



# LabVIEW Developer Days

Build Code. Form Communities. Gain Confidence.



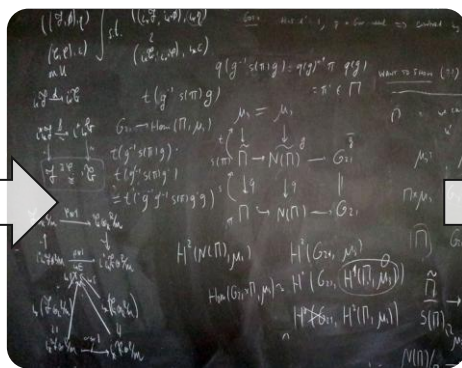
# Report Generation Methods – From Toolkit to Template

# Science, Discovery, and Innovation . . .

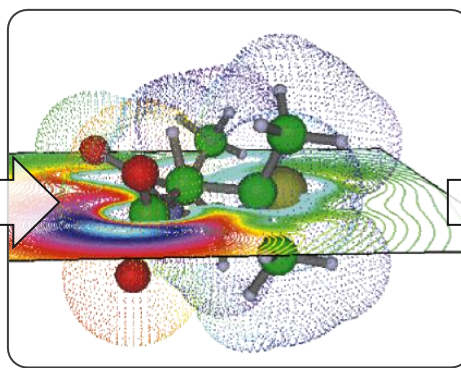
Experimental  
Science



Theoretical  
Science



Computational  
Science



Data-Intensive  
Science



# Big Data Characterized

## Variety

Mix of structure and format

## Volume

Large amounts

## Velocity

High speed, high sample rates

## Value

Importance of analysis, which was previously limited by technology

Another “V” NI is seeing . . .

## Visibility

Access from disparate geographic locations



# Big Data Characterized

## Sources of Big Data:



### Industry/IT sources

- Enterprise apps: ERM, CRM, HR
- IT data: events, logs, inventories
- Process and control



### New/emerging data sources

- Social data, behaviors, sentiments
- Tweets, posts, comments



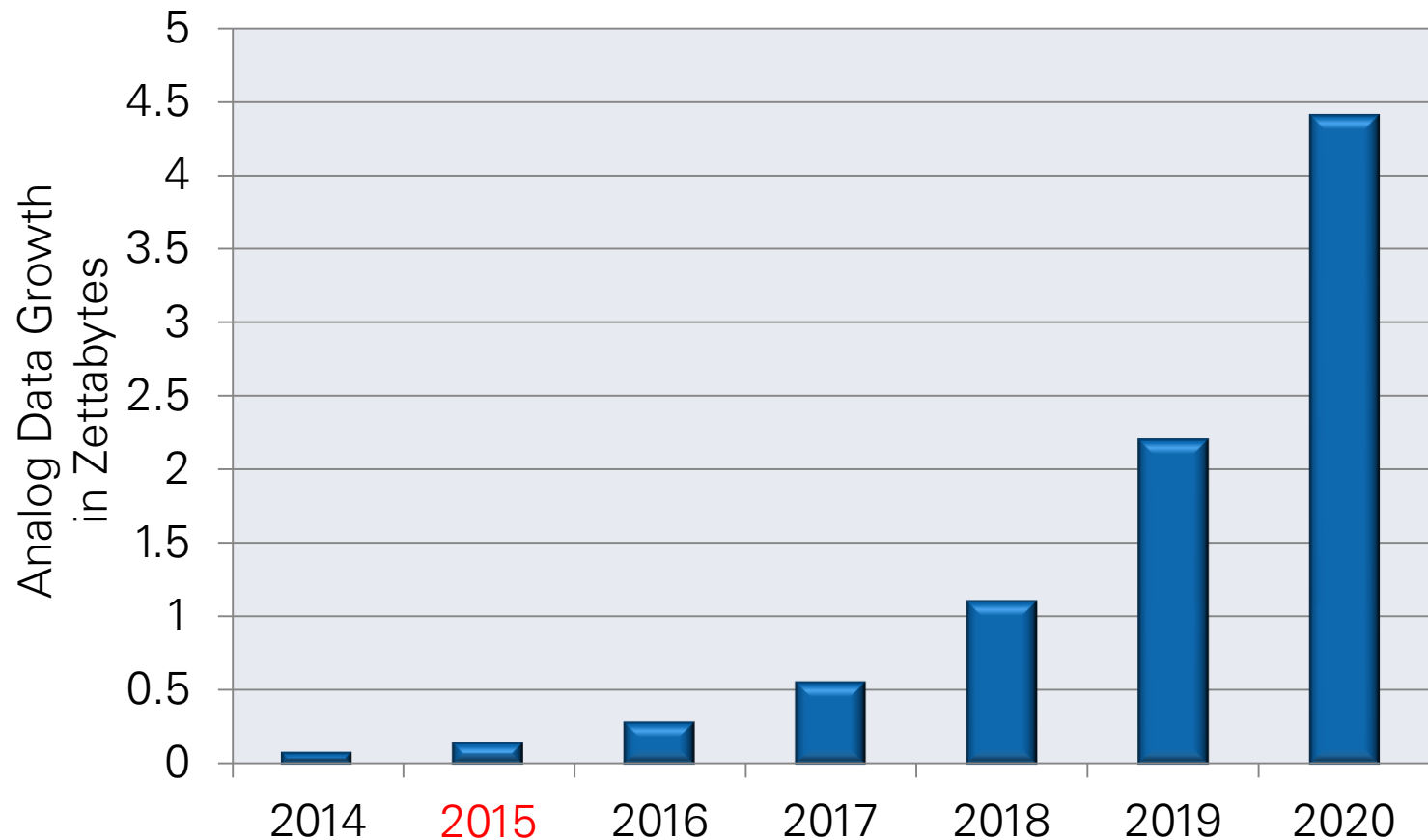
### Engineering/scientific data sources

- Physical world: analog phenomenon
- DAQ, A/D

Big Analog Data™ Sources

# Analog data is the fastest growing data type

doubling every year



sensors worldwide

ni.com



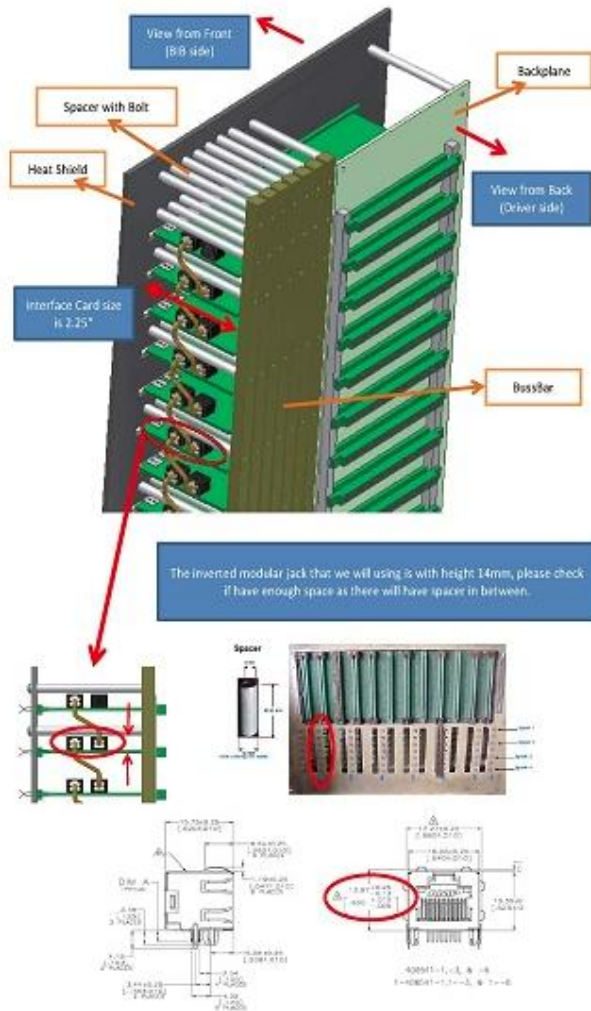


# Big Analog Data, Big Opportunity





# Case Study: SRAM Testing



- Test behavior of SRAM chips under 150° C thermal stress.
- Monitor, record, and analyze 2.5μs transients in response to applying a 100 kHz clock input.
- Simultaneously test response of 144 boards over 24 hours.

# Case Study: SRAM Testing

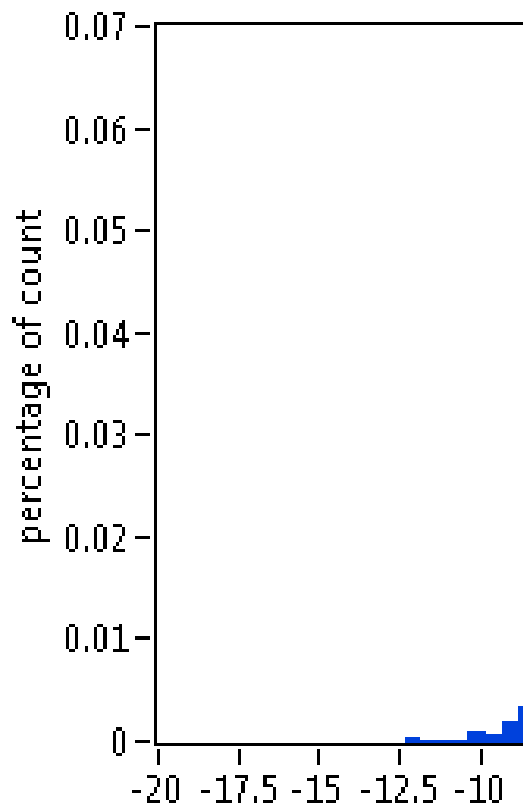


- Simultaneous sampling across 288 channels, multiple PXI-6255 modules.
- Inline temperature, current, and voltage monitoring to ensure test integrity and shut off in case of abnormalities.
- LabVIEW Report Generation Toolkit for Microsoft Office to generate reports.

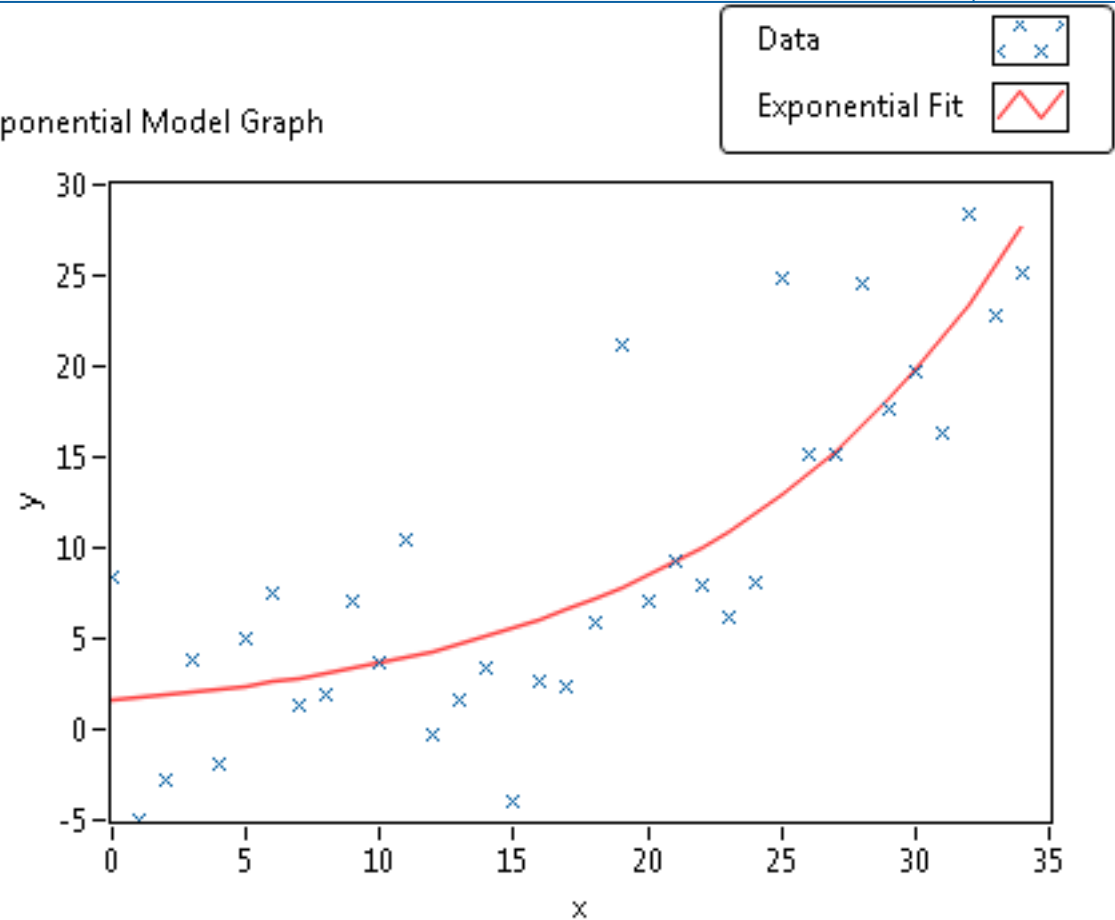
# Report Best Practices

# Best Practices: Data Transformations

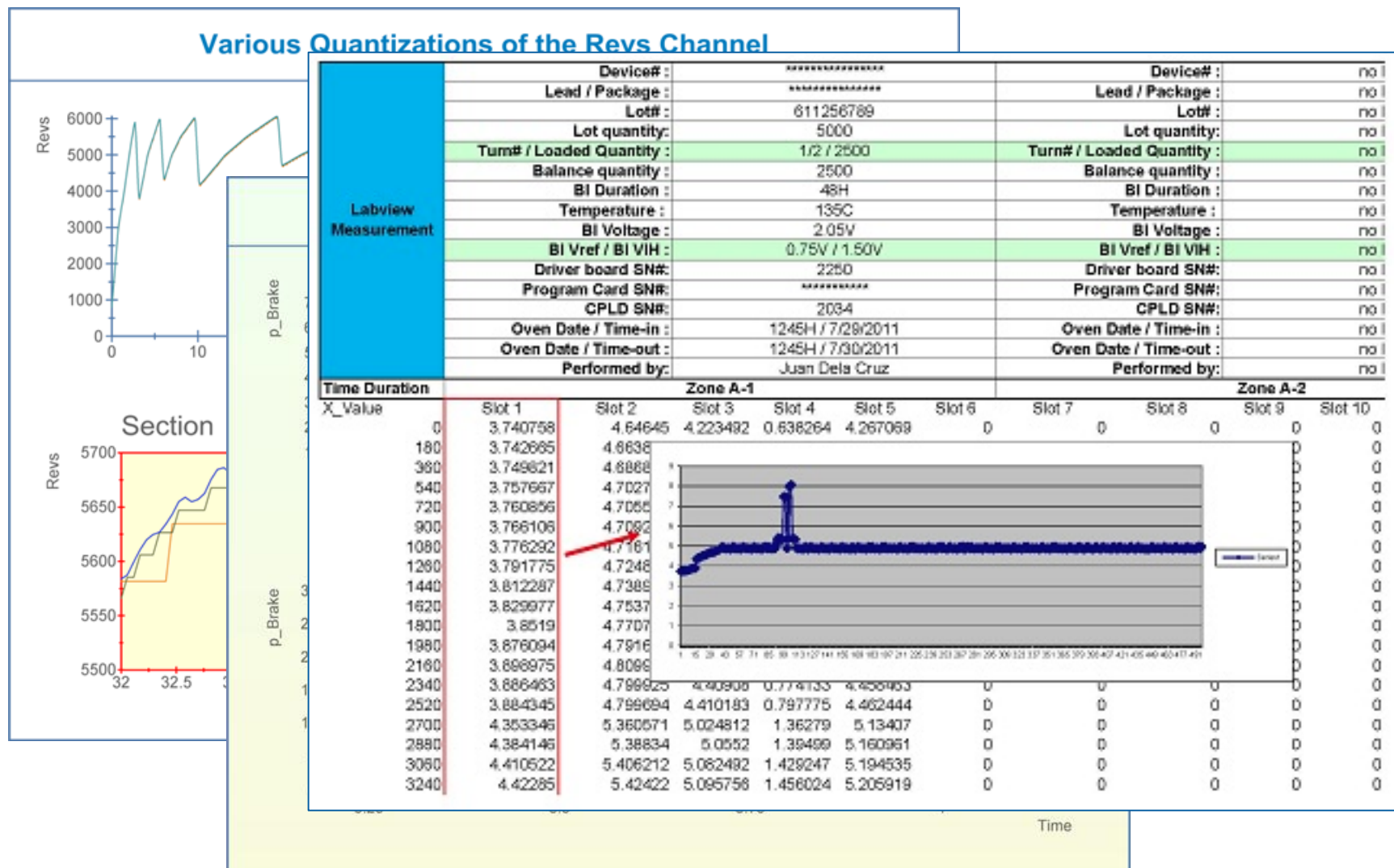
Normal Probability Density Function



Exponential Model Graph

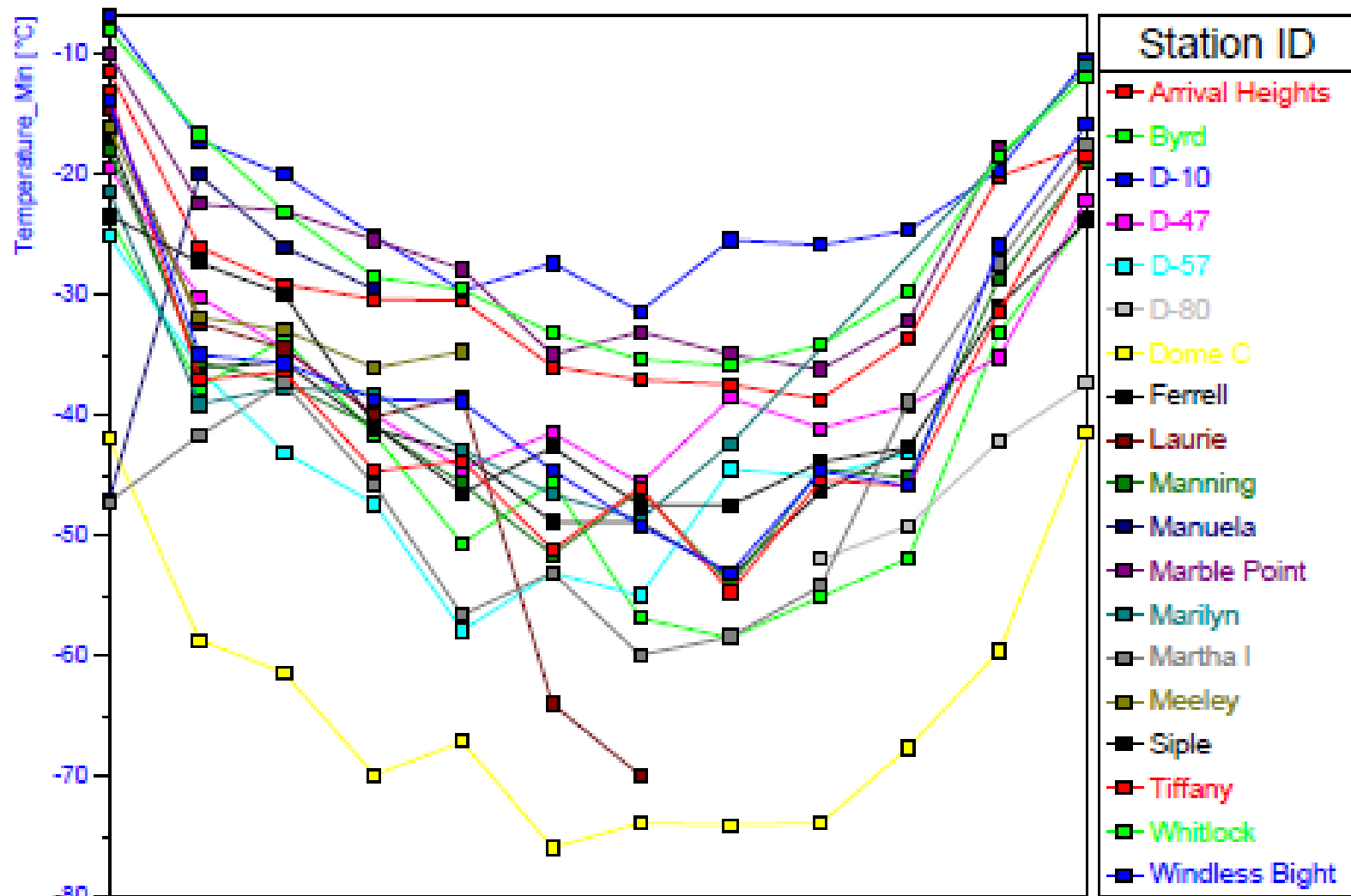


# Best Practices: Levels of Detail



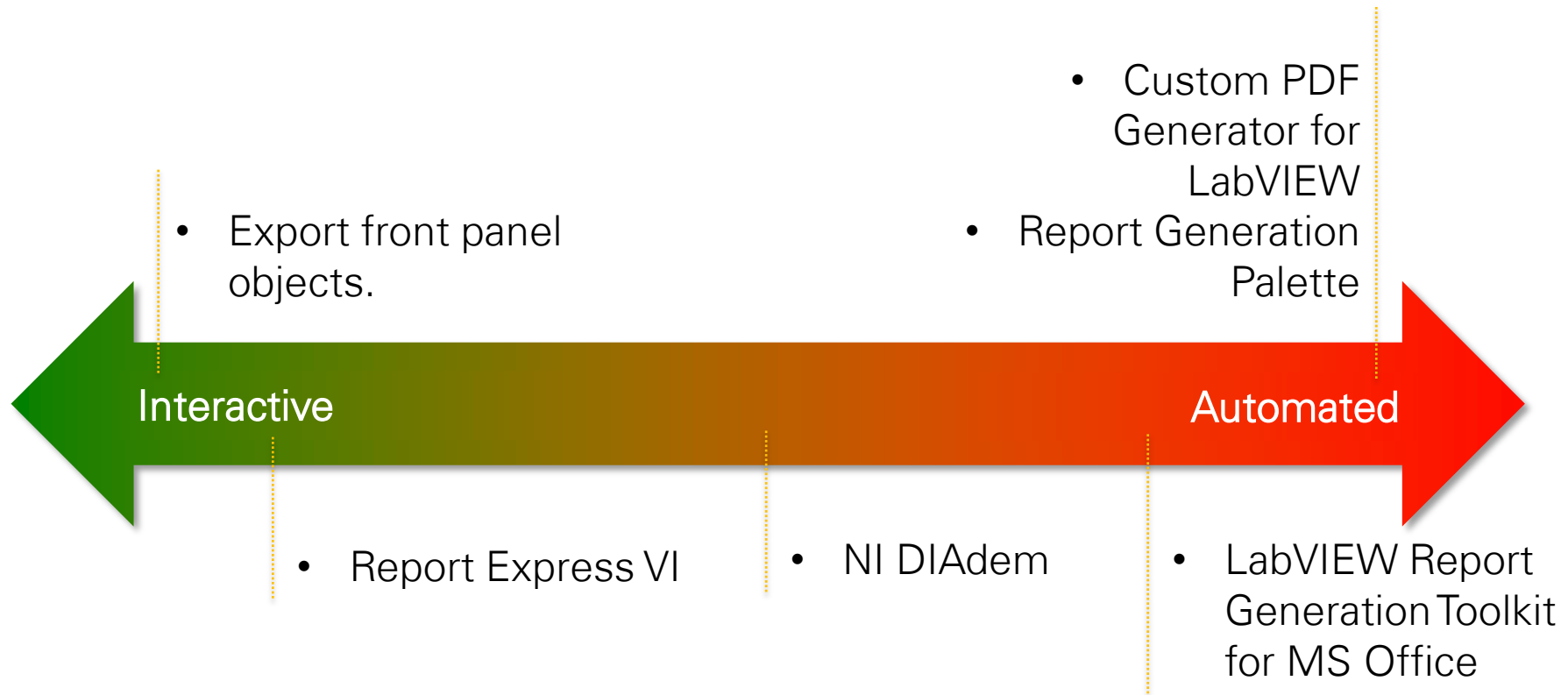


# Best Practices: Comparisons



# Report Demonstrations

# Spectrum of Methods



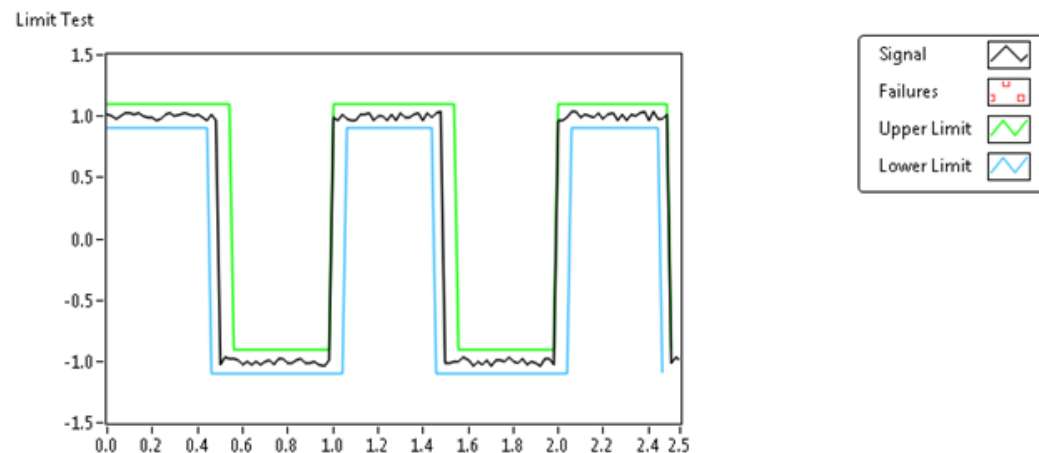
John Smith

February 10, 2015

## Limit Testing With Noise

This example creates limit waveforms and performs limit testing on the test signal. The test signal is a combination of a square waveform and a uniform white noise waveform. UpperLimit and LowerLimit specify the X and the Y axis values for the upper and lower limit. You input the test waveform and the limit waveforms to the Limit Testing VI. You can wire the output of this VI to a waveform graph.

### Limit Test: Pass Case



# Report Express VI

Demo



Configure Report (Report)

**Report Information**

- ☒ Report title  
Sample Report
- ☒ Author name  
John Smith
- ☒ Company name  
National Instruments
- ☐ Operator name
- ☒ Report print date
- ☒ Report print time
- ☒ Page number
- ☒ Total pages
- ☐ VI documentation (appendix)

Comments  
This is an example report that you can generate with the Report Express VI. The layouts are limited, but this is a great option if you need to generate a report with minimal programming.  
Additional comments wired to this VI appear after the comments above in the report.

**Data Input 1**

Title (data input 1)  
Sine Wave Data

- ☒ Include graph  
Y-axis label (data input 1)  
Amplitude
- ☐ Include table

**Data Input 2**

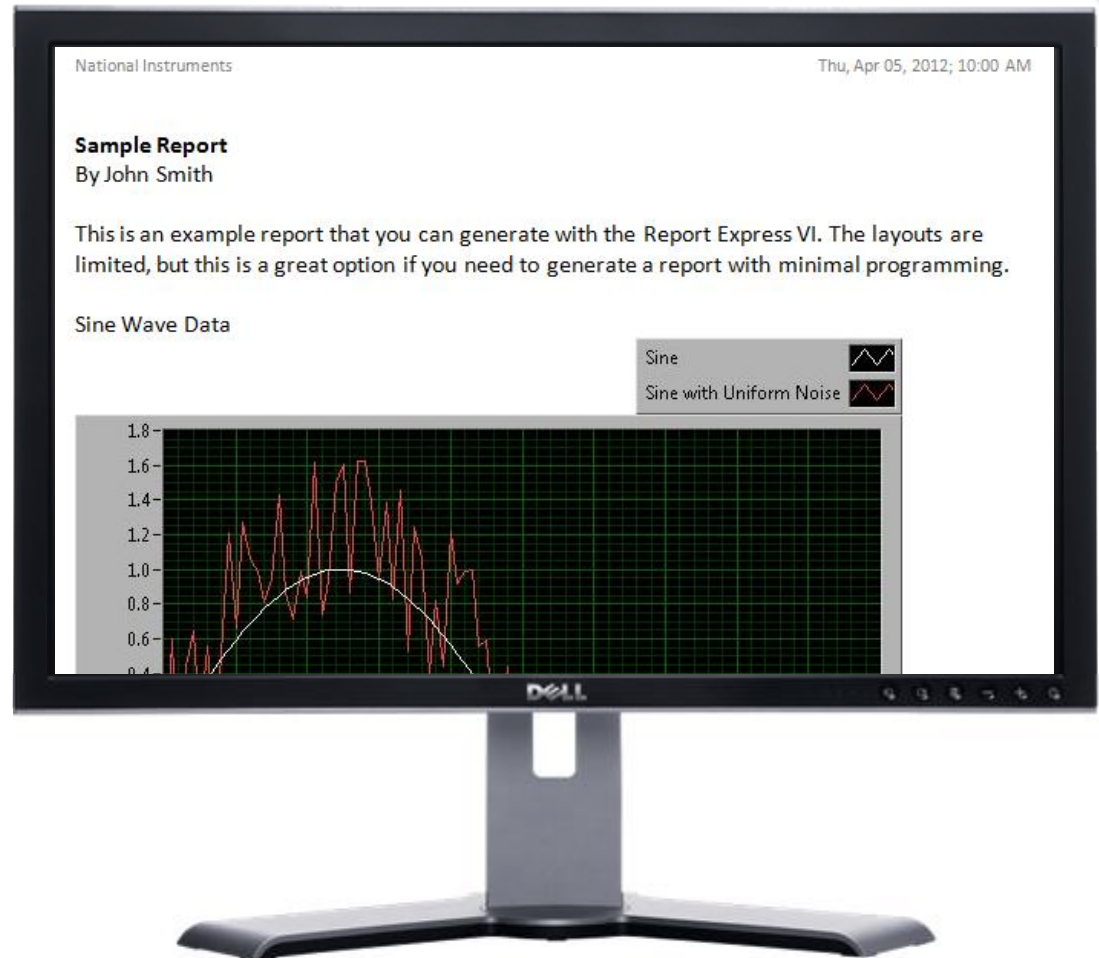
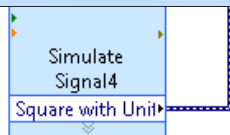
Title (data input 2)  
Square Wave Data

- ☒ Include graph  
Y-axis label (data input 2)  
Amplitude
- ☒ Include table

Destination  
Word Document

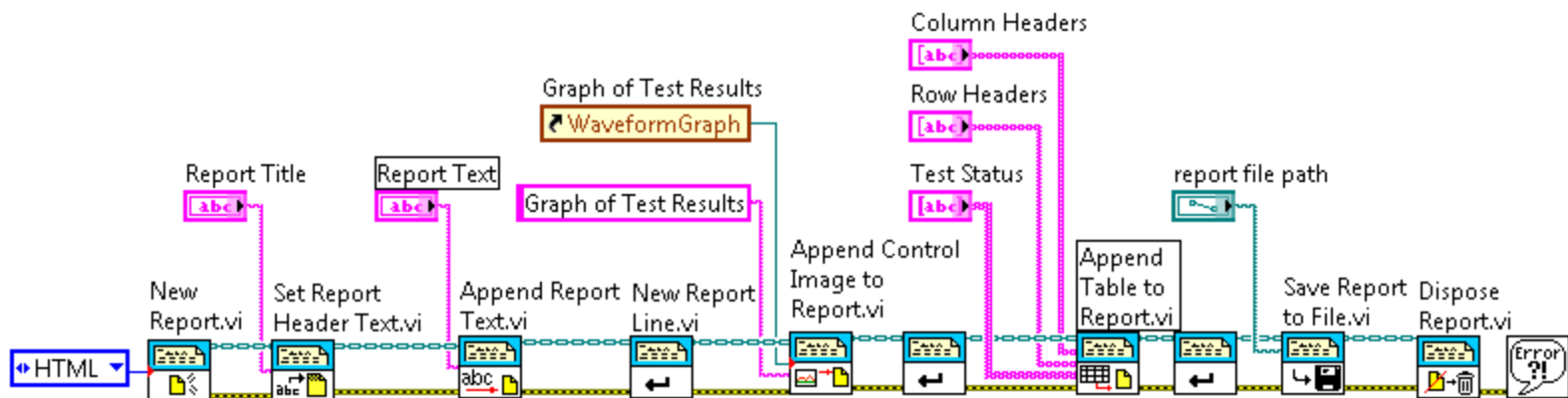
Path to save report  
C:\Users\sorc\Documents\LabVIEW Data\report1.doc

OK Cancel Help



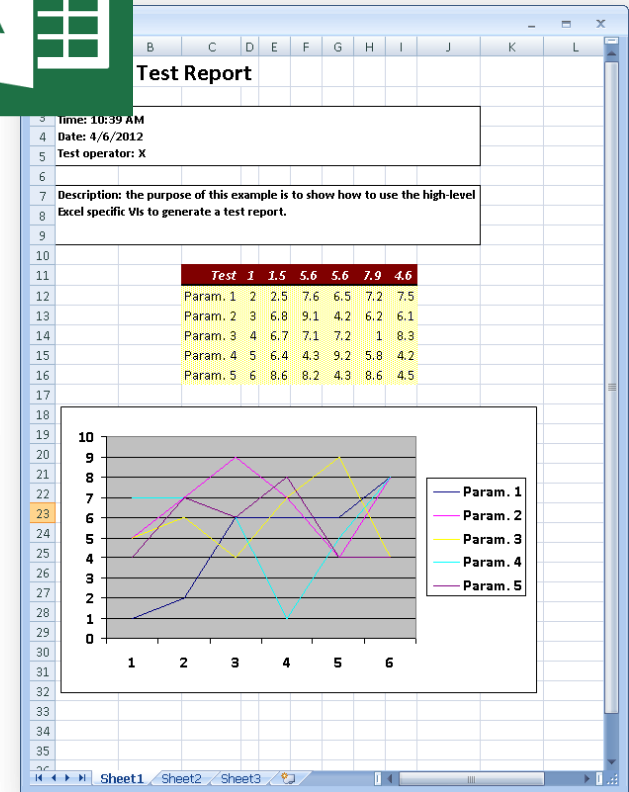
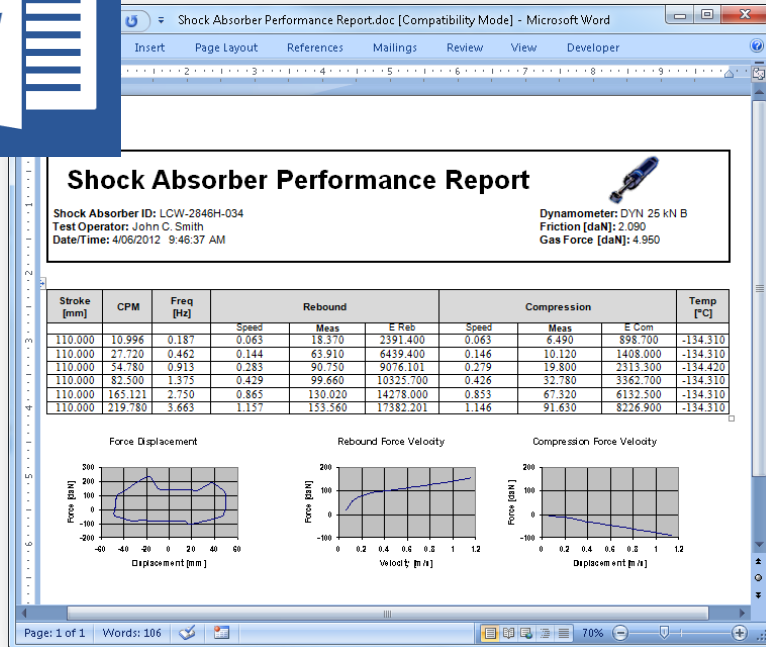


# Report Generation VIs



# LabVIEW Report Generation Toolkit for Microsoft Office

Demo



# Generate PDF Report

Custom PDF Generator for LabVIEW – Simplicity AI

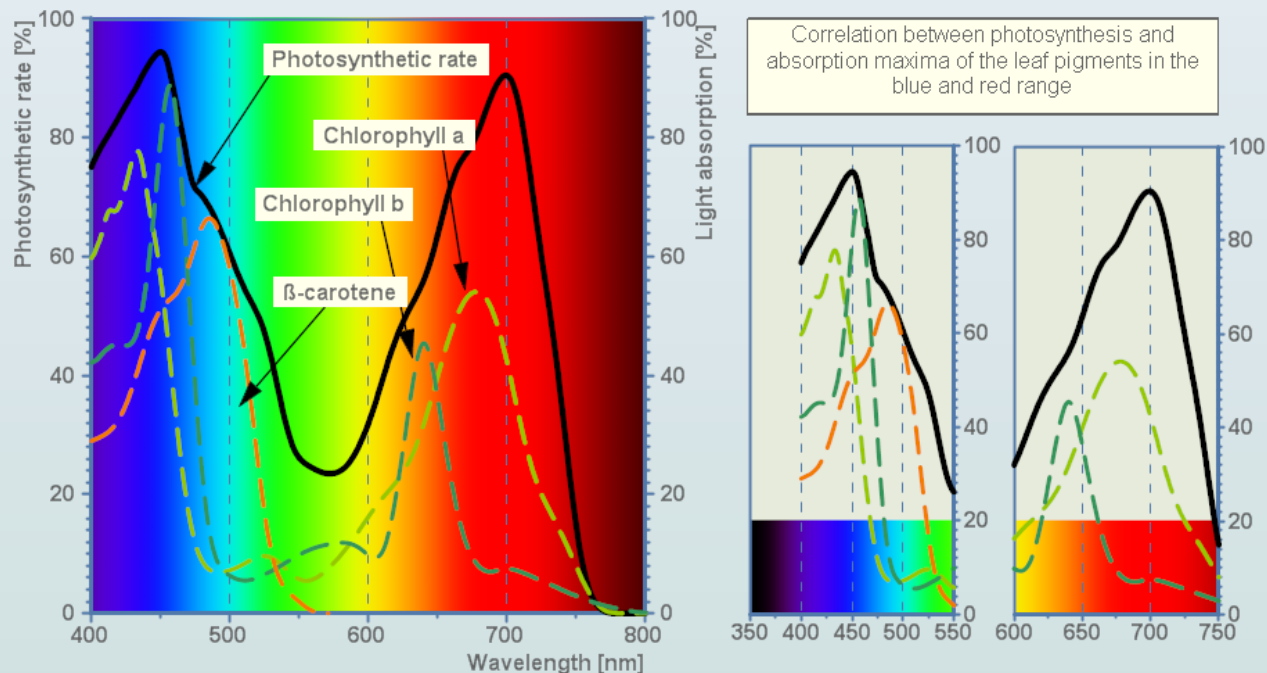
Demo



- High-readability data table with alternate row colors (zebra stripes)
- Unlimited executable deployment license included with full version
- PDF/A support for long-term test report archiving
- Document navigation with bookmarks, sections, chapters, and hyperlinks
- Automatic page numbering and creation date/time in footer
- Password to protect documents against copying and pasting as well as printing

## 2D Axis System: Scalable Background Graphic

	Name	Category	Minimum	Maximum	Unit
—	Photosynthetic rate	Oxygen production	5.21E-06	94.41	%
- - -	Chlorophyll a	Light absorption	1.79E-06	77.73	%
- - -	Chlorophyll b	Light absorption	0.108	88.75	%
- - -	Beta carotene	Light absorption	0.0163	66.41	%



Data set: C:\PROGRAM FILES\NATIONAL INSTRUMENTS\DIADEM 2012\Examples\data\Photosynthetic\_Rate.tdm

# DIAdem Report Express VI

Demo

Configure DIAdem Report [DIAdem Report] [DIAdem Report]

**Select Layout**

☒ Built-in layout template  
2 XY Graphs horizontal (portrait)

☐ Custom layout

Edit layout

**Target**

☒ Output to file or device

☒ Printer ☐ Clipboard

☐ PDF File ☐ HTML File

myReport.pdf

☒ View report immediately

**Configure Report**

Report object	Type	Value (double-click to edit)
LastModDate	Text	Date: 04/01/2012
Logo	Graphics File	LIBR\GRA\EXAMPLE1.WMF
PrintedDate	Text	Printed: @currdate@
Subtitle	Text	No Programming Required
<b>Title</b>	<b>Text</b>	<b>DIAdem Report Example</b>
Username	Text	User: Smith
<input checked="" type="checkbox"/> XYGraph1	XY Graph	< t0/dt >
<input checked="" type="checkbox"/> XYGraph2	XY Graph	< t0/dt >

**Preview**

DIAdem Report Example  
No Programming Required

☐ Disable preview

OK Cancel Help



# Next Steps

- Whitepapers:
  - Reporting Options for LabVIEW Data
  - Creating Professional Reports with the LabVIEW Report Generation Toolkit for Microsoft Office
  - Moving Data from LabVIEW into Excel
- Evaluation software:
  - LabVIEW Report Generation Toolkit for Microsoft Office
  - Custom PDF Report Generator for LabVIEW
  - NI DIAdem