

Subject: **U14B Radiological Interlock Test**

Number: LS-PPS-0025 **Revision:** C **Effective:** 1/06/06 **Page 1 of 3**

Prepared/Approved By: S. Buda	Prepared/Approved By: M. Buckley	
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*Approval signatures on file with master copy.

[Revision/Periodic Review Log](#)

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 for test:

- Request that beam be dumped in the VUV ring.
- LOTO the LEBT valve & Low Level RF or the VUV injection shutter in accordance to NSLS procedures. Refer to procedure "[LINAC LOTO](#)" (LS-ESH-0012) or "[VUV Injection Shutter LOTO](#)", (LS-ESH-0010).
- Obtain the lockout key for U14B from the operations group.
- A representative of the RF group will be needed to assist in measuring the interruption time on power to the cavities.

1. Insert the lockout key and rotate to the operate position. Clear any faults with the reset key. Close the enclosure and remove the Kirk key, insert it into the SRU.

The Shutter Enable light illuminates only when the key is fully rotated clockwise.

2. Open the photon shutter.

The SRU key cannot be rotated.

3. Close the shutter and cheat the SRU unit, open the shutter and rotate the SRU key fully counter clockwise.

RIA trips.

RIB trips.

RIA reset button does not reset the fault without the reset key being rotated

RIB reset button does not reset the fault without the reset key being rotated

4. Open the enclosure, place holders on the door switches, and place latch device on door key latch.

Open the shutter and pull the holder from switch "A".

The RIA fault light illuminates.

The Photon shutter closes.

The A Door S.W. light is OFF

The B Door S.W. light is ON.

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5. Replace the holder on switch “A” and reset the fault.
 Open the photon shutter and pull the holder from switch “B”.
 The RIB fault light illuminates. _____
 The photon shutter closes. _____
 The A Door S.W. light is ON _____
 The B Door S.W. light is OFF. _____

6. Reset all faults and open the photon shutter.
 Remove the lockout key.
 The photon shutter closes. _____

7. Replace the holders and open the photon shutter, secure the VUV ring and turn on the magnet power supplies, monitor the RF cavity waveform for RF1 & RF2.
 Observe the following:
 Dipole is on and delivering current _____
 Sextupole power supplies are on and delivering current _____
 Q1, Q2, Q3, Q4, Q5, Q6, & Q7 power supplies are on and _____
 delivering current. _____
 RF1 and RF2 are on and delivering power to the cavities _____
 The U14B RIA indicator on SR9 is ON. _____
 The U14B RIB indicator on SR9 is ON. _____

Remove the holder from switch A and observe the following:
 Dipole is OFF and Not delivering current _____
 Sextupole power supplies are OFF and NOT delivering _____
 current _____
 Q1, Q2, Q3, Q4, Q5, Q6, & Q7 power supplies are OFF and _____
 NOT delivering current _____
 RF power to the cavities is interrupted for a minimum of **RF1** **RF2**
 100 ms for RF1 and 10 ms for RF2. _____
 The U14B RIA indicator is OFF at SR9. _____
 The U14B RIB indicator is ON at SR9. _____

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8. Replace the holder and reset the faults at U14B and open the shutter.
Observe the following:

Dipole is on and delivering current _____
 Sextupole power supplies are on and delivering current _____
 Q1, Q2, Q3, Q4, Q5, Q6, & Q7 power supplies are on and
 delivering current _____

 RF1 and RF2 are ON and delivering power to the cavities. _____
 The U14B RIA and U14B RIB indicators on SR9 are ON. _____

Remove the holder from switch B and observe the following:

Dipole is OFF and Not delivering current _____
 Sextupole power supplies are ON and delivering current _____

 Q1, Q2, Q3, Q4, Q5, Q6, & Q7 power supplies are ON and
 delivering current _____

 RF1 and RF2 power to the cavities is ON and NOT
 interrupted. _____
 The U14B RIA indicator is ON at SR9. _____
 The U14B RIB indicator is OFF at SR9 _____

Replace the holder.

9. Reset the faults at U14B interlock box and close the photon shutter, have an assistant actuate the upper stem switch.

Observe that the key cannot be removed from the SRU
 while the Conflict light is on. _____

10. Remove the holders from the switches. Remove the latch device from the door lock.
Open and close the door.

Both door switches operate freely and each makes a "click"
 when door is opened. _____

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