Agilent E6474A Wireless Network Optimization Platform

Configuration Guide

Agilent Technologies
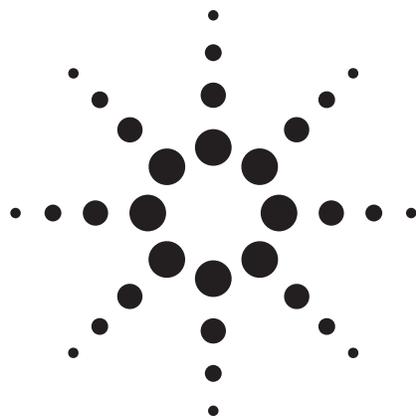
The purpose of this configuration guide is to assist you in ordering the correct system configuration for your application.

The Agilent E6474A wireless network optimization platform is used to obtain RF coverage measurements and service performance measurements for wireless communications networks. The Windows® based software runs on a PC that interfaces with an Agilent digital RF receiver and with cdmaOne, cdma2000, HSDPA, UMTS, GSM, GPRS, EDGE, and iDEN phones. The system can be configured to include receivers and phones from one or a combination of technologies simultaneously. The system can control up to four phones.

Recommended minimum PC specifications:

The Agilent E6474A system requires a PC. The PC requirements differ depending on the hardware configuration and on which parameters are being selected.

Minimum PC specifications:

- XP Professional SP2 (inc XP for Tablet PC)
- 1.6GHz Pentium M 512MB RAM
- Parallel port or USB Port (for software key)
- PCMCIA slot or a USB connection (for multiple hardware support)
- 30 GB hard disk space
- CD-ROM drive recommended for installation
- 1024 x 768 display resolution minimum

Recommended PC specifications:

- XP Professional SP2 (inc XP for Tablet PC)
- Intel® Core™ Duo T2500 (2GHz) 2GB RAM
- Parallel port or USB Port (for software key)
- PCMCIA slot or a USB connection (for multiple hardware support)
- 50 GB hard disk space
- CD-ROM drive recommended for installation
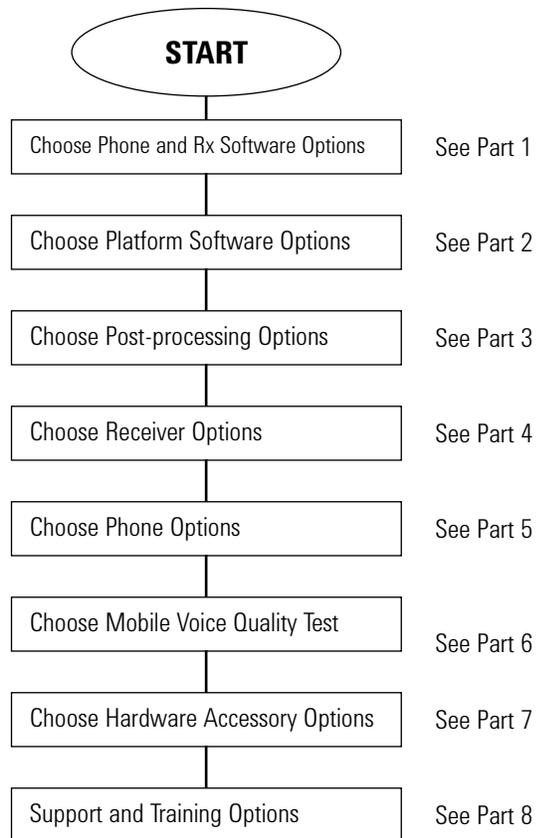- 1280 x 1024 display resolution minimum

The Agilent network optimization drive test solution can be ordered through part numbers E6473B, E6474A, W1314A, 86154A, 86156A, and E5643A. These part numbers are described in this document.

Configuration Process

Before using this configuration guide, the following decisions need to be made:

- Which technologies are required?
- Which software measurements are required?
- Which phones and receivers are required?
- Which accessories are required?

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This configuration guide is set-out to show the decision process flow you use when choosing your system.

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              │    START    │
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  ┌──────────────────────────────────────┐
  │  Choose Phone and Rx Software Options │    See Part 1
  └──────────────────────────────────────┘
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  ┌──────────────────────────────────────┐
  │  Choose Platform Software Options     │    See Part 2
  └──────────────────────────────────────┘
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  ┌──────────────────────────────────────┐
  │  Choose Post-processing Options       │    See Part 3
  └──────────────────────────────────────┘
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  │  Choose Receiver Options              │    See Part 4
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  │  Choose Phone Options                 │    See Part 5
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  ┌──────────────────────────────────────┐
  │  Choose Mobile Voice Quality Test     │    See Part 6
  └──────────────────────────────────────┘
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  ┌──────────────────────────────────────┐
  │  Choose Hardware Accessory Options    │    See Part 7
  └──────────────────────────────────────┘
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  ┌──────────────────────────────────────┐
  │  Support and Training Options         │    See Part 8
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Part 9 shows some ordering examples.

Part 1: Software Options

Select which E6474A software options match your technology and measurement requirements. Review the upgrade section for additional options.

License Description	cdma One	cdma 2000	GSM	W-CDMA /UMTS	iDEN	GPRS
Phone measurements	100	101	200	300	400	600
Receiver measurements	110	111	210	310	410	
Receiver and phone measurements combination	120	121	220	320	420	620
TechTool[2] phone measurements	130	131	230			
TechTool L2/L3/CAI Messages	072	073				

Table 1- Technology specific software options

Example:
To order receiver and phone measurement combination for cdma2000 technology systems, select E6474A-121.

Software Upgrade Options
- UMTS receiver software to phone and receiver Combo — E6474A-315
- UMTS to HSDPA phone measurement upgrade software license — E6474A-325
- UMTS to Motorola Netmon3 measurement upgrade software license[3] — E6474A-340
- GSM/GPRS to UMTS phone measurements — E6474A-625
- EDGE phone measurement upgrade — E6474A-635
- cdma2000 to 1xEVDO phone measurement (Rev. 0) — E6474A-135
- cdma2000 to 1xEVDO phone measurement (Rev. A) — E6474A-137
- cdma2000 to 1xEVDO receiver measurement — E6474A-136
- iDEN to WiDEN phone measurements — E6474A-435

Phone Scanning
- Sagem BCCH scanning measurement software license — E6474A-201

Notes
1. HSDPA and EDGE measurements are enabled through their respective upgrade licenses.

2. TechTool enables low-end measurement capability at a lower price. For example, E6474A-130 and E6474A-070 will provide CDMA phone measurement view and logging only. TechTool is not available for all technologies.

3. Netmon3 includes support for Motorola E1000 phone.

Each software order includes the following components:
- CD with software and documentation (training and reference)
- User's Guide (E6474-90052) and Getting Started Guide (E6474-90085)
- USB license key (initialized with licenses)

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Part 2: Platform Software Options   Select which E6474A platform software option matches your system needs.

License Description	Option Number
Initialized parallel license key[1]	005[1]
Multiple phone license	010
Indoor mapping license	030
MapX Mapping software license	040[2]
Client data measurement software license	700
Server data measurement software license[2]	710[3]
Wireless Application Measurement Software	740
Video Streaming	741
Video Telephony	742
Video Streaming plus non-reference video MoS	744
WAMS Lite[4]	745[4]
TechTool data logging and GPS	070
TechTool alarming capabilities	071
Platform software CD only	090

Table 2 - Platform software options

1 The E6474A licenses are only delivered on a USB key. A parallel key must be ordered separately if required. Refer to the Software License section below for information on the Keyless License features.

2 MapX is required for release 10.0 onwards to support mapping features. Release 9.x and earlier did not require this option.

3 E6474A-710 is a "server" application, used with E6474A-700, and requires to be run on a separate PC platform from the optimization software. E6474A-710 is provided with a CD containing software and documentation, a Server Installation Guide and a Parallel port software license key. Refer to the Wireless Data Measurements data sheet for further details (literature number 5988-1507EN).

4 WAMS Lite is available as a low cost entry point to basic service testing. Tests included are FTP test, PING, voice connectivity, video connectivity, AT commands, and DOS commands only.

Keyless Software Licensing

Server-based keyless software licensing is offered as an alternative to the default hardware key-based licensing. Software licensing provides the ability to maintain a pool of E6474A measurement licenses on a server and then distributes those licenses to client drive-test PCs using a check-out process. Typically only one server application is required per customer. This licensing option is aimed at customers managing more than twenty E6474A systems.

License Description	Option Number
Software licensing server application	E6474A-081
Software licensing option delivery	E6474A-080
Hardware key to software license exchange	E6474A-083

Table 2a - Software license options

Note: The minimum license check-out period is seven days. Techtool options are not available under the software licensing system. An E6474A-083 purchase is required for every E6474A measurement license to be transferred.

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Part 3: Post-Processing Options   Select which post-processing software you require.

License Description	Option Number
Analysis Reporter	E6474A-758

Example:
To add Analysis Reporter capability to your system select E6474A-758.

Referral Statement for Actix Users

Agilent maintains strong links with Actix, who supply post-processing software. However Agilent no longer re-sells this software. For more information on purchasing options and support of Actix software, please contact Actix directly (sales@actix.com).

Part 4: Receiver Options

Agilent's new multi-technology and multi-band receivers support up to four RF bands in a single compact package. The combination of uplink and downlink bands depends on the configuration chosen. All receivers include a integral 12 channel GPS and four-port USB hub. The receivers are listed by option number and by technology with supported bands.

Receivers are all options of the base product W1314A.

Option Number	Description
W1314A-100	GSM 900/1800 (UL/DL)
W1314A-110	GSM/CDMA/UMTS 850/1900 (UL/DL)
W1314A-120	GSM450/CDMA450(partial)(UL/DL), GSM 900/1800 (DL) and UMTS 2100 (DL)
W1314A-130	GSM/CDMA/UMTS 850/1900 (DL) and GSM 900/1800 (DL)
W1314A-140	GSM/CDMA/UMTS 850 (DL), GSM 900/1800 (DL) and UMTS 2100 (DL)
W1314A-150	GSM/CDMA/UMTS 850/1900 (DL), UMTS 1700 (UL), CDMA/UMTS 2100 (DL)
W1314A-200	UMTS 2100 (UL/DL) GSM 900/1800 (DL)
W1314A-210	UMTS 2100 (DL), UMTS TDD 2100 (TDD) and GSM 900/1800 (DL) (TDD future enhancement)
W1314A-220	CDMA/UMTS 1900/2100 (DL), UMTS TDD 2100 (TDD) and CDMA 850 (DL) (TDD future enhancement)
W1314A-230	CDMA/UMTS 850/2100 (UL/DL)
W1314A-300	iDEN 800/900 (UL/DL)
W1314A-310	iDEN 800/900 (DL), GSM/CDMA/UMTS 850/1900 (DL)
W1314A-410	JCDMA 800 (DL), JCDMA/UMTS 1700 (DL) and UMTS 2100 (DL)
W1314A-500	WiLAN (TDD), GSM 900/1800 (DL) and UMTS 2100 (DL) (WiLAN is CW only at present)

Table 4a - Digital Receiver Part Numbers - listed by part number.

Example

W1314A-200 supports UMTS at 2100 MHz in both the uplink and downlink bands as well as GSM 900 and GSM 1800 in the downlink bands only.

Notes

Agilent receivers require related receiver measurement software as described in the Software Options section (refer to Table 1).

Agilent receivers include an internal 12 channel GPS receiver although you can use an alternative external GPS unit if preferred.

If you require dead reckoning with your GPS, you need to use an external GPS. Agilent offers an external GPS with dead reckoning capability (refer to Table 6)

You need to select the receiver that covers the frequency bands in which you want to make measurements.

Each receiver includes the following components:
- Magnetic-mount RF antenna for the corresponding frequency band
- Adaptor for RF antenna connection to receiver
- USB cable for connection to PC
- AC/DC power supply
- DC power cord - cigarette lighter type
- Mounting kit - mounting plate and screws for mounting receiver in a vehicle

Part 5: Phone Options

Select which phone type you require for your system from the E6473B parts below. Alternatively source a supported phone directly from a third party; please refer to the agilent.com website or contact your Agilent representative for a list of supported phones.

Phone Descriptions (test mobile)	Option Number
Sagem GSM 900/1800/1900	E6473B-720
Sagem GPRS/GSM 900/1800/1900	E6473B-740
Nokia N80 GSM/GPRS/EDGE (850/900/1800/1900) UMTS (2.1 GHz)	E6473B-758
Nokia 6125 GSM/GPRS/EDGE (850/900/1800/1900)	E6473B-753
Kyocera 3035 phone kit (US and China)	E6473B-770

Table 5 - Engineering phone product options

Note: For the current supplied phone models please contact your Agilent representative.

Example:
To order a Sagem GSM 900/1800/1900 test mobile select E6473B-720

Note: These options include the manufacturers direct connect cables.

Phones are supplied with the manufacturers one year warranty. Agilent do not offer extended warranty on phones.

Part 6: Mobile Voice Quality Testing Options

For up to date information on Agilent's voice quality test solutions, please contact your Agilent sales representative.

Server/Office part of the system

Descriptions	Option Number
Voice Responder Unit	J5426AZ
Voice Quality Test Software (Office Side)	B9990A-100

Table 6 - Server/Office option requirements

Client/Mobile Van part of the system

Descriptions	Option Number
Single Phone Mobile VQT Client Software	B9990A-200
Multi-Phone Mobile VQT Client Upgrade License	B9990A-300
Cable - Nokia POP-Port Mobiles	E6473B-882
Cable - 2.5mm Ear/Microphone Jack Supported Mobiles	E6473B-883

Table 7 - Client/Mobile Van option requirements

Part 7: Hardware Accessory Options   Select which hardware accessories you need with your system.

Drive-test System Accessories

Direct Connect GPS DR w/Mag Mount Antenna - External GPS device with dead reckoning that can connect to either the Agilent direct connect hub or directly to the laptop via serial port. This option includes a magnetic mount GPS antenna.	E6473B-030
Direct Connect GPS DR w/Perm Mount Antenna - This option is the same as E6473B-030 but with a permanent mount GPS antenna.	E6473B-031

Antenna kits

900/1800 MHz Phone Antenna Kit	E6473B 898
800/1900 MHz Phone Antenna Kit	E6473B 899
Receiver Antenna,Perm. Mt 800/1900MHz	86156A-700
Receiver Antenna, Perm. Mt 900/1800MHz	86156A-701
Receiver PCS antenna, magnetic mount	86154A-410
Receiver Cellular antenna, magnetic mount	86154A-430

Miscellaneous options

4-port USB to serial hub	86154A-036
Briefcase for phone/receiver + phone	86154A-531

Table 6 - Accessories

Part 8: Support and Training Options   The E6474A software licenses include the following product support options for the first year:

- Agilent Call Center phone support, four hour response time or less.
- Software updates.

The Agilent Advantage Integrated Customer Care Program allows customers to upgrade to more comprehensive product support options. For the program summary and options, refer to publication 5988-4793EN.

On-site training is orderable for E6474A and for WAMS. This provides:

- Telephone assistance and Web training on specific topics
- On-site training and start-up assistance
  Order as:
  E6474A One day on-site training - H7211B-209.
  WAMS One day on-site training - H7211B-232.
  E6474A and WAMS Two day on-site training - H7211B-233.
  Mobile Voice Quality Test One day on-site training - H7211B-235.

On-site training is not available in all locations. Please contact your Agilent sales representative for further information. It is highly recommended that new E6474A users order training options.

Part 9: Ordering examples

These examples are not a complete list of all possible configurations, they show typical configurations to illustrate the ordering process.

CDMA ordering examples

You want a cdmaOne phone-based measurement system (single phone). You will provide your own GPS, laptop and phone.

You need to order		Quantity
E6474A:	Wireless network optimization platform	
	E6474A-100: cdmaOne phone measurement software license	1
	E6474A-040: MapX mapping software license	1

You want a cdmaOne combination phone and receiver-based measurement system for the PCS band. You need one receiver and multi-phone option. In-vehicle use intended. You provide your own Laptop PC, and phones with OEM cables.

You need to order		Quantity
E6474A:	Wireless network optimization platform	
	E6474A-120: Combined cdmaOne phone- and receiver measurement software license	1
	E6474A-010: Multiple phone software license	1
	E6474A-040: MapX mapping software license	1
W1314A:	Agilent receiver hardware	
	W1314A-110 GSM/CDMA/UMTS 850/1900 (UL/DL)	1

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cdma2000 ordering example

You want a cdma2000 phone and receiver-based measurement system for the cellular and PCS bands. You will use the receiver GPS and provide your own laptop.

You need to order		Quantity
E6474A:	Wireless network optimization platform	
	E6474A-121: cdma2000 phone & receiver measurement sw license	1
	E6474A-040: MapX mapping software license	1
W1314A:	Agilent receiver hardware	
	W1314A-110:GSM/CDMA/UMTS 850/1900 (UL/DL)	1

GSM ordering examples

You want a GSM phone-based measurement system for voice (up to four phones). You will provide your own laptop and test phones.

You need to order		Quantity
E6474A:	Wireless network optimization platform	
	E6474A-200: GSM phone measurement sw license	1
	E6474A-010: Multiple phone software license	1
	E6474A-040: MapX mapping software license	1

GPRS ordering examples

You want a GPRS phone-based measurement system. You want two OT290 phones included with the system. You will provide your own laptop and GPS.

You need to order		Quantity
E6474A:	Wireless network optimization platform	
	E6474A-600: GSM phone measurement software license	1
	E6474A-010:Multiple phone software license	1
	E6474A-040: MapX mapping software license	1
E6473B:	Accessories	
	E6473B-740: Sagem GPRS 900/1800/1900 phone	2

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You want a GPRS combination phone and receiver-based measurement system for the 900/1800MHz band (single phone), with data test capability. Receiver, and phone hardware required. Wireless data measurement software required. You will supply both laptops for drive-test and for the test server.

You need to order		Quantity
E6474A:	Wireless network optimization platform	
	E6474A-620: Combined GSM phone- and receiver-based measurement sw license	1
	E6474A-040: MapX mapping software license	1
	E6474A-700: Data measurement software license	1
	E6474A-710: Server data measurement software license	1
W1314A:	Agilent receiver hardware	
	W1314A-200 UMTS 2100 (UL/DL) GSM 900/1800 (DL)	1
E6473B:	Accessories	
	E6473B-740: GPRS 900/1800/1900 test mobile	1

W-CDMA (UMTS) ordering examples

You want a W-CDMA (UMTS) phone-based measurement system, with wireless data application measurement options. You will provide your own UMTS phone and laptop.

You need to order		Quantity
E6474A:	Wireless network optimization platform	
	E6474A-300: W-CDMA (UMTS) phone-based measurement software license	1
	E6474A-040: MapX mapping software license	1
	E6474A-740: Wireless application measurement sw license	1

You want a W-CDMA (UMTS) receiver and phone combination system (with multiRAT measurements for UMTS phone), you already own a UMTS receiver-based measurement license and hardware.

You need to order		Quantity
E6474A:	Wireless network optimization platform	
	E6474A-315: W-CDMA (UMTS) receiver to phone/ receiver combo measurement upgrade software license	1
	E6474A-040: MapX mapping software license	1

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iDEN ordering examples

You want a iDEN phone-based measurement system (single phone). You will provide your own GPS and laptop.

You need to order		Quantity
E6474A:	Wireless network optimization platform	
	E6474A-400: iDEN phone measurement software license	1
	E6474A-040: MapX mapping software license	1

You want a iDEN combination phone and receiver-based measurement system (single phone). You will provide your own iDEN phone with OEM cable, GPS and laptop.

You need to order		Quantity
E6474A:	Wireless network optimization platform	
	E6474A-420: Combined iDEN phone - and receiver-based measurement software license	1
	E6474A-040: MapX mapping software license	1
W1314A:	Agilent receiver hardware	
	W1314A-300 iDEN 800/900 (UL/DL)	1

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Additional Agilent literature

Product Overviews

Agilent E6474A Wireless Network
Optimization Platform Product Overview   5988-3558EN

Deploy next generation wireless networks
Agilent E6474A Wireless Network
Optimization Platform   5989-4782EN

Data Sheets

Agilent E6474A Technology Overview
GSM, GPRS, EDGE   5989-5722EN

Agilent E6474A Technology Overview
UMTS, HSDPA   5989-5735EN

Agilent E6474A Technology Overview
cdma2000, 1xEVDO   5989-5904EN

Agilent Wireless Data Measurement   5988-1507EN

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