Frequency Mapping Controls
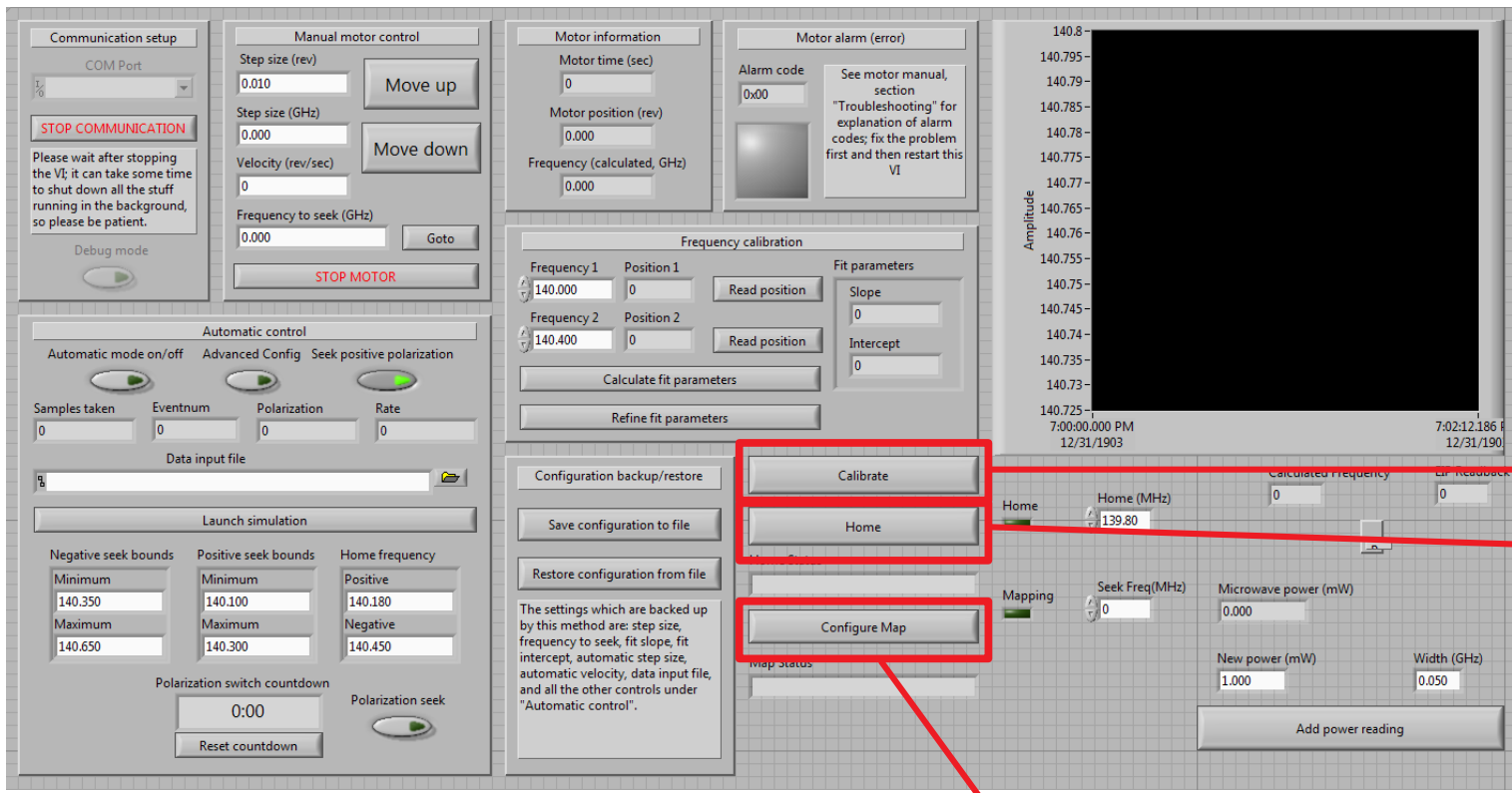
Joshua Hoskins

Frequency Readback

Microwave frequency readback from EIP is integrated into the controls GUI.

Algorithms for HOME and configuring frequency map added.

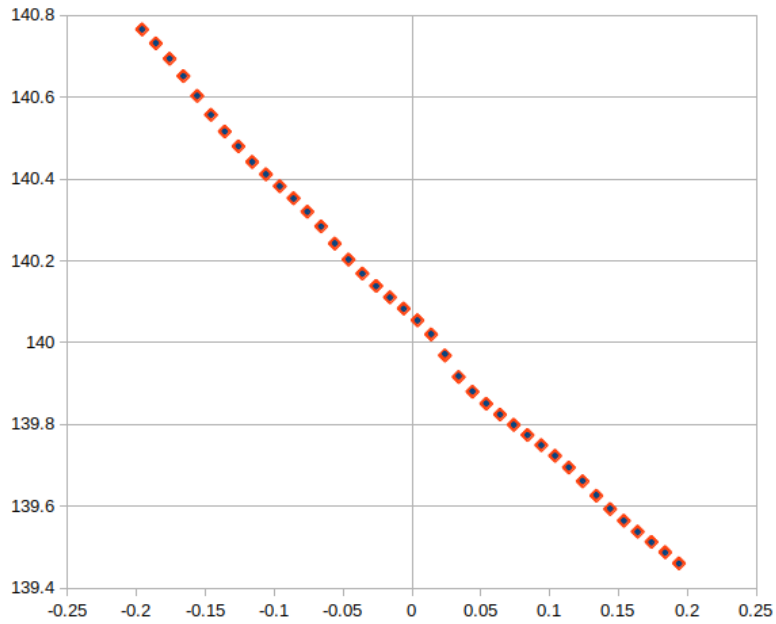Mapping can now be determined using automated process via GUI.

Communication setup

COM Port

STOP COMMUNICATION

Please wait after stopping the VI; it can take some time to shut down all the stuff running in the background, so please be patient.

Debug mode

Manual motor control

Step size (rev)
0.010

Step size (GHz)
0.000

Velocity (rev/sec)
0

Frequency to seek (GHz)
0.000

Move up
Move down

Goto

STOP MOTOR

Automatic control

Automatic mode on/off   Advanced Config   Seek positive polarization

Samples taken   Eventnum   Polarization   Rate
0   0   0   0

Data input file

Launch simulation

Negative seek bounds
Minimum   140.350
Maximum   140.650

Positive seek bounds
Minimum   140.100
Maximum   140.300

Home frequency
Positive   140.180
Negative   140.450

Polarization switch countdown
0:00

Reset countdown

Polarization seek

Motor information

Motor time (sec)
0

Motor position (rev)
0.000

Frequency (calculated, GHz)
0.000

Motor alarm (error)

Alarm code
0x00

See motor manual, section "Troubleshooting" for explanation of alarm codes; fix the problem first and then restart this VI

Frequency calibration

Frequency 1   Position 1
140.000   0   Read position

Frequency 2   Position 2
140.400   0   Read position

Fit parameters
Slope
0
Intercept
0

Calculate fit parameters

Refine fit parameters

Configuration backup/restore

Save configuration to file

Restore configuration from file

The settings which are backed up by this method are: step size, frequency to seek, fit slope, fit intercept, automatic step size, automatic velocity, data input file, and all the other controls under "Automatic control".

Calibrate

Home

Configure Map

Map Status

Amplitude

140.8
140.795
140.79
140.785
140.78
140.775
140.77
140.765
140.76
140.755
140.75
140.745
140.74
140.735
140.73
140.725

7:00:00.000 PM
12/31/1903

7:02:12.186
12/31/190

Home

Home (MHz)
139.80

Calculated Frequency
0

LP Readback
0

Mapping

Seek Freq(MHz)
0

Microwave power (mW)
0.000

New power (mW)
1.000

Width (GHz)
0.050

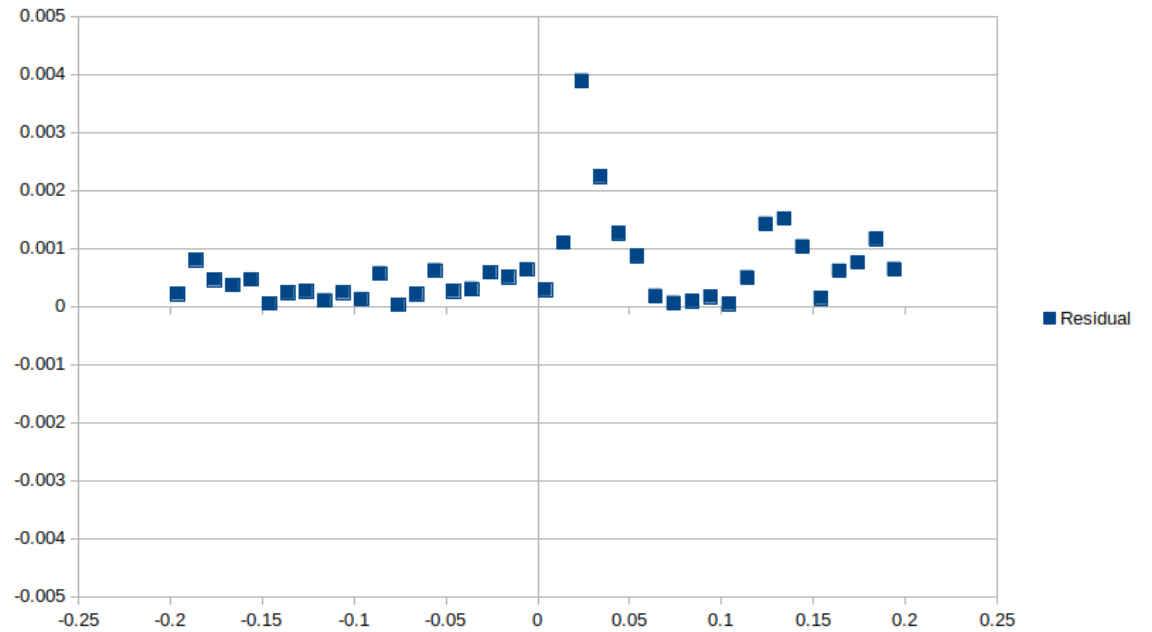Add power reading

Set motor position to last value.

Return to the value defined by home within some error.

Step through frequencies in a given bandwidth and record position and value of frequency.

Residual between readback and calculated on the order of 4 MHz with only 40 samples.

Higher resolution map.

Studies on stability over time.

Idiot testing – Carlos is all over this one.

Some one needs to make it more aesthetically pleasing.