

Brookhaven National Laboratory National Synchrotron Light Source		Number: LS-PPS-0008	Revision: B
		Effective: 3/29/02	Page 1 of 3
Subject: X3A1 Radiological Interlock Test			
Prepared/ Approved By: M. Buckley	Approved By: S.Buda	Revision/Periodic Review Log	

*Approval signatures on file with master copy.

Test Reason:	Test Result:	<input type="checkbox"/> Passed	<input type="checkbox"/> Failed
	Test Type:	<input type="checkbox"/> Full	<input type="checkbox"/> Partial
Test Date:	Start Time:	Finish Time:	
Tester 1:	Assistant 1:		
Tester 2:	Assistant 2:		

PREPARATION:

Inform control room operator that test will be done. _____
 Turn off 'Red Tag' switch on x-ray ring interlock, and apply LOTO to X-Ray Security system. _____
 Verify that vacuum valves and water interlocks are satisfied or connect user interlock test jumper. _____

1. Search the hutch
 - The overhead lights go out _____
 - The red interior light comes on _____
 - The audible alarm sounds for 13 to 15 seconds minimum _____
 - The hutch interlock sign turns on _____
2. Open hutch door
 - The hutch interlock sign goes out _____
3. Press CS-1, close hutch door and wait.
 - Hutch interior lights come on in not more than 20 seconds _____
 - Press CS-E.
 - Interlock does not activate _____
4. Press interior search buttons in order, close door, press CS-E, note that alarm comes on, open and close door, press CS-E again. (This must all be done in less than the timeout interval noted in step 3)
 - Interlock does not activate _____
5. Close X3A2 photon shutter and open X3A1 photon shutter. Search X3A1 hutch. One person remains inside. Put hutch Kirk key in SRU and turn.
 - The Safety Shutter "enable" light (on the X3A2 hutch) does not come on until the end of the warning interval. _____

6. The person inside presses an Emergency Stop Button.

The shutter "enable" light goes out _____
 The ES indicator comes on _____
 The ES latch cannot be reset unless the SOR key is turned _____

7. Place latch device on door locks so key can be removed. Place switch holders on door switches. Search hutch, put door keys in SRU and turn, open safety shutter and X3A1 photon shutter.

The "Beam On" sign turns ON _____

Door:	
1	2

Remove holder from switch 2.

RIB latch light comes on _____

8. Replace holder on switch 2.

RIB cannot be reset unless SOR key is turned. _____

9. Remove holder on switch 1.

Safety shutter closes _____
 Photon shutter closes _____
 RIA latch light comes on _____
 Hutch interlock drops out _____
 "Beam On" sign goes out _____
 RIA can't be reset w/o SOR _____

10. Replace holder on switch 1. Search hutch, leave shutter closed.

Hutch Kirk key (KKH) cannot be removed from SRU
 unless button is pushed _____

11. Open safety shutter and X3A1 photon shutter.

KKH cannot be removed even if button is pushed _____

12. Close photon shutter. Turn KKH and note where solenoid unit stops rotation. Push the button and turn key just beyond this point, but not far enough to actuate "key removed" switch. Release the button and leave key in this position. Open shutter(s), remove KKH, and replace.

RIA latch light comes on _____
 RIB latch light comes on _____
 The safety shutter closes _____
 The photon shutter closes _____

Reset RIA and RIB

13. Open X3A1 photon shutter and safety shutter. Press an emergency stop button.

- RIA latch light comes on _____
- RIB latch light comes on _____
- Hutch interlock drops out _____
- ES indicator comes on _____
- Safety Shutter Closes _____
- Photon Shutter Closes _____

14. Observe the photon shutter while it is opened and closed.

The mechanism moves freely and without hesitation _____

15. One person goes to the x-ray equipment area and resets the indicators for RIAX and RIBX at SR100.

Open the safety shutter and X3A1 photon shutter.
Remove switch holder from door switch number 2.

- RIB latch light comes on _____
- RIBX "Loop Enabled" indicator goes out _____
- RIBX "Loop Disabled" indicator comes on _____

Replace switch holder.

RIBX cannot be reset _____

Reset RIB

RIBX CAN be reset
("Loop Enabled" indicator comes on) _____

16. Remove holder from door switch 1.

- RIA latch light comes on _____
- RIAX "Loop Enabled" indicator goes out _____
- RIAX "Loop Disabled" indicator comes on _____
- The safety shutter closes _____
- The photon shutter closes _____
- RIAX cannot be reset _____

Reset RIA

RIAX CAN be reset
("Loop Enabled" indicator comes on) _____

17. Remove the holders from the switches. Remove the latch device from the door lock(s). Stand inside the hutch and open and close the door.

All door switches operate freely and each makes a "click" when door is opened

(Complete test for each set of door switches)

Door:	
1	2

* * *