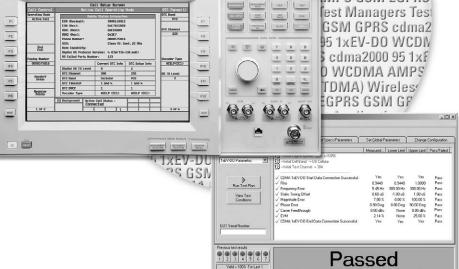


Agilent 8960 Series 10 Wireless Communications Test Set

Configuration Guide

July 195 1xEV-DO WCDMA AMPL ations 136 (TDMA) Wireless Test Ma. July 95 1xEV-DO WCDMA EGPRS GSM GPRS JA EGPRS GSM GPRS cdma2000 95 1xEV-DO V. KEV-DO WCDMA EGPRS GSM GPRS cdma2000 95 PRS GSM GPRS cdma2000 95 1xEV-DO WCDMA AMPL est Applications Lab Applications 136 (TDMA) Wireless Jacob J



This configuration guide describes how to configure a new 8960 test set for single or multiple wireless formats and lists the upgrades available for existing 8960 test sets.

Notice

For the newest 8960 configuration information, select the 8960 Configuration guide from the Key Library at www.agilent.com/find/8960



8960 Series 10 Wireless Test Set – Mainframe, Applications, and Software The building blocks of the 8960 are an E5515 test set mainframe and mobile test applications (TAs) or lab applications (LAs). Test applications provide parametric test capability. Lab applications test parametric performance and add signaling functionality.

Wireless Test Manager is a family of easy-to-use 8960 test automation software. Wireless Test Manager runs on a Windows $^{\textcircled{B}}$ PC.

Configuring a *New* 8960 for Your Application

Table 1 shows the recommended or required options to purchase with a new 8960 in order to test a specific wireless format. If adding a test or lab application to an existing mainframe, refer to the section entitled, *Adding wireless formats to your 8960 test set*.

Table 1. New purchase configuration information

Wireless technology format	TA, LA model (option)	Mainframe model	Mainfr (model	Wireless Test Manager	
Formats for test applications	Required	Required	Required	Recommended	
AMPS/136 (TDMA)	E1961A	E5515C ¹ or B ¹		002, 003 ²	E6563A
cdma2000/IS-95/AMPS	E1962B	E5515C ¹	003	002	E6560C
Rel A new control channels	E1962B-401	E5515C ¹	003	002	
Advanced AMPS	E1962B-402	E5515C ¹	003	002	
Authentication	E1962B-403	E5515C ¹	003	002	
1xEV-D0	E1966A	E5515C ¹	003	002	E6564C
cdma-200/1xEV-DO TA suite ⁶	E1996A	E5515C ¹	003	002	E6569C
W-CDMA	E1963A	E5515C ¹	003	002	E6562C
W-CDMA video test	E1963A-401	E5515C ¹	003	002	
HSDPA test mode	E1963A-403	E5515C ¹	003	002	
GSM and GPRS	E1968A	E5515C ¹ or B ¹	002	003 ²	E6566C/E6568C
GSM	E1968A-101	E5515C ¹ or B ¹	002	003 ²	E6566C/E6568C
GPRS	E1968A-102	E5515C ¹ or B ¹	002	003 ²	E6566C/E6568C
EGPRS	E1968A-103	E5515C ¹ or B ¹	002	003	E6566C/E6568C
GSM and GPRS	E1968A-201	E5515C ¹ or B ¹	002	003 ²	E6566C/E6568C
GSM, GPRS, and EGPRS	E1968A-202	E5515C ¹ or B ¹	002	003 ²	E6566C/E6568C
JMTS test application suite ⁵	E1993A	E5515C ¹	002, 003		E6568C
Test application fast switching ³	E1987A	E5515C ¹	002, 003		E6569C
Test application suite ⁴	E1991B	E5515C ¹	002, 003		E6569C
Formats for lab applications	Required	Required	Required	Recommended	
cdma2000	E6702B	E5515C ¹	003	002	E5880A
cdma2000 fading ⁷	E6702B	E5515C ¹	003, 004	002	
IxEV-DO	E6706A	E5515C ¹	003	002	E5884A
1xEV-D0 fading ⁷	E6706A	E5515C ¹	003, 004	002	
cdma2000/1xEV-DO LA suite ¹⁰	E6716A	E5515C ¹	003	002	E5880A & E5884B
GSM/GPRS	E6701D	E5515C ¹ or B ¹	002	003 ²	E6566C/E6568C
EGPRS ⁸	E6704A	E5515C ¹ or B ¹	002	003 ²	E6566C/E6568C
W-CDMA	E6703C	E5515C ¹	003	002	E5882A
W-CDMA fading ⁷	E6703C	E5515C ¹	003, 004		
JMTS Lab Application Suite ¹¹	E6717A	E5515C ¹	002, 003		E6568C/E6569C
Lab Application Suite ¹²	E6719C	E5515C ¹	002, 003		E6569C
ab Application Fast Switching ⁹	E6785C	E5515C ¹	002, 003		E6569C

1. New E5515s will not work with older revision or discontinued applications. For information on application compatibility, go to **www.agilent.com/find/E5515** and select either E5515B or E5515C Release Notes from the Key Library.

2. Option 003 is not available to order on new E5515Bs.

3. E1987A allows fast switching across all TA technology formats.

4. E1991B TA suite includes TAs for cdma2000, 1xEV-D0, IS-95, W-CDMA, GSM, GPRS, EGPRS, 136 (TDMA), AMPS, and fast switching. Model numbers included are E1961A, E1962B, E1963A, E1966A, E1968A-202, and E1987A. Does not include E1962B-401, E1962B-402, E1962B-403, E1962B-402, or E1963A-401, E1963A-403, or E1968A-410.

5. E1993A UMTS TA suite includes TAs for W-CDMA, GSM, GPRS, EGPRS, and fast switching. Model numbers included are E1963A, E1968A-202, and E1987A. Does not include E1963A-401, E1963A-403 or E1968A-410.

 E1996A cdma2000_1xEV-D0 suite includes TAs for cdma2000, 1xDV-D0, and fast switching TAs. Model numbers included are E1962B, E1966A, and E1987A. Does not include E1962B-401, E1962B-402 or E1962B-403.

7. More information on fading go to www.agilent.com/find/E6702B for cdma2000, www.agilent.com/find/E6706A for 1xEV-DO, and www.agilent.com/find/E6703C for W-CDMA.

8. E6701D LA required for E6704A LA.

9. E6785C fast switches from GSM/GPRS to W-CDMA. Requires E6701D and E6703C LAs. Order E6704A LA to add EGPRS to fast switching.

E6716A cdma2000/1xEV-D0 LA suite includes LAs for cdma2000 and 1xEV-D0. Model numbers included are E6702B, and E6706A.
 E6717A UMTS LA suite includes LAs for W-CDMA, GSM, GPRS, EGPRS, and fast switching. Model numbers included are E6701D, E6703C, E6704A, and E6785C.

12. E6719C LA suite includes LAs for cdma2000, W-CDMA, GSM, GPRS, EGPRS and limited fast switching. Model numbers included are E6701D, E6702B, E6703C, E6704A, E6706A, and E6785C.

Test Set Mainframes	E5515C E5515B	8960 Series 10 mainframes. (Require at least one Agilent Technologies test or lab application. E5515C is required for CDMA capability in a new test set. Older revision and discontinued applications are not compatible with new E5515s. Trying to run incompatible applications will cause new E5515s to lock-up. For more information on application compatibility, go to www.agilent.com/find/8960 and select E5515C or E5515B Release Notes from the Key Library.
Test set mainframe options	E5515B-002 E5515C-002	Second RF source. (Required for all GSM, GPRS, and EGPRS applications.)
	E5515C-003	Flexible CDMA base station emulator. (Required for all cdma2000/ IS-95/AMPS, W-CDMA, and 1xEV-DO applications. Not available in new E5515Bs.)
	E5515C-004	Digital Bus. (Enables fading in cdma2000, 1xEV-DO, and W-CDMA LAs. Requires E5515C-003. Not available in E5515B.)
	E5515C-370	E6571A Wireless Test Manager run-time license. Compatible with E656xA/B/C Wireless Test Manager models. Requires a PC with parallel port.
	E5515B-ABA E5515C-ABA	
	E5515B-0B0 E5515C-0B0	Delete documentation on applications purchased with a mainframe.
	E5515B-AX4 E5515C-AX4	Rack flange kit without handles.
	E5515B-AX5 E5515C-AX5	Rack flange kit with handles.
	E5515B-UK6 E5515C-UK6	Commercial calibration certificate with test data.
Warranty and service	3-year custon	ner return repair service
Calibration	3-year custon	ner return calibration service
Operational verification	E5515B-B8A E5515C-B8A	Operation verification at installation. Contact your Agilent Sales Representative for more information.
Accessories	E5515-10007	E6703C LA) GSM SIM card (programmed micro-size, 15 mm x 25 mm)

Test Applications	E1961A E1962B		
		E1962B-401	cdma2000 Rel A New Control Channels. (Requires E5515C and E5515C-003.)
		E1962B-402	Advanced AMPS. (Requires E5515C and E5515C-003.)
		E1962B-403	cdma2000 authentication. (Requires E5515C and E5515C-003.)

E1963AW-CDMA mobile test application. (Requires E5515C and E5515C-003.)E1963A-401W-CDMA video phone test. (Requires E5515C and E5515C-003.)E1963A-403HSDPA test modes. (Requires E5515C and E5515C-003.)

E1966A 1xEV-DO terminal test application. (Requires E5515C and E5515C-003.)

E1968A E1968A GSM/GPRS mobile test application. GSM, GPRS and EGPRS wireless technology functionality is available. Must specify an option for a specific format or combination of formats. E5515B with serial number < GB40470001 or < US40350001 may require a hardware upgrade. Please contact an Agilent Sales Representative for more information.

- E1968A-101 GSM functionality. (Requires E5515C and E5515C-002, or E5515B and E5515B-002.)
- E1968A-102 GPRS functionality. (Requires E5515C and E5515C-002, or E5515B and E5515B-002.)
- E1968A-103 EGPRS functionality. (Requires E5515C and E5515C-002, or E5515B and E5515B-002.)
- E1968A-201 GSM/GPRS functionality. (Requires E5515C and E5515C-002, or E5515B and E5515B-002.)
- E1968A-202 GSM/GPRS/EGPRS functionality. (Requires E5515C and E5515C-002, or E5515B and E5515B-002.)
- E1968A-410 EGPRS phase and amplitude versus time. (Requires E5515C and E5515C-002, or E5515B and E5515B-002.)
- **E1987A** Fast switching test application. Fast switches across all TA formats. (Requires at least two TAs, E5515C, and E5515 options for the wireless formats to be switched.)
- E1991B 8960 test application suite. Includes TAs for GSM, GPRS, EGPRS, AMPS, 136(TDMA), cdma2000, IS-95, 1xEV-D0, W-CDMA and fast switching. Contains E1968A, E1968A-202, E1961A, E1962B, E1963A, E1966A and E1987A TAs. (Requires E5515C, and E5515C-202, and E5515C-003. E1991B is for installation on a single 8960 test set. TA feature options such as E1962B-401, 402, 403, E1963A-401, 403 and E1968A-410 are ordered separately; they are not included in the E1991B TA suite.)
- **E1993A** 8960 UMTS test application suite. Includes TAs for GSM, GPRS, EGPRS, AMPS, W-CDMA and fast switching. Contains E1968A-202, E1963A, and E1987A TAs. (Requires E5515C, and E5515C-202, and E5515C-003. E1991A is for installation on a single 8960 test set. TA feature options such as E1963A-401, 403 and E1968A-410 are ordered separately; they are not included in the E1993A suite.)
- E1996A 8960 cdma2000/1xEV-D0 test application suite. Includes TAs for cdma2000, IS-95, 1xEV-D0, AMPS and fast switching. Contains E1962B, E1966A, and E1987A TAs. (Requires E5515C, and E5515C-003. E1996A is for installation on a single 8960 test set. TA feature options such as E1962B-401, 402, and 403 are ordered separately; they are not included in the E1996A TA suite.)
 - **Note:** If adding a test application to an existing mainframe, see the section entitled, *Adding wireless formats to your 8960 test set.*

Test application includes	 Test application license. 8960 documentation set. (Includes documentation for all 8960 TAs and LAs. Must specify language localization option. When ordered with an E5515 mainframe use E5515 application documentation options.) If ordering more than one TA, specify language localization option for one TA and ordered set. 		
	Option 0B0 on t	he other TAs to avoid receiving multiple 8960 documentation sets.	
Test application options available when ordered standalone (without an E5515 mainframe)	TA Model#-010	Test application installation set for test applications purchased standalone. (CD-ROM with the necessary files and utilities needed for loading test applications. Test applications can be downloaded from www.agilent.com/find/8960ta . Option 010 is recommended if you do not have high-speed Internet access.)	
	TA Model#-ABA	Documentation for test applications purchased standalone. Includes all test and lab application documentation. Consists of CD-ROM with programming guides, getting started guides, and paper copies of GPIB syntax guides. US-English localization. To download document in other languages, go to www.agilent.com/find/8960 , select Key Libraries and download the Help files. Not all languages are available.	
	TA Model#-0B0	Delete documentation.	

Lab Applications

- **E6701D** GSM/GPRS lab application. (Requires E5515C and E5515C-002, or E5515B and E5515B-002. Order E5515C-004 to enable fading.)
- E6702B cdma2000 lab application. (Requires E5515C and E5515C-003.)
- E6703C W-CDMA lab application. (Requires E5515C and E5515C-003. Order E5515C-004 to enable fading.) Includes E5515-10007 UMTS (W-CDMA) USIM card.
- **E6704A** EGPRS lab application. (Requires E6701D and E5515C with E5515C-002 or E5515B with E5515B-002. Order E5515C-004 to enable fading.)
- E6706A 1xEV-DO lab application. (Requires E5515C, E5515C-003. Order E5515C-004 to enable fading.)
- **E6785C** Fast switching lab application for GSM/GPRS/EGPRS_W-CDMA. (Requires E6701D, E6703C, E5515C, E5515C-002, and E5515C-003. For EGPRS capability, add E6704A.)
- E6716A cdma2000/1xEV-D0 lab application suite. Includes LAs for cdma2000 and 1xEV-D0. Contains E6702B and E6706A LAs. (Requires E5515C and E5515C-003. Order E5515C-004 to enable fading. E6716A is for installation on a single test set.)
- **E6717A** 8960 lab application UMTS suite. Includes LAs for GSM, GPRS, EGPRS, and W-CDMA. Contains E6701D, E6703C, E6704A, and E6785C fast switching LA. (Requires E5515C, E5515C-002, and E5515C-003. Order E5515C-004 to enable fading. E6717A is for installation on a single 8960 test set.)
- **E6719C** Lab application suite. Includes LAs for GSM, GPRS, EGPRS, cdma2000, W-CDMA, 1xEV-DO, and fast switching. Contains E6701D, E6702B, E6703C, E6704A, and E6706A LAs plus E6785C fast switching LA. (Requires E5515C, E5515C-002, and E5515C-003. Order E5515C-004 to enable fading. E6719C is for installation on a single 8960 test set.)
 - **Note:** If adding a lab application to an existing mainframe, see the section entitled, *Adding wireless formats to your 8960 test set.*

Lab applications include

- · Lab application license.
- Wireless protocol advisor (WPA) software for specified format. WPA is PC software that works with 8960 lab applications to capture and analyze wireless protocols.
- 8960 application documentation. (Must specify localization option. When ordered with E5515 mainframe use E5515 application documentation options.)
- If ordering more than one LA, specify language localization option for one LA and order Option 0B0 on the other LAs to avoid receiving multiple 8960 documentation sets.

Lab application options available when ordered standalone (without an E5515 mainframe)	LA Model#-010 LA Model#-ABA		Lab application installation set. (CD-ROM with the necessary files and utilities needed for loading test applications. Lab applications can be downloaded from www.agilent.com/find/8960la . Option 010 is recommended if you do not have high-speed Internet access.)		
			Documentation for lab applications purchased standalone. Includes all test and lab application documentation. Consists of CD-ROM with programming guides, getting started guides, and paper copies of GPIB syntax guides. US-English localization. To download document in other languages, go to www.agilent.com/find/8960 , select Key Libraries, and download the Help files. Not all languages are available.		
	LA Model#-0	BO	Delete documentation.		
Wireless protocol applications (WPA) ordered standalone (without an LA)	wireless pr		tware that works with 8960 lab applications to capture and analyze ss protocols. (Included with LA. To order without LA, order E6584A tion to specify format.)		
, , , , , , , , , , , , , , , , , , ,	E6584A-001	GSM/	GPRS/EGPRS decodes for WPA software.		
	E6584A-002	cdma2	000 decodes for WPA software		
	E6584A-003	W-CDN	NA decodes for WPA software		
	E6584A-006	1xEV-D	00 decodes for WPA software		

Wireless Test Manager Software

Find your software development platform and select your products... Wireless test managers require a specific model and revision of TA and LA. See the individual test manager (WTM) data sheet or overview to determine compatible TAs and LAs at **www.agilent.com/find/wtmanagers**. Wireless test managers run Visual Basic .NET[®] and utilize a USB security key.

Formats	WTM model			
TA and LA wireless test managers				
cdma2000/IS-95/AMPS	E6560C, E6560C-100			
1xEV-D0	E6564C, E6564C-100			
W-CDMA	E6562C, E6562C-100			
GSM/GPRS/EGPRS	E6566C, E6566C-100			
W-CDMA/GSM/GPRS/EGPRS	E6568C, E6568C-100			
Run-Time License for all formats	E6571C			
LA wireless test managers				
cdma2000/IS-95 AMPS	E5880A, E5880A-100			
1xEV-D0	E5884A, E5884A-100			
W-CDMA	E5882A, E5882-100			

Upgrading an Existing 8960 Test Set

The 8960 is a flexible test set that can be upgraded to meet your changing wireless test needs. There are four types of 8960 upgrades

- 1. updating an existing test/lab application
- 2. upgrading an application to a new model number
- 3. upgrading a test application to a lab application
- 4. adding a wireless technology format

To get timely information about 8960 application improvements, register for Agilent Email Updates at www.agilent.com/find/emailupdates.

1. Updating an existing application to get the newest features

TAs and LAs are periodically revised to add new functionality, improve performance, or resolve known issues. TA revision updates are free. LA revision updates within a model number are free (E6703B B.01.xx to E6703B B.02.xx.) To upgrade an LA to a new model number (E6703B to E6703C), refer to *2. Upgrading an existing application to a new model.* A valid application license is required. Free TA and LA downloads are available at **www.agilent.com/find/8960ta**. Some new features are part of free upgrades, other new features require a TA option upgrade, LA model upgrade, or an E5515 mainframe hardware upgrade. To determine if a hardware upgrade is required to enable a feature listed in Table 2, please contact your Agilent Sales Representative.

Format	Feature	Application/feature option ¹	Hardware capability
For test applications			
cdma2000	cdma2000 Rel A new control channels	E1962B, E1962B-401	ОК
	Advanced AMPS	E1962B, E1962B-402	ОК
	Authentication	E1962B/E1962B-403	ОК
W-CDMA	Video test	E1963A/E1963A-401	Check
	BLER with asymmetrical RMCs	E1963A	Check
	HSDPA test modes	E1963A/E1963A-403	Check
	Default DPCH offset (DOFF)	E1963A	Check
GSM/GPRS/EGPRS	PAvT	E1968A/E1968A-410	ОК
	Digital ORFS	E1968A	Check
EGPRS	Class 10 measurements (full multi-slot)	E1968A	Check
or lab applications			
GSM/GPRS/EGPRS	PAvT	E6701D/E6704A	ОК
	Digital ORFS	E6701D/E6704A	Check
EGPRS	EGPRS Class 10 measurements (full multi-slot)	E6701D/E6704A	Check
EGPRS	EGPRS Class 12 signaling	E6701D/E6704A	Check
cdma2000	Fading	E6702B	Check
	cdma2000 Rel A new control channels	E6702B	ОК
	Advanced AMPS	E6702B	ОК
	Authentication	E6702B	ОК
W-CDMA	384K data throughput	E6703C	Check
	BLER with asymmetrical RMCs	E6703C	Check
	Fading	E6703C	Check
	Video test	E6703C	Check
	HSDPA test modes	E6703C	Check
1xEV-D0	Fading	E6706A	Check

Table 2. New feature upgrades

1. Some TA features are enabled by a feature option. Required feature options are listed.

2. This feature may require an E5515 hardware upgrade to run on some E5515s. "OK" means any E5515 capable of running the application model is capable to run the feature. "Check" means E5515 may need a hardware upgrade to have capability to run this feature. Contact your Agilent representative for more information.

2. Upgrading an existing application to a new model number

Upgrading existing TAs and LAs to new model numbers (e.g. E6701C to E6701D) can provide significant new functionality and feature improvements. LA upgrades to newer model numbers are offered as an upgrade product. TA upgrades may be upgrade products or free downloads. TA and LA upgrades are customer installable. See Table 3 below for available TA and LA upgrades. Some upgrades may require an E5515 hardware upgrade to run or enable specific features. Contact your Agilent Sales Representative for specific application upgrade information.

Table 3. Application model number upgrades

Format	Application		Upgrade to order
	From	То	
GSM	E1960A	E1968A-101	Free upgrade ^{1, 2}
GPRS	E1964A	E1968A-102	Free upgrade ^{1, 2}
fast switch TA	E1985A/B/C/E	E1987A	Free upgrade ^{2, 3}
GSM/GPRS LA	E6701C	E6701D	E6701DU-001
GSM/GPRS LA	E6701B	E6701D	E6701DU-002
cdma2000 LA	E6702A	E6702B	E6702BU-002
W-CDMA LA	E6703A	E6703C	E6703CU-002
W-CDMA LA	E6703B	E6703C	E6703CU-003

1. E5515B with serial number < GB40470001 or < US40350001 may require a hardware upgrade. Please contact an Agilent Sales Representative for more information.

2. Download free upgrades at www.agilent.com/find/89601ta

 E5515C with serial number < GB45070001, E5515B with serial number < GB45080001, or any US serial number may require a hardware upgrade. Please contact an Agilent Sales Representative for more information.

3. Upgrading a test application to a lab application

Upgrading a TA to an LA (e.g. E1962B to E6702B) is customer installed; TA to LA upgrades cannot be ordered pre-installed on new instruments. Some TA to LA upgrades may require an E5515 mainframe hardware upgrade. Contact your Agilent Sales Representative for compatibility information.

Table 4. TA to LA upgrade products

Format	Application		Order
	From	То	
cdma2000 TA to LA	E1962B	E6702B	E6702BU-001
W-CDMA TA to LA	E1963A	E6703C	E6703CU-001
1xEV-DO TA to LA	E1966A	E6706A	E6706AU-001

4. Adding wireless technology formats to your 8960 test set

You can add any TA or LA to an existing E5515B or E5515C. Being able to purchase another wireless format for your existing test set may save considerable expense when compared to purchasing a new E5515C. Adding a new TA or LA to an existing E5515B or E5515C may require a hardware upgrade. Contact your Agilent Sales Representative for specific upgrade order and delivery information.

Important: Existing TAs and LAs installed on an E5515B or E5515C may have to be updated to a newer version after hardware upgrade.

For more product information visit our Web site at: www.agilent.com/find/8960



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

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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.

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Agilent Technologies' Test and Measurement Support, Services, and Assistance

Agilent Technologies aims to maximize the value you receive, while minimizing your risk and problems. We strive to ensure that you get the test and measurement capabilities you paid for and obtain the support you need. Our extensive support resources and services can help you choose the right Agilent products for your applications and apply them successfully. Every instrument and system we sell has a global warranty. Two concepts underlie Agilent's overall support policy: "Our Promise" and "Your Advantage."

Our Promise

Our Promise means your Agilent test and measurement equipment will meet its advertised performance and functionality. When you are choosing new equipment, we will help you with product information, including realistic performance specifications and practical recommendations from experienced test engineers. When you receive your new Agilent equipment, we can help verify that it works properly and help with initial product operation.

Your Advantage

Your Advantage means that Agilent offers a wide range of additional expert test and measurement services, which you can purchase according to your unique technical and business needs. Solve problems efficiently and gain a competitive edge by contracting with us for calibration, extra-cost upgrades, out-ofwarranty repairs, and onsite education and training, as well as design, system integration, project management, and other professional engineering services. Experienced Agilent engineers and technicians worldwide can help you maximize your productivity, optimize the return on investment of your Agilent instruments and systems, and obtain dependable measurement accuracy for the life of those products.

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United States:	Korea:
(tel) 800 829 4444	(tel) (080) 76
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China:	(tel) 0800 04
(tel) 800 810 0189	(fax) 0800 28
(fax) 800 820 2816	Other Asia I
Europe:	Countries:
(tel) 31 20 547 2111	(tel) (65) 637
Japan:	(fax) (65) 67
(tel) (81) 426 56 7832	Email: tm_a
(fax) (81) 426 56 7840	Contacts revised: 09/

(tel) (080) 769 0800 (fax) (080) 769 0900 Latin America: (tel) (305) 269 7500 Taiwan: (tel) 0800 047 866 (fax) 0800 286 331 Other Asia Pacific Countries: (tel) (65) 6375 8100 (fax) (65) 6755 0042 Email: tm_ap@agilent.com Contacts revised: 09/26/05

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