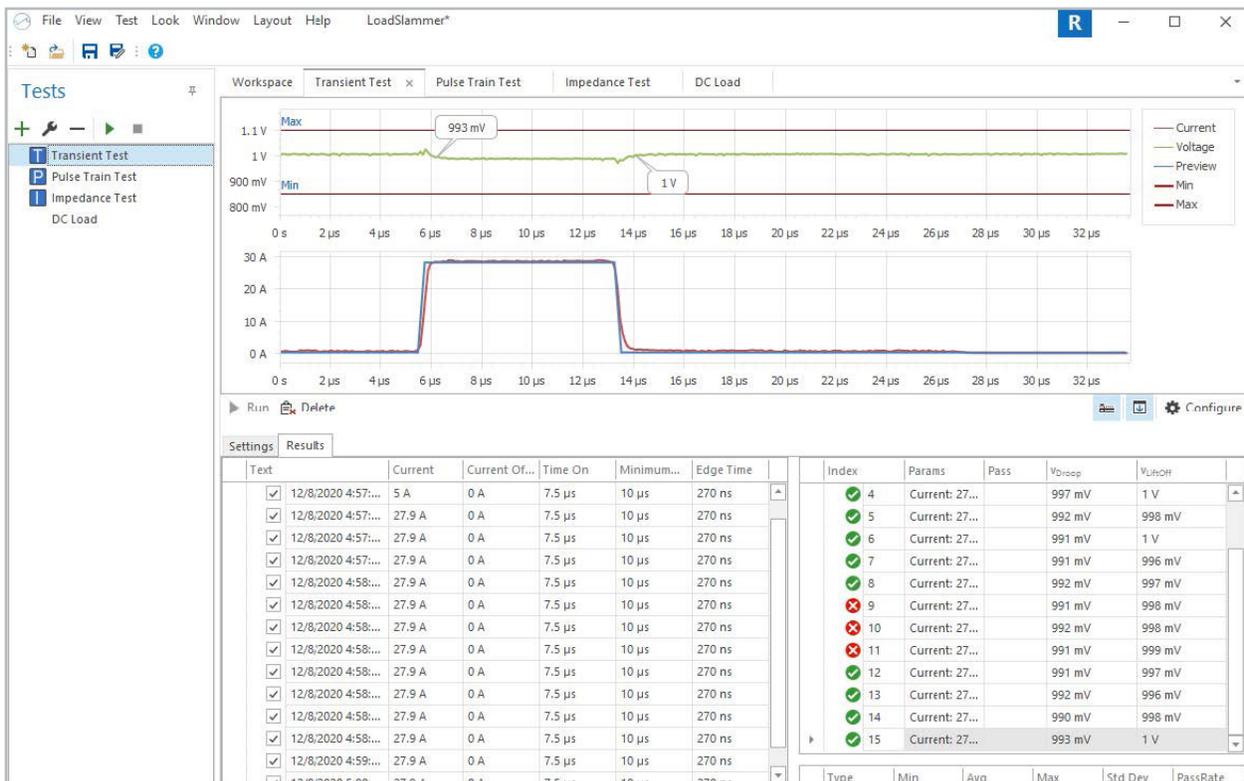


# LoadSlammer™ Pro

## Graphical User Interface Guide

Rev 0.1



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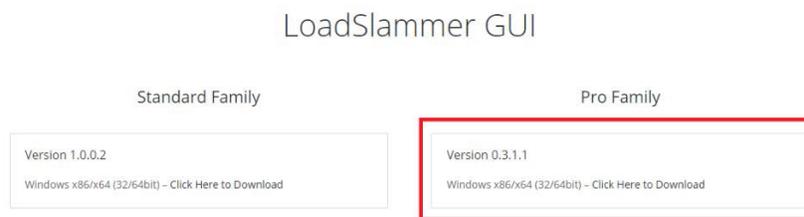
# 1 INTRODUCTION

The LoadSlammer™ Pro GUI (Graphical User Interface) helps with running tests and updating firmware on LoadSlammer Pro devices. This guide will go through step by step instructions to help the user navigate the GUI and use all functions with ease.

## 1.1 DOWNLOADING THE GUI

The LoadSlammer™ Pro GUI can be downloaded from the website at:

<https://loadslammer.com/downloads/>



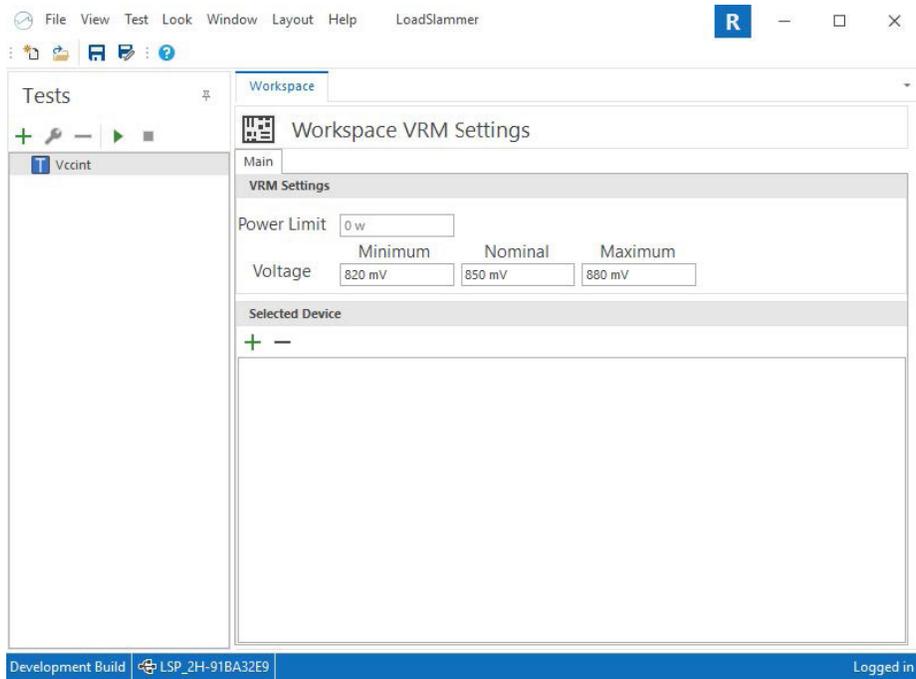
## 1.2 INSTALLING

Open the LoadSlammerGUI application from the location it was saved. Select the language that you wish for the program to use for installation and click OK. The install will then ask if you wish to create a shortcut, then click Next in the bottom right of the window. Finally, click the Install button on the bottom right of the window and allow time for the program to install.

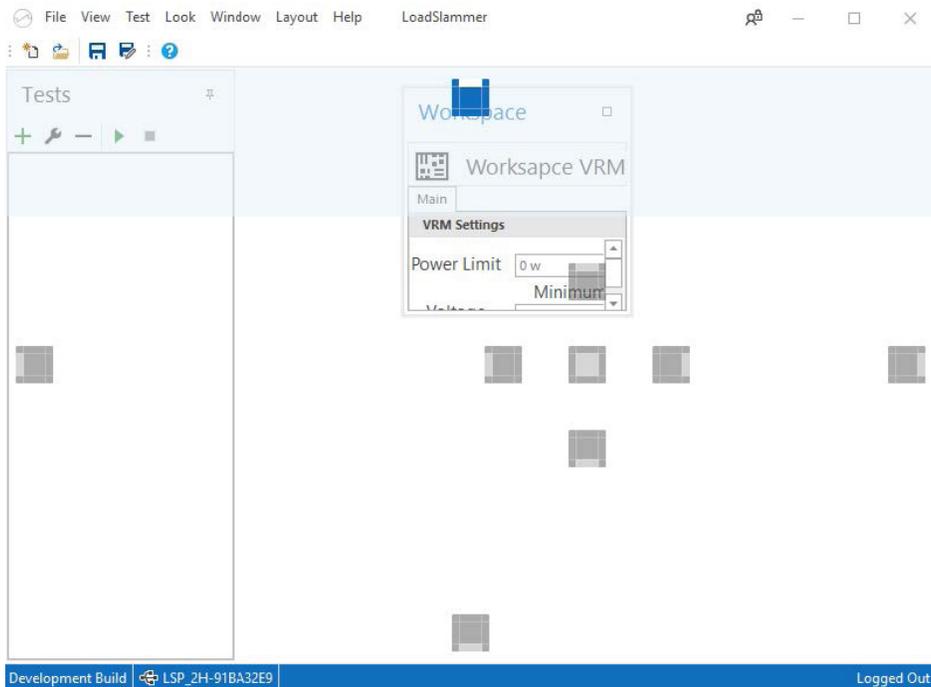
## 1.3 WORKSPACE OVERVIEW

When installation is finished, run the LoadSlammer™ Pro GUI which will present a window as shown in the image below. By default, the LoadSlammer™ Pro GUI starts with a new workspace, along with the Selected Devices and Tests panels. On the top right of the window, you will be able to find the LoadSlammer Login button. Within the workspace the Voltage Regulator Module, or VRM, can be configured by setting the Minimum, Nominal, and Maximum voltages based on the power rail being used. The Power Limit of a device will be displayed when connected to the LoadSlammer™ Pro GUI.





Any of these panels can be moved freely and can be pulled out as new windows, as seen in the image below. Simply click and hold on the panel you wish to move, then drag and release at the desired location.

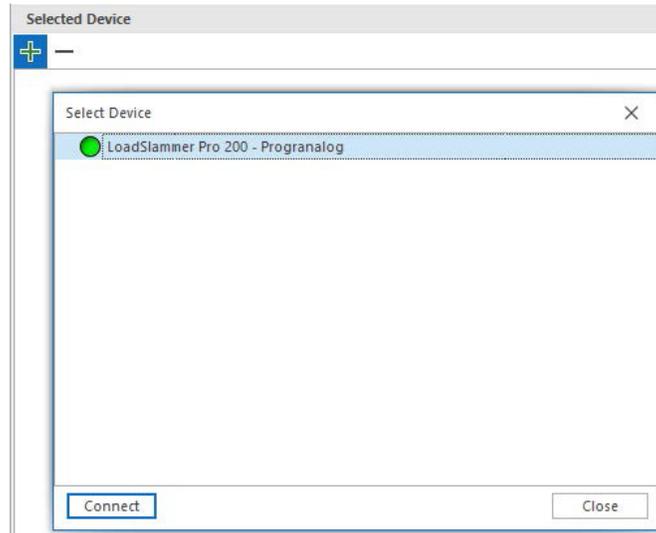


### 1.3.1 LOGGING INTO LOADSLAMMER

After pressing the LoadSlammer Login button, a new window will open asking to sign in. A new account can be created by pressing the Register button located in the bottom left of the Login window. This will open a link in the default browser allowing the user to create an account.

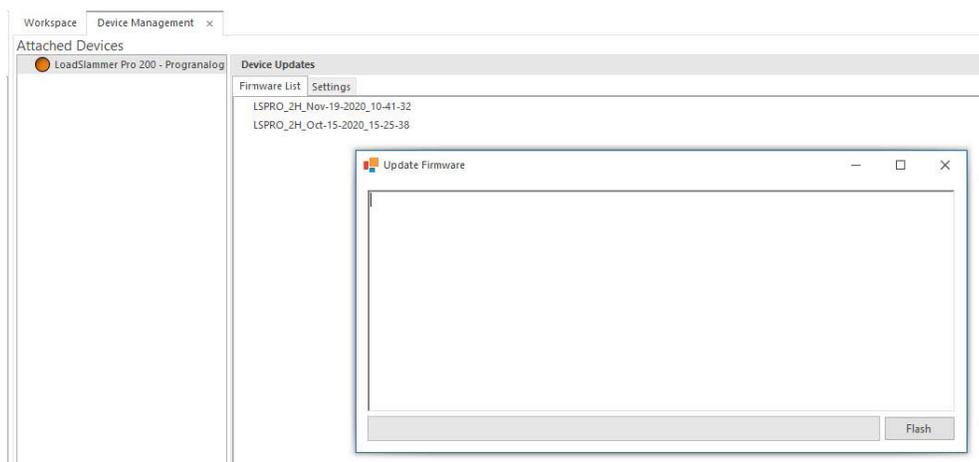
### 1.3.2 ADDING DEVICE

Once the program running, connect the data wire and power barrel jack (24V)(LSP1000/1000RS/Orac-Jr only) to the LoadSlammer device. Click on the green plus button in the Selected Devices panel. A new window will open with the LoadSlammer Pro that has been connected to the computer. If this window is empty, check connection of data and power wires.



### 1.3.3 UPDATING FIRMWARE

Once your device is listed, open the View menu in the top-left and select Device Management. Double click on the firmware that you wish to use, opening the Update Firmware window. Click on the flash button located on the bottom right of the window and do not disconnect device until the flash has completed.

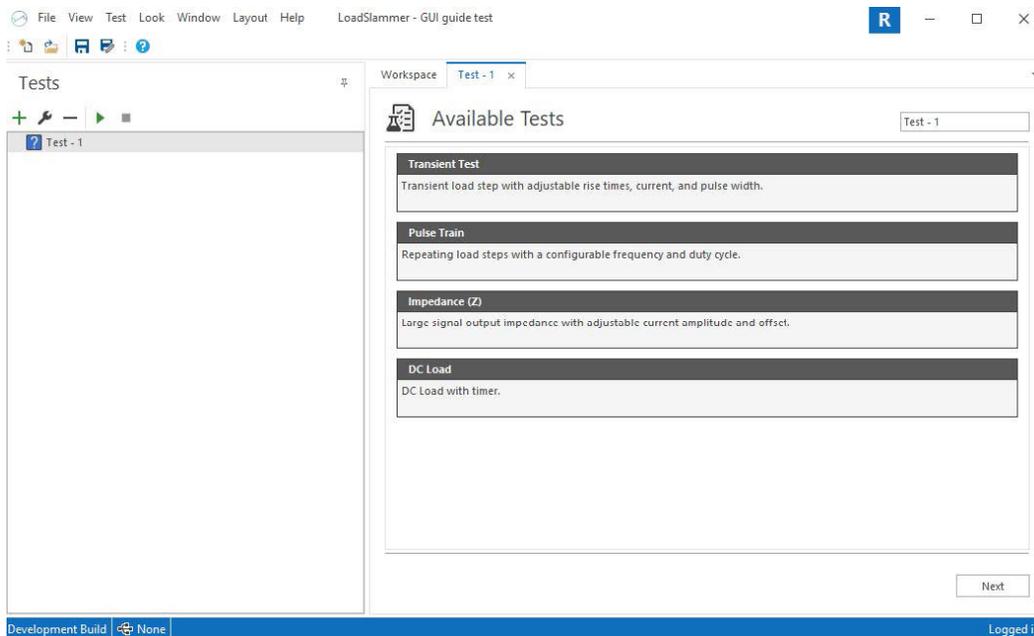


## 2 GETTING STARTED

### 2.1 CREATING A TEST

A device needs to be connected first

In the workspace on the left of the window, there is a green plus button that allows for the creation of a new test under the Tests panel. A new tab will open with a list of available tests that the LoadSlammer™ Pro GUI offers, either double click the desired test or select the test by clicking on it then clicking Next located in the bottom right. Venter specific tests are available upon request. Contact us at [support@loadslammer.com](mailto:support@loadslammer.com). We work with many ASIC vendors and can offer specific pass/ fail tests for fast and confident testing.



#### 2.1.1 TRANSIENT

Transient mode is the most basic mode of operation. In this mode, the main goal is to understand the step response of the DUT. A load transient is applied to the DUT to determine the output voltage response. Some of the primary measurements are the Drop and Lutoff amplitudes, and the recovery time of the regulator. Additionally, the load line can be calculated, and the recovery response gives an indication of phase margin.



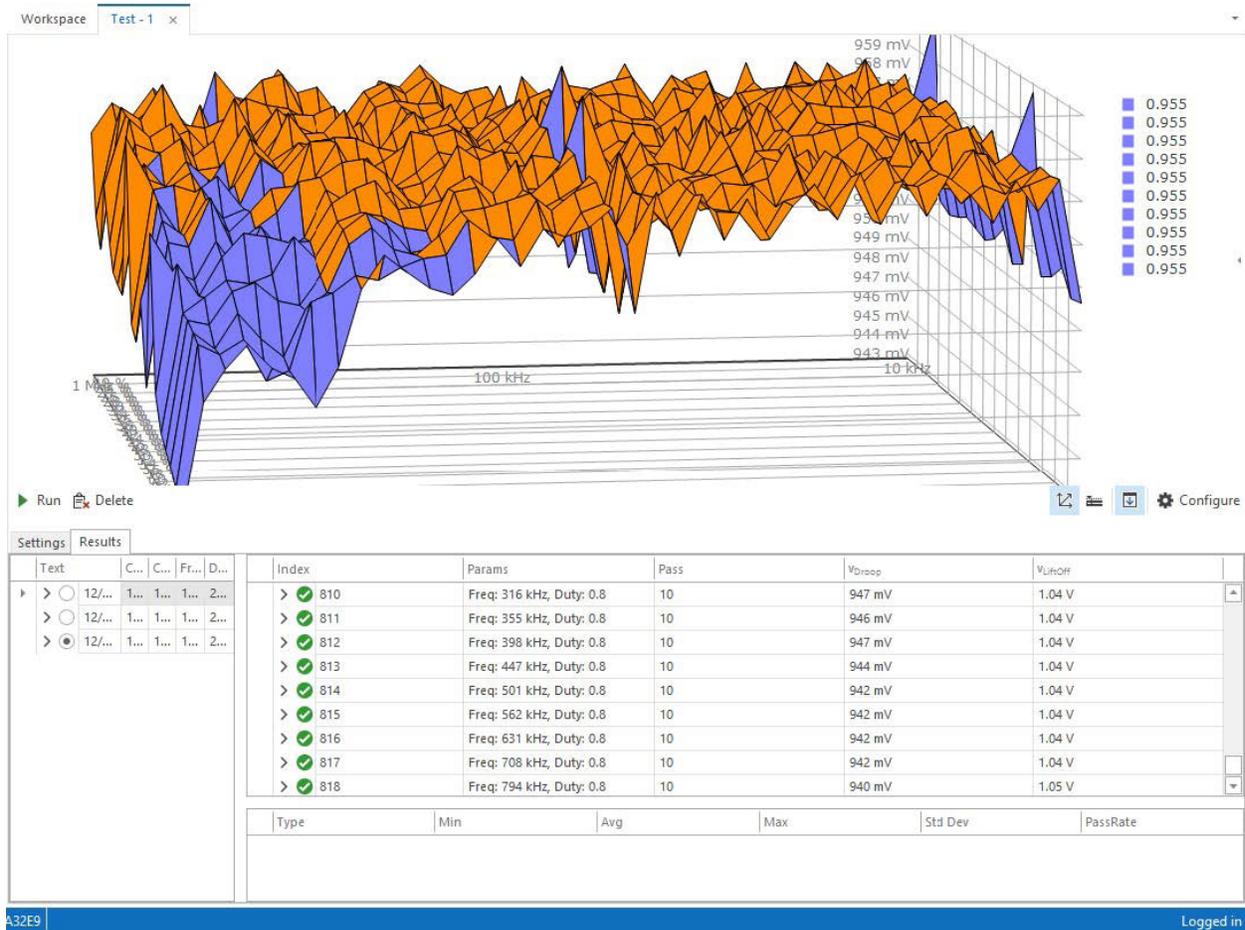


### 2.1.2 PULSE TRAIN

Pulse Train mode is very similar to the transient mode. The main difference is the current step from the transient pulse is modulated with a square wave to give a specific frequency and duty cycle. This allows for the frequency and duty cycle to be swept over a range to generate a 3D graph or frequency alone to look for resonant peaks.



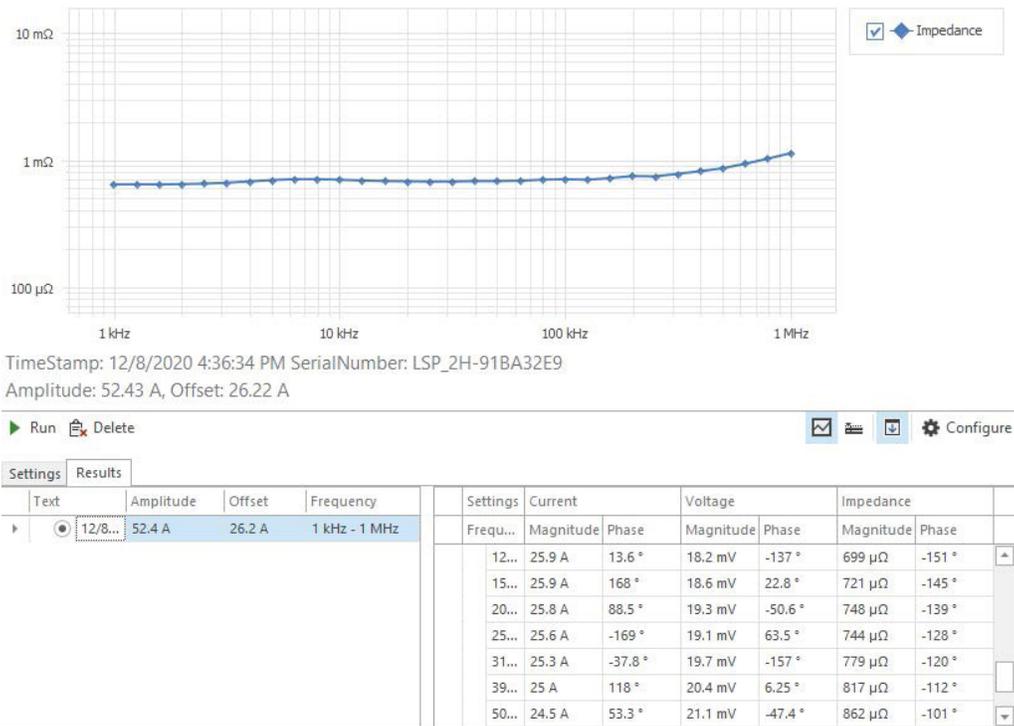
By clicking the button with three arrows located to the left of the Configure button, the user will be able to open a 3D plot of the results. This allows the user to find weaknesses based on frequency in the build easily.



### 2.1.3 IMPEDANCE

Impedance mode applies a sinusoidal current load transient and measures voltage ripple to determine the large signal impedance.

There are several ways to interpret this data. One way is to look at the amplitude response of the voltage over frequency. Complementary, analyzing the spectral content at each applied frequency can inform on where the non-linearities of the system are located.



### 2.1.4 DC LOAD

The DC Load applies a constant load with desired amplitude and on time.

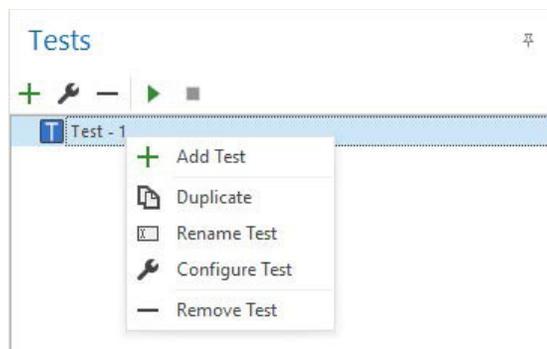


### 2.1.5 VENDER SPECIFIC

Vendor specific tests are available upon request. Contact us at [support@loadslammer.com](mailto:support@loadslammer.com).

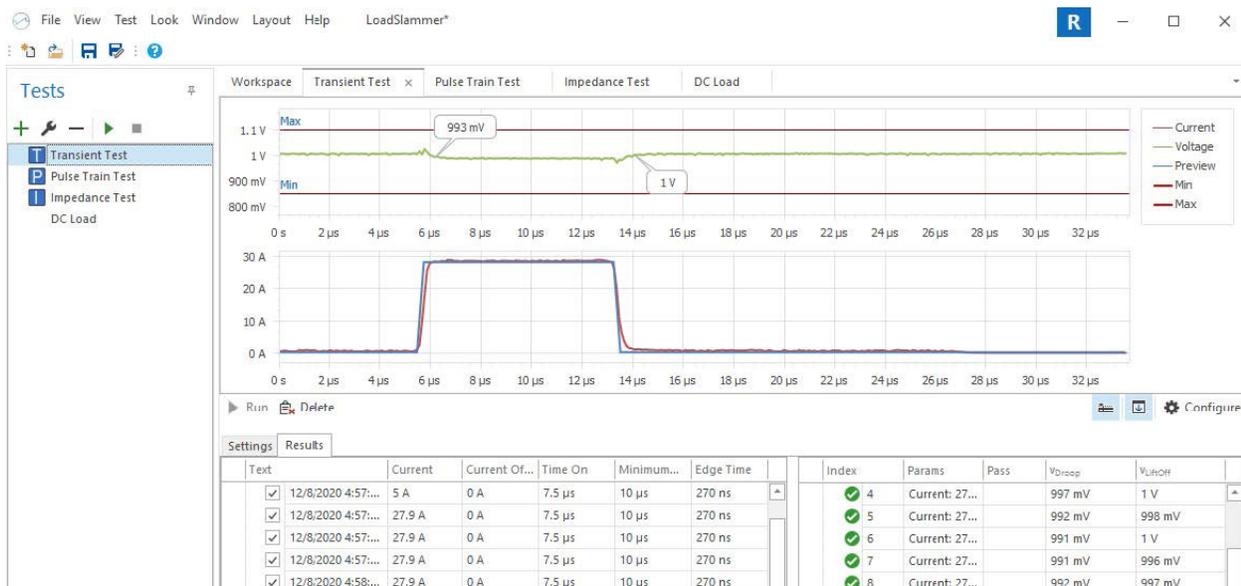
## 2.2 CONFIGURING TESTS

Now that the test is created, it needs to be configured. For example, how much current and the rise time. The graph will show a preview based on the selected settings, and either a live or historical view of sampled data. The tabs in the test window allow configuration, creating measurements, and review of results with Pass/Fail graphics. Some parameters can be swept to collect a set of data to be analyzed. The LoadSlammer™ Pro GUI provides multiple features that allows the user to easily modify the tests listed within the Tests panel. By right clicking any test in the panel, a drop-down menu will open that allows the user to quickly adjust the tests within the panel. If multiple tests have been created, these tests can be ran sequentially by pressing the green play button. When configuring a test, the LoadSlammer™ Pro GUI will automatically set the range so that the user cannot surpass the minimum or maximum values listed for that device.



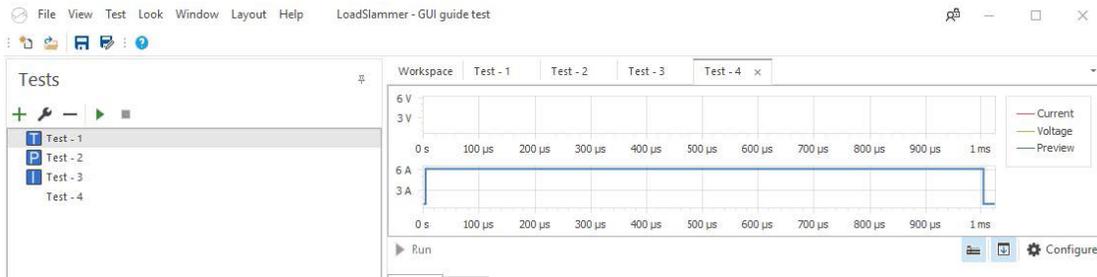
## 2.3 REVIEWING TEST DATA

After running a test, or multiple tests by pressing the green play button under tests, the user can find the Results tab within each test tab. The Results tab allows the user to view the setting used for that test on the left, and the output associated with it on the right. The output of each line has a Pass/Fail graphic to let the user know how the test went. The VRM that was set within the Workspace sets the Max and Min bars used when graphing results.



## 2.4 SAVING DATA AND TESTS

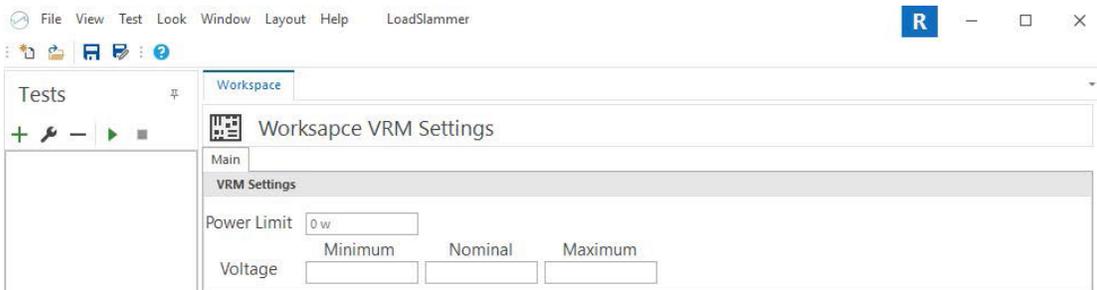
The workspace can be saved to recall previous tests configurations and results. This can be done by selecting the File menu in the top left of the window and selecting either Save or Save As from the drop-down menu, or by clicking on either Save or Save As on the toolbar.



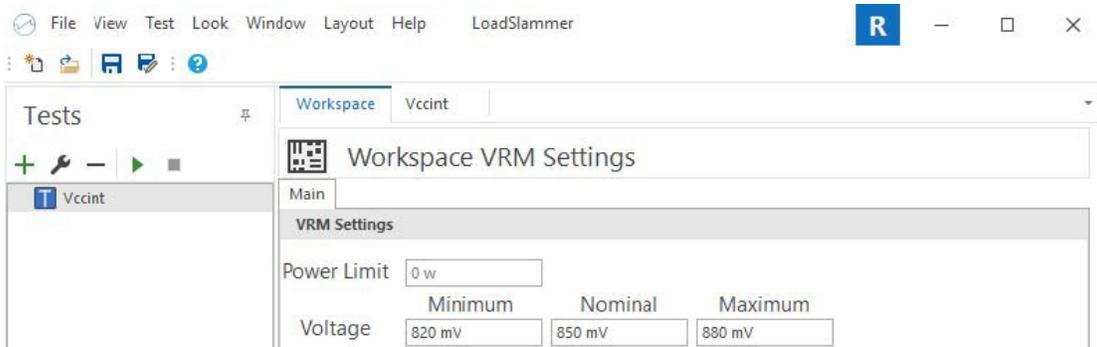
Results from a test can be exported by right clicking the result you desire to export and selecting Export from the drop-down menu. The data results are placed into a CSV file to be used with Excel.

## 2.5 RECALLING DATA AND TESTS

To open saved workspaces, simply click on the File menu and select Open from the drop-down menu or by clicking on the Open button from the toolbar. Then select the workspace that you wish to open from the browser window that opens.

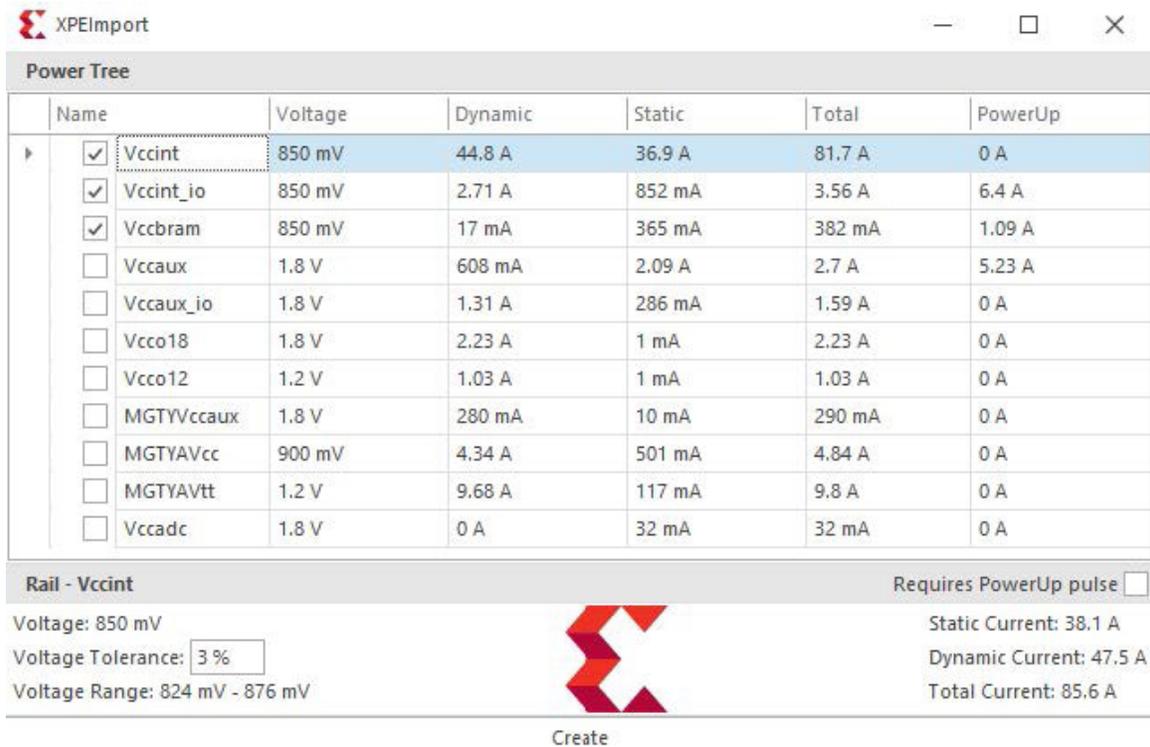


Once the workspace has been loaded into the LoadSlammer™ Pro GUI, the tests that were saved with that workspace can now be found under the test panel. To recall previous results from a test, double click the test you wish to open.



## 2.6 IMPORTING XPE FILES AND CREATING XILINX SPECIFIC TESTS

After clicking the File menu from the toolbar, one of the features available from the drop-down menu is the Import feature. This allows the user to import Xilinx Power Estimator, or \*.xpe, files into the LoadSlammer™ Pro GUI. These files define the power of the Xilinx and creates a test using the imported settings. Multiple tests can be selected within the window, provided the selected tests all have the same voltage.



The screenshot shows the XPEImport window with a 'Power Tree' table and a 'Rail - Vccint' configuration section.

Name	Voltage	Dynamic	Static	Total	PowerUp
<input checked="" type="checkbox"/> Vccint	850 mV	44.8 A	36.9 A	81.7 A	0 A
<input checked="" type="checkbox"/> Vccint_io	850 mV	2.71 A	852 mA	3.56 A	6.4 A
<input checked="" type="checkbox"/> Vccbram	850 mV	17 mA	365 mA	382 mA	1.09 A
<input type="checkbox"/> Vccaux	1.8 V	608 mA	2.09 A	2.7 A	5.23 A
<input type="checkbox"/> Vccaux_io	1.8 V	1.31 A	286 mA	1.59 A	0 A
<input type="checkbox"/> Vcco18	1.8 V	2.23 A	1 mA	2.23 A	0 A
<input type="checkbox"/> Vcco12	1.2 V	1.03 A	1 mA	1.03 A	0 A
<input type="checkbox"/> MGTyvccaux	1.8 V	280 mA	10 mA	290 mA	0 A
<input type="checkbox"/> MGTyVcc	900 mV	4.34 A	501 mA	4.84 A	0 A
<input type="checkbox"/> MGTyVtt	1.2 V	9.68 A	117 mA	9.8 A	0 A
<input type="checkbox"/> Vccadc	1.8 V	0 A	32 mA	32 mA	0 A

**Rail - Vccint** Requires PowerUp pulse

Voltage: 850 mV  
Voltage Tolerance:   
Voltage Range: 824 mV - 876 mV

Static Current: 38.1 A  
Dynamic Current: 47.5 A  
Total Current: 85.6 A

Create

## 3 PARALLEL TESTING (LSP1000/1000RS ONLY)

The LoadSlammer™ Pro 1000/1000RS supports the ability to parallel multiple devices to support very high current requirements. To enable the parallel mode, all devices need to be connected to the parallel cable and the devices must have their power plugged in. Only once device needs a USB data connection; This device is referred to as the 'master'. Any device in the chain can be the master device.

Operation of the LoadSlammer in parallel is the same as a single device. The slave devices simply 'mirror' the current in the master device. The minimum and maximum values on the LoadSlammer™ GUI will be the minimum and maximum of the device multiplied by the number of devices connected automatically.

If you take external measurements with the sense outputs, the current sense output will only take readings from the device it is connected to. Measure the output of a single device and multiply the conversion factor by the number of devices in parallel.

While all devices will produce the same load response, only the master will sample the voltage and current to be transmitted up to the PC. Select the device closest to the point of interest to use as the master to get the best results. Currently a maximum of 3 devices can be used in parallel.



## 4 UPDATING THE GUI

The LoadSlammer™ Pro GUI can be updated by running the installer that was downloaded from the website. When running the installer again, the program will download the most recent version of the program during install.

## 5 SUPPORT

For all other questions, please contact us at [support@loadslammer.com](mailto:support@loadslammer.com).

## 6 CHANGE HISTORY

Revision Number	Date	Reason for change
0.1	December 2, 2020	Initial Release

