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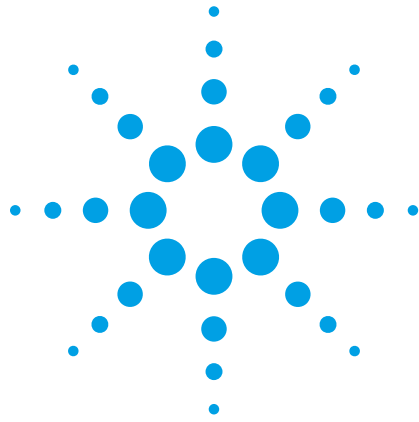
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Agilent

7 GHz Digital Communication Analyzer

N2100A (PXIT Model PX2000-333-OEF)

Data Sheet

The N2100A implements a coherent patented vector under-sampling which combines the benefits and measurement capabilities of a real time scope with the bandwidth of a sampling scope. This PXI instrument uniquely combines the functionality of several traditional instruments in a single PXI module. The N2100A performs accurate eye diagram analysis to characterize the quality of transmitters from 50 Mb/s to 4.25 Gb/s.

Features

- Eye diagram, mask and jitter testing in a single instrument
- Cost effective architecture
- High throughput measurement engine
- Small form-factor 3 slot PXI card allowing multiple instruments to be deployed in a single chassis
- Ideal for manufacturing environments
- Wide optical bandwidth coverage from 780 nm to 1620 nm
- Single ended electrical input
- Bessel Thomson filters (In software and/or hardware)
- Integral clock recovery for measurements up to 3.0 Gb/s
- External reference clock input (SMA)



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Applications

The N2100A is primarily targeted at production automated test applications. The wideband optical input is ideally suited to electro-optical transceivers, short reach parallel optics modules and transmitter optical sub-assemblies (TOSAs). The electrical input is suited to high-speed serial data interconnects and receiver optical sub-assemblies (ROSAs).

Typical applications include:

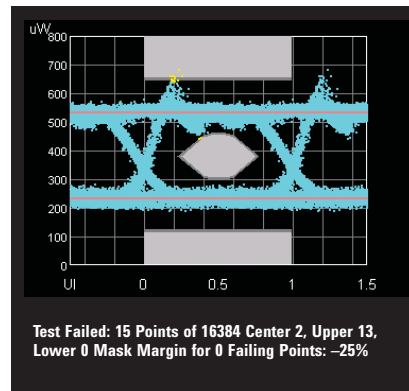
- Transceiver test
- Telecomms Equipment Test
- Fibre Channel, Ethernet, etc*
- Multi-port system testing
- High port count burn-in test

(* Compliance filters for other rates available on request)

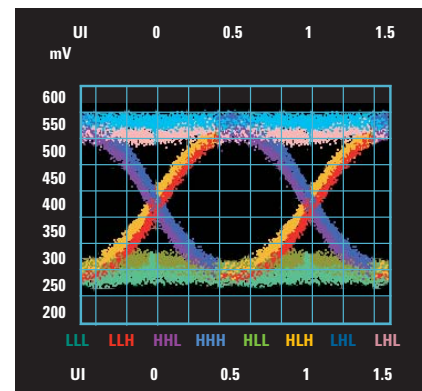
Measurements

Digital Communication Analysis

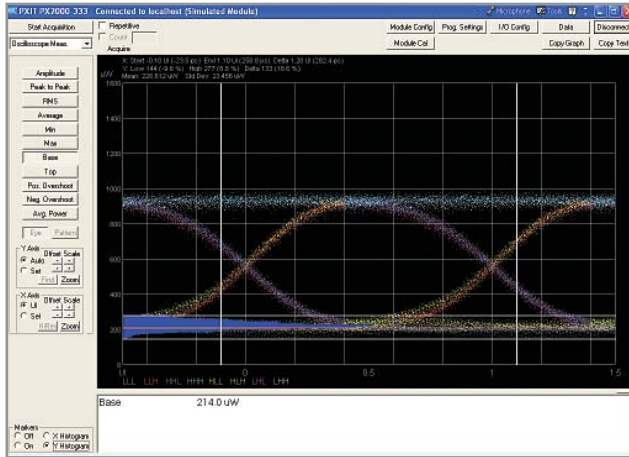
- Mask comparison & margin
- The mask can be easily defined
- Mask margin can apply Agilent or Tektronix rules.
- The mask margin (positive or negative) can be extracted for a defined number of points that fail, thus allowing for DUT quality assessment, control & binning.
- The number of failed points for a region can be returned as well as the actual points that failed along with the 3 bit history of that failed point (as a result of vector sampling).
- Extinction Ratio / OMA measurements
- Q-factor measurements
- Eye opening
- Eye height
- Eye width
- P-P and RMS noise measurements
- Duty-cycle distortion
- Rise and fall time
- RMS jitter histogram
- Automatic inter-symbol interference measurements
- Deterministic jitter
- Random jitter



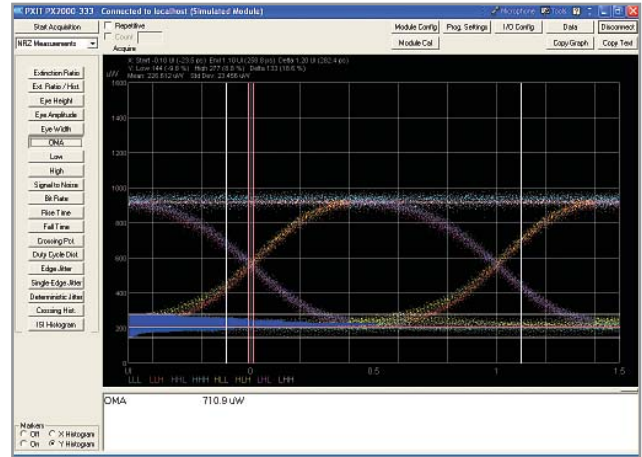
Automatic Mask Test Measurement



Measurement with 4th order Bessel Thomson filter - colors signify the transition history



Base Measurement (with Y histogram shown)



OMA Measurement

Specifications

Electrical specifications¹

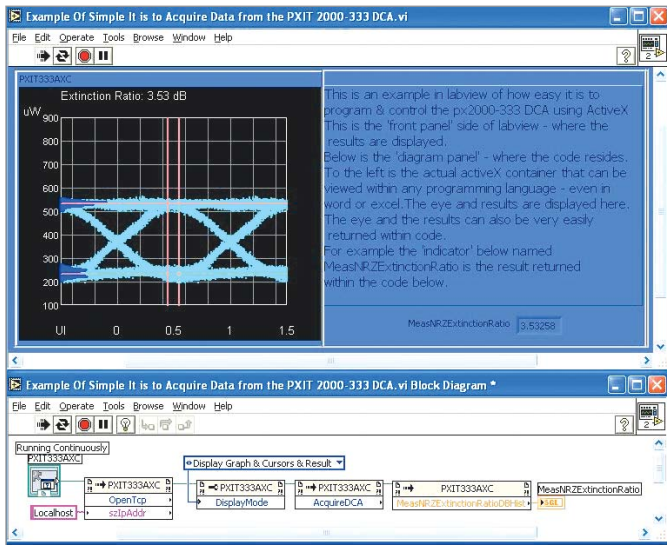
| | | Units |
|-------------------------------------|-------------|----------------------|
| Bandwidth of electrical input | 0.1 to 7000 | MHz (characteristic) |
| Internal clock recovery | 155 to 3000 | MHz |
| Clock recovery lock range | 250 | ppm |
| External clock reference | 5 to 300 | MHz |
| External clock input range (CML) | 200 to 3000 | mV |
| External clock lock range (\pm) | 150 | ppm |
| Transition time (20% to 80%) | 35 | pS |
| Maximum input range (p-p) | 1500 | mV |
| Input noise (rms) | 0.75 | mV |

Optical specifications¹

| | | Units |
|---------------------------------|---|---------|
| Standard switchable filters | 1.25, 2.125, 4.25 Gb/s compliance filters* | |
| Unfiltered optical BW | 7.0 | GHz |
| Optical responsivity | 780-1600 | nm |
| Optical noise equivalent power | -28 | dBm |
| Mask sensitivity at 850nm | -10 | dBm |
| Mask sensitivity at 1310/1550nm | -12 | dBm |
| Overload optical input | 2 | dBm |
| Average optical power monitor | -15 to 2 | dBm |
| Fiber input | 9, 50, 62.5 | μ m |

* Consult factory for alternative options

1. The N2100A is not recommended for use at 3.125 Gb/s with a PRBS-7 pattern.



The Software Simulator and the ActiveX API Allow for Ease of Integration

Software

Operating Systems supported: Microsoft Windows 2000 and XP

Software Interfaces

Microsoft® DLL and ActiveX support. ActiveX compatible with:

- National Instrument's Test Stand
- National Instrument's LabVIEW™ and LabWindows
- Microsoft Visual Basic®
- C++

Ordering

N2100A-H10 7GHz optical bandwidth DCA equipped with compliance filters suitable for 1GbE, 2x and 4x Fibre Channel. 9 GHz single ended electrical input. 3 slot PX card, requires PXI mainframe and controller, sold separately.



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Product specifications and descriptions in this document subject to change without notice.

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