Agilent *Medalist* i3070 LED Test

Technical Overview

The Agilent *Medalist* i3070 light emitting diode (LED) test delivers uncompromising repeatability and accuracy in LED color and luminosity measurements with superior throughput during i3070 in-circuit test. It returns the LED color value and luminosity in nanometers and $\mu W/cm^2$ to accuracies of ± 3 nm and ± 10% respectively. It can test up to 128 LEDs in less than 1.3 seconds, increasing your i3070 test capacity, which translates to lower cost of in-circuit test.

The i3070 LED test consists of:

1. i3070 LED sensor
2. i3070 LED signal conditioner (mux)
3. i3070 LED test card
4. i3070 LED test box
5. i3070 LED starter kit
6. i3070 LED software tools (i3070 release 8.3 and greater)
7. i3070 runtime integration (i3070 release 8.3 and greater)

The i3070 LED test sensors and LED signal conditioner (mux) card are installed in the i3070 test fixture similar to our VTEP solutions. Thirty-two i3070 LED test sensors can be wired to each i3070 LED signal conditioner (mux) card, and four i3070 LED signal conditioner (mux) cards to one i3070 LED test card in a Utility Card or an i3070 LED test box. The i3070 LED signal conditioner (mux) card in the fixture is then connected to the i3070 testhead electronics via the i3070 LED test card plugged into a utility card or a i3070 LED test box. The i3070 LED test box saves a hybrid card slot and is mounted within the i3070 test head.

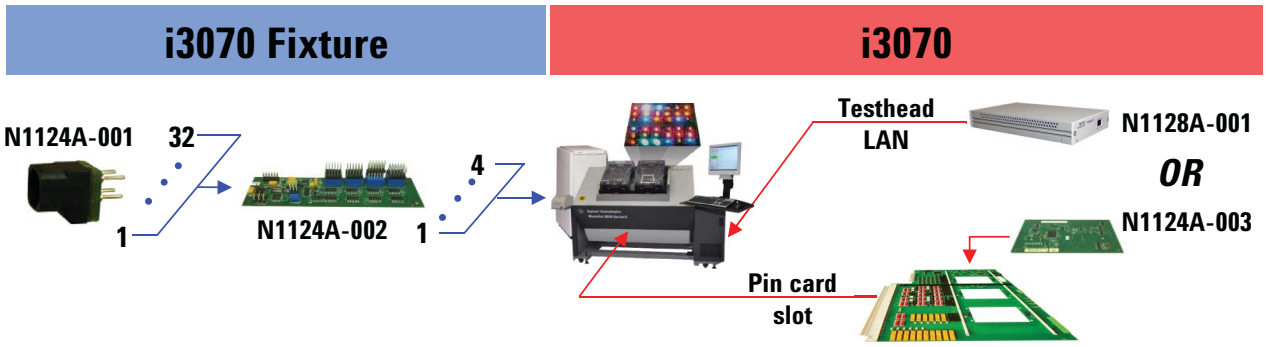
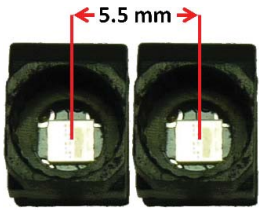


Figure 1. Set-up diagram for i3070 LED test. (Note: For illustration only. Not to scale)

i3070 LED Test Unique Features

The i3070 LED test delivers several industry 'firsts':

- Turns on multiple LEDs simultaneously using an i3070 patented unpowered digital test method
- Acquires the peak, base or instantaneous wavelengths of the LED color and returning the measurement in nanometers (nm)
- Measures the LED luminosity in $\mu W/cm^2$
- Proprietary architecture will send digital stimuli, measure the LEDs' color and luminosity and returning results of up to 128 LEDs in less than 1.3 seconds
- Uncompromising repeatability achieved through a shroud tube design to shield noise (ambient light) from surrounding LEDs
- Smallest LED sensor size in the market allows direct sensor placement over LEDs spaced 5.5 mm apart (center-to-center) enabling a high signal-to-noise ratio (SNR)



i3070 LED Test Unique Features

State-of-the-art LED sensor design

The i3070 LED test has been designed to enhance the experience of testing LEDs on the i3070. The small sensor design improves the measurement SNR as it can be installed directly over the LED. A shroud tube can be fitted into the sensor to block out ambient light from surrounding LEDs, reducing noise and improving the SNR. If the LED location prevents a direct sensor mount, a light pipe or optical fiber cable can be used to transport the LED light to the sensor.

The sensor can be programmed to return peak (highest), base (lowest) or instantaneous reading of the monochromatic LED's color and luminosity. For non-monochromatic LEDs, LEDs designed to output multiple wavelengths but perceived by the human eye as a single color, the sensor can be programmed to return a single wavelength with the sensor set to multimode.

LED luminosity can be influenced by temperature and other factors. After turning on the LED, it is desirable to delay the luminosity measurement until it reaches its optimum operation state. The i3070 LED test software gives full flexibility to the test programmer to set the sensor to Trigger, Learn and Evaluate the LED. A Gain is available to increase the LED light input and a Prescaler to set the sensitivity of the sensor. The i3070 LED test sensor has been designed to discern any luminosity changes greater than 3% enabling the i3070 LED Test system to be accurate to within ±10% of the learned luminosity value.

A comprehensive i3070 LED Test experience

The i3070 LED test is integrated with software tools to enhance the programmer experience in developing, debugging and deploying the LED tests on i3070. The software tools will automate the LED test generation and fixture files while a debugging tool aids the programmer to learn and validate the LED test results prior to releasing the tests to manufacturing. The i3070 LED test is supported on i3070 system software release 8.3 or greater.

i3070 LED Test Specifications

Measurement	Range	Units	Accuracy
Color (Hue)	400 to 660	nm	± 3 nm
Luminosity	0 to 18,000	$\mu W/cm^2$	± 10%

i3070 system requirements	
Software	Release 8.3
Hardware	• Utility Card with i3070 LED test card OR • i3070 LED test box

i3070 LED test part numbers to use when ordering:

i3070 LED test accessories	Description
N1124A-001	i3070 LED test sensor (pack of 32)
N1124A-002	i3070 LED test signal conditioner (Mux) card
N1124A-003	i3070 LED test card
N1124A-005	i3070 LED test starter kit Includes: • Receptacle socket pin for 32 i3070 LED test sensors • Light shroud tubing for i3070 LED test sensors • Mounting screws for two i3070 LED test multiplexer cards
N1128A-001	i3070 LED test box

For more information, please visit **www.agilent.com/find/led**

Agilent Email Updates

www.agilent.com/find/emailupdates
Get the latest information on the products and applications you select.

www.axiestandard.org
AdvancedTCA® Extensions for Instrumentation and Test (AXIe) is an open standard that extends the AdvancedTCA for general purpose and semiconductor test. Agilent is a founding member of the AXIe consortium.

www.lxistandard.org
LAN eXtensions for Instruments puts the power of Ethernet and the Web inside your test systems. Agilent is a founding member of the LXI consortium.

www.pxisa.org
PCI eXtensions for Instrumentation (PXI) modular instrumentation delivers a rugged, PC-based high-performance measurement and automation system.

Agilent Channel Partners

www.agilent.com/find/channelpartners
Get the best of both worlds: Agilent's measurement expertise and product breadth, combined with channel partner convenience.

Agilent Advantage Services

Agilent Advantage Services is committed to your success throughout your equipment's lifetime. To keep you competitive, we continually invest in tools and processes that speed up calibration and repair and reduce your cost of ownership. You can also use Infoline Web Services to manage equipment and services more effectively. By sharing our measurement and service expertise, we help you create the products that change our world.

www.agilent.com/find/advantageservices

Agilent Electronic Measurement Group
DEKRA Certified
ISO 9001:2008
Quality Management System

www.agilent.com/quality

www.agilent.com
www.agilent.com/find/led
www.agilent.com/find/ict

For more information on Agilent Technologies' products, applications or services, please contact your local Agilent office. The complete list is available at:

www.agilent.com/find/contactus

Americas

Canada	(877) 894 4414
Brazil	(11) 4197 3600
Mexico	01800 5064 800
United States	(800) 829 4444

Asia Pacific

Australia	1 800 629 485
China	800 810 0189
Hong Kong	800 938 693
India	1 800 112 929
Japan	0120 (421) 345
Korea	080 769 0800
Malaysia	1 800 888 848
Singapore	1 800 375 8100
Taiwan	0800 047 866
Other AP Countries	(65) 375 8100

Europe & Middle East

Belgium	32 (0) 2 404 93 40
Denmark	45 45 80 12 15
Finland	358 (0) 10 855 2100
France	0825 010 700*
	*0.125 €/minute
Germany	49 (0) 7031 464 6333
Ireland	1890 924 204
Israel	972-3-9288-504/544
Italy	39 02 92 60 8484
Netherlands	31 (0) 20 547 2111
Spain	34 (91) 631 3300
Sweden	0200-88 22 55
United Kingdom	44 (0) 118 927 6201

For other unlisted countries:
www.agilent.com/find/contactus

Revised: January 6, 2012

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

© Agilent Technologies, Inc. 2012

Published in USA, May 16, 2012
5990-8680EN

Agilent Technologies