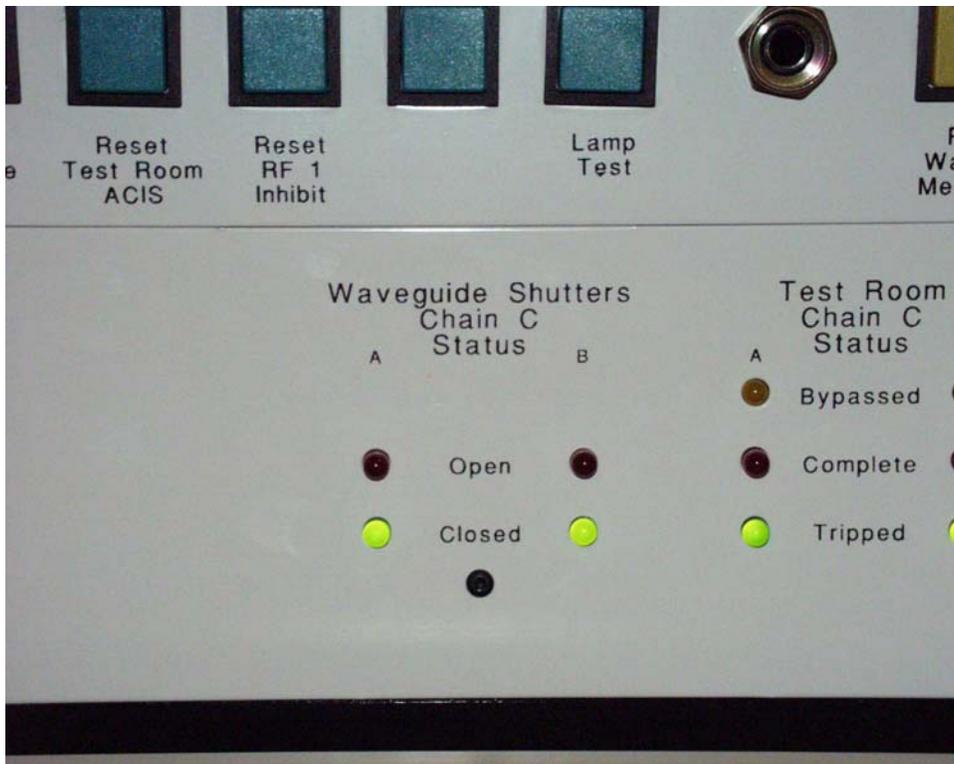


Figure 7

3. LOTO Shutters
 - 3.1. Turn shutter enable keys to the left, remove and pocket the keys
 - 3.2. Access the Test Stand roof, engage the Kirk lock mechanisms for both shutters, remove and pocket the keys (Figures 8 & 9) ***NOTE: The Test Stand roof is a hard hat area.***
 - 3.3. Place the Health Physics posting across The test Stand roof stairway after accessing the roof area (Figure 10)

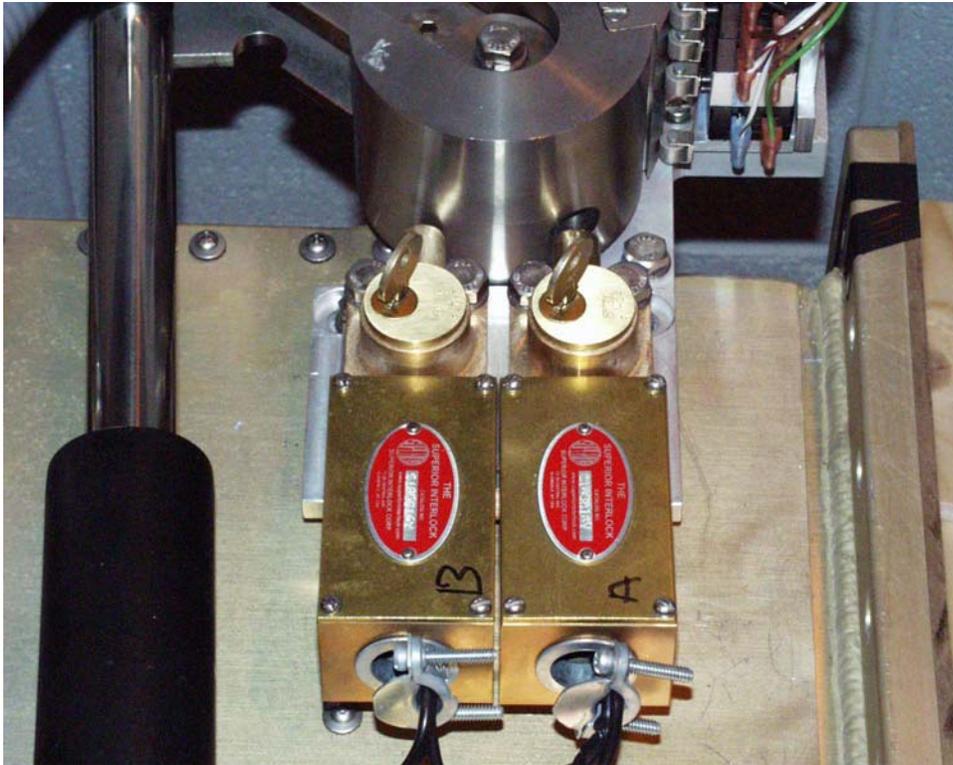


Figure 8 – Dielectric Kirk Lock

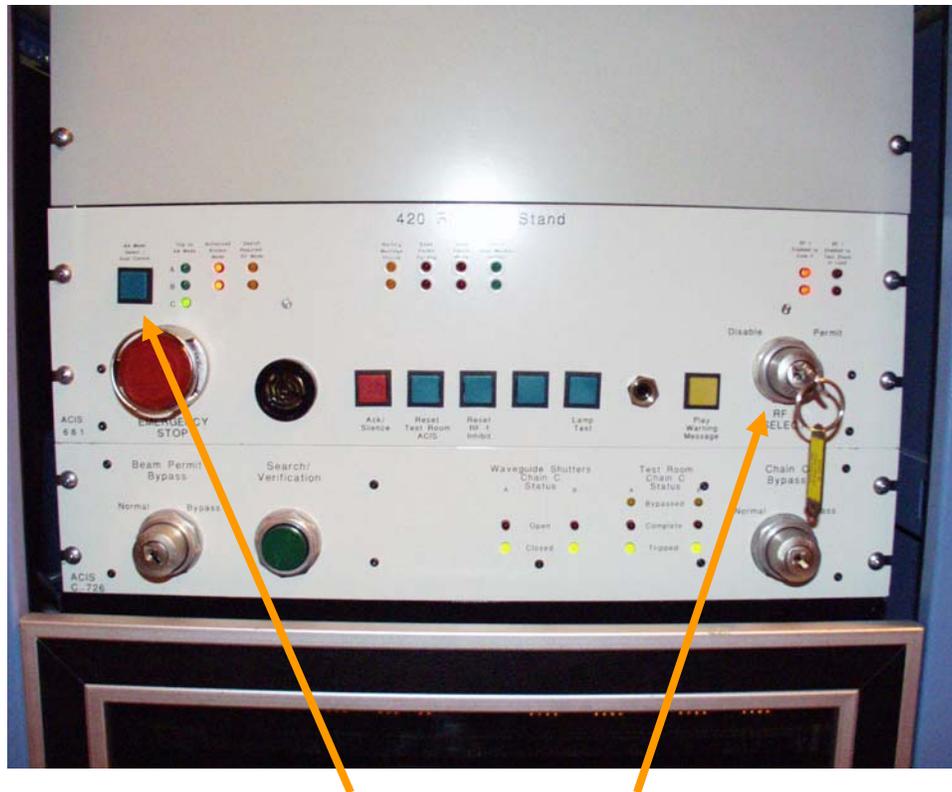


Figure 9 – MEGA Kirk Lock

- 3.4. Place the Kirk lock keys (and the shutter enable keys if so desired), in the Test Stand Group LOTO box and overlock the box using normal APS LOTO method
4. Open the Bunker
 - 4.1. Review section 3.4 of the RF Test Stand ACIS Operational Procedure
 - 4.2. Verify again, that ACIS sees the shutters in a closed state and the bunker is in Beam Permit Mode
 - 4.3. Turn the ACIS panel RF1 Select keyswitch from Permit to Disable (Figure 11)
 - 4.4. Verify that the bunker is now in Beam Permit Pending Mode
 - 4.5. Push the green Authorized Access Mode button on the ACIS panel (Figure 11)
 - 4.6. The bunker should now be in Authorized Access Doors Unlocked



Figure 10
Place HP Posting Across Stairway After Accessing Roof Area



Authorized Access Button

RF1 Select Keyswitch

Figure 11

To Secure the Bunker From an Open State and Open the Shutters for Operation

1. Shut Down RF1
 - 1.1. Lower beam current to 4A
 - 1.2. Turn off mod-anode
 - 1.3. Lower cathode voltage to 10kV
 - 1.4. Turn off cathode voltage
 - 1.5. Turn off RF1 Kalmus amplifier
2. Perform a Search and Secure the Room
 - 2.1. **IMPORTANT!!!** Turn on the cavity blowers before proceeding (Failure to do so will result in a Waveguide Air PSS trip when the shutters are opened)
 - 2.2. Verify that both blowers are operating normally by checking the Coupler Air interlock on the Test Stand PLC (CPL AIR on DUT screen)
 - 2.3. Review sections 3.1 – 3.4.2 of the RF Test Stand Search Procedure
 - 2.4. Follow step-by-step instructions as outlined in the RF Test Stand Search Procedure sections 3.1 – 3.4.2
 - 2.5. Verify that ACIS is in Beam Permit Mode

3. Open The Shutters for Operation
 - 3.1. Verify that ACIS is in Beam Permit Mode
 - 3.2. Remove LOTO from the Test Stand Group LOTO Box, retrieve and pocket the shutter Kirk lock and enable keys
 - 3.3. Access the Test Stand roof and unlock the Kirk lock devices for both shutters
 - 3.4. Place the Health Physics posting across The test Stand roof stairway after accessing the roof area (Figure 10)
 - 3.5. Return the shutter enable keys to their keyswitches
 - 3.6. Turn the enable keys to the right
 - 3.7. Open shutter #1 (MEGA), using the Test Stand PLC
 - 3.7.1. Verify that shutter #1 is open via the shutter mounted flag position indicator (parallel to the shutter), the shutter #1 junction box tally lamp, and the PLC
 - 3.8. Open shutter #2 (Dielectric), using the Test Stand PLC
 - 3.8.1. Verify that shutter #2 is open via the two ACIS chains A & B “shutter closed” lamps on the control box on top of the shutter (not illuminated), the shutter #2 junction box tally lamp, and the PLC
 - 3.9. Verify that ACIS sees the shutters in an open state
 - 3.10. Turn the shutter enable keys to the left

The Test Stand is now ready for operation.

