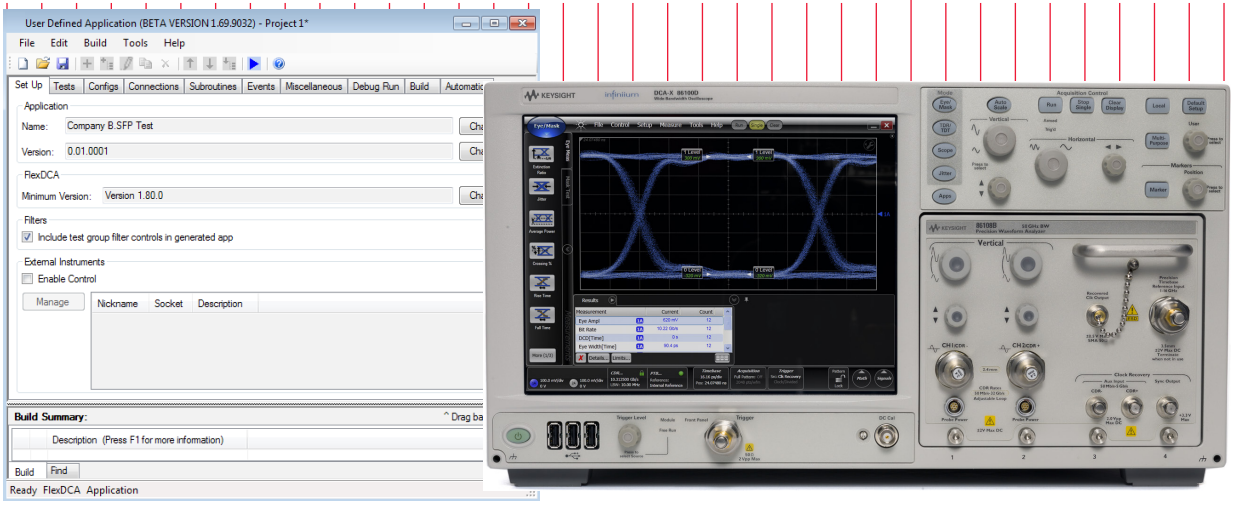
Keysight Technologies
N1019A User Defined Application for 86100D DCA-X Oscilloscopes

Data Sheet



KEYSIGHT TECHNOLOGIES

Custom Automation for Your Digital Communications Analyzer

Easy-to-use tool for custom GUI's that enable you to:

- Automate testing
- Generate reports
- Consistently test across your organization
- Add analysis to your compliance and debug software

Automated testing continues to be an extremely important part of today's engineering environment. Keysight Technologies, Inc. provides compliance applications such as N1012A OIF CEI 3.0 compliance application to enable automation verification and compliance of your design.

Compliance applications are targeted for the tests within the appropriate standard. During development, designers often need to characterize additional parameters or parameters for devices not governed by standards. A common approach is to have the internal test development department create specific tests within complicated programming environments.

The N1019A quickly addresses these challenges through a fully customizable automated environment that seamlessly works with the 86100D digital communications analyzer. The designer may also control other Keysight and non-Keysight equipment, interface with external applications like Excel and MATLAB, and access the device control software.

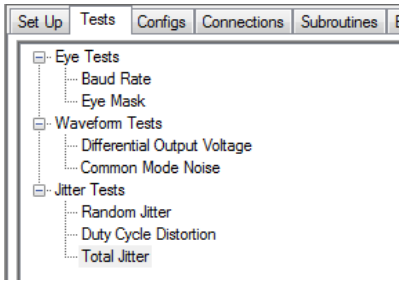
Transform Complexity into Simplicity

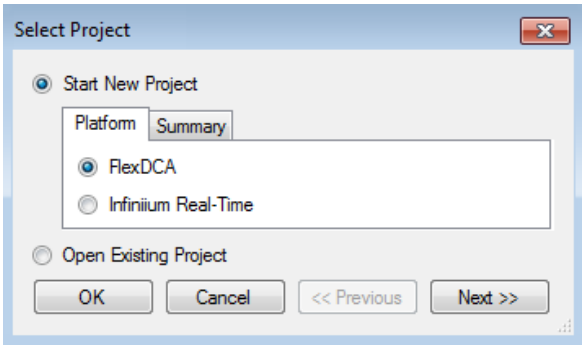
The typical communications standard has many tests and associated conditions. An excerpt from the 28G-SR specification table from the CEI 3.0 Implementation Agreement is below. The designer often uses valuable development time to create test routines when verifying operation to the standard or custom tests. These tests can be easily automated using the N1019A.

Characteristic	Symbol	Minimum	Typical	Maximum	Unit
Baud Rate	T_Baud	19.90		28.05	Gsym/s
Output Differential Voltage	T_Vdiff	800		1200	mVppd
Differential Resistance	T_Rd	80	100	120	Ω
Differential Termination Resistance Mismatch (see Table 1-2)	T_Rdm			10	%
Output Rise and Fall Time (20% to 80%)	T_tr, T_tf	8			ps
Common Mode Noise	t_Nom			12	mVrms
Differential Output Return Loss	T_SDD22				dB
Common Mode Output Return Loss	T_SCC22			–6	dB
				–4	
Output Common Mode Voltage	T_Vcm	–100		1700	mV

The N1019A user defined application tool enables you to quickly enter and organize your tests, set limits, configure how measurements should be made, and review results. During product development, you can return to the application that you've developed to run individual or suites of tests, and to add more tests. This means performing previously-repetitive test development only once, which simplifies your testing.

Many designers are already familiar with the N5467A user defined application tool that is available for Keysight real-time oscilloscopes. The N5467A has been enhanced to also work with the 86100D DCA-X digital communications analyzer and the license is available for purchase as the N1019A. The initial dialog allows the user to choose which oscilloscope platform is being used. You may develop the application on your DCA-X or computer without a license. Once you would like to run the application to perform testing, you install the N1019A license on the DCA-X or computer where the FlexDCA interface is being used.

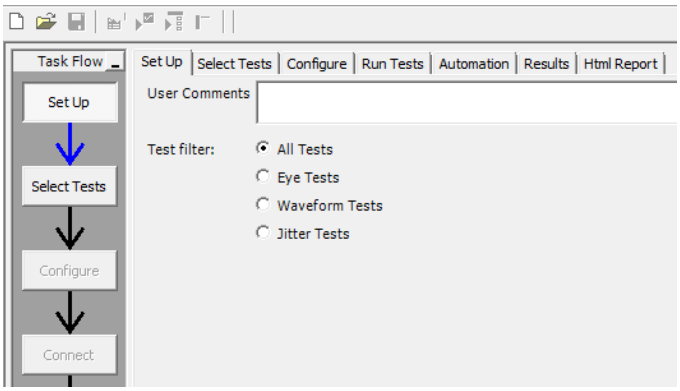




Create a Test Suite within Minutes

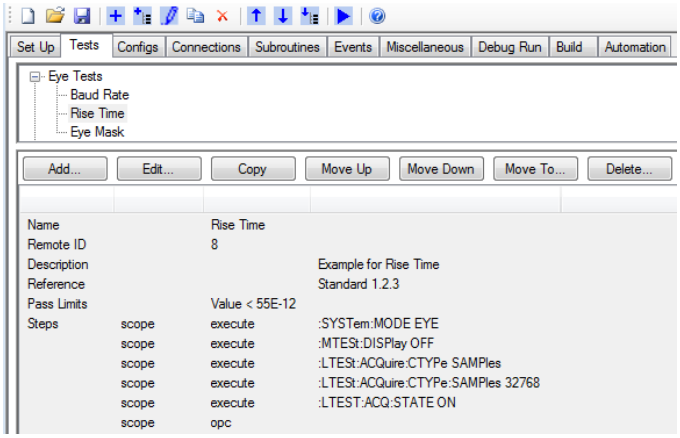
Create test groups

Logically organize tests into groups which are easy to describe to customers and other users. Choose how to sequence the groups to minimize the test times. Icons for major steps streamline organizing your tests.



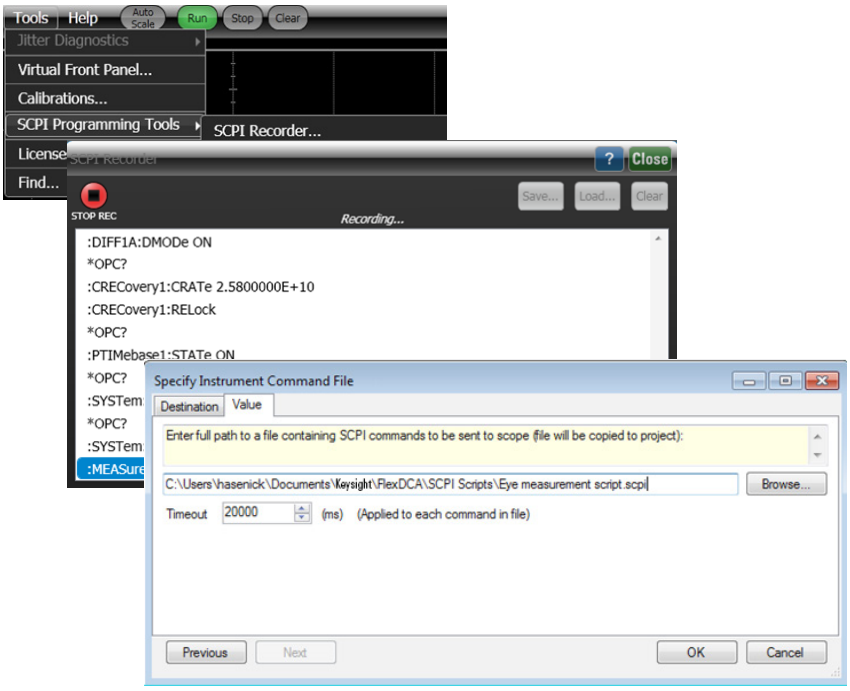
Develop individual tests

Rapidly develop each test through use of intuitive steps and dialogs. Individual SCPI commands, SCPI command files or subroutines provide flexibility to share tests and sequences between other tests and applications.



Accelerate test development with powerful SCPI tools

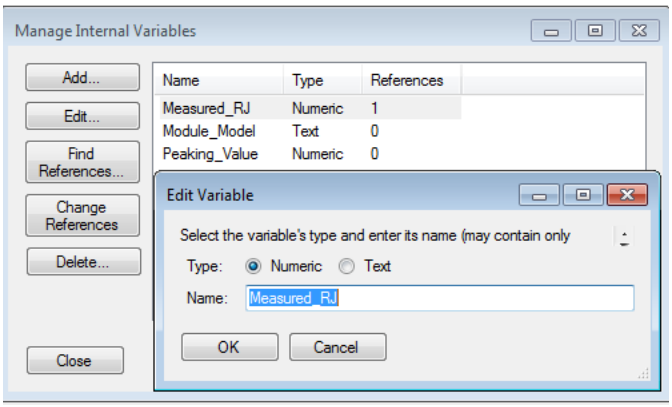
The FlexDCA interface includes intuitive tools to help you connect your equipment and computer and to greatly reduce the time needed to develop individual tests. Rather than typing SCPI commands, use the SCPI recorder to quickly capture the screen touches and button pushes you would normally perform when manually testing. You then copy individual SCPI commands into the desired test or save entire sequences for use in the N1019A.



Create a Test Suite within Minutes

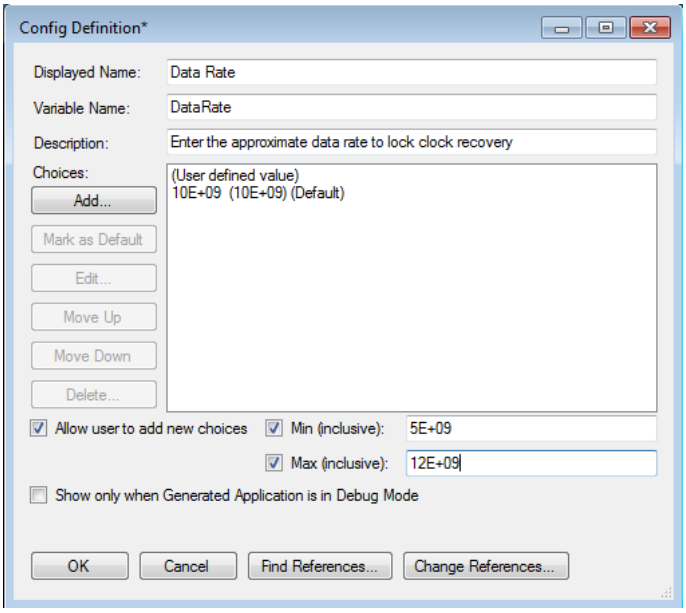
Use range of variable types

Most test plans have many variables to track. The N1019A provides a wide range of text and numerical variables, mathematical functions and reserved variables for great flexibility in test configuration.



Configure test conditions

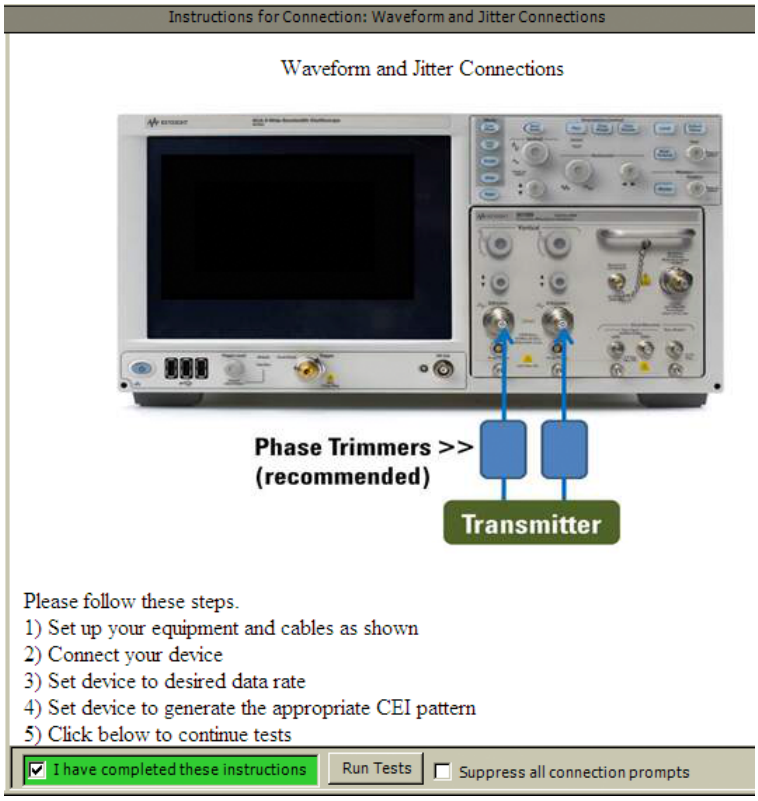
You'll likely control how many samples are acquired, attenuation values, number of jitter patterns and other specific parameters of the test. Limit the choices to specific values or allow the user to enter their own.



Create a Test Suite within Minutes

Create test instructions

Show a picture of how each test or groups of tests should be set up and provide a list of user steps.

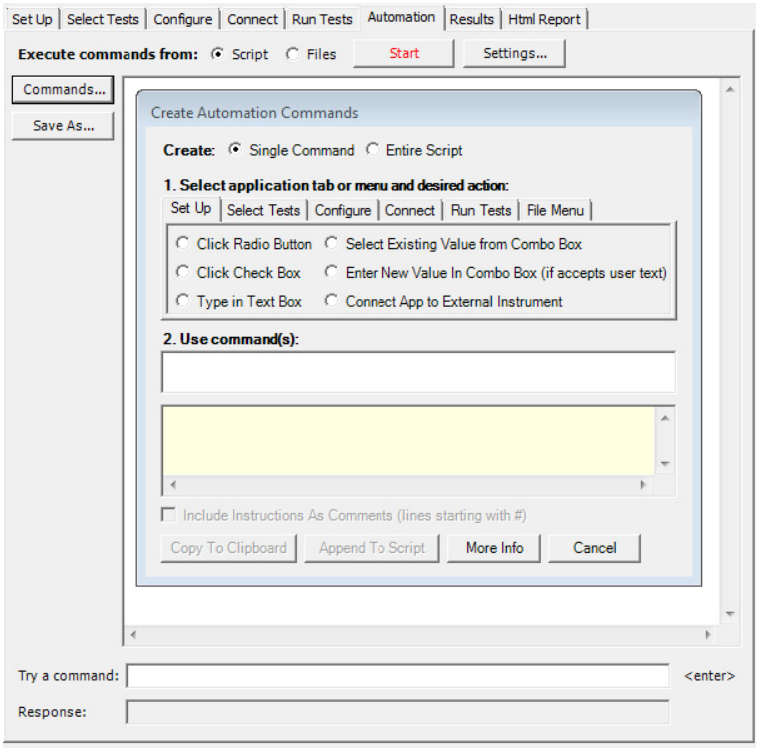


Control your device or other equipment

The 'automation' tab enables you to enter commands to control external devices or equipment, and to further sequence your tests or to control timing.

N5452A Remote Programming Interface

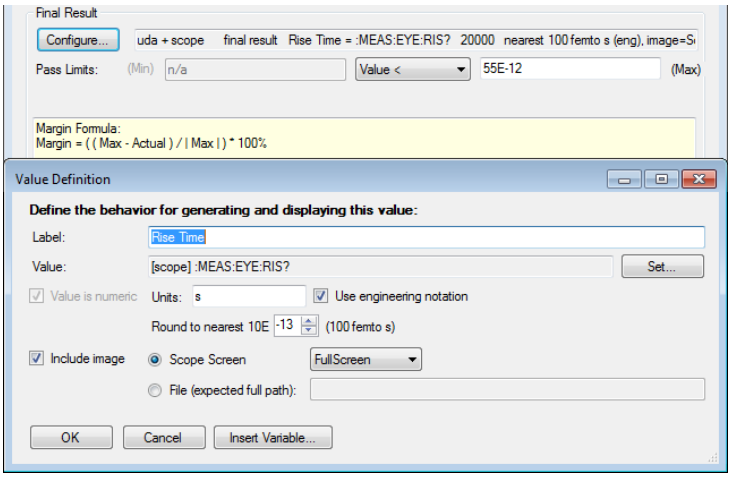
A single N5452A license will enable remote command/query support for any Infiniium compliance or validation applications running on a single oscilloscope (node-locked). It is more than just an interface; Keysight provides a full-featured development toolkit – fulfilled from order with license redemption.



More Features to Further Streamline Your Development

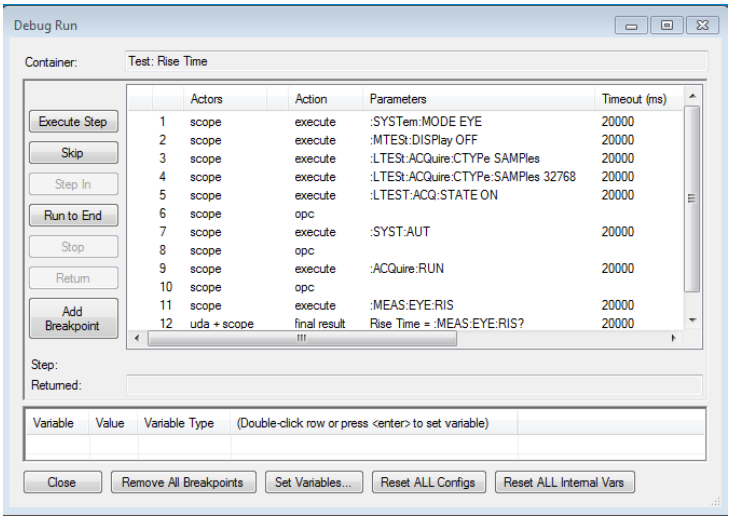
Configure device test results

Choose the title of test, set test limits from a wide range of options, configure units and format of results, and choose whether to include a screen image. The image can be only the graticule or the entire screen.



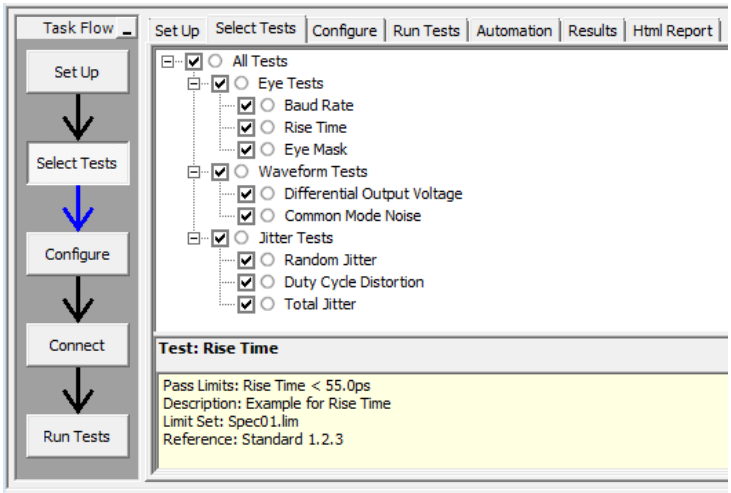
Run device test plan

From within the N1019A, you may execute an "in-tool" run of your test plan which will exercise all tests just as if they were running in the final application.



Debug each test

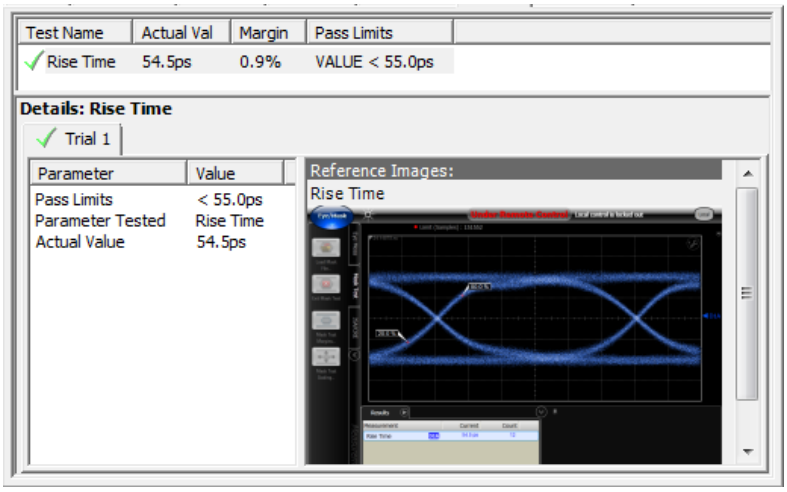
While developing your test application with the N1019A UDA tool, you may verify proper operation of the test sequence prior to building and installing the application. This allows you to prove each sequence works and to verify timing without interaction from other tests.



More Features to Further Streamline Your Development

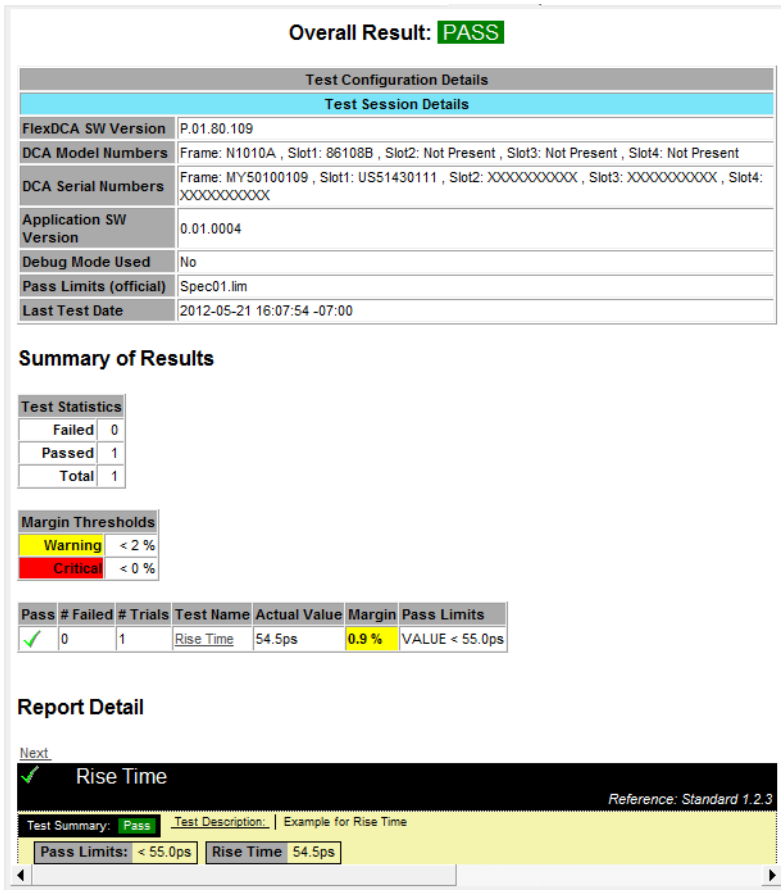
View device results

Admire how well your design is working and determine which parameters need improvement. The device is measured to the limits you've chosen and the optional screen shot is included.



Obtain test reports

Your users and customers would like a concise summary of how the devices are working. The N1019A provides professional reports showing test configuration, summary of results and detailed results, including screen shots if selected.



Overall Result: PASS

Test Configuration Details	
Test Session Details	
FlexDCA SW Version	P.01.80.109
DCA Model Numbers	Frame: N1010A , Slot1: 86108B , Slot2: Not Present , Slot3: Not Present , Slot4: Not Present
DCA Serial Numbers	Frame: MY50100109 , Slot1: US51430111 , Slot2: XXXXXXXXXX , Slot3: XXXXXXXXXX , Slot4: XXXXXXXXXX
Application SW Version	0.01.0004
Debug Mode Used	No
Pass Limits (official)	Spec01.lim
Last Test Date	2012-05-21 16:07:54 -07:00

Summary of Results

Test Statistics	
Failed	0
Passed	1
Total	1

Margin Thresholds	
Warning	< 2 %
Critical	< 0 %

Pass	# Failed	# Trials	Test Name	Actual Value	Margin	Pass Limits
✓	0	1	Rise Time	54.5ps	0.9 %	VALUE < 55.0ps

Report Detail

Next

Rise Time

Reference: Standard 1.2.3

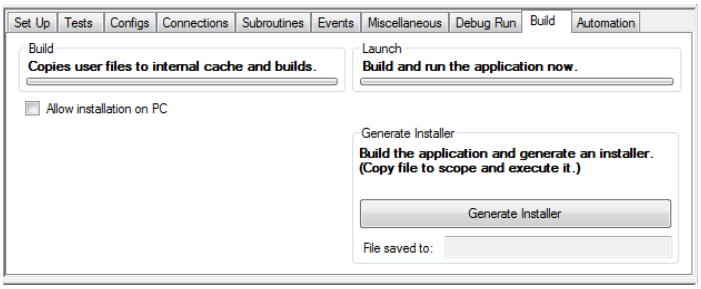
Test Summary: Pass | Test Description: | Example for Rise Time

Pass Limits: < 55.0ps | Rise Time 54.5ps

More Features to Further Streamline Your Development

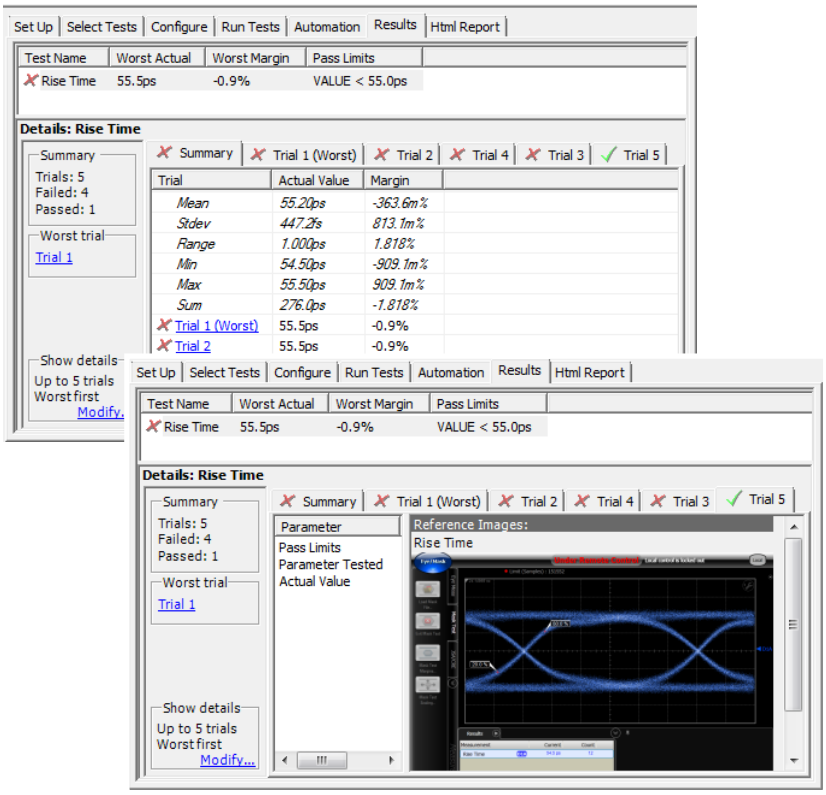
Create an installer

Once you have proven your tests, you may create an installer that will execute on your DCA-X or computer, wherever the license exists.



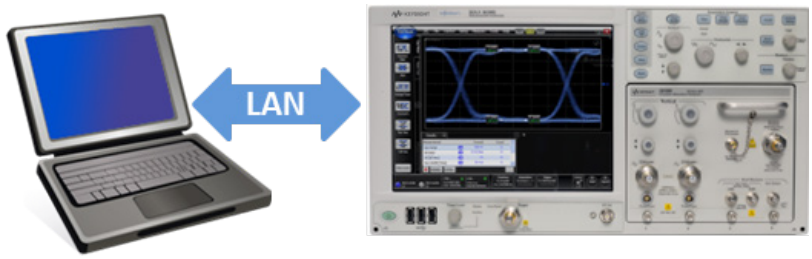
Collect statistics

The N1019A contains powerful tools to analyze the same device over many runs, or many devices over one or several runs. Viewing of aggregate results or individual results is a mouse click away.



Configure your solution in many ways

The hardware and software architecture provides wide flexibility. You may install FlexDCA and the N1019A on the mainframe, both on your PC or split between them. This enables you to use your PC for more processing power and other applications, or to have all measurement capability consolidated into a compact solution.



Choose Industry-Leading Solutions

Keysight offers a wide range of electrical and optical test solutions to address current and emerging communications standards. Select a comprehensive solution or just enough functionality for your test needs.

Product family	Electrical solutions	Optical solutions
Oscilloscope mainframe	86100D DCA-X Digital communications analyzer	
Plug-in modules, receiver	86108B 35/50 GHz 86112A 20 GHz 86117A 50 GHz 86118A 70 GHz	86105C 8.5 GHz 86105D 20 GHz 86115D 20 GHz 86116C 45/65 GHz
Other modules and auxiliary equipment	86107A Precision time base N4877A 28G Clock data recovery and de-multiplexer	N1070A Optical clock data recovery N1075A Optical pick-off/converter
Software solutions	86100D-200 Enhanced jitter 86100D-201 Advanced waveform 86100DU-400 Jitter transfer 86100DU-401 Advanced eye analysis N1012A OIF CEI 3.0 compliance N1019 User defined application tool	86100D-200 Enhanced jitter 86100D-201 Advanced waveform 86100DU-400 Jitter transfer 86100DU-401 Advanced eye analysis N1019 User defined application tool



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