

N1080B Connectivity Solutions

**(Options H01/H02/H03
HDMI Test Adapters)**

User's Guide



Agilent Technologies

Notices

© Agilent Technologies, Inc. 2009

No part of this manual may be reproduced in any form or by any means (including electronic storage and retrieval or translation into a foreign language) without prior agreement and written consent from Agilent Technologies, Inc. as governed by United States and international copyright laws.

Manual Part Number

N1080-97000

Edition

December 2009

Printed in Malaysia

Agilent Technologies, Inc.
Digital Signal Analysis Division
1400 Fountaingrove Parkway
Santa Rosa, CA 95403, USA

Warranty

The material contained in this document is provided “as is,” and is subject to being changed, without notice, in future editions. Further, to the maximum extent permitted by applicable law, Agilent disclaims all warranties, either express or implied, with regard to this manual and any information contained herein, including but not limited to the implied warranties of merchantability and fitness for a particular purpose. Agilent shall not be liable for errors or for incidental or consequential damages in connection with the furnishing, use, or performance of this document or of any information contained herein. Should Agilent and the user have a separate written agreement with warranty terms covering the material in this document that conflict with these terms, the warranty terms in the separate agreement shall control.

Safety Notices

CAUTION

Caution denotes a hazard. It calls attention to a procedure which, if not correctly performed or adhered to, could result in damage to or destruction of the product. Do not proceed beyond a caution sign until the indicated conditions are fully understood and met.

WARNING

Warning denotes a hazard. It calls attention to a procedure which, if not correctly performed or adhered to, could result in injury or loss of life. Do not proceed beyond a warning sign until the indicated conditions are fully understood and met.

Instrument Markings



This symbol indicates the Environmental Protection Use Period (EPUP) for the product's toxic substances for the China RoHS

requirements.

Contents

Introduction	4
Configuring the N1080B for HDMI 1.3 and HDMI 1.4 Testing	6
TPA-P and TPA-R Handling Precautions	7
Caution 1. Avoid Torque Forces	8
Caution 2. Avoid Sharp Cable Bends	9
Caution 3. Avoid Cable Tension	10
Caution 4. Connect HDMI Connectors First	11
Caution 5. Carefully Make SMA Connections	11
Recommended Connection Accessories	12
Specifications and Characteristics	15
HDMI Tests and N1080B Options	16
TPA-R and TPA-P Cable Pins	19
TPA Board Assembly	23
General Connector Care	27
Electrostatic Discharge Information	29
Contacting Agilent Technologies	31

Introduction

This user's guide documents the N1080B options H01, H02, and H03; it does not cover any other versions of the N1080B product. The three options, shown in [Figure 1](#), are tools for testing High Definition Multimedia Interface (HDMI) cables and devices against the HDMI Compliance Test Specification versions 1.2, 1.3, and 1.4. When performing tests, always use a static-safe workstation as explained in [“Electrostatic Discharge Information”](#) on page 29.

CAUTION

To avoid damaging the TPA-P and TPA-R cable, use the handling techniques described in [“TPA-P and TPA-R Handling Precautions”](#) on page 7 before making any connections or configuring a test setup.

The TPA-P and TPA-R cables allow easy access, via SMA connections, for measuring or injecting TMDS or HEAC signals. These cables also connect the HDMI control, DC power, and ground lines to the Option H03 TPA board providing measurement access to several test points.



Figure 1. HDMI test cables and board

As explained in [“TPA Board Assembly”](#) on page 23, the TPA board contains jumpers that easily configure the lines for many test conditions listed in the HDMI Compliance Test Specification. [Figure 2](#) shows how to connect a TPA cable to J1 or J2 on the TPA Board. When making the connection, orientate the cable so that the pin labels on the cable match the labels on the TPA Board. For example, GND on the cable connects to pin 1 on J1 or J2.

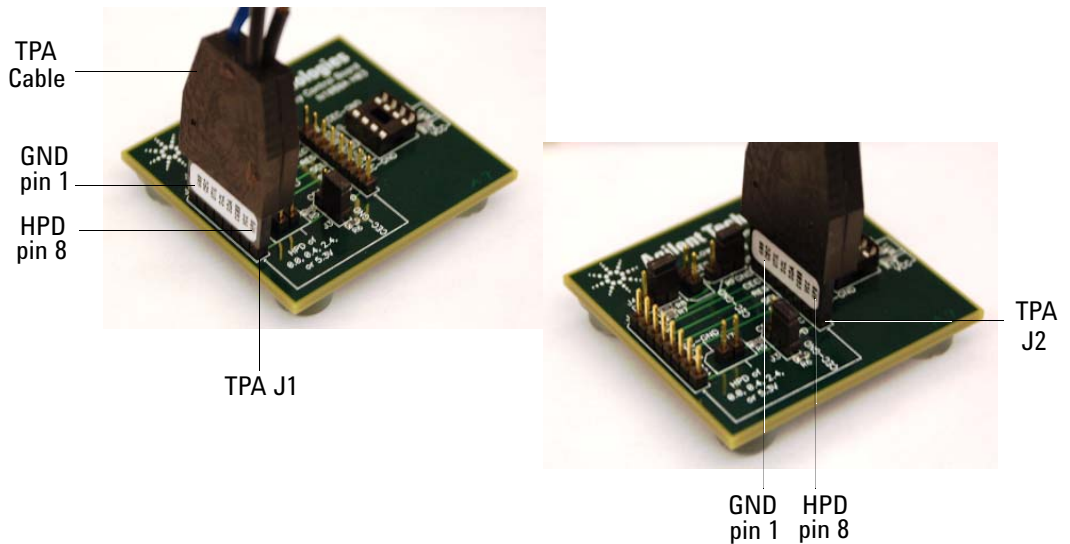


Figure 2. Connecting a TPA cable to TPA J1 or J2

Accessories

When using Agilent InfiniiMax II series probes, use the N5380A differential SMA probe head to facilitate connecting to the TPA-R and TPA-P SMA connectors. [Refer to “SMB Cable with N5380A” on page 14](#) for more information.

Product Inspection

When you receive the product from Agilent, be sure to inspect the shipment:

- Inspect the shipping container and product for damage. Keep the shipping container and cushioning material until you have inspected the contents of the shipment for completeness and have checked the product mechanically and electrically.
- Locate the shipping list. Verify that you received all the items that you ordered.

Configuring the N1080B for HDMI 1.3 and HDMI 1.4 Testing

The N1080B can be used for both HDMI 1.3 and HDMI 1.4 TMDS / HEAC testing. To configure the probe for HDMI 1.4 HEAC testing, disconnect the HEAC+ and HEAC- SMA cables from the TPA Board Connector as shown below. The male side must then be connected to the 91150AU-EHD HEAC Test Board (refer to the 91150AU-EHD HEAC Test Board data sheet / user's guide for more information).

HEAC+ and HEAC- SMA cables are disconnected from the TPA Board Connector



To configure the probe for HDMI 1.3 testing or HDMI 1.4 TMDS testing, connect the HEAC+ and HEAC- SMA cables to the TPA Board Connector as shown below (be sure to match polarity by using the labels/colors on the SMA cables and TPA Board Connector). The TPA Board Connector is then connected to the N1080B-H03 TPA Board.

HEAC+ and HEAC- SMA cables are connected to the TPA Board Connector



TPA-P and TPA-R Handling Precautions

CAUTION

Avoid making sharp bends in the TPA-P and TPA-R cables or applying twisting or tension, as described in this section.

This section explains essential handling techniques required to avoid damaging the TPA-P and TPA-R cables. The eight coaxial cables and bundled HDMI signal cables are soldered to a printed-circuit board within the adapter's plastic shell. Improper handling techniques may damage these internal solder joints. Also, bending the cables with too small a radius may cause damage. This can occur at any point along the cable.

In order to achieve optimum performance and to prolong the cable adapter's life, observe the handling precautions on the following pages:

- [Caution 1. Avoid Torque Forces](#) 8
- [Caution 2. Avoid Sharp Cable Bends](#) 9
- [Caution 3. Avoid Cable Tension](#) 10
- [Caution 4. Connect HDMI Connectors First](#) 11
- [Caution 5. Carefully Make SMA Connections](#) 11
- [Recommended Connection Accessories](#) 12

Caution 1. Avoid Torque Forces

Never apply to an individual coaxial cable or the bundled HDMI signal cables a torque force that results in a cable twist greater than $\pm 150^\circ$. Cable twisting occurs whenever rotation is applied to a cable about its center axis while holding either end stationary. Twisting can occur when connecting either HDMI or SMA connectors. For the proper method of making an SMA connection, refer to “[Caution 5. Carefully Make SMA Connections](#)” on page 11.

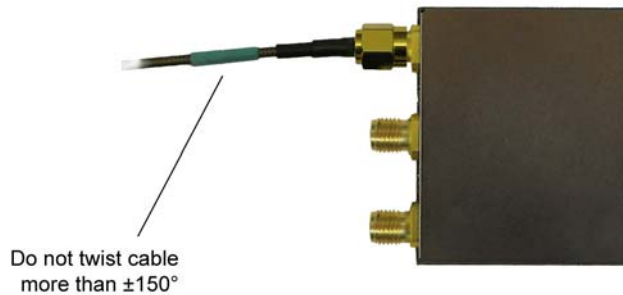


Figure 3. Example of cable twist

Caution 2. Avoid Sharp Cable Bends

Never bend coaxial cables into a radius of 13 mm (½ -inch) or less. *Never* bend cables, including the bundled HDMI signal cables, greater than 90°. Single or multiple cable bends must be kept within this limit for the single cables or the bundled HDMI signal cables.

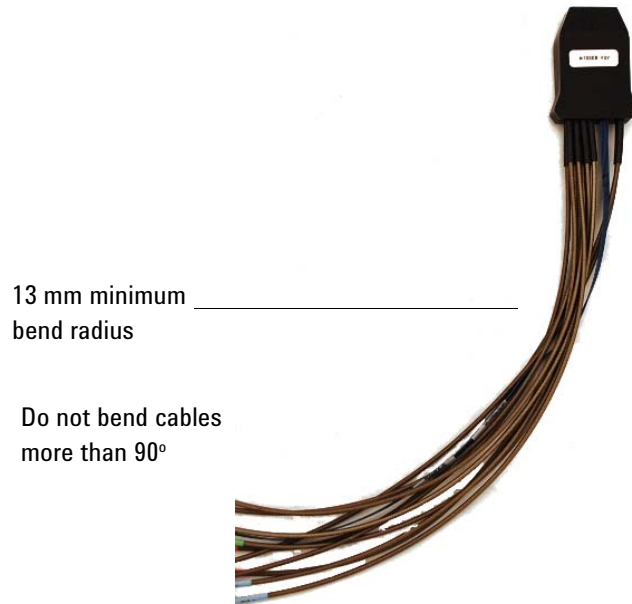


Figure 4. Example of minimum cable bend radius

Caution 3. Avoid Cable Tension

Tension is applied to a cable whenever the cable is stressed to reach a test-setup connection or the cable is subjected to the weight of test-setup equipment. *Never* apply tension to an individual SMA cable connector that is greater than 2.3 kg (5 lbs.). *Never* apply a tension to the bundled HDMI signal cable connector that is greater than 4.54 kg (10 lbs.). To avoid applying tension, place accessories and equipment on a table top or surface that can be adjusted vertically to reach the TPA cable. Use adjustable elevation stands to accurately place your devices.

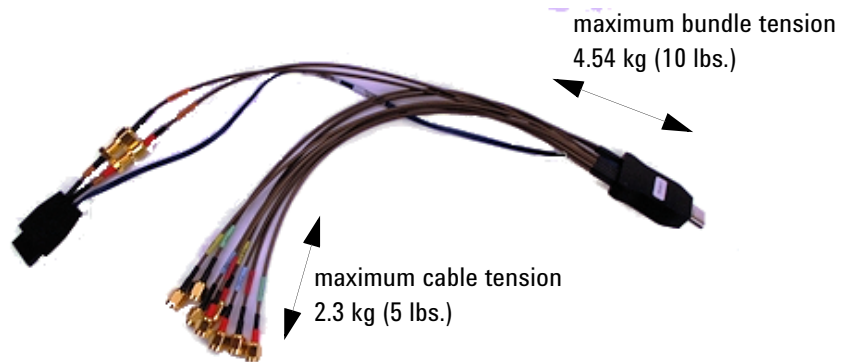


Figure 5. Maximum cable tension

Caution 4. Connect HDMI Connectors First

- To avoid twisting, bending, or tension when connecting a TPA-P or TPA-R cable, always connect the HDMI connector before connecting any SMA connectors or the TPA board connector.

Make sure that all the cables are straight and free of any twisting or bending. First carefully align the HDMI connectors and then gently push the connectors together until a detent is felt. If you need to reposition the test setup, first disconnect the HDMI or DUT connectors.

Caution 5. Carefully Make SMA Connections

To connect TPA SMA connectors, use the following steps:

- 1** Hold the TPA cable stationary by grasping the cable at the black heat-shrink section near the cable's SMA connector.
- 2** Insert the mating SMA barrel and turn the free spinning SMA nut onto the connector while avoiding pulling, bending, or twisting the TPA cable.
- 3** Tighten the nut on the SMA connector by hand. If desired, use a 5 in-lb. torque wrench to tighten the SMA connection. (Use Agilent torque wrench part number 8710-1582 or equivalent.)

If you need to reposition the test setup, first loosen or disconnect the SMA connections to avoid twisting, bending, or tension.

Recommended Connection Accessories

N5380-64701 SMA Head Support

The Agilent N5380-64701 SMA Head Support is included with the N5380A and E2695A SMA probe heads to prevent damage to the probe amplifier. It is strongly recommended that you use the SMA Head Support whenever you are using either of these probe heads. Below is a drawing showing how to attach the SMA Head Support using two of the four screws provided in the kit (the other two screws are extras in case you need them in the future). Be sure to plug the probe amplifier into the SMA head before installing the SMA Head Support. Also, do not attempt to plug or unplug the SMA head from the probe amplifier while it is in the SMA Head Support housing.

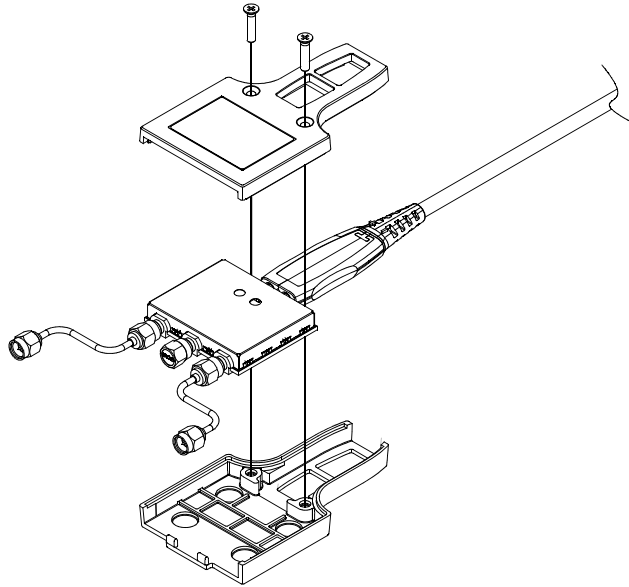


Figure 6. Attaching the SMA Head Support

SMA Push-on Adapters

Push-on SMA adapters, available within the industry, can be used to further protect the SMA connectors. In some cases, these adapters can degrade measurement performance. When disconnecting a connection that has a push-on SMA adapter, grab the push-on adapter and not the coaxial cable. When selecting a push-on adapter, choose one with greater than 2 kg of retention force and is verified to be without power holes in the insertion-loss response.

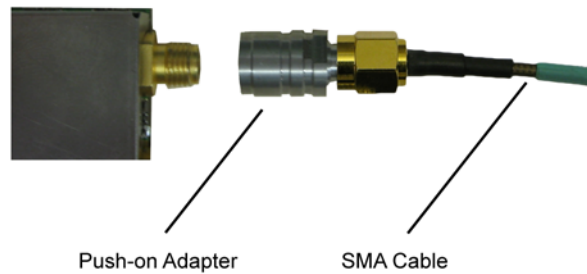


Figure 7. Example of a push-on SMA adapter

Matched SMA Cable Pairs

At times, you may need to connect the TPA SMA cable pairs to a device such as the Agilent E4887A-10x series HDMI cable emulator. Wide spacing of the SMA connectors can cause stress to the TPA cables. To relieve the stress, add matched SMA cable pairs (for example, Agilent 15443A) to the TPA cables using Agilent 83059B 3.5 mm (f) to 3.5 mm (f) adapters as shown in [Figure 8](#).

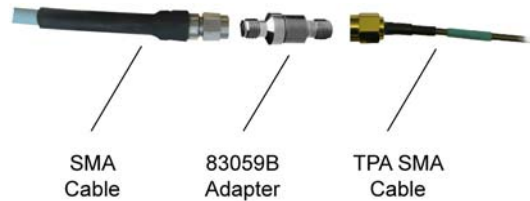


Figure 8. Adding SMA cables to relieve strain

To reduce equipment crowding in your test setups and relieve cable stress, avoid placing all of the devices, including the device-under-test, on the same side of the equipment setup. You can make a 180° connection by connecting two SMA 90° m-f adapters (Agilent p/n 1250-1249 or equivalent) as shown in [Figure 9](#).



SMB Cable with N5380A

When using the N5380A differential SMA probe head (for Agilent InfiniiMax II series probes), use an SMB cable with an SMB-to-SMA adapter to connect the dc bias as shown in [Figure 9](#). The SMB cable is more flexible and therefore preferred over an SMA cable, in this situation.

BNC (f)-to-SMB (f) cable Agilent p/n 8120-5007
 SMB (m)-to-SMA (m) adapter Agilent p/n 1250-2439

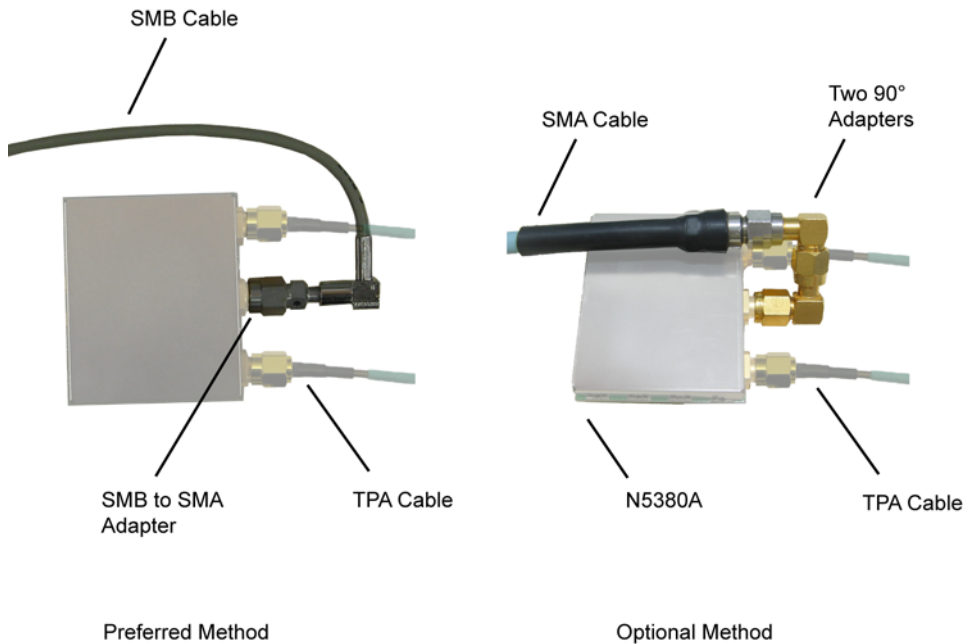


Figure 9. SMB and SMA cables and adapters reduce tension and torque

Specifications and Characteristics

Specifications describe warranted performance. Characteristics provide useful, non-warranted information about the functions and performance of the product. Characteristics are printed in *italics*.

Table 1. Specifications and Characteristics

Item	Description
Use	Indoor
<i>Cable Length</i>	<i>30 cm (±20 mm) (characteristic)</i>
<i>HDMI Differential Impedance ^a</i>	
<i>Plug</i>	<i>100Ω ± 15% for each differential TMDS pair (characteristic)</i>
<i>Receptacle</i>	<i>100Ω ± 15% for each differential TMDS pair (characteristic)</i>
<i>Not including HDMI connector region</i>	<i>100Ω ± 5% for each differential TMDS pair (characteristic)</i>
<i>Intra-pair skew matching</i>	<i>5 ps (characteristic)</i>
<i>Inter-pair skew matching of differential TMDS pairs</i>	<i>13 ps (characteristic)</i>
<i>Temperature, Operating</i>	<i>0°C to +55°C (32°F to +131°F) (characteristic)</i>
<i>Temperature, Storage</i>	<i>-40°C to +70°C (-40°F to +158°F) (characteristic)</i>

a. when measured with a minimum 75 ps TDR step.

HDMI Tests and N1080B Options

[Table 2](#) lists the HDMI tests for which you can use the TPA-R, TPA-P, and TPA board assemblies. For each test, the recommended number of devices needed is listed; a blank entry indicates that a device is not needed for that particular test. The information provided in the table is compatible with the HDMI Compliance Test Specification versions 1.2 and 1.3.

You must set the positions of several test jumpers on the TPA board assembly in order to configure the assembly for the tests. Set the position of the test jumpers as shown in [Figure 12 on page 25](#).

The N1080B is connected to the 81150AU-EHD for HEAC Rx and Tx testing. For further information on these tests, please consult the [81150AU-EHD HEAC Test Board Data Sheet / User's Guide](#).

Table 2. HDMI Tests and Associated N1080B Options (1 of 2)

HDMI Test	Quantity of TPA-P Cables	Quantity of TPA-R Cables	Quantity of TPA Board
Cable Assembly Tests			
5.3. TMDS Data Eye Diagram		2	1
5-4. Intra-Pair Skew		2	
5-5. Inter-Pair Skew		2	
5-6. Far End Crosstalk		2	
5-7. Attenuation		2	
5-8. Differential Impedance		2	
Source Tests			
7-2. TMDS - V_L	1		1
7-3. TMDS - V_{OFF}	1		1
7-4. TMDS - T_{RISE} , T_{FALL}	1		1
7-6. TMDS - Inter-Pair Skew	1		1
7-7. TMDS - Intra-Pair Skew	1		1
7-8. TMDS - Clock Duty Cycle	1		1
7-9. TMDS - Clock Jitter	1		1
7-10. TMDS - Data Eye Diagram	1		1
7-11. +5V Power	1		1
7-12. Hot Plug Detect	1		1
7-13. DDC/CEC Capacitance and Voltage	1		1
7-14. CEC Line Connectivity	1		2
7-15. CEC Line Degradation	1		1

N1080B Connectivity Solutions
HDMI Tests and N1080B Options

Table 2. HDMI Tests and Associated N1080B Options (2 of 2)

HDMI Test	Quantity of TPA-P Cables	Quantity of TPA-R Cables	Quantity of TPA Board
Sink Tests			
8-4. TMDS - Termination Voltage	1		1
8-5. TMDS - Min/Max Differential Swing Tolerance	1	1	1
8-6. TMDS - Intra-Pair Skew	1	1	1
8-7. TMDS - Jitter Tolerance	1	1	1
8-8. TMDS - Differential Impedance	1		
8-9. DDC/CEC Line Capacitance and Voltage	1		1
8-10. HPD Output Voltage	1		1
8-11. HPD Output Resistance	1		1
8-12. +5V Power Max Current	1		1
8-13. CEC Line Connectivity	1		1
8-14. CEC Line Degradation	1		1
8-15. Character Synchronization	1		1
8-16. Acceptance of All Valid Packet Types	1		1
8-21. Audio Clock Regeneration	1		1
8-22. Audio Sample Packet Jitter	1		1
8-23. Audio Formats	1		1

TPA-R and TPA-P Cable Pins

Both TPA-P and TPA-R assemblies provide access to the 4 differential TMDS lanes (8 total SMA connectors) and access to the control and power supply lines. The Reserved and Hot Plug lines are broken out with separate cables with SMA connectors to allow for HEAC testing for HDMI 1.4. Labels clearly mark each cable or connector. The following figure refers to pin-description tables for each of the three connector types.

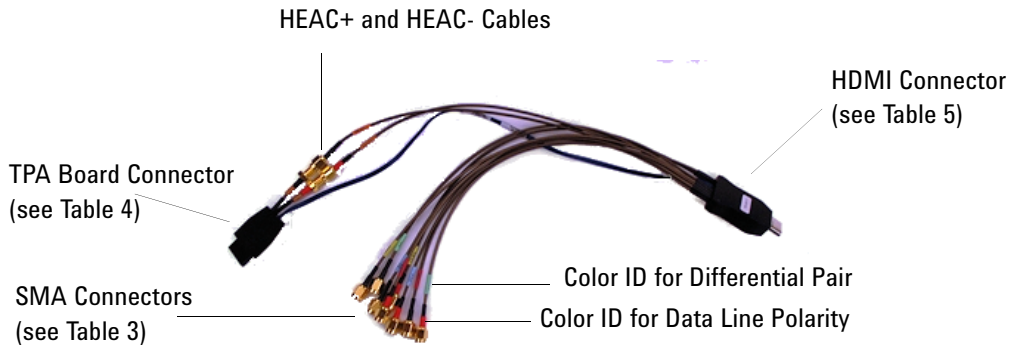


Figure 10. Cable Connectors

Table 3. SMA Cable Connectors

Label	Color ID for Data Line Polarity	Color ID for Differential Pair ^a	Description
D0+	red	green	Differential Data Line 0 (+ line)
D0-	black		Differential Data Line 0 (- line)
D1+	red	blue	Differential Data Line 1 (+ line)
D1-	black		Differential Data Line 1 (- line)
D2+	red	red	Differential Data Line 2 (+ line)
D2-	black		Differential Data Line 2 (- line)
CLK+	red	yellow	Differential Clock Line (+ line)
CLK-	black		Differential Clock Line (- line)
HEAC ^{+b}	red	orange	Differential Data Line (+ line)
HEAC ^{-b}	black		Differential Data Line (- line)

a. Corresponds to channel identification color on Agilent Infiniium real-time oscilloscopes.

b. Only applies to HDMI 1.4 HEAC testing

Table 4. TPA Board Connector

Pin	Control Line Pin Description
1	RF Ground
2	CEC
3	RES (REServed, no connection on device)
4	SCL
5	SDA
6	DDC/CEC Ground
7	+5V
8	HPD (Hot Plug Detect)

N1080B Connectivity Solutions
TPA-R and TPA-P Cable Pins

Table 5. HDMI Connector

HDMI Pin	HDMI Signal Description	SMA Cable Labels	Control Line Pin (to TPA Board)
1	TMDS Data 2+	D2+	—
2	TMDS Data 2 Shield	—	—
3	TMDS Data 2–	D2–	—
4	TMDS Data 1+	D1+	—
5	TMDS Data 2 Shield	—	—
6	TMDS Data 1–	D1–	—
7	TMDS Data 0+	D0+	—
8	TMDS Data 0 Shield	—	—
9	TMDS Data 0–	D0–	—
10	TMDS Clock+	CLK+	—
11	TMDS Clock Shield	—	—
12	TMDS Clock–	CLK–	—
13	CEC	—	7
14	Reserved (no connection on device)*, HEAC+**	—*, HEAC+**	6
15	SCL	—	5
16	SDA	—	4
17	DDC/CEC Ground*, HEAC Shield**	—	3
18	+5V	—	2
19	HPD (Hot Plug Detect)*, HEAC-**	—*, HEAC-**	1
*For testing other than HDMI 1.4 HEAC **For HDMI 1.4 HEAC testing			

TPA Board Assembly

The TPA board assembly (low-frequency control board), shown in [Figure 11](#), includes test jumpers, two TPA-P and TPA-R cable connectors (J1 and J2), and other components called out in the HDMI tests. It also includes connector J6, so that you can connect various CEC voltages as specified for the HDMI tests. Likewise, connector J7 allows you to connect various HPD voltages. Although not called out in the HDMI specification, an 8-pin DIP socket is provided as a convenience, so that the design engineer can plug in I²C devices.

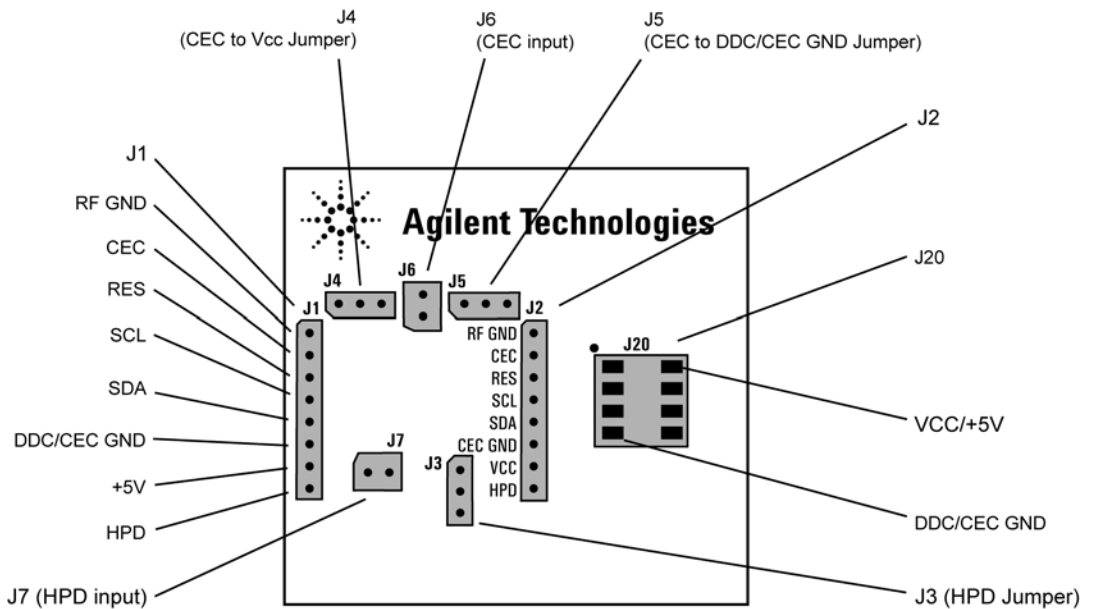


Figure 11. TPA Board Assembly Connectors and Jumpers

When performing the tests listed in the HDMI specification, refer to [Figure 11](#) for line test points as well as DC power supply and ground connections. Refer to [Figure 12](#) for jumper positions matching the listed test connections. These jumpers allow

TPA Board Assembly

you to quickly and easily configure the test setup for an HDMI test. For example, in HDMI Test 7-15 CEC Line Degradation, setting jumper J4 connects the CEC line to the 3.3V DC power via a 27 K Ω resistor.

[Figure 13 on page 26](#) shows the schematic diagram of the TPA board assembly. Jumpers J3, J4, and J5, shown on the left side of the schematic, configure the TPA board assembly for the various test conditions. Use jumpers J6 and J7 to supply CEC and HPD inputs. Sink pull-up resistors R11 and R12 ensure that a strong low is required for the SDA (serial data) and SCL (serial clock) lines. The combination of R3/C5 and R4/C6 provide useful filtering for display (TV) environments. Capacitor C11 is a bypass for the +5V supply line.

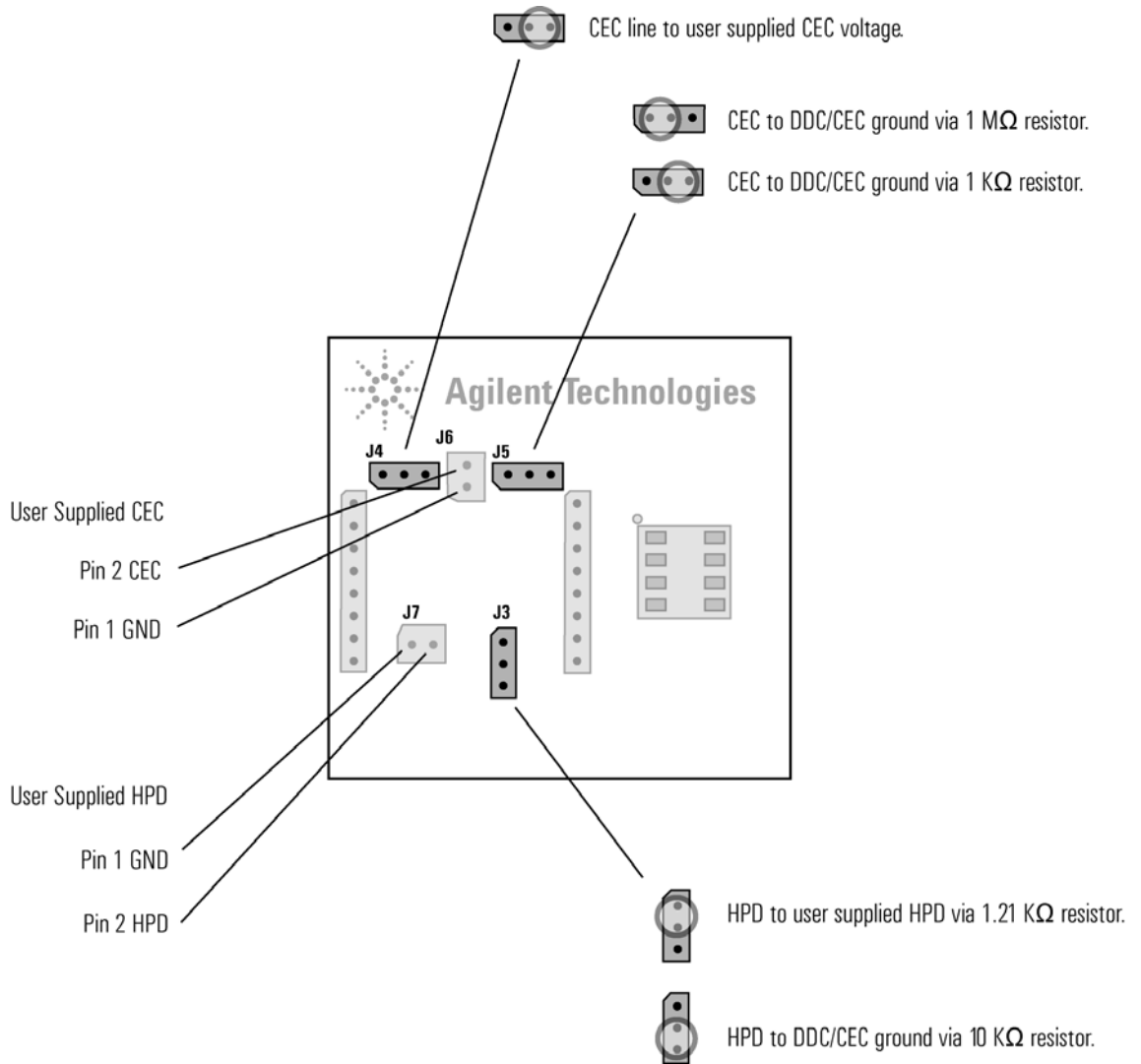


Figure 12. Test Jumper Settings and Voltage Input Connector Pins

N1080B Connectivity Solutions
TPA Board Assembly

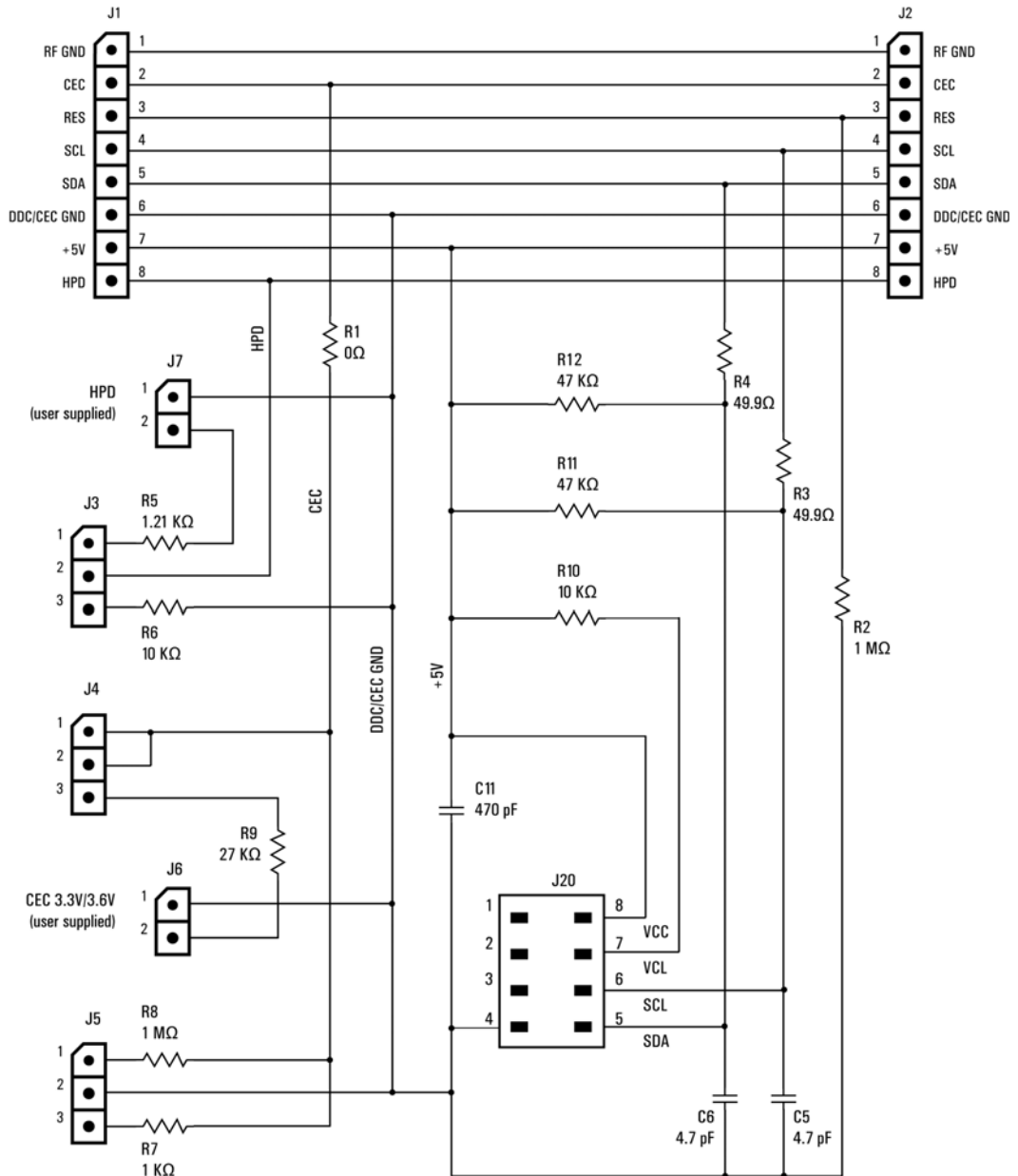


Figure 13. TPA Board Assembly Schematic Diagram

General Connector Care

Advances in measurement capabilities make connectors and connection techniques more important than ever. Observing simple precautions can ensure accurate and reliable measurements.

Handling and storage

- Keep connectors clean
- Extend sleeve or connector nut
- Do not touch mating plane surfaces
- Do not set connectors contact-end down

Visual inspection

- Inspect all connectors carefully before every connection
- Look for metal particles, scratches, and dents
- Do not use damaged connectors

Cleaning

- Clean with compressed air first
- Clean the connector threads
- Do not use abrasives
- Do not get liquid onto the plastic support beads

Making connections

- Align connectors carefully
- Make preliminary connection lightly
- To tighten, turn connector nut only
- Do not apply bending force to connection
- Do not over tighten preliminary connection
- Do not twist or screw in connectors
- Use a torque wrench, and do not tighten past the “break” point of the torque wrench

3.5 mm and SMA Connectors

Precision 3.5 mm microwave connectors are compatible with an SMA connector within its specification. Due to the variable quality of the SMA connector, mating with an SMA can sometimes cause severe damage to the 3.5 mm connector. You can use SMA connectors if special care is taken when mating the connectors, and all

General Connector Care

connectors are undamaged and clean. Before each use, check the mechanical dimensions of all connectors with a connector gauge to make sure that the center conductors are positioned correctly.

CAUTION

A male SMA connector pin that is too long can smash or break the delicate fingers on the precision 3.5 mm female connector.

CAUTION

Some precision 3.5 mm female connector fingers are very tight and can pull the center pin of their mates out past specifications when the connectors are disconnected. If such a male pin is inserted into a female connector, it can cause considerable damage by pushing the female center conductor back too far. Be aware of this possibility and check all connectors before mating them again.

Electrostatic Discharge Information

Electrostatic discharge (ESD) can damage or destroy electronic components. All work on electronic assemblies should be performed at a static-safe work station. The following figure shows an example of a static-safe work station using two types of ESD protection:

- Conductive table-mat and wrist-strap combination.
- Conductive floor-mat and heel-strap combination.

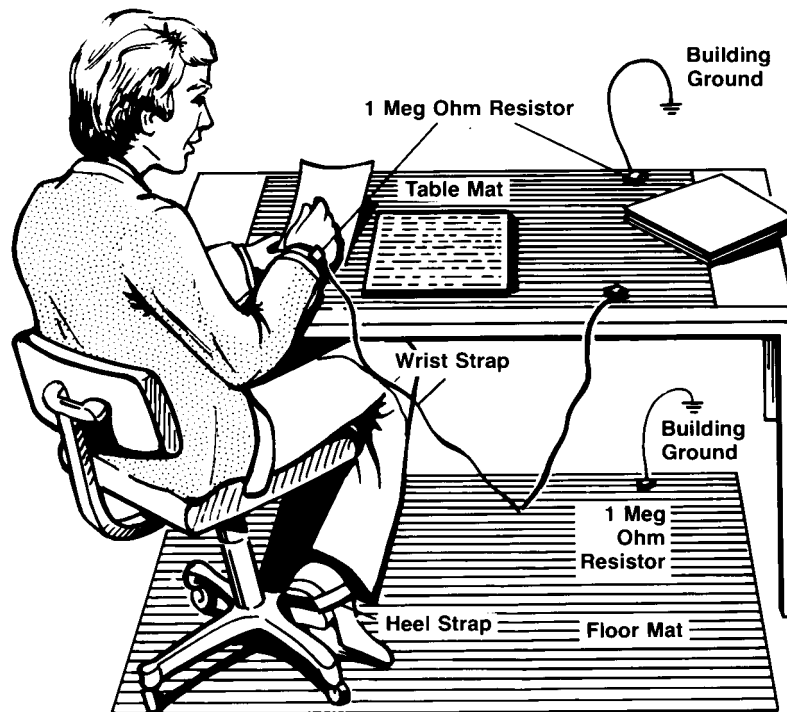


Figure 14. Static-safe Work Station

Electrostatic Discharge Information

Both types, when used together, provide a significant level of ESD protection. Of the two, only the table-mat and wrist-strap combination provides adequate ESD protection when used alone. To ensure user safety, the static-safe accessories must provide at least 1 M Ω of isolation from ground. Purchase acceptable ESD accessories from your local supplier.

WARNING

These techniques for a static-safe work station should not be used when working on circuitry with a voltage potential greater than 500 volts.

Contacting Agilent Technologies

In the unlikely event that the product is defective or incomplete, the section tells you how to contact Agilent Technologies for technical assistance and how to package the product for return to a service office. Before returning an instrument for service, you must first call the Call Center at 1 (800) 829-4444.

If the product is still under warranty, it will be repaired under the terms of the warranty. If the product is no longer under warranty, Agilent will notify you of the cost of the repair after examining the product. When a product is returned to an Agilent service office, it must be adequately packaged. Please notify the service office before returning your product.

To contact Agilent Technologies for technical assistance, contact your local Agilent Call Center.

- In the Americas, call 1 (800) 829-4444
- In other regions, visit <http://www.agilent.com/find/assist>

Preparing the product for shipping

- 1 Write a complete reason for returning the product. Include any specific performance details related to the problem.
- 2 Pack the product using the original packaging or comparable. Original materials are available through any Agilent office. Or, follow these recommendations:
 - Use a double-walled, corrugated cardboard carton of 159 kg (350 lb.) test strength. The carton must allow approximately 7 cm (3 inches) on all sides of the product for packing material and be strong enough to accommodate the weight of the product.
 - Surround the product with approximately 7 cm (3 inches) of packing material, to protect the product and prevent it from moving in the carton. If packing foam is not available, the best alternative is S.D-240 Air Cap™ from Sealed Air Corporation (Commerce, California 90001). Air Cap looks like a plastic sheet filled with air bubbles. Use the pink (antistatic) Air Cap™ to reduce static electricity. Wrapping the product several times in this material will protect the product and prevent it from moving in the carton.
- 3 Seal the carton with strong nylon adhesive tape.

N1080B Connectivity Solutions
Contacting Agilent Technologies

- 4 Mark the carton “FRAGILE, HANDLE WITH CARE”.
- 5 Retain copies of all shipping papers.



夹层转换板分析仪示波器探头		INTERPOSER/ANALYZER/OSCILLOSCOPE PROBE					
部件名称		有毒有害物质或元素					
Part Name		Toxic or Hazardous Substances and Elements					
		铅	汞	镉	六价铬	多溴联苯	多溴二苯醚
		Pb	Hg	Cd	CrVI	PBB	PBDE
金属扣件	Metal fasteners	○	○	○	×	○	○
连接器	Connectors	×	○	○	×	○	○
印制电路板	Printed circuit assemblies	×	○	×	○	○	○
电缆	Cables	×	○	○	○	○	○
机械部件	Machined parts	×	○	○	○	○	○
其它部件	Other parts	○	○	○	○	○	○

O: 表示该有毒有害物质在该部件所有均质材料中的含量均在 SJ/T11363-2006 标准规定的限量要求以下。

X: 表示该有毒有害物质至少在该部件某一均质材料中的含量超出SJ/T11363-2006 标准规定的限量要求。

O: Indicates that this toxic or hazardous substance contained in all of the homogeneous materials for this part is below the limit requirement in SJ/T11363-2006.

X: Indicates that this toxic or hazardous substance contained in at least one of the homogeneous materials used for this part is above the limit requirement in SJ/T11363-2006.

如果上述表单多于一个，请参考您的订单或者装箱单从上述表格中找到适合您的产品的列表。

If more than one table is shown above, reference your order or packing list to determine which is applicable to your product.

若您需要了解有关本产品的生产日期信息，请联系您的安捷伦销售代表。

If you have a question about the manufacturing date for your product, ask your Agilent representative

有关如何与安捷伦联系的信息，请参考产品使用手册。

For Agilent contact information, please reference your product manual.

根据中国《电子信息产品污染控制管理办法》的规定，安捷伦已经为本产品标识了显示其环保使用期限的数字。该数字是对本产品在日常使用和操作条件下的使用寿命的评估，其使用和操作条件已经在产品使用手册上做出了明确的规定和说明。该数字仅为与《管理办法》为目的的活动提供参考；并不意味着并担保本产品在环保使用期限过期前免于损坏。该环保使用期限不代表任何担保或保证。该环保使用期限数字不改变任何创立的担保；并且不影响与该产品销售相关的任何方面、任何项目及条件。您使用的安捷伦产品可能包含一些可替换的零部件（包括驱动器、电源、鼠标、显示器或者电池等非安捷伦制造的产品），他们的环保使用期限比安捷伦产品本身的环保使用期限短。对于这些非安捷伦制造的零部件标识其环保使用期限数字，其本身标的EPUP有高的优先权，安捷伦对非安捷伦制造的产品环保使用期限没有任何主张也不负任何责任。

In accordance with the requirements of China's Administrative Measure on the Control of Pollution Caused by Electronic Information Products (the "Measure"), Agilent has labeled this product with a number identifying its Environment-Protection Use Period ("EPUP") This number reflects an estimate of the expected life of the product under the normal use and operating conditions as defined in the product user manual which is distributed with the product. Use of the number is only for purposes related to the Measure and does not imply or guarantee that the product is free from defects prior to the EPUP expiration date. No warranties or guarantees are implied by use of the EPUP number. Use of the EPUP number does not alter any warranties found in, nor affect in any way, the terms and conditions associated with the purchase of this product.

Your Agilent product may contain replaceable assemblies/components (including disk drive, power supply, mouse, display, or battery, which are not manufactured by Agilent) which have a shorter EPUP number than that which is indicated on the product itself. In cases where the assembly, component, or part is labeled with an EPUP which differs from the one indicated by Agilent, the EPUP on the assemblies/component or part takes precedence. Agilent makes no claims concerning, and takes no responsibility for the EPUP numbers reflected on goods which are not manufactured by Agilent.

Revision: G



Agilent Technologies, Printed in the Malaysia December 2009
Manual Part Number: N1080-97000

