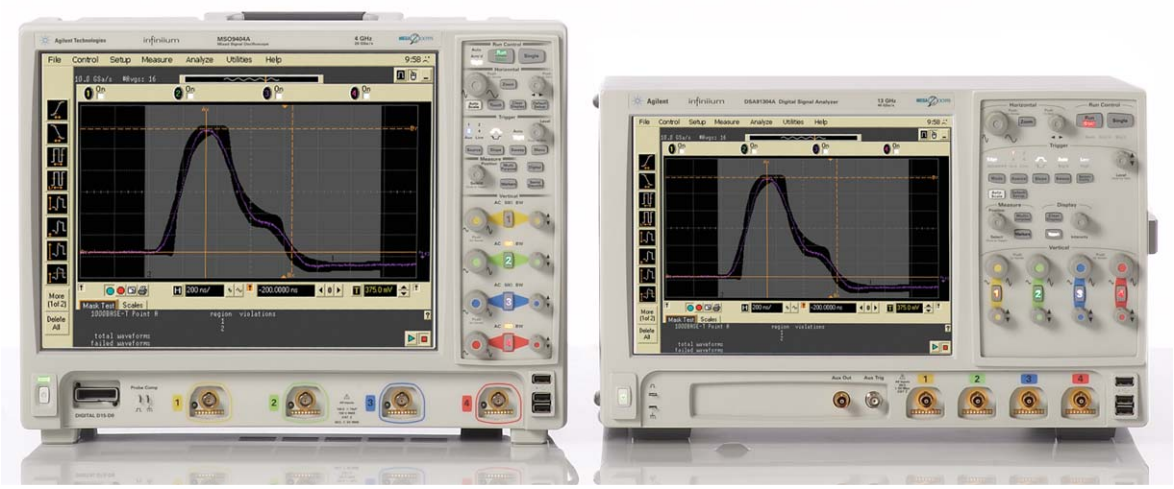
E2625A Communication Mask Test Kit
E2698A Ethernet Masks



The Infiniium E2625A Communication Mask Test Kit and E2698A Ethernet Masks build on the Infiniium oscilloscopes' ease-of-use legacy by making communications conformance testing accessible with one mouse click. Infiniium's familiar Windows® XP Pro open operating system enables you to quickly and easily load mask templates to the oscilloscope application and configure mask testing. As an added feature, the Communication Mask Test Kit includes a set of electrical communication adapters to ensure convenient, reliable, and accurate connections to your device under test. In addition, if you are looking for advanced electrical validation of your 1000BASE-T, 100BASE-TX and 10BASE-T Ethernet signals, you can try the Agilent N5392A Ethernet electrical performance validation and conformace software which runs on the Infiniium oscilloscopes.

Agilent Technologies

- 43 industry-standard ANSI T1.102, ITU-T G.703, and IEEE 802.3 communication signal mask templates
- Mask testing for positive and negative pulses
- Electrical communication adapters optimized for use with the Agilent Infiniium AutoProbe Interface
- FCC Part 68 Option A, B, and C masks for "line build-out" testing of DS1/T1 signals
- Automatic "isolated ones" triggering for some pulse mask types
- One-button alignment for best fit of mask templates to test waveforms for standard that allow scaling and/or offset
- Automatic pass/fail comparison of mask templates to corresponding input waveforms
- Failure highlighting for fast identification of mask failure areas
- Flagging of out-of-specification waveform amplitudes for ANSI T1.102 masks
- Mask failure waveform characterization with features such as color-graded persistence, histograms, drag and drop measurements and eye diagram measurements
- Ability to load user-defined masks from ASCII text files
- Screen annotation for complete documentation of measurements to electronic files or printers
- Familiar Windows® graphical user interface
- Built-in LAN interface for connecting your scope to PCs, network printers and other Infiniium oscilloscopes
- Remote programmability of mask test features using GPIB commands for automated test applications

Easy Mask Setup

The E2625A Communication Mask Template library and the E2698A Ethernet Masks come on 1.44 MB floppy disks. If you have a recent Agilent Infiniium oscilloscope, you'll find that these mask templates are already pre-installed in C:\scope\masks\comms. Configuring a mask test is fast and easy. The mask test dialog box lets you select the oscilloscope channel and display masks contained in the mask template library. Once your test is configured, you can dismiss the dialog box to maximize waveform viewing area and control your test directly using pop-up menus. You'll see an on-screen indication of the current mask and its data rate.

The E2625A Communication Mask Template library includes the following masks:

Standard	Mask Template	Data Rate
ANSI T1.102	DS1	1.544 Mb/s
	DS1A	2.048 Mb/s
	DS1C	3.152 Mb/s
	DS2	6.312 Mb/s
	DS3	44.736 Mb/s
	DS4NA (eye)	139.264 Mb/s
	DS4NA (max)	139.264 Mb/s
	STS1 (eye)	51.840 Mb/s
	STS1 (pulse)	51.840 Mb/s
	STS3 (eye)	155.520 Mb/s
	STS3 (max)	155.520 Mb/s
	FCC Part 68.308 Option A	1.544 Mb/s
	FCC Part 68.308 Option B	1.544 Mb/s
	FCC Part 68.308 Option C	1.544 Mb/s
SONET GR-253-CORE	OC1	51.840 Mb/s
	OC3	155.520 Mb/s
	OC12	622.080 Mb/s
IEEE 802.3	10BASE-T (TP_IDL)	10 Mb/s
	10BASE-T (LINK)	10 Mb/s
	100BASE-TX (STP)	100 Mb/s
	100BASE-TX (UTP)	100 Mb/s
ITU-T G.703	E1 (120 ohm)	2.048 Mb/s
	E1 (75 ohm)	2.048 Mb/s
	E2	8.448 Mb/s
	E3	34.368 Mb/s
	E4 (0)	139.264 Mb/s
	E4 (1)	139.264 Mb/s
	E4 (1) Inverted	139.264 Mb/s
	DS1	1.544 Mb/s
	DS2 (110 ohm)	6.312 Mb/s
	DS2 (75 ohm)	6.312 Mb/s
	DS3	44.736 Mb/s
	STM1E (0)	155.520 Mb/s
	STM1E (1)	155.520 Mb/s
	STM1E (1) Inverted	155.520 Mb/s

The E2698A Ethernet Masks provide mask templates for the following standards:

Standard	Mask Template	Data Rate
IEEE 802.3	1000BASE-T (points A, B, C, D, F, H)	250 Mb/s
	10BASE-T (TP_IDL)	10 Mb/s
	10BASE-T (LINK)	10 Mb/s
	10BASE-T (VOLT EXT)	10 Mb/s
	10BASE-T (VOLT INT)	10 Mb/s
	100BASE-TX (STP)	100 Mb/s
	100BASE-TX (UTP)	100 Mb/s



E2625A Communications Mask Test Kit provides a 1.44MB floppy with the mask templates as well as a number of hardware connectors and adapters.

Once you've chosen the appropriate mask, simply click on the Align button to automatically perform a fast, exhaustive search for the optimum fit of the mask to the test signal (some communication standards do not allow for any margin adjustment; thus, the align function is not available in all cases). This virtually eliminates the need for manual adjustments to your oscilloscope. This is an especially valuable feature for production test applications.

Some communication standards use the same template for testing conformance on negative and positive pulses. For those cases, an option is available to simply Invert Mask.

The length of a mask test can be set to run until forever, run until a defined number of waveforms have been captured, or run for a defined amount of time. An option is also available that allows you to stop acquiring after a mask failure is detected.

Running a Mask Test

Once your mask kit is configured, you can close the mask test setup dialog box. Below the waveform viewing area, you now have controls to start and stop a mask test. Additionally, you can see a readout of the total number of waveform points that failed in each region of the mask template, along with the total number of waveforms captured and the total number of failed waveforms.

Use the mouse or Infiniium's keyboard to add labels or notes to your screen images, then save them to the floppy or hard disk. The built-in LAN interface makes it easy to transfer these images to network computers so you can share or document your work. You can also print the waveform to local or network printers.

"Isolated ones" triggering

In some communication standards, it is necessary to isolate a pulse for mask testing to eliminate intersymbol interference caused by adjacent pulses. Infiniium's E2625A Communications Mask Test Kit makes this easy through the use of "isolated ones" triggering for pulse mask templates, eliminating the need for sophisticated pattern generators. When you load in a pulse mask, Infiniium automatically sets up the trigger to capture an "isolated one" pattern as defined by the particular communication standard.

Connecting to your device under test

Product compliance testing requires proper connection to your communications device. Included in the E2625A Communications Mask Test Kit is a set of electrical termination adapters and adapter cables to ensure convenient, reliable, and accurate connections to your device under test. The kit also includes system performance accessories and the Mask Template Library software—all packaged in a protective, hard-shell case.

E2621A 100/110/120-ohm differential termination adapter

The E2621A ac-coupled, balanced adapter is included in the E2625A Communications Mask Test Kit. The E2621A allows connection to differential communications signals by terminating the signal into 100, 110, or 120 ohms. It also adapts various connector styles (i.e., bantam, RJ48C, and Siemens) to the oscilloscope's 50-ohm
BNC input. You can select the termination impedance using the built-in three-way switch. The Infiniium AutoProbe interface allows the oscilloscope to recognize the E2621A and read the termination switch setting. Furthermore, Infiniium will flag you when the switch setting differs from the standard's required termination impedance.

The E2621A complies with the following ANSI T1.102 and ITU-T G.703 standards:

DS1	(1.544 Mb/s)
DS1A	(2.048 Mb/s)
DS1C	(3.152 Mb/s)
DS2	(6.312 Mb/s)
E1	(2.048 Mb/s)

Bandwidth (-3dB)	<10 kHz to >100 MHz
Rise Time	<3.5 ns
Attenuation	5X (–14 dB) ± 3% (50 kHz to 30 MHz)



E2622A 75-ohm termination adapter

The E2622A is also included in the Communications Mask Test Kit. The E2622A dc-coupled, unbalanced adapter allows connection to single-ended signals by terminating the signal into 75 ohms. Various BNC adapters can be attached to its input. The Infiniium AutoProbe interface allows the oscilloscope to recognize the E2622A and automatically configure itself.

The E2622A complies with the following ANSI T1.102 and ITU-T G.703 standards:

DS3	(44,736 Mb/s)
DS4NA	(139.264 Mb/s)
STS1	(51.840 Mb/s)
STS3	(155.520 Mb/s)
STM1E	(155.520 Mb/s)
E1	(2.048 Mb/s)
E2	(8.448 Mb/s)
E3	(34.368 Mb/s)
E4	(139.264 Mb/s)

Bandwidth (-3dB)	<1 GHz*
Rise Time	<350 ps
Attenuation	5X (–14 dB) ± 1.5%

* Full bandwidth only achievable with the 54832B/D, 54833A/D, 5484xA/B and 5485xA oscilloscopes



Compatibility

The E2625A Communications Mask Test Kit is compatible with the 8000, 9000 and 90000 Series oscilloscopes:

The E2698A Ethernet Masks are compatible with Infiniium 9000 and 90000 Series oscilloscopes:

Ordering Information

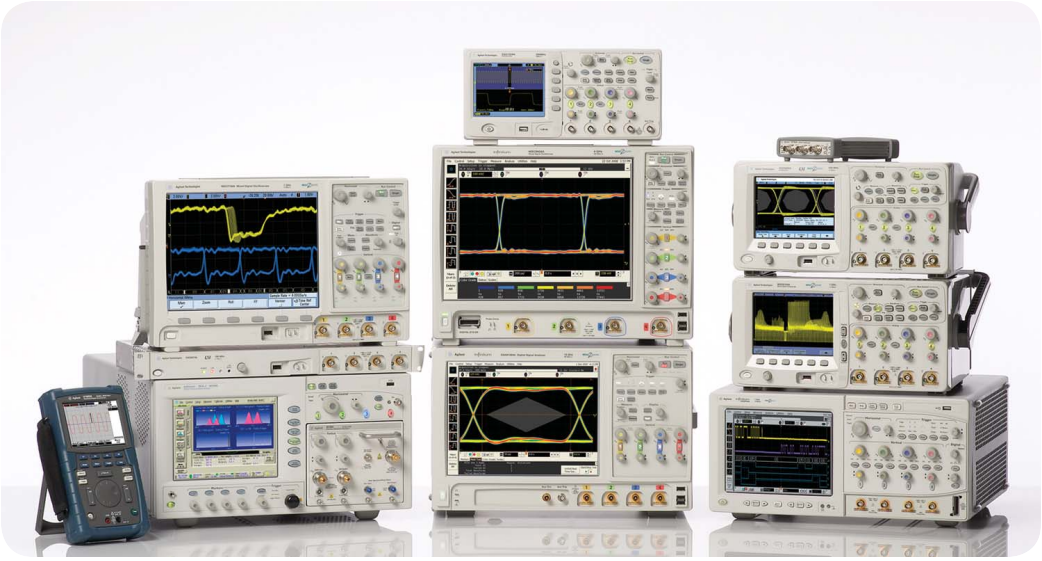
The E2625A Communications Mask Test Kit provides the following:
Mask Template Library Floppy Disk
E2621A 100/110/120-ohm balanced termination adapter with bantam (f) connector
E2622A 75-ohm unbalanced termination adapter with BNC (f) connector
Bantam (m) to Siemens (f) adapter cable; for connection to E2621A adapter when a Siemens (f) connection is needed
Dual-bantam (m) to RJ48C (m) adapter cable; for connection of either transmit or receive T1 signals to E2621A adapter
RJ48C (f) to RJ48C (f) adapter/coupler
Bantam (m) to BNC (f); for self calibration of E2621A adapter and the Infiniium oscilloscope
BNC (m) to BNC (f) 50-to-75 ohm adapter; for self calibration of E2622A adapter and the Infiniium oscilloscope
BNC (m) to BNC (m) cable; 30 cm long
Hard-shell case for storage of all kit accessories

The E2698A Ethernet Masks provides the following:
Six 1000BASE-T Masks
Two 100BASE-TX Masks
Four 10BASE-T Masks

Purchase of the E2625A Communications Mask Test Kit is not required to use the E2698A Ethernet Masks.

Related Literature

Publication Name	Publication Type	Publication Number
N5392A Ethernet Electrical Performance Validation and Conformance SW for Infiniium Oscilloscopes	Data sheet	5989-1527EN
Agilent Infiniium DSO/DSA 90000A Series Oscilloscopes	Data sheet	5989-7819EN
N5431A XAUI Electrical Validation Application for Infiniium Oscilloscopes and Digital Signal Analyzers	Data sheet	5989-6151EN
Infiniium 9000 Series Oscilloscopes	Data Sheet	5990-3746EN



Agilent Technologies Oscilloscopes

Multiple form factors from 20 MHz to >90 GHz | Industry leading specs | Powerful applications

Agilent Email Updates

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

Agilent Direct

www.agilent.com/find/agilentdirect
Quickly choose and use your test equipment solutions with confidence.

Agilent Open

www.agilent.com/find/open
Agilent Open simplifies the process of connecting and programming test systems to help engineers design, validate and manufacture electronic products. Agilent offers open connectivity for a broad range of system-ready instruments, open industry software, PC-standard I/O and global support, which are combined to more easily integrate test system development.

LXI

www.lxistandard.org
LXI is the LAN-based successor to GPIB, providing faster, more efficient connectivity. Agilent is a founding member of the LXI consortium.

Remove all doubt

Our repair and calibration services will get your equipment back to you, performing like new, when promised. You will get full value out of your Agilent equipment throughout its lifetime. Your equipment will be serviced by Agilent-trained technicians using the latest factory calibration procedures, automated repair diagnostics and genuine parts. You will always have the utmost confidence in your measurements.

Agilent offers a wide range of additional expert test and measurement services for your equipment, including initial start-up assistance onsite education and training, as well as design, system integration, and project management.

For more information on repair and calibration services, go to

www.agilent.com/find/removealldoubt

Agilent T&M Software and Connectivity
Agilent's Test and Measurement software and connectivity products, solutions and developer network allows you to take time out of connecting your instruments to your computer with tools based on PC standards, so you can focus on your tasks, not on your connections. Visit **www.agilent.com/find/connectivity** for more information.

Windows® is a U.S. registered trademark of Microsoft Corporation.

www.agilent.com

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
Latin America	305 269 7500
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
Thailand	1 800 226 008

Europe & Middle East

Austria	01 36027 71571
Belgium	32 (0) 2 404 93 40
Denmark	45 70 13 15 15
Finland	358 (0) 10 855 2100
France	0825 010 700
Germany	07031 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
Switzerland	0800 80 53 53
United Kingdom	44 (0) 118 9276201

Other European Countries:
www.agilent.com/find/contactus

Revised: October 1, 2008

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

© Agilent Technologies, Inc. 2009
Printed in USA, June 1, 2009
5989-0372EN

Agilent Technologies