

# E6474A Drive Test

## Wireless Network Optimization Platform—Configuration Guide



### Key Benefits

- Platform stability to improve user productivity
- Easy to use
  - Customizable GUI to view data as needed
  - Optimize efficiency in detecting and isolating problems
- Single platform can expand as needs increase lowering cost of ownership
- Project files allow easy sharing of test configurations to improve consistency of collected results
- Click'n'Sync visualization simplifies troubleshooting to find problems faster
- High accuracy RF measurements reduce measurement uncertainty
- Offers a broad choice of post-processing tools

### Key Features

- Supports multiple devices on a single laptop
- Industry-leading data test support
- Open architecture for post-processing
- Indoor and outdoor measurement capability
- User-definable events triggers
- Fast, accurate receiver measurements
- Fully scalable solution from receiver or UE device to full combo

This configuration guide can assist with ordering the correct system configuration for Drive Test applications.

The E6474A Wireless Network Optimization platform is used to obtain RF coverage and service performance measurements for wireless communications networks. The Windows®-based software runs on a PC that interfaces with the JDSU Digital RF Receiver and with cdmaOne, cdma2000, LTE, HSPA, UMTS, GSM, E-GPRS, WiMAX™, iDEN, and TD-SCDMA phones. The system can be configured to include receivers and phones from one or a combination of technologies simultaneously and can control up to four phones.

### Recommended PC specifications

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

Only Windows Intel® -32 bit systems are supported.

Recommended minimum PC specifications:

- Windows XP Professional (including XP for Pentablet)
- Intel Core™ Duo T2500 (2 GHz) 2 GB RAM
- Parallel port or USB port (for software key)
- PCMCIA slot or a USB connection (for multiple hardware support)
- 100 GB hard disk space
- CD-ROM drive recommended for installation
- 1024 x 768 display resolution minimum

Recommended minimum Windows Vista or Windows 7 PC specifications:

- Vista Business or Windows 7 - 32 Bit
- Intel Core Duo T2500 (2 GHz) 3 GB RAM
- Parallel port or USB port (for software key)
- PCMCIA slot or a USB connection (for multiple hardware support)
- 100 GB hard disk that has 15 GB of free hard disk space (The 15 GB of free space provides room for temporary file storage during the install or upgrade.)
- CD-ROM drive recommended for installation
- 1024 x 768 display resolution minimum

The JDSU Network Optimization Drive Test solution can be ordered through part numbers E6474A, E6473B, E5643B, W1314A, and B9990A, as described in this document.

**Notes:** (Vista OS and Windows 7): To provide access to all of the features of the E6474A platform, turn off the User Account Control (UAC) feature. Before starting the E6474A application, select Control Panel > User Accounts and disable the UAC feature.

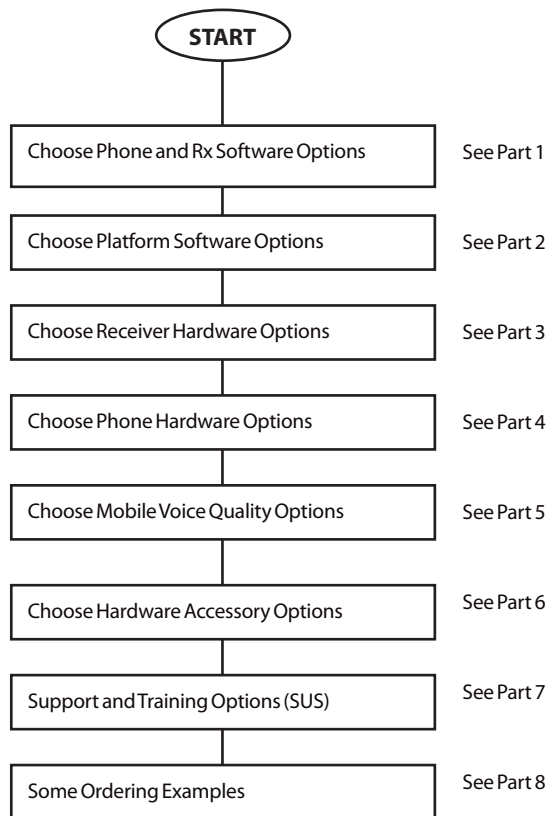
*Installing from an encrypted folder requires first uninstalling all previous versions of the E6474A application.*

### Configuration process

Before using this configuration guide, determine the following:

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

This configuration guide shows the decision process flow to use when choosing a system.



## Part 1: Software options

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

Technology	Phone Measurements	Receiver Measurements	TechTool Phone Measurements <sup>1</sup>	TechTool L2/L3/CAI Measurements
cdma2000	101	050	131	073
GSM	200	050		
W-CDMA/UMTS <sup>2</sup>	300	050	301	
iDEN	400	050		
E-GPRS	600	050		
WiMAX	656	655		
LTE UE device support (Includes Qualcomm devices)	640	645 (FDD), 646 (TDD)		
LTE - LG device upgrade	641			
LTE - Samsung device upgrade	642			
LTE - Altair device upgrade	643			
LTE - Sequans device upgrade	644			
TD-SCDMA	550			

### Notes:

1. TechTool enables low-end measurement capability without recording, events or protocol logging at a lower price. TechTool is not available for all technologies.
2. UMTS Phone Measurement option includes support for GSM and E-GPRS phone measurements.

Receiver measurements can be added to any “base technology” phone measurements system with the E6474A-050 Receiver Addition to Phone Measurements License. This option will enable taking receiver measurements for any of the “base technology” phone measurements that are already licensed. For a phone-based technology like UMTS, which includes GSM, receiver measurements for both technologies will be enabled with the Receiver Addition to Phone Measurements License.

### Base technologies include:

- GSM/E-GPRS
- UMTS/HSPA
- IS95
- cdma2000
- 1xEVDO
- 1xEVDO Rev A
- iDEN
- TD-SCDMA

LTE and WiMAX receiver measurements are not part of the base technologies group and require their own licenses as shown in the table above.

### Example:

To order phone and receiver measurements for cdma2000 technology, select E6474A-101 and E6474A-050.

**Notes:** For receiver-only measurements, independent of phones, the E6474A-055 Receiver-only Measurement License provides **all** the base technology receiver measurements without needing the corresponding phone licenses. This capability enables receiver-based benchmarking of all technologies in a given region using the appropriate W1314A receiver hardware.

This E6474A-055 license includes the functionality of the “Receiver Addition to Phones” license enabling users to make receiver-only measurements on the other base technologies.

### Software upgrade options

Additional technology expansions that build on the base technology licenses.

Software Upgrade Description	Option Number
UMTS to HSPA+ Phone Measurement Upgrade License <sup>1</sup>	E6474A-327
UMTS to Motorola Netmon3 <sup>2</sup> Measurement Upgrade License	E6474A-340
GPRS to UMTS Phone Measurements Upgrade License	E6474A-625
cdma2000 to 1xEVDO Phone Measurement Upgrade (Rev. 0) License <sup>3</sup>	E6474A-135
cdma2000 to 1xEVDO Phone Measurement Upgrade (Rev. A) License <sup>3</sup>	E6474A-137
cdma2000 to 1xEVDO Receiver Measurement Upgrade License	E6474A-136
CDMA IS95 Over-the-Air Base Station Testing	E6474A-150
cdma2000 Over-the-Air Maintenance Tool Software Upgrade (IS95)	E6474A-151

### Phone Scanning

Sagem BCCH Scanning Measurement License	E6474A-201
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#### Notes:

1. This option includes HSDPA and HSUPA measurements.
2. Netmon3 includes support for Motorola E1000 phone.
3. HSPA, 1xEVDO, and 1xEVDO Rev A are all upgrades on base technologies. Please refer to “Part 8: Ordering Examples” on page 16 for more information on configuring these options.

Each software order includes the following components:

- CD with software (which includes comprehensive training and reference information)
- User's Guide
- USB license key (initialized with licenses).

**Part 2: Platform software options**

Select the E6474A platform software option that matches system needs.

License Description	Option Number
Initialized Parallel License Key <sup>1</sup>	005
Multiple Phone License <sup>2</sup>	010
MapX Mapping Software License	040 <sup>3</sup>
Receiver-only Measurement License	055 <sup>4</sup>
Client Data Measurement License	700
Server Data Measurement License	710 <sup>5</sup>
Wireless Application Measurement software	740
Video Streaming	741
Video Streaming plus Non-reference Video MoS	744
TechTool Data Logging and GPS	070
TechTool Alarming capabilities	071
Platform software CD only	090

**Notes:**

1. The E6474A licenses are normally 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. Allows the use of more than one phone simultaneously for data test collection.
3. MapX is required for release 10.0 onwards to support mapping features. Release 9.x and earlier did not require this option. Both indoor and outdoor mapping are included with this option.
4. Provides all base receiver technology measurements without needing the corresponding phone technology licenses.
5. E6474A-710 is a “server” application, used with E6474A-700 and is required 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.

### Data and application test software options

The E6474A Drive Test software can perform a variety of data and application tests.

The following table shows tests included with the standard phone-based software options and the ones that require additional licenses to enable them.

Tests	E6474A Base Tests	E6474A Opt 740 (WAMS)	E6474A Opt 700 (Data)	Notes
AT_Command	Yes			
Call_Control	Yes			
Command_Line	Yes			
Wait_Timer	Yes			
Dialup	Yes			
Disconnect	Yes			
PING	Yes			
Trace Route	Yes			
FTP IPV4/6	Yes			
FTP IPV4/6_2	Yes			Supports multi-segment and FTP-S
SMS	Yes			For Sagem devices
SMS_2	Yes			For Qualcomm and Nokia devices
Video_Connectivity_2	Yes			
iPERF	Yes			
PLMN Network Search and Selection	Yes			LG LTE UE devices
Connect (LG LTE)	Yes			LG LTE devices only
Disconnect (LG LTE)	Yes			LG LTE devices only
Connect (Samsung)	Yes			Samsung LTE devices only
Disconnect (Samsung)	Yes			Samsung LTE devices only
WiMAX Network Entry	Yes			WiMAX devices only
WiMAX Network Exit	Yes			WiMAX devices only
WAP		Yes		
E-Mail		Yes		
HTTP		Yes		
GPRS		Yes		
MMS_2		Yes		
HTTP (Web) with IE IPV4/6			Yes	
Geometry			Yes	Option 710 Data Server also required
Video_Streaming				Needs Option 741 license
Video_Streaming_with_MOS				Needs Option 744 license

### 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 20 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

Note: Techtool options are not available under the software licensing system. An E6474A-083 purchase is required for every E6474A measurement license to be transferred.

### Part 3: Receiver hardware options

The JDSU multitechnology and multiband receivers support up to eight RF bands in a single compact package. The combination of uplink and downlink bands depends upon the configuration chosen. All standard receivers include an integral high-sensitivity 50-channel GPS and four-port USB hub. The receivers are listed by option number and by technology with supported bands.



Dual- and quad-band receivers

W1314A Option	Band 1	Band 2	Band 3	Band 4
803	LTE L-Band (DL)	LTE L-Band (UL)		
110	UMTS 850 (UL) GSM 850 (UL) cdma2000/EVDO 850 (DL)	LTE 850 (DL) UMTS 850 (DL)  GSM 850 (DL) cdma2000/EVDO 850 (DL)	UMTS 1900 (UL) GSM 1900 (UL)  cdma2000/EVDO 1900 (UL)	LTE 1900 (DL) UMTS 1900 (UL) GSM 1900 (DL) cdma2000/EVDO 1900 (DL)
151	UMTS 1700 (UL)	LTE 1900 (UL) UMTS 1900 (UL) GSM 1900 (UL) cdma2000/EVDO 1900 (UL)	LTE 1900 (DL) UMTS 1900 (DL) GSM 1900 (DL) cdma2000/EVDO 1900 (DL)	LTE 2100 (DL) UMTS 2100 (DL)  cdma2000/EVDO 2100 (DL)
V01	LTE 900 (DL) UMTS 900 (DL) GSM 900 (DL)	LTE 1800 (DL) UMTS 1800 (DL) GSM 1800 (DL)	UMTS 2100 (UL)	LTE 2100 (DL) UMTS 2100 (DL)  cdma2000/EVDO 2100 (DL)
V02	LTE 900 (DL) UMTS 900 (DL) GSM 900 (DL)	LTE 1800 (DL) UMTS 1800 (DL) GSM 1800 (DL)	LTE 2100 (DL) UMTS 2100 (DL)  cdma2000/EVDO 2100 (DL)	LTE 2.6 (DL)   Mobile WiMAX 2.5
V03	LTE 900 (DL) UMTS 900 (DL) GSM 900 (DL)	LTE 1800 (DL) UMTS 1800 (DL) GSM 1800 (DL)	LTE 2100 (DL) UMTS 2100 (DL)  cdma2000/EVDO 2100 (DL)	LTE2300 (TDD)
V04	LTE800 (TDD)	UMTS 2100 (UL)	LTE 2100 (DL) UMTS 2100 (DL)  cdma2000/EVDO 2100 (DL)	LTE2300 (TDD)
V05	LTE 700 (DL)	LTE800 (TDD)	LTE 1900 (DL) UMTS 1900 (DL) GSM 1900 (DL) cdma2000/EVDO 1900 (DL)	LTE 2.6 (DL)   Mobile WiMAX 2.5
V06	LTE 700 (DL)	LTE800 (TDD)	LTE 1900 (DL) UMTS 1900 (DL) GSM 1900 (DL) cdma2000/EVDO 1900 (DL)	LTE 2100 (DL) UMTS 2100 (DL)  cdma2000/EVDO 2100 (DL)
V07	LTE 2100 (DL) UMTS 2100 (DL)  cdma2000/EVDO 2100 (DL)	LTE2300 (TDD)	LTE 1900 (DL) UMTS 1900 (DL) GSM 1900 (DL) cdma2000/EVDO 1900 (DL)	LTE 2.6 (DL)   Mobile WiMAX 2.5

Eight-band receivers

W1314A Options	Band 1	Band 2	Band 3	Band 4	Band 5	Band 6	Band 7	Band 8
E08	UMTS 850 (UL) GSM 850 (UL) cdma2000/EVDO 850 (UL)	LTE 850 (DL) UMTS 850 (DL) GSM 850 (DL) cdma2000/ EVDO 850 (DL)	GSM 900 (UL)	LTE 900 (DL) GSM 900 (DL)	GSM 1800 (UL)	LTE 1800 (DL) GSM 1800 (DL)	UMTS 2100 (UL) cdma2000/ EVDO 2100 (UL)	LTE 2100 (DL) UMTS 2100 (DL) cdma2000/ EVDO 2100 (DL)
E09	empty	LTE 700 (DL)	UMTS 850 (UL) GSM 850 (UL) cdma2000/ EVDO 850 (UL)	LTE 850 (DL) UMTS 850 (DL) GSM 850 (DL) cdma2000/ EVDO 850 (DL)	UMTS 1700 (UL) (AWS Band)	UMTS 1900 (UL) GSM 1900 (UL) cdma2000/ EVDO 1900 (UL)	LTE 1900 (DL) UMTS 1900 (DL) GSM 1900 (DL) cdma2000/ EVDO 1900 (DL)	LTE 2100 (DL) UMTS 2100 (DL) cdma2000/ EVDO 2100 (DL) (AWS Band)
E10	JCDMA 800 (DL)	LTE 850 (DL) JCDMA 800 (DL)	LTE 1500 (DL)	LTE 1700 (DL) UMTS 1700 (DL) cdma2000/ EVDO 1700 (DL)	TD-SCDMA	LTE 2100 (DL) UMTS 2100 (DL) cdma2000/ EVDO 2100 (DL)	Mobile WiMAX 2.5	Mobile WiMAX 2.5
E12 Global LTE FDD	LTE 700 (DL)	LTE 800/850 (DL) UMTS 850 (DL) GSM 850 (DL) cdma2000/EVDO 850 (DL)	LTE 900 (DL) GSM 900 (DL) JCDMA 900 (DL) JUMTS 900(DL)	LTE 1500 (DL)	LTE1800/1700(DL) UMTS 1700 (DL) GSM 1800 (DL) cdma2000/EVDO 1700 (DL)	LTE 1900 (DL) UMTS 1900 (DL) GSM 1900 (DL) cdma2000/EVDO 1900 (DL)	LTE 2100 (DL) UMTS 2100 (DL) cdma2000/EVDO 2100 (DL)	LTE 2600 (DL) Mobile WiMAX 2.5
E13 Global LTE TDD	LTE800 (TDD)	LTE900 (TDD)	LTE1800(TDD)	LTE1800 (TDD)	LTE1900 (TDD)	LTE2000 (TDD)	LTE2300 (TDD)	LTE2600 (TDD)
E14 Global LTE TDD	LTE900 (TDD)	LTE1800(TDD)	LTE1800 (TDD)	LTE1900 (TDD)	LTE2000 (TDD)	LTE2300 (TDD)	Mobile WiMAX 2.5	LTE2600 (TDD)
E15	LTE800 (TDD)	LTE900 (TDD)	LTE1800(TDD)	LTE1900 (TDD)	LTE 2100 (DL) UMTS 2100 (DL) cdma2000/EVDO 2100 (DL)	LTE2300 (TDD)	Mobile WiMAX 2.5	LTE2600 (TDD)
E16			LTE800 (TDD)	LTE900 (TDD)	LTE1800(TDD)	LTE 2100 (DL) UMTS 2100 (DL) cdma2000/EVDO 2100 (DL)	LTE2300 (TDD)	LTE2600 (TDD)
E17	LTE800 (TDD)	LTE900 (TDD)	LTE1800(TDD)	LTE 1900 (DL) UMTS 1900 (DL) GSM 1900 (DL) cdma2000/EVDO 1900 (DL)	LTE 2100 (DL) UMTS 2100 (DL) cdma2000/EVDO 2100 (DL)	LTE2600 (TDD)	Mobile WiMAX 3.5	Mobile WiMAX 3.5
E18	LTE800 (TDD)	LTE900 (TDD)	LTE "L-Band" (DL)	LTE "L-Band" (UL)	LTE1800 (TDD)	LTE 1900 (DL) UMTS 1900 (DL) GSM 1900 (DL) cdma2000/EVDO 1900 (DL)	Mobile WiMAX 2.5	LTE2600 (TDD)
E19	LTE 700 (DL)	LTE 800/850 (DL) UMTS 850 (DL) GSM 850 (DL) cdma2000/EVDO 850 (DL)	UMTS 1700 (UL)	LTE1800 (TDD)	LTE 1900 (DL) UMTS 1900 (DL) GSM 1900 (DL) cdma2000/EVDO 1900 (DL)	LTE1800(TDD)	Mobile WiMAX 2.5	LTE2600 (TDD)

Example: W1314A-V01 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:**

- JDSU receivers require related receiver measurement software as described in the Software Options section.
- JDSU receivers include an internal 50-channel GPS receiver although an alternative external GPS unit can be used if preferred.
- If the GPS requires dead reckoning, use an external GPS instead. JDSU offers an external GPS with dead reckoning capability.
- Select the receiver that covers the frequency bands to be measured.

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

**Additional receiver hardware options****Receiver Power Distribution Module (Option 050)**

The Power Distribution Module (PDM) provides power from the vehicle's battery to a single or multiple receivers.

Specifications:

- Supports up to four W1314A multiband receivers
- Fused outputs (user replaceable, one for each receiver)
- Reverse power protected
- Input voltage range: 12 to 18 VDC
- Under voltage detection threshold: 12.0 Volts
- Maximum current output: 4 Amps/receiver (16 Amps total)
- Maximum current draw: 17 Amps
- Ignition sense line support

**Enhanced high-sensitivity GPS (formerly Option 060)**

This option is now standard on all receiver options. The high-sensitivity GPS provides improved reported position information even in the most challenging environments from dense urban canyons to tunnels and underground locations. This option improves the quality of the reported measurement data and reduces instances of gaps in a reported position.

**Indoor solution hardware (Option 070)**

The indoor hardware option provides an accurate timing module and power supplies that integrates with the W1314A receiver to ensure that measurement synchronization remains throughout the whole indoor test.

The E6474A Wireless Network Optimization Application enables users to quickly load floor-plans and, with the synchronized receiver, easily collect and record a comprehensive range of measurements throughout a mix of indoor environments, for example malls, airports, train stations, and convention centers.

The indoor hardware includes:

- A standard backpack
- Two batteries (one battery is fitted with a power booster module)
- One timing module (1PP2S output)
- Cables and connections

The timing module provides a 1PP2S signal for the receiver measurements.

#### **Indoor solution—receiver battery and charger only (Option 072)**

This hardware includes:

- Two batteries (one battery is fitted with a power booster module)
- Cables and connections

#### **Indoor solution—timing module only (Option 073)**

The hardware option includes:

- One timing module (1PP2S output)
- Cables and connections

The timing module provides a 1PP2S signal for the receiver measurements.

## **Part 4: Phone hardware options**

Select the phone type required for your system from the parts below. Please refer to the Drive Test application or contact your JDSU representative for a list of supported phones.

<b>Phone Descriptions (Test mobile)</b>	<b>Option Number</b>
Nokia C7-00 GSM/GPRS/EDGE (850/900/1800/1900) UMTS/HSPA (850/900/1900/2100/AWS)	E5643B-785
Nokia C5-00 GSM/GPRS/EDGE (850/900/1800/1900) UMTS/HSPA (900/2100)	E5643B-784
Nokia N97 GSM/GPRS/EDGE (850/900/1800/1900) UMTS/HSDPA (900/1900/2100)	E5643B-782
Nokia N97NAM GSM/GPRS/EDGE (850/900/1800/1900) UMTS/HSDPA (850/1900/2100)	E5643B-781
Nokia 6720 GSM/GPRS/EDGE (850/900/1800/1900) UMTS/HSDPA/HSUPA (900/1900/2100)	E5643B-780
Nokia 6720NAM GSM/GPRS/EDGE (850/900/1800/1900) UMTS/HSDPA/HSUPA (850/1900/2100)	E5643B-779

#### **Notes:**

*For the current supplied phone models, please contact your JDSU representative.*

*Example: To order a Nokia C5-00 test mobile-select E5643B-784*

*These options include the manufacturers direct connect cables.*

*Phones are supplied with the manufacturers one-year warranty. JDSU does not offer extended warranties on phones.*

## Part 5: Mobile voice quality and VoIP testing options

The E6474A Drive Test system supports Mobile-to-PSTN and Mobile-to-Mobile voice quality measurements and provides PESQ-LQO MOS ratings. The Mobile-to-PSTN measurement requires both mobile-side and office side hardware in addition to the base Drive Test system, requiring the purchase of at least one mobile unit, one office unit, and one cable.

The Mobile-to-Mobile measurement requires the mobile side hardware in addition to the base Drive Test system, requiring the purchase of at least one multi-phone mobile unit and two cables.

The mobile side options come with a USB sound module that can connect to up to four mobiles, but requires the purchase of cables to connect the sound module to the phone hardware.

Voice Quality Mobile Unit Description	Option Number
Single Phone Voice MOS Test	B9990A-200
Multi Phone Voice MOS Test Upgrade License	B9990A-300

Voice Quality Mobile-Side Connecting Cables	Option Number
2.5 mm Ear/Microphone Jack Cable	E6473B-883
PCB 200 to sound module cable (Samsung)	E6473B-884
3.5 mm TRS to RCA audio cable	E6473B-885

The office-side hardware consists of a pre-configured computer unit with a modem/sound card that can support up to four analog phone lines.

Voice Quality Office Unit Description	Option Number
Office Unit MoS Test (4 lines)	B9990A-400
Office Unit MOS Test (8 lines)	B9990A-430

Please refer to the Mobile Voice Quality product overview for more information on the voice quality options.

The E6474A Drive Test VoIP Solution allows for measuring the quality of voice conversation over packet switched networks.

Voice over Internet Protocol (VoIP) Solutions	Option Number
Mobile VoIP Measurements License	B9990A-510
Remote VoIP Measurements License (Office Unit)	B9990A-515

It objectively measures how subscribers perceive voice quality using R-Factor MOS defined by ITU-T Recommendation G.107 as well as round-trip delay, jitter, and packet loss based on the incoming RTP traffic flows.

Please refer to the VoIP technical overview for more information on the VoIP options.

**Part 6: Hardware accessory options**

Select the hardware accessories needed for your system.

**Platform Accessories**

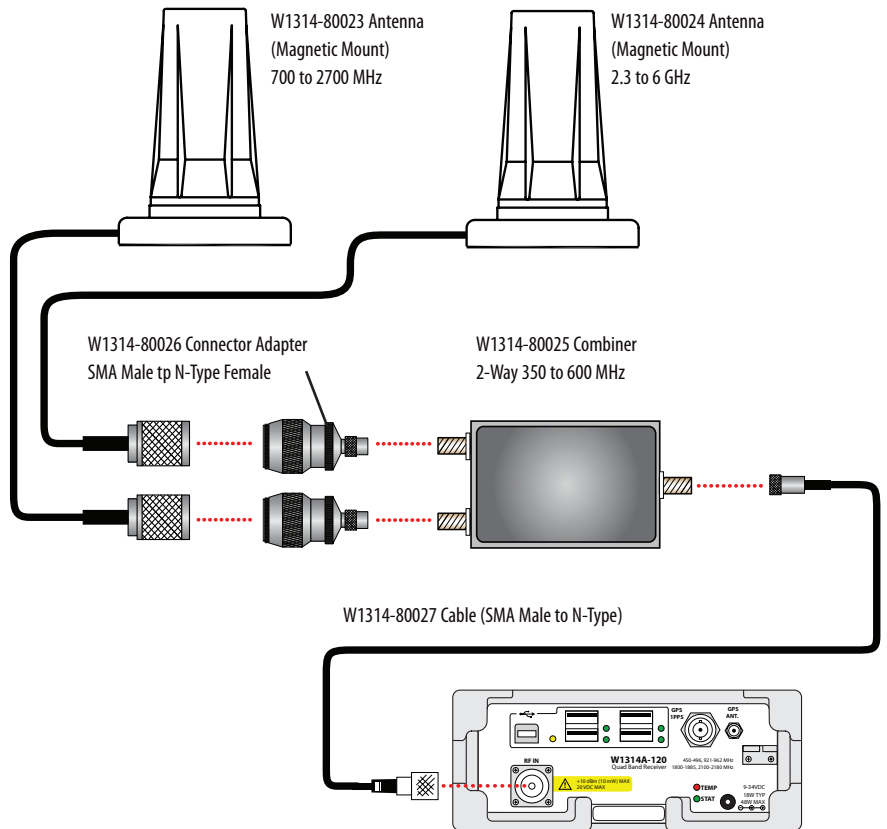
Receiver and Phone System Carrying Case	E6473B-915
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**Antenna Parts**

Mobile Magnetic Mount Multiband Antenna (700 to 2700 MHz)	W1314-80023
Mobile Magnetic Mount Multiband Antenna (2.3 to 6 GHz)	W1314-80024
Combiner Unit	W1314-80025
Connector Adapter - SMA Male to N-Type Female	W1314-80026
Cable (SMA Male to N-Type)	W1314-80027

**Miscellaneous Options**

4-port USB to Serial Hub	86154A-036
External GPS with Dead-Reckoning	86154A-210
Briefcase for Phone/Receiver (E64xx) + Phone	86154A-531



## Part 7: Software and SUS

Operating the E6474A Drive Test software, requires having a Support and Software Update Service (SUS) License. Not having a valid SUS license limits the activities that can be performed with the software to only playing back or exporting pre-recorded drives.

The Software and SUS options include:

Description	Option
1-Year Standard SUS	060
1-Year Corporate SUS (for greater than 50 systems)	061
1-Year Tech Tool SUS	062
3-Year Drive Test SUS—Support and Software Update Service	063
3-Year Corporate SUS (for greater than 50 systems)	064
3-Year Drive Test Tech Tool SUS—Support and Software Update Service	065
5-Year Drive Test SUS—Support and Software Update Service	066
5-Year Drive Test Corporate SUS—Support and Software Update Service	067
5-Year Drive Test Tech Tool SUS—Support and Software Update Service	068

An SUS license is required per computer in use, *not* per technology. For example, for three laptops in use simultaneously making Drive Test measurements requires three SUS licenses.

The E6474A SUS encompasses a comprehensive range of benefits and services. It helps:

- Maintain a competitive advantage by keeping E6474A systems current.
- Increase productivity through new and enhanced software functionality.
- Provide access to high-quality technical support to keep products running as they should.
- For full details on SUS, please refer to the SUS data sheet.

On-site training is available for E6474A and for its applications that provides:

- Telephone assistance and Web training on specific topics.
- On-site training and start-up assistance.

On-site Training	Option Number
E6474A first day on-site training	H7211B-209
Additional day on-site training	H7211B-232
One day extended hours remote assistance	H7211B-233
Remote training session	H7211B-235

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

**Part 8: Ordering examples**

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

**cdma2000**

A cdma2000 phone and receiver-based measurement system for the cellular and PCS bands requires users to provide the receiver GPS and a laptop.

Order	Quantity
E6474A-101: cdma2000 Phone Measurement License	1
E6474A-050: Receiver addition to Phone Measurement License	1
E6474A-040: MapX Mapping License	1
E6474A-060: 1 Year Software and Support Update Service	1
W1314A-110: GSM/CDMA/UMTS 850/1900 (UL/DL)	1

**1xEVDO Rev 0**

A 1xEV DO Rev 0 phone measurements system (single phone) requires users to provide a GPS, laptop, and test phone hardware.

Order	Quantity
E6474A-101: cdma2000 Phone Measurement License	1
E6474A-135: cdma2000 to 1xEV DO phone Measurement Upgrade License	1
E6474A-040: MapX Mapping License	1
E6474A-060: 1 Year Software and Support Update Service	1

**1xEVDO Rev A**

Example 1: A two-phone 1xEV DO REV A measurement system with Data Application tests for FTP requires users to provide a GPS, laptop, and test phone hardware.

Order	Quantity
E6474A-101: cdma2000 Phone Measurement License	1
E6474A-135: cdma2000 to 1xEV DO phone Measurement Upgrade License	1
E6474A-137: cdma2000 to 1xEV DO REV A Measurement Upgrade License	1
E6474A-010: Multiple Phone License	1
E6474A-040: MapX Mapping License	1
E6474A-060: 1 Year Software and Support Update Service	1

Example 2: A 1xEV DO REV A receiver and phone combo measurement system (single phone) with Data Application tests for FTP requires users to provide a GPS, laptop, and test phone hardware.

Order	Quantity
E6474A-101: cdma2000 Phone Measurement License	1
E6474A-050: Receiver addition to Phone Measurement License	1
E6474A-135: cdma2000 to 1xEV DO Phone Measurement Upgrade License	1
E6474A-136: cdma2000 to 1xEV DO Receiver Measurement Upgrade License	1
E6474A-137: cdma2000 to 1xEV DO REV A Measurement Upgrade License	1
E6474A-040: MapX Mapping License	1
E6474A-060: 1 Year Software and Support Update Service	1
W1314A-110: cdma 850/1900 (UL/DL)	1



**GSM**

A GSM phone-based measurement system for voice (up to four phones) requires users to provide a laptop and test phones.

Order	Quantity
E6474A-200: GSM Phone Measurement Software License	1
E6474A-010: Multiple Phone Software License	1
E6474A-040: MapX Mapping Software License	1
E6474A-060: 1 Year Software and Support Update Service	1

**E-GPRS**

An E-GPRS phone-based measurement system requires two Nokia N97 phones included with the system and users must provide a laptop and GPS.

Order	Quantity
E6474A-600: E-GPRS Phone Measurement Software License	1
E6474A-010: Multiple Phone Software License	1
E6474A-040: MapX Mapping Software License	1
E6474A-060: 1 Year Software and Support Update Service	1
E5643B-781 Nokia N97 Test Mobile	2

An E-GPRS phone-based measurement system (single phone) requires users to provide a GPS and laptop; however, they want to purchase a Nokia N97 E-GPRS test phone.

Order	Quantity
E6474A-600: E-GPRS Phone Measurement License	1
E6474A-040: MapX Mapping License	1
E6474A-060: 1 Year Software and Support Update Service	1
E5643B-781 Nokia N97 Test Mobile	1

**W-CDMA (UMTS)**

A UMTS with E-GPRS phone and receiver measurements system (single phone) requires users to provide a GPS and laptop; however, they want to purchase a Nokia N97 GSM/GPRS/EDGE/UMTS Test Mobile.

Order	Quantity
E6474A-300: UMTS Phone Measurement License (includes GSM/E-GPRS)	1
E6474A-050: Receiver Addition to Phone Measurement License	1
E6474A-040: MapX Mapping License	1
E6474A-060: 1 Year Software and Support Update Service	1
W1314A-V01: UMTS 2100 (UL/DL) GSM 900/1800 (DL)	1
E5643B-781 Nokia N97 Test Mobile	1

**W-CDMA (UMTS) cont'd**

A W-CDMA (UMTS) phone-based measurement system with wireless data application measurement options requires users to provide a UMTS phone and laptop.

Order	Quantity
E6474A-300: W-CDMA (UMTS) Phone-based Measurement Software License	1
E6474A-040: MapX Mapping Software License	1
E6474A-740: Wireless application measurement Software License	1
E6474A-060: 1 Year Software and Support Update Service	1

A W-CDMA (UMTS) receiver and phone combination system (with multiRAT measurements for UMTS phone), and user already owns a UMTS test mobile.

Order	Quantity
E6474A-300: UMTS Phone Measurement License	1
E6474A-050: Receiver Addition to Phone Measurement License	1
E6474A-040: MapX Mapping Software License	1
E6474A-060: 1 Year Software and Support Update Service	1
W1314A-V01: UMTS 2100 (UL/DL) GSM900/1800 (DL)	1

**HSDPA**

An HSDPA phone measurement system (single phone) requires users to provide a GPS, laptop, and HSDPA test phone.

Order	Quantity
E6474A-300: UMTS Phone Measurement License (includes GSM/GPRS)	1
E6474A-327: UMTS to HSPA+ Phone Measurement Upgrade License	1
E6474A-040: MapX Mapping License	1
E6474A-060: 1 Year Software and Support Update Service	1

**HSPA+**

An HSUPA, HSDPA, and HSPA+ two phone measurements system with Data Application Measurements and Video Streaming with MOS measurements requires users to provide a GPS, laptop, and test phone hardware.

Order	Quantity
E6474A-300: UMTS Phone Measurement License (includes GSM/GPRS)	1
E6474A-327: UMTS to HSPA+ Phone Measurement Upgrade License	1
E6474A-010: Multiple Phone License	1
E6474A-040: MapX Mapping License	1
E6474A-740: Wireless Application Measurements License	1
E6474A-744: Video Streaming and Non-Ref MoS License	1
E6474A-060: 1 Year Software and Support Update Service	1

**LTE**

An LTE receiver measurements system to cover 2.6 GHz band for RF coverage measurements.

Order	Quantity
E6474A-645: LTE Receiver Measurements License	1
E6474A-040: MapX Mapping License	1
E6474A-060: 1 Year Drive Test SUS	1
W1314A-E04: Digital Multi-Band Receiver	1

An LTE UE-based system that will support an LG UE for LTE only measurements.

Order	Quantity
E6474A-640 LTE Phone Measurements License	1
E6474A-641 LTE Phone Measurements Upgrade License for LG Devices	1
E6474A-040 MapX Mapping License	1
E6474A-060 1 Year Drive Test SUS	1

An LTE UE-based system that will support an LG UE for LTE and UMTS measurements

Order	Quantity
E6474A-640 LTE Phone Measurements License	1
E6474A-641 LTE Phone Measurements Upgrade License for LG Devices	1
E6474A-300 UMTS Phone Measurements License (includes GSM/E-GPRS)	1
E6474A-040 MapX Mapping License	1
E6474A-060 1 Year Drive Test SUS	1

An LTE UE-based system that will support an LG UE for LTE with FDD LTE Receiver Measurements and UMTS Phone and Receiver measurements.

Order	Quantity
E6474A-640 LTE Phone Measurements License	1
E6474A-641 LTE Phone Measurements Upgrade License for LG Devices	1
E6474A-645 LTE Receiver Measurements License (FDD)	1
E6474A-300 UMTS Phone Measurements License (includes GSM/E-GPRS)	1
E6474A-050 Receiver Addition to Phone Measurements License	1
E6474A-040 MapX Mapping License	1
E6474A-060 1 Year Drive Test SUS	1
W1314A-E04 Digital Receiver 3800/3700/3600/3500/2600/2100/1800/900	1

**iDEN**

An iDEN phone-based measurement system (single phone) requires users to provide a GPS and laptop.

Order	Quantity
E6474A-400: iDEN Phone Measurement Software License	1
E6474A-040: MapX Mapping Software License	1
E6474A-060: 1 Year Software and Support Update Service	1

An iDEN combination phone and receiver-based measurement system (single phone) requires users to provide an iDEN phone with OEM cable and laptop.

Order	Quantity
E6474A-400: iDEN Phone Measurement License	1
E6474A-050: Receiver Addition to phone Measurement License	1
E6474A-040: MapX Mapping Software License	1
E6474A-060: 1 Year Software and Support Update Service	1
W1314A-E18 iDEN 800/900 (UL/DL)	1

**WiMAX**

A WiMAX phone-based measurement system (single phone) requires users to provide a GPS and laptop.

Order	Quantity
E6474A-656: WiMAX Phone Measurement Software License	1
E6474A-040: MapX Mapping Software License	1
E6474A-060: 1 Year Software and Support Update Service	1

A WiMAX combination phone and receiver-based measurement system (single phone) requires users to provide a WiMAX phone with OEM cable and laptop.

Order	Quantity
E6474A-656: WiMAX Phone Measurement License	1
E6474A-655: WiMAX Receiver Measurements License	1
E6474A-040: MapX Mapping Software License	1
E6474A-060: 1 Year Software and Support Update Service	1
W1314A-E01 - Mobile WiMAX 2.3, 2.5 & 3.5 GHz	1

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**Test & Measurement Regional Sales**

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