Linac Electronics Modernization Project B15 Test Stand

Launch EPICS Screens and Generate Tone Output

1. Log in to server:

 $ssh \ \text{-}X \ \text{-}username \text{-}@centos7.slac.stanford.edu$

ssh -X <username>@dev-rhel7.slac.stanford.edu

2. Set up environment:

\$ bash

\$ source /afs/slac/g/lcls/tools/script/ENVS64.bash

\$ source /afs/slac/g/lcls/epics/setup/epicsenv-7.0.3.1-1.0.bash

3. Launch main display:

\$ b15rfhome.cmd &

4. Navigate to LEMP test stand displays:

B15 SRF Test Stand	Old B15 Home Exit
B15 Displays SRF Rack (aka L1B) SSAs GUNB RF Guncher BSA Testing Other • Sector 10 Testing StripTool	Old B15 Home Home Exit Development Archiver Blank Archiver Blank Archiver SRF Rack - All Chassis LO Power LO Power RFS1A QF2 Voltage/Current - Favorites QF2 Temperature - Favorites QF2 Voltage/Current - Favorites PRC QF2 Voltage/Current - Favorites QF2 Temperature - Favorites QF2 Temperature - Favorites QF2 Temperature - Favorites QF2 Temperature - Favorites
	QF2 Temperature - Favorites

ACCL:L1B:0200			
B15 SSA Test			
Cwetty Cavity Cavity<			
ACCL:L1B:0300			
Resonance Chassis Testing			
Cavity Cavity<			
ACCL:L1B:0400			
Gun/Buncher			
Cavity Cavity Cavity Cavity Cavity Cavity Cavity Cavity 1 2 3 4 5 6 7 6			
ACCL:L1B:0500			
LEMP RFS test Cavity Cavity Cavity Cavity EPICS Halt Reset Bluning 1 2 3 4 Communication Halt Reset Bluning			
ACCL122830600 sioc-dev-rf06 Go Complete Log RFS1A done. Full checkout needed			
B15 Room 121 HE SRF Rack 1.3 GHz - Horhe's rack			
	N		

Turn on or off CW tone. By default, is configured for 141.5 MHz (though the actual output is currently about 135 MHz).
 You can modify this using the DDSA Phstep High register on the tone control expert screen.

SRF Cavity Cryomodule ACCL:L2B:0600 Cavity 1	8 Cavities - Functions Cavities Exit				
Overview Characterization Detune Tuners Interlocks RF	Controller Ampl/Phas Diag Pulsed Hardware Signal Calib HW Mode/ADE				
ACCL:L2B:0610 Overview					
SSA Unknown Off On More SSA RF Mode SEL Raw SELAP SELA SEL SEL Raw Pulse Chirp 7 RF State Off Off On DEFENSION TO THE SELAPSELAYSEL RF Ready Not ready SELAP/SELAYSEL StdDev Phase -85.2 0.0 degrees -180 0.0 180 20.1834	Current Latched First SEL Enable PGA PLL Lock SEL Threshold PIOC Watchdog SEL Threshold Res/Intik Summary Bypassed Guench Detune Enable SSA Permit Bypassed Guench Detune Enable Cryo Summary Bypassed LO Level Bypassed P Hardware Mode Bypassed				
Amplitude 0.0 5.0 MV 0.0 5.0 21.8 0.0000	Stepper temperature Bypassed Coupler Temperature 1 Bypassed Coupler Temperature 2 Bypassed Coupler Temperature 2 Bypassed Coupler Vacuum Bypassed Beamline Vacuum Bypassed Prase Low Prase Low				
SEL Raw/Pulse Drive 25.0 25.0 0 25.0 Drive Limit Level 25.0 25.0 % 0 25.00 0.0 On Time 70.000 ms Go Stop 0.80	Summary Reset Reset Ampi 0 0 Phase 0				
Pulse Off Time 222.562 ms Pulsing off	Cavity 0.000 mW Freq Counter 0.0 Hz Forward 1.326 W 180.000 degrees recommended detune measurement				
Chirp Chirp Drive 25.0 % 0 25.00 80 Chirp Setup	Reverse 0.639 W 180.000 degrees RFS Cav/Fwd 0.0 Hz Gradient 0.000 MV/m 0 counts Freq Counter 0.0 Hz				
SEL Phase 0.0 0.0 degrees -180 0.00 180	Gradient from 0.677 MV/m Forward Power Only velid in SEL, SELA				





SRF Testing Cryomodule ACCL:L2B:0600 RFSRFS1A chassis - tone test				
RFS Test Signal				
Amplitude	2000	2000		
Amplitude Step	0	0		
DDSA/SSA Stim	0	0		
DDSA PhStep High	1346089	1346089		
DDSA PhStep Low	1560	1560		
DDSA PhStep Modulo	136	136		
Perturb Step	<u>0</u>	•		
G Period	0	0		
<sioc:sys2:al00:m< td=""><td></td><td><sioc:sys2:al00:tod></sioc:sys2:al00:tod></td></sioc:sys2:al00:m<>		<sioc:sys2:al00:tod></sioc:sys2:al00:tod>		

Acquire one Waveform Acquisition

- 1. Set Waveform Acquisition Mode to Single
- 2. Write a value of '1' to the ACQ_CMD PV. For example \$ caput ACCL:L2B:0610:ACQ_CMD 1

Change RFS Firmware Version

1. Change directory to location of bitfiles:

\$ cd /afs/slac/g/lcls/tools/FEED/firmware/prc

2. View current version:

```
$ Is -I current-lemp
```

lrwxr-xr-x 1 sonya ad 24 Nov 29 14:13 current-lemp -> prc_qf2_v07.ee0ae8cf.bit

- 3. Rename current version:
 - \$ mv current-lemp current-lemp-yymmdd

Example: \$ mv current-lemp current-lemp-231213

4. Copy new version to this directory and make new symbolic link pointing to it:

\$ cp <path_to_new_file>/<new_file> .

\$ In s <new_file> current lemp

Example:

From your laptop:

scp prc_qf2_v07.ee0ae8cf.bit <username>@centos7.slac.stanford.edu:.

From afs machine:

 $cp \sim prc_qf2_v07.ee0ae8cf.bit$.

\$ In -s prc_qf2_v07.ee0ae8cf.bit current lemp