

Linac Electronics Modernization Project B15 Test Stand

Launch EPICS Screens and Generate Tone Output

1. Log in to server:

```
ssh -X <username>@centos7.slac.stanford.edu
```

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

2. Set up environment:

```
$ bash
```

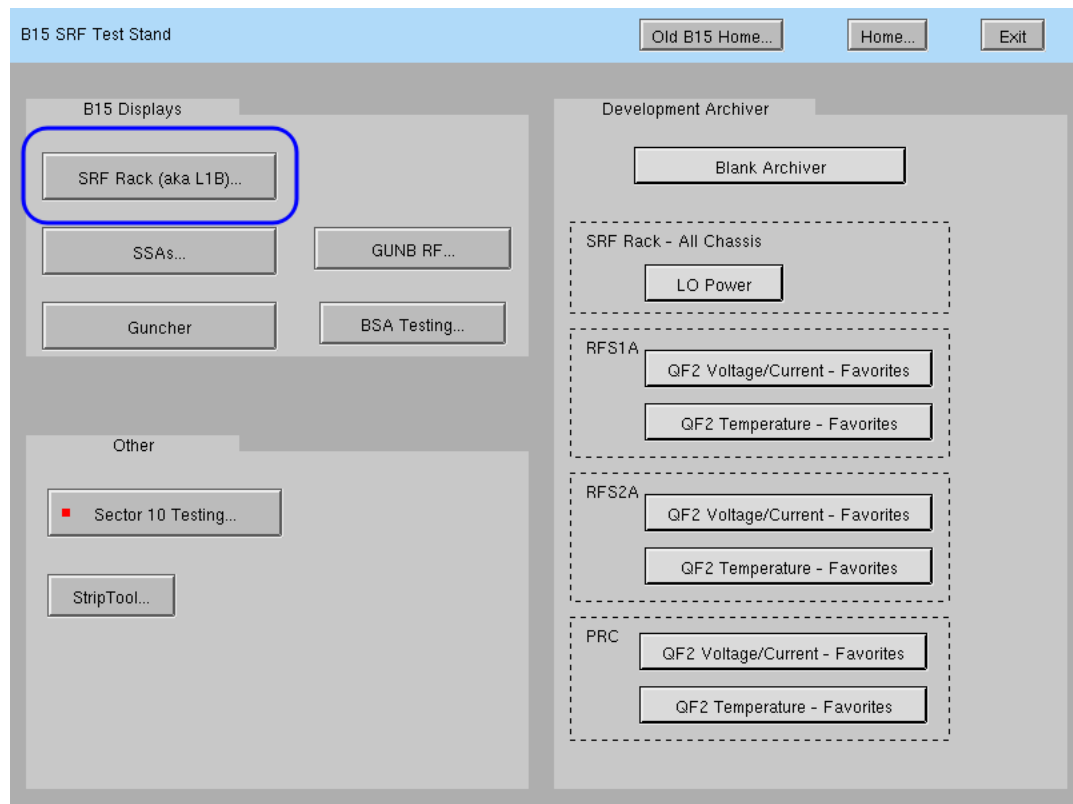
```
$ source /afs/slac/g/lcls/tools/script/ENVS64.bash
```

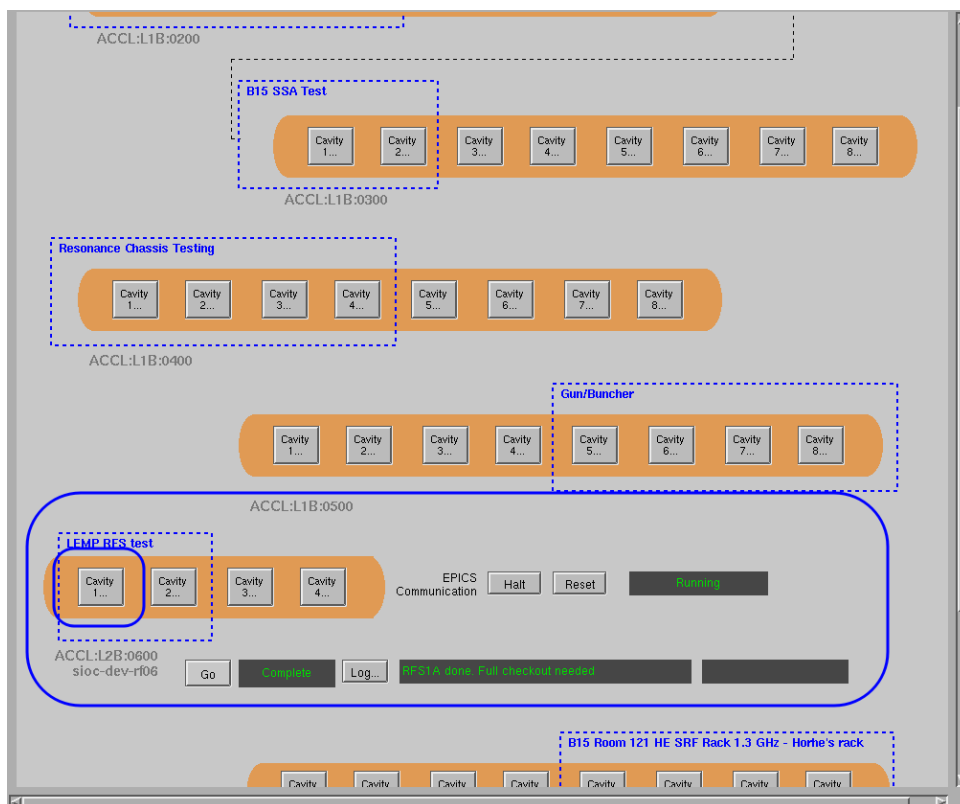
```
$ source /afs/slac/g/lcls/epics/setup/epicsenv-7.0.3.1-1.0.bash
```

3. Launch main display:

```
$ b15rfhome.cmd &
```

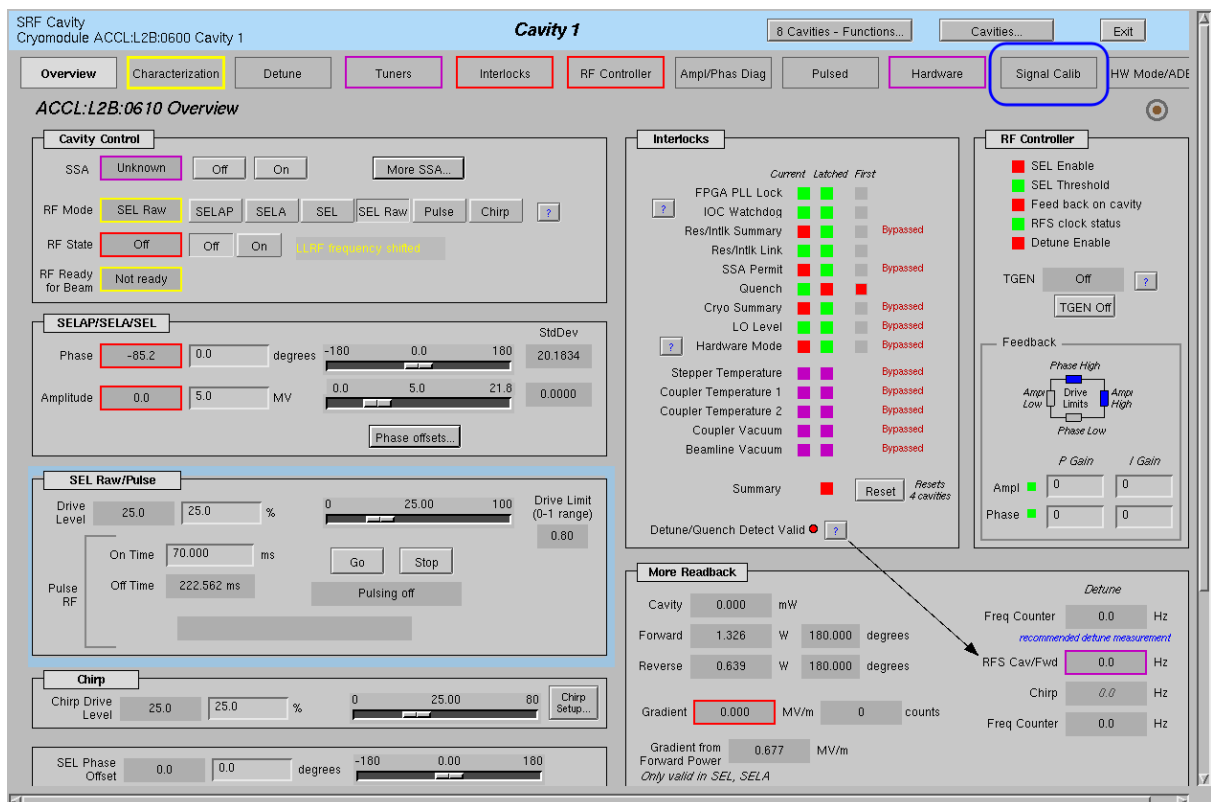
4. Navigate to LEMP test stand displays:





5. 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

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 Calibration

ADC Counts 8 Cavities... **Tone (HW Testing)...**

	Forward	Reverse	Drive (Loopback)	Cavity - Two Options
Live Calculated Loss (live ADC counts wrt counts at 10 dBm)	39.2004 dB	42.0161 dB	inf dB	inf dB
Live ADC Counts	307 counts	222 counts	0 counts	0 counts
Measured ADC counts at 10 dBm	28000 counts	28000 counts	28000 counts	28000 counts
Calculated RF Power at ADC full scale	11.366 dBm	11.366 dBm	11.366 dBm	11.366 dBm
Fixed Attenuator	60.000 dB	60.000 dB	30.000 dB	0.000 dB
Cable	0.000 dB	0.000 dB	0.000 dB	0.000 dB
Coupler	0.000 dB	0.000 dB	0.000 dB	0.000 dB
Unaccounted for sources of error	0.000 dB	0.000 dB	0.000 dB	0.000 dB
Total	60.00 dB	60.00 dB	30.00 dB	0.00 dB
Probe Q	1.00000e+12			3.205 MV
				30.000 MV
	'Oprobe' method			'RevCal' method

Scaling Determined
From Reverse Waveform
By Characterization Program

More...

Simple Tone Test
Cryomodule ACCL:L2B:0600

Exit

Tone Test

RFS

	On	Off	DAC Counts (0-32767)	Expert...
1	On	Off	2000	Expert...
2	On	Off	2000	Expert...
3	On	Off	0	Expert...
4	On	Off	0	Expert...
5	On	Off	0	Expert...
6	On	Off	0	Expert...
7	On	Off	0	Expert...
8	On	Off	0	Expert...

PRC

Rack A...

Rack B...

DEVELOPMENT

12/01/2023 10:14:20

SRF Testing
Cryomodule ACCL:L2B:0600 RFSRFS1A chassis - tone test Exit

RFS Test Signal

Amplitude	<input type="text" value="2000"/>	2000
Amplitude Step	<input type="text" value="0"/>	0
DDSA/SSA Stim	<input type="text" value="0"/>	0
DDSA PhStep High	<input type="text" value="1346089"/>	1346089
DDSA PhStep Low	<input type="text" value="1560"/>	1560
DDSA PhStep Modulo	<input type="text" value="136"/>	136
Perturb Step	<input type="text" value="0"/>	0
G Period	<input type="text" value="0"/>	0

<SIOC:SYS2:AL00:M <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:

```
$ ls -l 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-yyymmdd
```

```
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> .
```

```
$ ln -s <new_file> current lemp
```

Example:

From your laptop:

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

From afs machine:

```
$ cp ~/prc_qf2_v07.ee0ae8cf.bit .
```

```
$ ln -s prc_qf2_v07.ee0ae8cf.bit current lemp
```