
New “GRC Rapper Test fire waveforms added to GDU/PCAMS”

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In 2015 NWL released the DSP based SCPU-DSP and SRAP-DSP cards along with the GRC application for the Global Display Unit (GDU). Leveraging this new technology we’re able to add some new diagnostic features to the GRC system.

How it works:

Capturing a waveform:

Whenever a rapper is repeat (Test) fired, the associated SRAP-DSP card will store the rapper’s current waveform to its internal memory. This waveform data can then be uploaded and displayed by either the attached GDU or an attached PCAMS computer. Any additional test firings of any output on the same SRAP-DSP will overwrite the previous waveform. Prior to firing another output the existing waveform can be written to an inserted SD-Card for long term storage. This is accomplished by utilizing the GDU and navigating to the SRAP detail view of the associated SRAP-DSP card and clicking “SD Card Functions”. Next select the “Waveform” tab and press “Save Repeat Fire”. This action will append a new waveform to the Wave.CSV file on the inserted SD Card.

How to view the event:

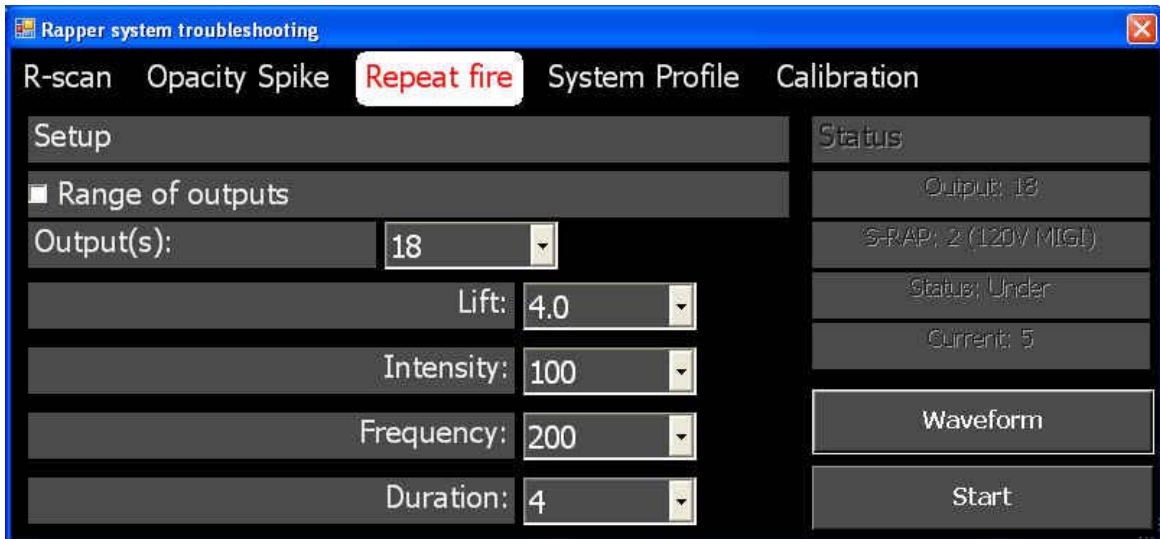
There are currently 3 ways to view this event.

1. Using the NWL GDU to upload and view the waveform plot.
2. Using NWL PCAMS to upload and view the waveform plot.
3. Opening the SD Card file with Microsoft Excel or a similar program then charting the data.

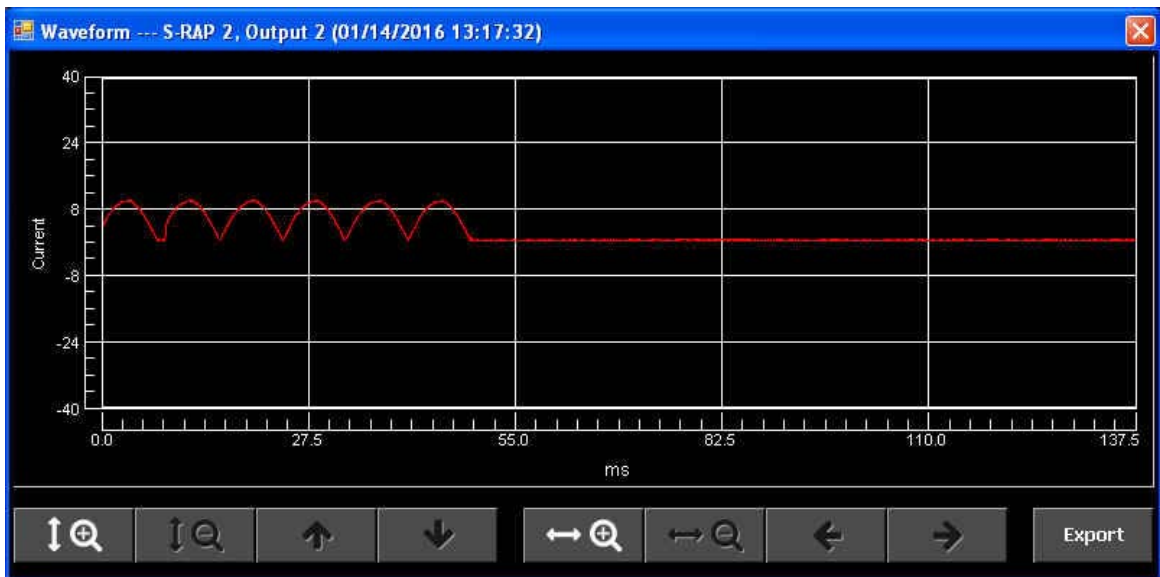
Analyzing via the NWL GDU:

Beginning with GDU software version v1.3.0.0 we have added the ability to upload and display the last test fire waveform on the GDU screen. The waveform also has zoom and panning controls to zero in on a particular section of the waveform. Below is a sample of what a user may see...

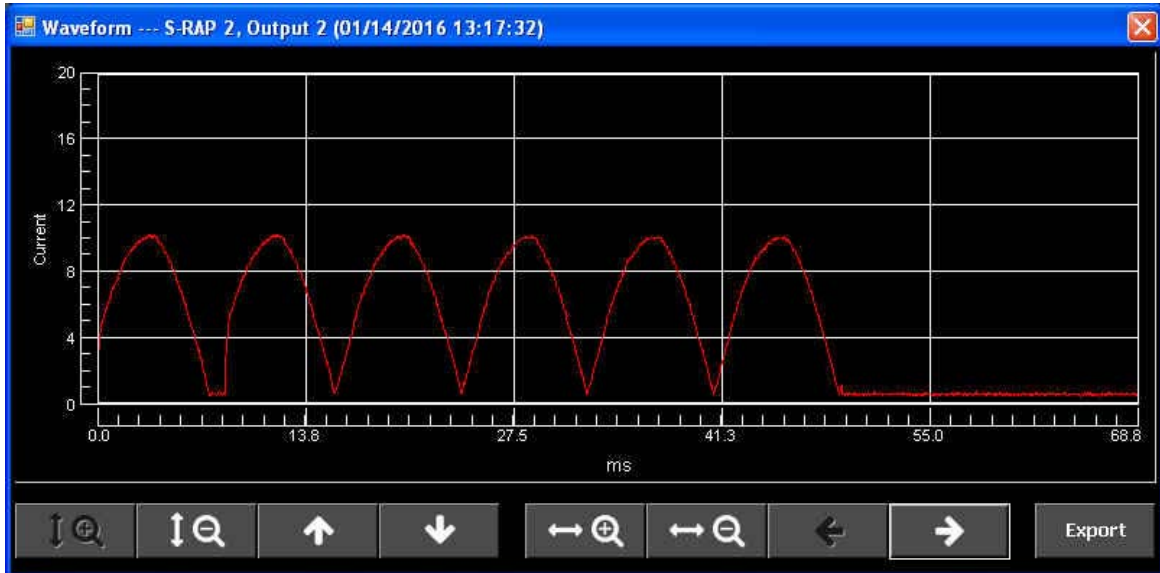
GDU Troubleshoot -> Repeat fire view: notice the new “Waveform” button. Note the waveform button will NOT be enabled when firing a “Range of outputs”.



Pressing the “Waveform” button will upload and display the previous test fire waveform data as shown below.



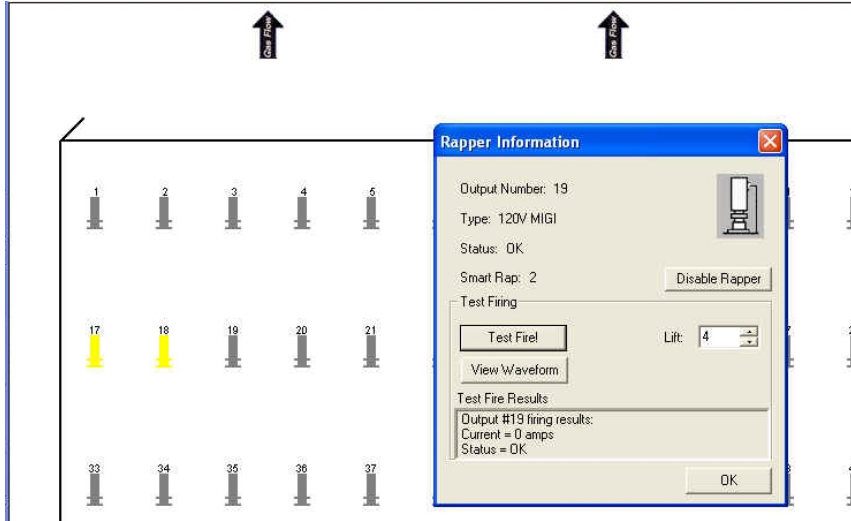
Same waveform zoomed in.



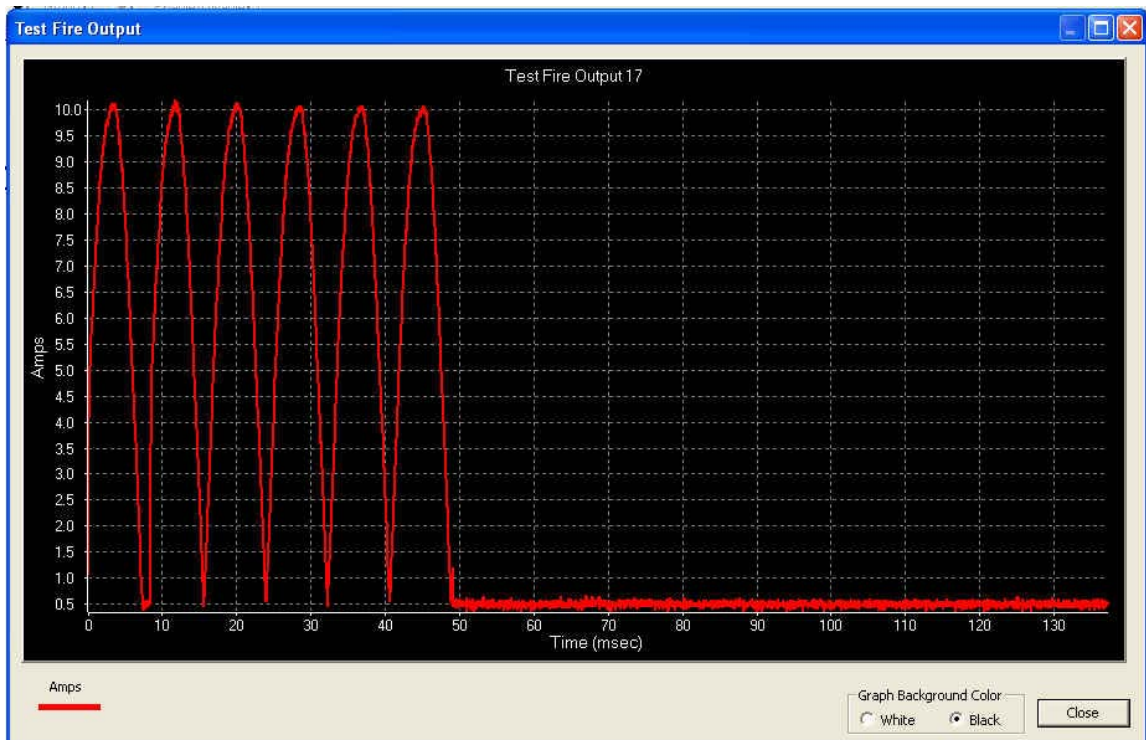
Analyzing via the NWL PCAMS:

Beginning with PCAMS software version v5.6.0 we have added the ability to upload and display the rapper test fire waveform from any SRAP-DSP module that supports this new feature. The waveform is accessed via the rapper information dialog by left-clicking the mouse while pointing to a rapper icon. On this dialog is a "Test Fire" button to initiate a "Test firing" of the associated rapper with the configured parameters. After the firing has completed if the associated SRAP-DSP supports this feature the "Waveform" button will become active. Clicking the waveform button will start the upload process and display the associated waveform. Similar to the GDU waveforms these waveforms can be zoomed and panned for clarity. The dialog can also be maximized to full screen utilizing 100% of the attached computer monitor. Below are the sample images...

PCAMS: Rapper Information Dialog



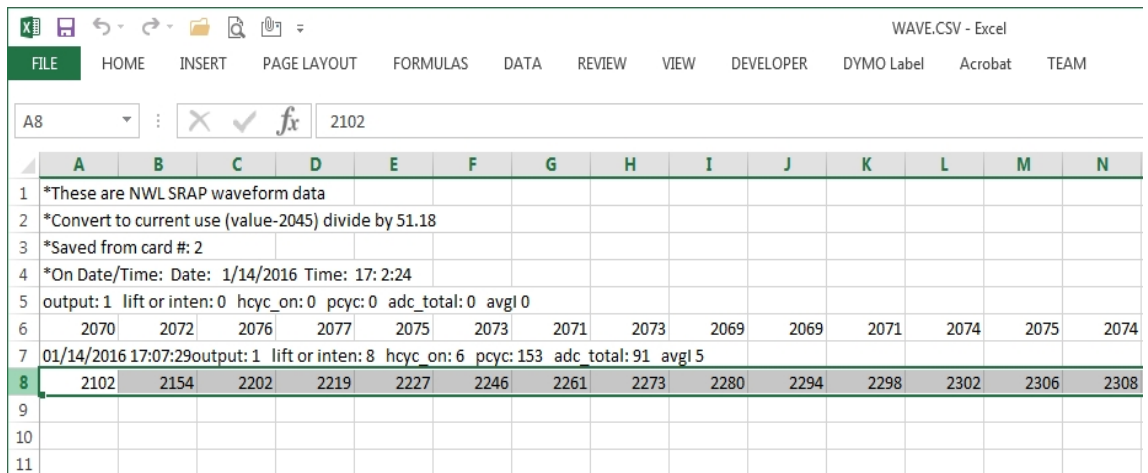
PCAMS: Displayed waveform.



Analyzing via Excel:

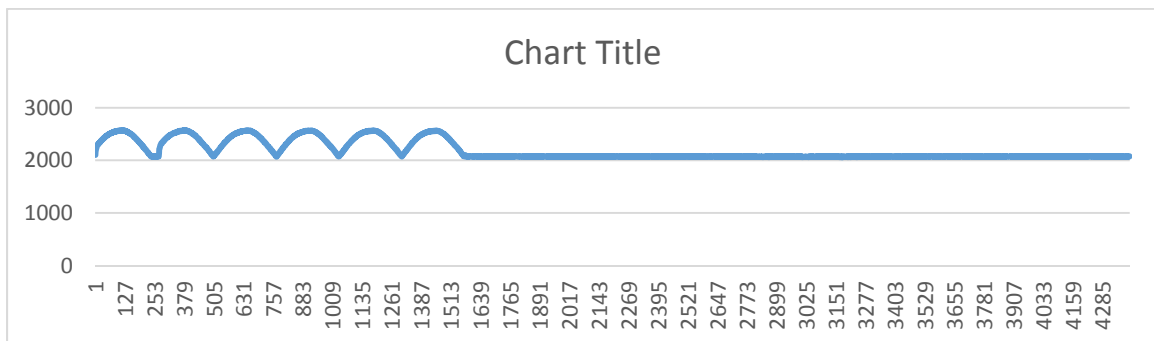
The process begins with retrieving the SD-Card from the associated SRAP-DSP board. This SD-Card can then be viewed with a Windows computer. Using windows file manager navigate to the SD-Card and open the Wave.csv file using Excel. Normally double-clicking on the filename will start Excel with wave.csv file being loaded. Once the file is opened with Excel, the user can simply scroll to the desired waveform which are labeled with the waveform attributes (output #, date, time) and select the row of data, then use the normal Excel command to insert a "Line chart". In Excel version 2013 the process is minimized to highlight the rows then two mouse clicks later you see your waveforms. Below are sample screen shots.

Excel: Selecting the Excel data.



	A	B	C	D	E	F	G	H	I	J	K	L	M	N
1	*These are NWL SRAP waveform data													
2	*Convert to current use (value-2045) divide by 51.18													
3	*Saved from card #: 2													
4	*On Date/Time: Date: 1/14/2016 Time: 17: 2:24													
5	output: 1 lift or inten: 0 hcyc_on: 0 pcyc: 0 adc_total: 0 avgl 0													
6	2070	2072	2076	2077	2075	2073	2071	2073	2069	2069	2071	2074	2075	2074
7	01/14/2016 17:07:29output: 1 lift or inten: 8 hcyc_on: 6 pcyc: 153 adc_total: 91 avgl 5													
8	2102	2154	2202	2219	2227	2246	2261	2273	2280	2294	2298	2302	2306	2308
9														
10														
11														

Excel: Inserted chart.



Other Feature additions by Product

GDU – Global Display Unit:

- 2014-Q3:
 - Initial release for PowerPlus / Optimizer SCR controls (16 languages).
- 2015-Q2:
 - Added GRC application to GDU (English only).
- 2016-Q1:
 - Added 5 additional languages to GRC application.
 - Chinese (Simplified)
 - French
 - Korean
 - Portuguese (Brazil)
 - Russian
 - Spanish
 - Added Rapper Test fire waveform.
 - Added PowerPlus Alarm event waveform.

PowerPlus:

- 2016-Q1:
 - Added Trend file to SD Card.
 - Added Event Waveforms to SD Card.
 - Allow Event waveforms to be transmitted to GDU/Pcams

SmartRap-DSP:

- 2016-Q1:
 - Added Test fire Waveforms to SD Card.
 - Allow Test fire waveforms to be transmitted to GDU/Pcams.

PCAMS:

- 2016-Q1:
 - Added feature to display Powerplus alarm event waveforms.
 - Added feature to display GRC Test fire waveforms.
 - Added support for new parameters in PowerPlus, Optimizer-DSP, SmartCpu-DSP & SmartRap-DSP.
 - Added support for Wago 230v Digital Input.