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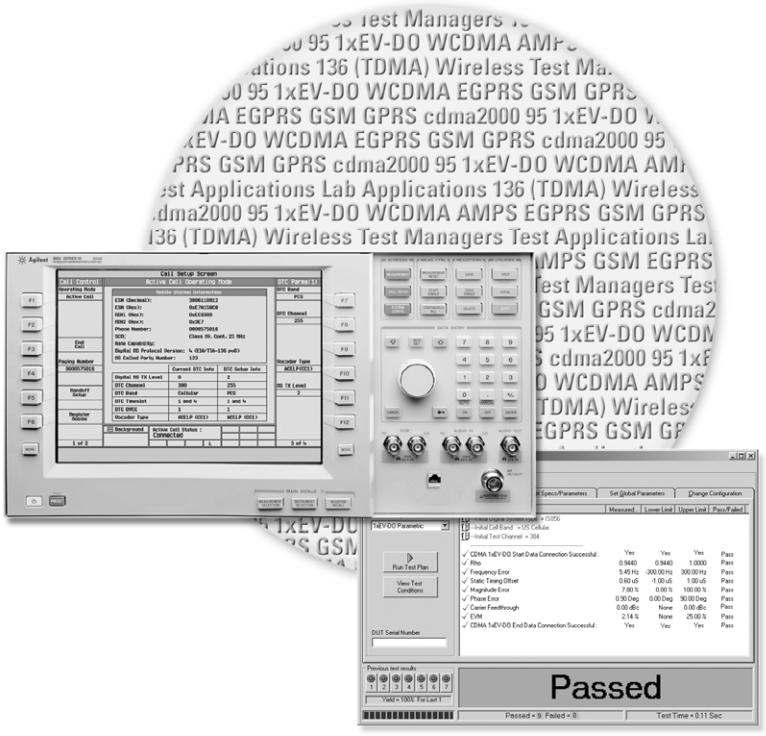
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Agilent
8960 Series 10
Wireless Communications Test Set

Configuration Guide



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 software which automates parametric measurements and basic call processing tests on the 8960. Wireless Test Manager runs on a Windows® PC.

Interactive Functional Test software automates functional stress testing applications on the 8960. Interactive Functional Test software runs on a Windows® PC.

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**

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Configuring a *New* 8960 for Your Application

Tables 1, 2, and 3 show the recommended or required test or lab applications, options, and annual contracts to purchase with a new 8960. If adding a TA or LA to an existing E5515, refer to the section *Adding wireless technology formats to your 8960 test set.*

Table 1. Configuring a new 8960 with a test application

Wireless technology format (Parametric performance)	TA model (option)	Mainframe model	Mainframe options (model no. – option)		Wireless Test Manager
	Required	Required[1]	Required	Recommended	
AMPS/136 (TDMA)	**E1961A**	**E5515C**		**002, 003**	**E6560C**
cdma2000®/IS-95/AMPS	**E1962B**	**E5515C**	**003**	**002**	**E6567C**
Release A: New control channels	E1962B-401	E5515C	003	002	
Advanced AMPS	E1962B-402	E5515C	003	002	
Authentication	E1962B-403	E5515C	003	002	
Digital bus (fading)	E1962B-405	E5515C	003	002	
Multi-unit synchronization	E1962B-406	E5515C	003	002	
Protocol logging	E1962B-407	E5515C	003	002	
cdma2000 SMS	E1962B-409	E5515C	003	002	
Fast device tune enhanced	E1999A, E1999A-202	E5515C	003	002	
W-CDMA	**E1963A**	**E5515C**	**003**	**002**	**E6568C**
W-CDMA end-to-end video	E1963A-401	E5515C	003	002	
W-CDMA video loopback	E1963A-402	E5515C	003	002	
HSDPA test mode	E1963A-403	E5515C	003	002	
W-CDMA enhanced audio	E1963A-408	E5515C	003	002	
W-CDMA Advanced SMS	E1963A-409	E5515C	003	002	
HSUPA test mode[2]	E1963A-413	E5515C	003	002	
Fast device tune enhanced	E1999A-202	E5515C	003	002	
1xEV-DO	**E1966A**	**E5515C**	**003**	**002**	**E6567C**
1xEV-DO Release A and B	E1966A-102	E5515C	003	002	
1xEV-DO multi-carrier[3]	E1966A-103	E5515C	003	002	
Digital bus (fading)	E1966A-405	E5515C	003	002	
Multi-unit synchronization	E1966A-406	E5515C	003	002	
Protocol logging	E1966A-407	E5515C	003	002	
Fast device tune enhanced	E1999A, E1999A-202	E5515C	003	002	
GSM/GPRS[4]	**E1968A[4]**	**E5515C**	**002**	**003**	**E6568C**
GSM	E1968A-101	E5515C	002	003	
GPRS	E1968A-102	E5515C	002	003	
EGPRS	E1968A-103	E5515C	002	003	
GSM and GPRS	E1968A-201	E5515C	002	003	
GSM, GPRS, and EGPRS	E1968A-202	E5515C	002	003	
GSM/GPRS enhanced audio	E1968A-408	E5515C	002	003	
GSM/GPRS advanced SMS	E1968A-409	E5515C	002	003	
PAvT	E1968A-410	E5515C	002	003	
Mobile calculated BER	E1968A-419	E5515C	002	003	
Class 34	E1968A-430	E5515C	002	003	
Fast device tune enhanced	E1999A, E1999A-202	E5515C	002	003	
Test application fast switching[5]	**E1987A**	**E5515C**	**002, 003**		**E6569C**
UMTS Test Application Suite[6]	**E1993A**	**E5515C**	**002, 003**		**E6568C**
cdma2000/1xEV-DO TA Suite[7]	**E1996A**	**E5515C**	**003**	**002**	**E6567C**
Test Application Suite[8]	**E1991B**	**E5515C**	**002, 003**		**E6569C**

[1] New E5515s do not work with old revisions or discontinued applications. For application compatibility go to **www.agilent.com/find/E5515releasenotes**

[2] HSUPA test mode (E1963A-413) requires HSDPA test mode (E1963A-403).

[3] E1966A-103 requires both E1966A-102 and E1966A-406.

[4] Must order at least one format option (-101, -102, -103, -201, or -202) with E1968A GSM/GPRS TA.

[5] E1987A allows fast switching across all TA technology formats that have a valid license. E1987A is free and does not require and E1987A license.

[6] E1993A includes TAs for W-CDMA, GSM, GPRS, EGPRS, and fast switching (models E1963A, E1968A-202, E1987A). Suite does not include feature options. Feature options can be ordered as additional options to E1993A (E1963A-401, 402, 403, 408, 409, 413; E1968A-408, 409, 410, 419, 430).

[7] E1996A includes TAs for cdma2000, 1xEV-DO, and fast switching (models E1962B, E1966A, E1987A). Suite does not include feature options. Feature options can be ordered as additional options to E1996A (E1962B-401, 402, 403, 405, 406, 407, 409; E1966A-102, 103, 405, 406, 407).

[8] E1991B includes TAs for cdma2000, 1xEV-DO, W-CDMA, GSM, GPRS, EGPRS, 136 (TDMA), AMPS, and fast switching (models E1961A, E1962B, E1963A, E1966A, E1968A-202, E1987A). Suite does not include feature options. Feature options can be ordered as additional options to E1991B (E1962B-401, 402, 403, 405, 406, 407, 409; E1963A-401, 402, 403, 408, 409, 413; E1966A-102, 103, 405, 406, 407; E1968A-408, 409, 410, 419, 430).

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Table 2. Configuring a new 8960 with a lab application

Wireless technology format (Parametric and signaling)	LA model (option)	Mainframe model	Mainframe options (model no. – option)		Wireless Test Manager	Interactive Functional Test SW
	Required	Required[1]	Required	Recommend		
GSM/GPRS GSM/GPRS/EGPRS Encryption[2]	**E6701F** E6705A	**E5515C** E5515C	**002** 002	**003** 003	**E6568C**	**N5970A**
EGPRS[3]	**E6704A**	**E5515C**	**002**	**003**	**E6568C**	**N5970A**
Enhanced GAN license[4]						
cdma2000 cdma2000 fading[5]	**E6702B** E6702B	**E5515C** E5515C	**003** 003, 004	**002** 002	**N5880A**	
W-CDMA/HSPA W-CDMA fading[5]	**E6703E** E6703E	**E5515C** E5515C	**003** 003, 004	**002** 002	**N5882A**	**N5970A**
1xEV-DO with Release A 1xEV-DO fading[5]	**E6706B** E6706B	**E5515C** E5515C	**003** 003, 004	**002** 002	**N5884A**	
cdma2000/1xEV-DO LA Suite[6]	**E6716B**	**E5515C**	**003**	**002**	**N5880A** **N5884A**	
UMTS Lab Application Suite[7]	**E6717C**	**E5515C**	**002, 003**		**E6568C**	**N5970A**
Lab Application Suite[8]	**E6719E**	**E5515C**	**002, 003**		**E6569C**	
Lab application fast switching[9]	**E6785E**	**E5515C**	**002, 003**		**E6569C**	

[1] New E5515s will not work with older revisions or discontinued applications. For information on application compatibility, go to E5515 Release Notes at **www.agilent.com/find/E5515releasenotes**

[2] E6705A requires E6701F. E6705A may optionally be used with E6708A for UMA/GAN ciphering.. Export restrictions exist; therefore, E6705A is not shipped on a new unit from the factory (it must be installed by end user).

[3] E6701 LA required for E6704A LA.

[4] E6708A for 2G/3G requires E6701G and /or E6703F (Not yet released. To obtain E6701G or E6703F upon release, purchase current revision LA plus the appropriate Annual Contract, see Table 3); and optionally E6705A for UMA/GAN ciphering. E6708A license installs on 8960 and enables the E6962B GANC (Generic Access Network Controller) software (downloaded free from the web and installed on a standalone PC) to connect to the 8960 to facilitate GAN data connectivity. User supplies 3rd party Security Gateway (SEGW) SW for the PC.

[5] More information on fading is on the Web. Go to http://cp.literature.agilent.com/litweb/pdf/1000-1894.pdf

[6] E6716B includes LAs for cdma2000 and 1xEV-DO (models E6702B, E6706B, E6785E).

[7] E6717C includes LAs for W-CDMA/HSPA, GSM, GPRS, EGPRS, and fast switching (models E6701F, E6703E, E6704A, and E6785E).

[8] E6719E includes LAs for cdma2000, 1xEV-DO, W-CDMA/HSPA, GSM, GPRS, EGPRS, and fast switching (models E6701F, E6702B, E6703E, E6704A, E6706B, and E6785E).

[9] E6785E fast switches between GSM/GPRS, W-CDMA, cdma2000, and 1xEV-DO. Requires one or more of the following: E6701F, E6702B, E6703E, E6706B LAs. Order E6704A LA to add EGPRS to fast switching.

Table 3. Lab application annual contracts[1] and extensions

Format	Application	Annual contract	Annual contract extension[2]
GSM/GPRS (EGPRS)	E6701 (E6704)	E6720A-001	E6720A-201
W-CDMA/HSPA	E6703	E6720A-003	E6720A-203
1xEV-DO	E6706	E6720A-006	E6720A-206
UMTS	E6717 (E6701/E6703)	E6720A-017	E6720A-217

[1] An annual contract provides early LA releases and LA upgrades for the term of the contract.

[2] When renewing, order the annual contract extension to avoid overlapping existing and new terms.

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Test Set Mainframes

E5515C 8960 Series 10 mainframes. (Require at least one Agilent Technologies' test or lab application. 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/E5515releasenotes**.)

Test set mainframe options

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.)

E5515C-004 Digital bus. (Enables fading in cdma2000, 1xEV-DO, and W-CDMA LAs. Requires E5515C-003.)

E5515C-371 E6571C Wireless Test Manager run-time license. Compatible with E656xA/B/C Wireless Test Manager models. Requires a PC with a USB port.

E5515C-ABA Documentation for applications purchased with a mainframe. Includes all 8960 test and lab application documentation. Consists of a CD-ROM with programming guides, getting started guides, and paper copies of GPIB syntax guides. US-English localization. To download documentation in other languages, go to **www.agilent.com/find/8960**, select product model, Key Libraries, and download the Help files. Not all languages are available.

Standard warranty

R-51B-001-C 1-year return-to-Agilent warranty

Optional warranty

R-51B-001-3C 1-year return-to-Agilent warranty extended to 3 years

Optional calibration

R-50C-011-3 Agilent Calibration Upfront Support Plan 3 year coverage
R-50C-021-3 Z540 Calibration Upfront Support Plan 3 year coverage

Operational verification

E5515C-B8A Operation verification at installation. Contact your Agilent Sales Representative for more information.

Accessories

Programmed test SIM cards

E5515-61286 UMTS (W-CDMA) USIM card. Included with E6703
E5515-61887 GSM SIM card (programmed micro-size, 15 mm x 25 mm)
E5515-80047 GSM SIM card (programmed, credit card size)

External Adapters

E5520A FM Adapter. Connects to the RF Out Only port on the E5515C to enable testing of FM receivers.

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Test Applications and Feature Options

E1961A AMPS/136 mobile test application. (Requires E5515C.)

E1962B cdma2000/IS-95/AMPS mobile test application. (Requires E5515C and E5515C-003.)
- **E1962B-401** cdma2000 Rel A 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.)
- **E1962B-405** cdma2000 digital bus (fading). (Requires E5515C and E5515C-003 & -004)
- **E1962B-406** cdma2000 multi-unit synchronization (Requires 2 E5515C & E5515C-003)
- **E1962B-407** cdma2000 protocol logging. (Requires E5515C, E5515C-003, E6584A-002)
- **E1962B-409** cdma2000 SMS. (Requires E5515C and E5515C-003.)

E1963A W-CDMA mobile test application. (Requires E5515C and E5515C-003.)
- **E1963A-401** W-CDMA end-to-end video. (Requires E5515C and E5515C-003.)
- **E1963A-402** W-CDMA Video Loopback. (Requires E5515C and E5515C-003.)
- **E1963A-403** HSDPA test modes. (Requires E5515C and E5515C-003.)
- **E1963A-408** W-CDMA Enhanced Audio (Requires E5515C and E5515C-003.)
- **E1963A-409** W-CDMA Advanced SMS (Requires E5515C and E5515C-003.)
- **E1963A-413** HSUPA test modes. (Requires E5515C, E5515C-003, and E1963A-403.)

E1966A 1xEV-DO terminal test application. (Requires E5515C and E5515C-003.)
- **E1966A-102** 1xEV-DO Release A and B. (Requires E5515C and E5515C-003.)
- **E1966A-103** 1xEV-DO Rel B Multi-Carrier (Requires 2 E5515Cs and E5515C-003, E1966A-102, E1966A-406.)
- **E1966A-405** 1xEV-DO digital bus (fading). (Requires E5515C and E5515C-003 & -004)
- **E1966A-406** 1xEV-DO multi-unit synchronization. (Requires 2 E5515C & E5515C-003)
- **E1966A-407** 1xEV-DO protocol logging. (Requires E5515C, E5515C-003, E6584A-006.)

E1968A E1968A GSM/GPRS mobile test application. GSM, GPRS, EGPRS formats available. Must specify an option for a specific format or combination of formats.
- **E1968A-101** GSM functionality. (Requires E5515C and E5515C-002.)
- **E1968A-102** GPRS functionality. (Requires E5515C and E5515C-002.)
- **E1968A-103** EGPRS functionality. (Requires E5515C and E5515C-002.)
- **E1968A-201** GSM/GPRS functionality. (Requires E5515C and E5515C-002.)
- **E1968A-202** GSM/GPRS/EGPRS functionality. (Requires E5515C and E5515C-002.)
- **E1968A-408** GSM/GPRS Enhanced Audio. (Requires E5515C and E5515C-002.)
- **E1968A-409** GSM/GPRS Advanced SMS. (Requires E5515C and E5515C-002.)
- **E1968A-410** EGPRS phase and amplitude versus time. (Requires E5515C, E5515C-002)
- **E1968A-419** GSM/GPRS Mobile Calculated BER. (Requires E5515C and E5515C-002.)
- **E1968A-430** Class 34. (Requires E5515C and E5515C-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, 1xEV-DO, W-CDMA, and fast switching. Contains E1968A-202, E1961A, E1962B, E1963A, E1966A, and E1987A TAs. (Requires E5515C, E5515C-002, and E5515C-003. E1991B is for installation on a single 8960 test set. TA feature options are not included and must be ordered separately as options to E1991B.)

E1993A 8960 UMTS test application suite. Includes TAs for GSM, GPRS, EGPRS, W-CDMA, and fast switching. Contains E1968A-202, E1963A, and E1987A TAs. (Requires E5515C, E5515C-002, and E5515C-003. E1993A is for installation on a single 8960 test set. TA feature options are not included and must be ordered separately as options to E1993A.)

E1996A 8960 cdma2000/1xEV-DO test application suite. Includes TAs for cdma2000, 1xEV-DO, AMPS, and fast switching. Contains E1962B, E1966A, and E1987A TAs. (Requires E5515C, E5515C-003. E1996A is for installation on a single 8960 test set. TA feature options are not included and must be ordered separately as options to E1996A.)

E1999A E5515 application features
- **E1999A-202** Fast device tune enhanced measurement. Enables fast device tune measurement in E1962B, E1963A, E1966A, E1968A, and E1987A TAs. (Requires E1962B, E1963A, E1966A, or E1968A TA.)

Note: If adding a test application to an existing mainframe, see *Adding wireless technology formats to your 8960 test set.*

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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.)

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.

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Lab Applications and Feature Options

E6701F GSM/GPRS lab application. (Requires E5515C and E5515C-002.)

E6702B cdma2000 lab application. (Requires E5515C and E5515C-003.)

E6703E W-CDMA/HSPA 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 E6701F and E5515C with E5515C-002.)

E6705A GSM/GPRS Encryption. E6705A requires E6701F. E6705A may optionally be used with E6708A for UMA/GAN ciphering. Export restrictions exist; therefore, E6705A is not shipped on a new unit from the factory (it must be installed by end user).

E6706B 1xEV-DO lab application with Release A & B. (Requires E5515C and E5515C-003. Order E5515C-004 to enable fading.)

E6708A Enhanced GAN license for 2G/3G. License installed on 8960, enables the E6962B GANC software (download for free from web and install on standalone PC) to connect 8960 and test advanced UMA/GAN capability. Requires E6701G and/or E6703F (not yet released. To obtain new LAs upon release, purchase current shipping LA plus Annual Contract). User also supplies 3rd party Security Gateway (SEGW) software for the PC.

E6785E Fast switching lab application for GSM/GPRS/EGPRS, W-CDMA, cdma2000, and 1xEV-DO. Requires one or more LAs (E6701F, E1962B, E6703E, E6706B), E5515C, E5515C-002, and E5515C-003. For EGPRS capability, add E6704A. Order E5515C-004 to enable fading.

E6716B cdma2000/1xEV-DO lab application suite. Includes LAs for cdma2000 and 1xEV-DO with Release A&B. Contains E6702B, E6706B, E6785E LAs. (Requires E5515C and E5515C-003. Order E5515C-004 to enable fading. E6716B is for installation on a single 8960 test set.)

E6717C 8960 lab application UMTS suite. Includes LAs for GSM, GPRS, EGPRS and W-CDMA/HSPA. Contains E6701F, E6703E, E6704A, and E6785E fast switching LA. (Requires E5515C, E5515C-002, and E5515C-003. Order E5515C-004 to enable fading. E6717C is for installation on a single 8960 test set.)

E6719E Lab application suite. Includes LAs for GSM, GPRS, EGPRS, cdma2000, W-CDMA/HSPA, 1xEV-DO with Release A & B, and fast switching. Contains E6701F, E6702B, E6703E, E6704A, and E6706B LAs plus E6785E fast switching LA. (Requires E5515C, E5515C-002, and E5515C-003. Order E5515C-004 to enable fading. E6719E is for installation on a single 8960 test set.)

E6720A Annual upgrade contracts for 8960 lab applications. Must specify an option for each format. For contract renewals, order the contract extension to avoid overlap of existing and renewal terms.

- **E6720A-001** For E6701 GSM/GPRS and E6704A EGPRS LAs
- **E6720A-003** For E6703 W-CDMA/HSPA LA
- **E6720A-006** For E6706 1xEV-DO LA
- **E6720A-017** For E6701 GSM/GPRS, E6704A EGPRS, E6703 W-CDMA/HSPA LAs
- **E6720A-201** Contract extension for E6701 GSM/GPRS and E6704A EGPRS LAs
- **E6720A-203** Contract extension for E6703 W-CDMA LA
- **E6720A-206** Contract extension for E6706 1xEV-DO LA
- **E6720A-217** Contract extension for E6701 GSM/GPRS, E6704A EGPRS, E6703 W-CDMA LAs

Note: If adding a lab application to an existing mainframe, see the section entitled, *Adding wireless technology formats to your 8960 test set.*

Annual contracts include

- Individualized early notification of new LA models and revisions
- LA subscription releases give early access to new features and enhancements
- LA upgrades and licenses (if required) over the term of the contract at no additional charge
- New applications and licenses delivered electronically on demand via the Web

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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.)

Lab application options available when ordered standalone (without E5515 mainframe)

LA Model#-010 Lab application installation. (CD-ROM with the necessary files and utilities needed for loading lab applications. LAs can be downloaded from **www.agilent.com/find/8960la**. Option 010 is recommended if you do not have high-speed Internet access.)

LA Model#-ABA 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.

Wireless Protocol Advisor (WPA) ordered standalone (without an LA)

E6584A PC software that works with 8960 lab applications to capture and analyze wireless protocols. (Included with LA. To order without LA, order E6584A and option to specify format.)

E6584A-001 GSM/GPRS/EGPRS decodes for WPA software

E6584A-002 cdma2000 decodes for WPA software

E6584A-003 W-CDMA decodes for WPA software

E6584A-006 1xEV-DO decodes for WPA software

Wireless Test Manager Software

Wireless test managers software runs on a standalone PC to automate the 8960 and requires a specific model and revision of TA and LA. See the data sheet or overview to determine compatible TAs and LAs at **www.agilent.com/find/wtm**. 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	E6567C, E6567C-100
1xEV-DO	E6567C, E6567C-100
GSM/GPRS/EGPRS	E6568C, E6568C-100
W-CDMA/GSM/GPRS/EGPRS	E6568C, E6568C-100
cdma2000/IS-95/1xEV-DO	E6567C, E6567C-100
Run-Tim License for all formats	E6571C
LA wireless test managers	
cdma2000/IS-95/AMPS	N5880A, N5880A-100
1xEV-DO	N5884A, N5884A-100
W-CDMA	N5882A, N5882A-100

Interactive Functional Test Software

Interactive Functional Test software runs on a standalone PC to automate functional testing on the 8960 and requires a specific model and revision of LA and the Annual Contract, They utilize a USB security key. See the data sheet at **www.agilent.com/find/8960ift**.

Formats	Interactive Functional Test model
UMTS (GSM/GPRS/EGPRS/ W-CDMA/HSDPA/HSUPA)	N5970A, N5970A-1TP

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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 a TA or LA revision to get new features

TAs and LAs are periodically revised to add new features, improve performance, or resolve known issues. New features typically require a TA option upgrade, LA model upgrade, LA option upgrade, or an E5515 mainframe hardware upgrade. Refer to Table 4 to determine the appropriate TA feature option upgrade. To determine if a hardware (HW) upgrade may be required to enable a feature, contact your Agilent Sales Representative to specify and order hardware upgrades.

TA and LA downloads are available at www**.agilent.com/find/8960ta**. A valid license is required. Contact your Agilent Sales Representative for application upgrade information.

NOTE: Application suites (E1991, E1993, E1996, E6716, E6717, E6719) can be updated by upgrading the individual constituent applications. For example, to upgrade the E6701E GSM/GPRS Lab Application and the E6703D W-CDMA Lab Application purchased in the E6717B UMTS LA Suite, the individual upgrades E6701FU-002 and E6703EU-005 should be purchased. There are no upgrade products for the suites as a whole.

Table 4. TA feature option upgrades

TA format	Feature	Application	Feature option upgrade[1]
cdma2000	cdma2000 Rel A new control channels	E1962B	E1962BU-401
	Advanced AMPS	E1962B	E1962BU-402
	Authentication	E1962B	E1962BU-403
	Digital bus (fading)	E1962B	E1962BU-405
	Multi-unit synchronization	E1962B	E1962BU-406
	Protocol logging	E1962B	E1962BU-407
	cdma2000 SMS	E1962B	E1962BU-409
W-CDMA	W-CDMA end-to-end video	E1963A	E1963AU-401
	W-CDMA video loopback	E1963A	E1963AU-402
	HSDPA test modes	E1963A	E1963AU-403
	W-CDMA enhanced audio	E1963A	E1963AU-408
	W-CDMA advanced SMS	E1963A	E1963AU-409
	HSUPA test modes[2]	E1963A	E1963AU-413
1xEV-DO	1xEV-DO Release A and B	E1966A	E1966AU-102
	1xEV-DO Release B multi-carrier[3]	E1966A	E1966AU-103
	Digital bus (fading)	E1966A	E1966AU-405
	Multi-unit synchronization	E1966A	E1966AU-406
	Protocol logging	E1966A	E1966AU-407
GSM/GPRS/EGPRS	GSM/GPRS enhanced audio	E1968A[4]	E1968A-408
	GSM/GPRS advanced SMS	E1968A[4]	E1968A-409
	PAvT	E1968A[4]	E1968A-410
	Mobile-calculated BER	E1968A[4]	E1968A-419
	Class 34	E1968A[4]	E1968A-430
Multiple	Fast Device Tune Enhanced	Multiple[5]	E1999A-202

[1] Some TA features are enabled by a feature option. Required feature options are listed.
[2] HSUPA test modes (E1963AU-413) requires HSDPA test modes (E1963A/AU-403).
[3] E1966A-103 requires both E1966A-102 and E1966A-406.
[4] E1968A plus required technology format feature option (e.g. E1968A-101, 102, 103, 201, or 202).
[5] One E1999A-202 license enables Fast Device Tune Enhanced across all licensed, capable TAs (E1962B, E1963A, E1966A, E1968A)

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2. Upgrading an existing application to a new model number

Upgrading a TA or LA to a new model number (e.g. E1985B to E1987A or E6701E to E6701F) offers important new features and functionality. LA upgrades to newer model numbers are offered as an upgrade product. TA upgrades may be free downloads or upgrade products. TA and LA upgrades are customer-installable. Refer to Table 5 for available TA model upgrades and Table 6 for available LA upgrades. Some TA and LA model upgrades may require an E5515 hardware upgrade to run or enable specific features. Contact your Agilent Sales Representative for specific application upgrade information.

Table 5. TA model number upgrades

TA format	Application		Upgrade to order
	From	To	
GSM TA	E1960A	E1968A-101	Free upgrade[1]
GPRS TA	E1964A	E1968A-102	Free upgrade[1]
Fast switch TA	E1985A, B, C, D, or E	E1987A	Free upgrade[1,2]

[1] Download free upgrades at **www.agilent.com/find/8960ta**.

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

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Table 6. LA model number upgrades

LA format	Application		Upgrade to order
	From	To	
GSM/GPRS LA	E6701E	E6701F	E6701FU-002[1]
GSM/GPRS LA	E6701D	E6701F	E6701FU-001[1]
cdma2000 LA	E6702A	E6702B	E6702BU-002
W-CDMA/HSPA LA	E6703A	E6703E	E6703EU-002[1]
W-CDMA/HSPA LA	E6703B	E6703E	E6703EU-003[1]
W-CDMA/HSPA LA	E6703C	E6703E	E6703EU-004[1]
W-CDMA/HSPA LA	E6703D	E6703E	E6703EU-005[1]
1xEV-DO LA	E6706A	E6706B	E6706BU-001[1]
Fast switching	E6785A, B, C, D	E6785E	Free upgrade[1,2]

[1] E5515C with serial number <GB45070001 or any US serial number may require a hardware upgrade to run or enable certain features. Please contact an Agilent sales representative for more information.
[2] Download free upgrades at **www.agilent.com/find/8960la**

3. Upgrading a test application to a lab application

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

Table 8. TA to LA upgrades

Format	Application		Order
	From	To	
cdma2000 TA to LA	E1962B	E6702B	E6702BU-001[1]
W-CDMA TA to LA	E1963A	E6703E	E6703EU-001[1]
1xEV-DO TA to LA	E1966A	E6706B	E6706BU-002[1]
Fast switching	E1987A	E6785E	Free upgrade[12]

[1] E5515C with serial number <GB45070001 or any US serial number may require a hardware upgrade to run or enable certain features. Please contact an Agilent sales representative for more information.
[2] Download free upgrades at **www.agilent.com/find/8960la**

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 E5515 may save considerable expense when compared to purchasing a new test set. Adding a new TA or LA to an existing E5515B or E5515C may require a hardware upgrade. Contact your Agilent Sales Representative for details and delivery information.

Important: Existing TA and LAs installed on an E5515B or E5515C may have to be updated to a newer revision or new model after a hardware upgrade. Older LA models may not work on an upgraded E5515. Before ordering an E5515 hardware upgrade, check with your Agilent Sales Representative to make sure you have ordered the necessary LA upgrades to run on the upgraded E5515 hardware.

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