



**Regulation Test
Software
User's Guide**

REGTEST1.0-01.18.05

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OVERVIEW

The Regulation Test and Regulation Monitor application was designed to provide an easy method of plotting, analyzing and creating reports of various measured quantities provided by an RD type reference standard.

Setup is as easy as connecting the USB-RD interface and running the application. Waveform plotting and test results are updated in real-time. An updated report in HTML format can be viewed, printed or saved at any time during or after testing.

Applications include:

- Measurement Canada S-E-01 regulation testing
- Troubleshooting meter test boards
- Generating load profiles (waveform plotting)
- Monitoring any quantity for up to 15 days
- Testing and monitoring Q or Qh
- Reporting one minute averaged results, expressed in power, energy or true error (regulation test)
- Finding minimum and maximum values with timestamp (regulation monitor)

REFERENCE

Requirements

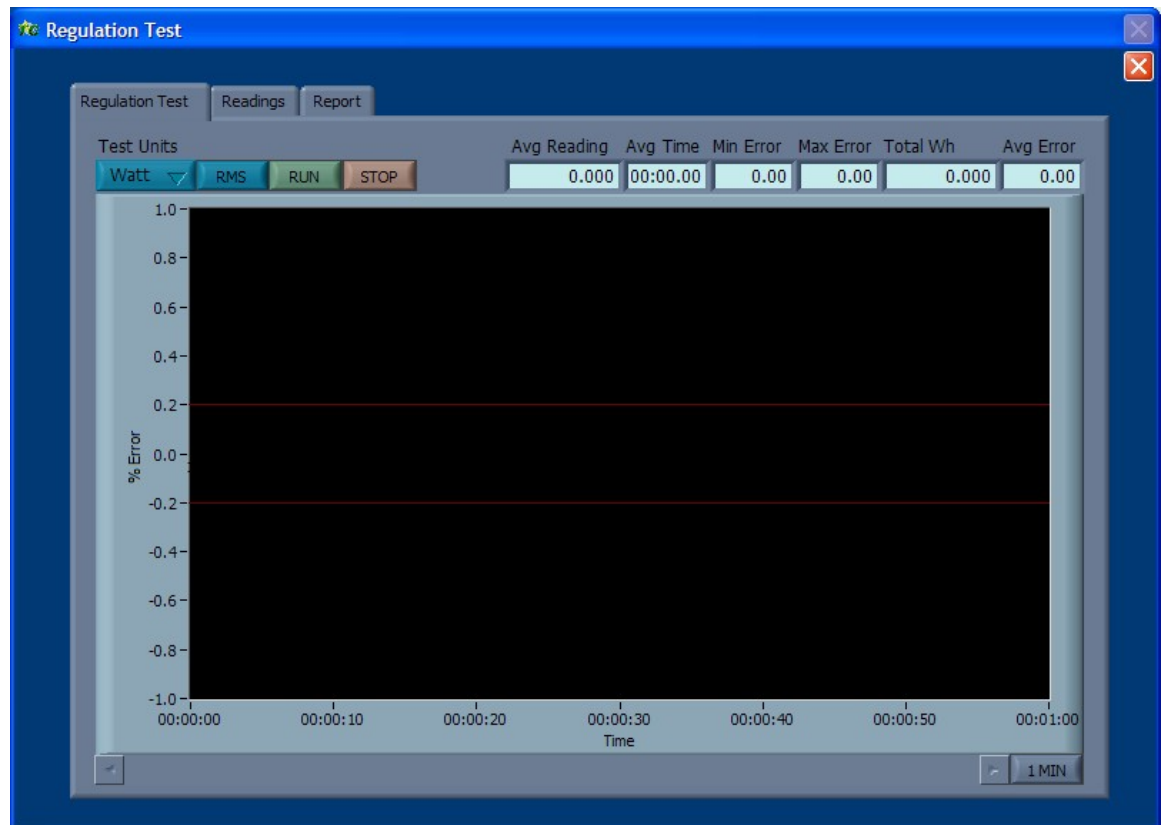
- PC with spare USB port
- Windows NT / 2000 / XP operating system
- Microsoft Internet Explorer 6.0 or newer (for reporting)
- Radian Research RD type reference standard

Installation

1. Install USB driver using instruction file provided
2. Install LabVIEW run-time software (version 7.1)
3. Install the Regulation applications by copying its folder to any location on the PC.

Regulation Test Screen

The Regulation Test Screen is the first tabbed view of the software. This screen is used to set the test units, run or stop the test and to view the waveform and results. The other two tabs are “Readings” and “Report”.



Test Units

The “Test Units” control selects any instantaneous metric available on reference standard. They are Volts, Amps, Watt, VA, VAR, Hz, Deg, PF and Q. Note that Q is calculated in software from the Watt and VAR instantaneous metrics. It is updated synchronously with the other readings.

RMS/AVG

The “RMS/AVG” button switches the measurement mode of the reference standard between RMS and AVG response.

RUN and STOP

The “RUN” and “STOP” buttons are used to start and stop a regulation test. The test will automatically stop after 1 hour, however the stop button can be used to stop the test early.

Avg Reading

The “Avg Reading” box displays the average of the first 588 readings. Since the update interval (sample period) of the reference standard is 0.51 seconds, the averaged reading will be for the first 4 minutes and 59.88 seconds.

The averaged reading represents the true set point for the test. It is published as the “5 Minute Average” in the report. Once this has been determined, the 1hour regulation test begins and the waveform plot starts drawing.

Avg Time

The “Avg Time” box displays the elapsed time during averaging. It will stop at 04:59.88.

Min Error and Max Error

The “Min Error” and “Max Error” boxes display the up to date minimum and maximum errors of the 1minute average results during testing.

Total Xh

After the averaged reading (set point) is determined, the “Total Xh” box displays the accumulating energy. Xh is shown with the selected Test Units, where the default is Wh.

Avg Error

After the averaged reading (set point) is determined, the “Avg Error” box is continuously updated during the 1hour test. At the end of testing, this represents the true error of the total measured energy. This is determined by comparison with the 1hour set point energy (expected energy).

1 MIN/1 HR

The lower right button switches the plot between a 1 minute sliding window view (1 MIN) and a 1 hour view (1 HR).

Readings Screen

The Readings Screen is the second tabbed view of the software. This screen is used to view the RD readings, 1Minute Average Results and connection status.



Reference Readings

This column displays all of the readings sent from the RD standard. The Q function is calculated in software and is derived from the Watt and VAR readings. The “Reading Count” shows how many reading updates have been recorded.

1 Minute Average Results

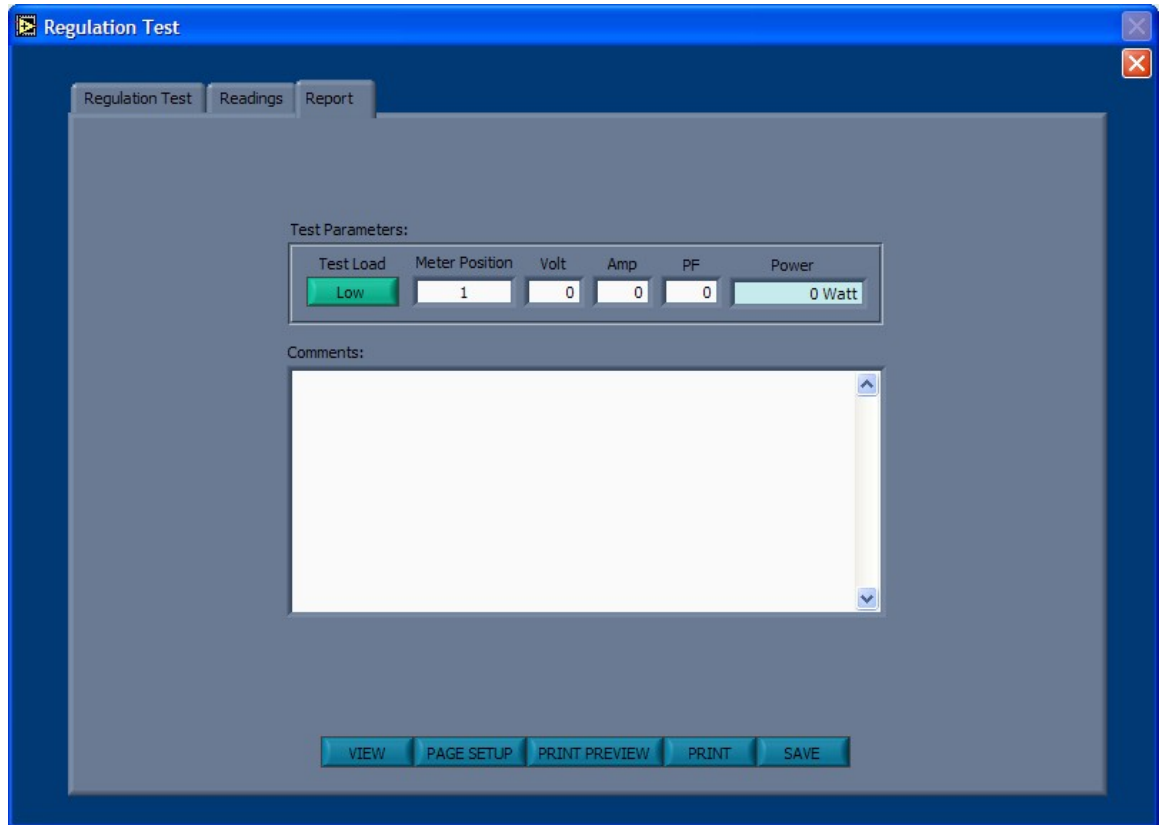
The 1 minute averaged results is displayed as a table for viewing the complete results for the 1hour test. This table can be switched between “Power” (or RD units), “Energy” or “TE” (True Error).

Connection Status

The bottom box shows the status of the RD connection and USB interface connection.

Report Screen

The Report Screen is the last tabbed view of the software. This screen is used to add details and comments to the report, as also for viewing, printing and saving the report in HTML format.



Test Parameters

The Test Parameters section is used to enter the test load setting information and meter position or test station number.

VIEW

The VIEW button displays the HTML report on screen. The report is updated at the instant of pressing this button.

PAGE SETUP

The PAGE SETUP button opens the Internet Explorer "Page Setup" dialog. Use this if adjustment of page settings for your printer is required.

PRINT PREVIEW

The PRINT PREVIEW button opens the Internet Explorer “Print Preview” dialog. Use this to display how the report will look for the selected printer and page setup values.

PRINT

The PRINT button opens the print dialog. Use this to printing to any available printer.

SAVE

The SAVE button opens the Internet Explorer “Save Web Page” dialog. Use this to save the report to any location an in any format provided by Internet Explorer (Web Page, Web Archive or Text File).