





Introduction

Solve today, evolve tomorrow

The Keysight Technologies, Inc. EXM wireless test set scales with your production needs and is in sync with the latest cellular and WLAN chipsets. Better yet, it delivers the speed, accuracy, and port density you need to ramp up rapidly and optimize full-volume manufacturing. It is optimized for multi-device testing with up to four TRXs: each is a complete vector signal analyzer/vector signal generator (VSA/VSG). It can easily test multi-format devices, including LTE-Advanced, LTE FDD/TDD, HSPA+, W-CDMA, 1xEV-DO, cdma2000[®], GSM/EDGE/EDGE Evo, TD-SCDMA, 802.11 a/b/g/n/j/p/ac, *Bluetooth*[®], GNSS, PHS, Mobile WiMAXTM, Zigbee, DECT, and digital video.

Overview

This configuration guide contains a step-by-step process to help you configure your E6640A EXM wireless test set with hardware, software, accessories, and services to meet your specific test requirements, or to add upgrades to an existing EXM.

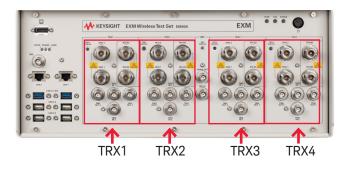
What is Included in the Base Product

- PXIe chassis: 18 slot
- PXIe embedded controller: Quad-core Intel Core i7, Microsoft Windows Embedded Standard (WES) 7 operating system
- PXIe frequency reference: 10 and 100 MHz
- E6640A-B40: 40 MHz bandwidth on any TRX ordered
- V9060B-2FP: Test set measurement application, fixed perpetual license applies to all TRXs ordered
- V9065B-2FP: Sequence analyzer application, fixed perpetual license applies to all TRXs ordered
- Waveform 50-pack (quantity 3): E6640A-250, E6640A-251, and E6640A-252 apply to all TRXs ordered
- Country-specific power cord
- Display port to VGA adapter
- Getting Started Guide in hardcopy

Select Hardware (required)

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Configure your EXM with 1 to 4 TRX

The EXM provides either	two full-duplex and two half-duplex ports, or four full-duplex ports, depending on your application requirements)	
Full-duplex	Acts as an input and output simultaneously. For example, it can connect to both the VSA/VSG of a single TF the same time. Full-duplex ports are designated as follows: RFIOx where x can be 1 or 2 for the E6640A-2F (default) (e.g. RFIO1); and x can be 1, 2, 3, or 4 on Option E6640A-4FD (e.g. RFIO3)	
Half duplex	Acts as either input or output but not both simultaneously. The configuration of the half-duplex ports can be set the front panel or remote programming. The half-duplex ports are designated as RFx I O where x is either 3 or 4 RF3 I O)	
Select E6640A TRX port	type (select one, applies to all TRXs configured within one mainframe)	
Ordering number	Description	
E6640A-2FD	TRX configuration for 2 full-duplex (2FD) and 2 half-duplex ports (default selection)	
E6640A-4FD	TRX configuration for 4 full-duplex (4FD) ports	
Select the E6640A TRX c	onfiguration with the desired TRX capabilities	
Ordering number	Description	
E6640A-001	Add TRX1 to EXM (required)	
Choose frequency range	option for the first TRX (select one)	
E6640A-504	380 MHz to 3.8 GHz (cellular communications)	
E6640A-5WC	1.1 to 1.8, 2.3 to 2.6, and 4.8 to 6 GHz (wireless connectivity)	
E6640A-506	380 MHz to 6 GHz (cellular communications and wireless connectivity)	
Choose measurement bar	ndwidth option for the first TRX (optional, select one. Note: the standard bandwidth for all TRXs is 40 MHz)	
E6640A-B85	80 MHz bandwidth	
E6640A-B1X	160 MHz bandwidth	
E6640A-002	Add TRX2 to EXM (optional, requires E6640A-001)	
Choose frequency range	option for the second TRX (select one)	
E6640A-504	380 MHz to 3.8 GHz (cellular communications)	
E6640A-5WC	1.1 to 1.8, 2.3 to 2.6, and 4.8 to 6 GHz (wireless connectivity)	
E6640A-506	380 MHz to 6 GHz (cellular communications and wireless connectivity)	
Choose measurement bar	ndwidth option for the second TRX (optional, select one. Note: the standard bandwidth for all TRXs is 40 MHz)	
E6640A-B85	80 MHz bandwidth	
E6640A-B1X	160 MHz bandwidth	
E6640A-003	Add TRX3 to EXM (optional, requires E6640A-002 and E6640A-001)	
Choose frequency range of	option for the third TRX (select one)	
E6640A-504	380 MHz to 3.8 GHz (cellular communications)	
E6640A-5WC	1.1 to 1.8, 2.3 to 2.6, and 4.8 to 6 GHz (wireless connectivity)	
E6640A-506	380 MHz to 6 GHz (cellular communications and wireless connectivity)	
Choose measurement bar	ndwidth option for the third TRX (optional, select one. Note: the standard bandwidth for all TRXs is 40 MHz)	
E6640A-B85	80 MHz bandwidth	
E6640A-B1X	160 MHz bandwidth	

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Select Hardware (required) (continued)

Select the E6640A TRX configuration with the desired TRX capabilities (continued)		
Ordering number	Description	
E6640A-004	Add TRX4 to EXM (optional, requires E6640A-003, E6640A-002, and E6640A-001)	
Choose frequency range option for	r the fourth TRX (select one)	
E6640A-504	380 MHz to 3.8 GHz (cellular communications)	
E6640A-5WC	1.1 to 1.8, 2.3 to 2.6, and 4.8 to 6 GHz (wireless connectivity)	
E6640A-506	380 MHz to 6 GHz (cellular communications and wireless connectivity)	
Choose measurement bandwidth c	pption for the fourth TRX (optional, select one. Note: the standard bandwidth for all TRXs is 40 MHz)	
E6640A-B85	80 MHz bandwidth	
E6640A-B1X	160 MHz bandwidth	
Select the license for True MIMO n	neasurement (optional, select one)	
Ordering number	Description	
E6640A-M22	Up to 2x2 True MIMO	
E6640A-M33	Up to 3x3 True MIMO	
E6640A-M44	Up to 4x4 True MIMO	

Select Measurement Applications or Software and License Types

All measurement applications, Signal Studio, and waveform pack licenses apply to all TRXs configured in the EXM. Measurement applications that start with the "V" prefix are *measurement only* applications and require waveform pack licenses for waveform playback. Applications that start with the "Y" prefix are combined *measurement and waveform* applications and include the same measurement capability as the corresponding "V" application, as well as unlimited waveform playback capability for the technology selected. Both "V" and "Y" applications can co-exist in the same EXM.

Step 1. Choose the applications (required)		
Fixed perpetual	Transportable perpetual	Description
Cellular communication	S	
V9071B/Y9071B GSM/E	DGE	
V9071B-2FP	V9071B-2TP	GSM/EDGE measurement application
Y9071B-2FP	Y9071B-2TP	GSM/EDGE measurement and waveform application
V9071B-3FP	V9071B-3TP	EDGE Evo measurement application; requires V9071B-2FP/2TP
Y9071B-3FP	Y9071B-3TP	EDGE Evo measurement and waveform application; requires Y9071B-2FP/2TP
V9072B/Y9072B cdma2	000	
V9072B-2FP	V9072B-2TP	cdma2000 measurement application
Y9072B-2FP	Y9072B-2TP	cdma2000 measurement and waveform application
V9073B/Y9073B W-CDN	ЛА	
V9073B-1FP	V9073B-1TP	W-CDMA measurement application
Y9073B-1FP	Y9073B-1TP	W-CDMA measurement and waveform application
V9073B-2FP	V9073B-2TP	HSDPA/HSUPA measurement application; requires V9073B-1FP/1TP
Y9073B-2FP	Y9073B-2TP	HSDPA/HSUPA measurement and waveform application; requires Y9073B-1FP/1TP
V9073B-3FP	V9073B-3TP	HSPA+ measurement application; requires V9073B-1FP/1TP and V9073B-2FP/2TP
Y9073B-3FP	Y9073B-3TP	HSPA+ measurement and waveform application; requires Y9073B-1FP/1TP and Y9073B-2FP/2TP
V9076B/Y9076B 1xEV-DO		
V9076B-1FP	V9076B-1TP	1xEV-DO measurement application
Y9076B-1FP	Y9076B-1TP	1xEV-DO measurement and waveform application

Select Measurement Applications or Software and License Types (continued)

V9079B/Y9079B TD)-SCDMA	
V9079B-1FP	V9079B-1TP	TD-SCDMA measurement application
Y9079B-1FP	Y9079B-1TP	TD-SCDMA measurement and waveform application
V9079B-2FP	V9079B-2TP	TD-HSPA measurement application; requires V9079B-1FP/1TP
Y9079B-2FP	Y9079B-2TP	TD-HSPA measurement and waveform application; requires Y9079B-1FP/1TP
V9080B/Y9080B LT	E/LTE-Advanced FDD	
V9080B-1FP	V9080B-1TP	LTE FDD measurement application
Y9080B-1FP	Y9080B-1TP	LTE FDD measurement and waveform application
V9080B-2FP	V9080B-2TP	LTE-Advanced FDD measurement application; requires V9080B-1FP/1TP
Y9080B-2FP	Y9080B-2TP	LTE-Advanced FDD measurement and waveform application; requires Y9080B-1FP/1TP
V9082B/Y9082B LT	FE/LTE-Advanced TDD	
V9082B-1FP	V9082B-1TP	LTE TDD measurement application
Y9082B-1FP	Y9082B-1TP	LTE TDD measurement and waveform application
V9082B-2FP	V9082B-2TP	LTE-Advanced TDD measurement application; requires V9082B-1FP/1TP
Y9082B-2FP	Y9082B-2TP	LTE-Advanced TDD measurement and waveform application; requires Y9082B-1FP/1TP
Wireless connectiv	ity	
V9077B/Y9077B WI	LAN	
V9077B-2FP	V9077B-2TP	WLAN 802.11a/b/g/j/p measurement application
Y9077B-2FP	Y9077B-2TP	WLAN 802.11a/b/g/j/p measurement and waveform application
V9077B-3FP	V9077B-3TP	WLAN 802.11n measurement application; requires V9077B-2FP/2TP
Y9077B-3FP	Y9077B-3TP	WLAN 802.11n measurement and waveform application; requires Y9077B-2FP/2TP
V9077B-4FP1	V9077B-4TP1	WLAN 802.11ac measurement application; requires V9077B-2FP/2TP and V9077B-3FP/3TP
Y9077B-4FP1	Y9077B-4TP1	WLAN 802.11ac measurement and waveform application; requires Y9077B-2FP/2TP and Y9077B-3FP/3TP
V9077B-WFP ²	V9077B-WTP ²	WLAN 802.11ac Wave 2 measurement application; requires V9077B-2FP/2TP and V9077B-3FP/3TP and V9077B-4FP/4TP
Y9077B-WFP ²	Y9077B-WTP ²	WLAN 802.11ac Wave 2 measurement and waveform application; requires Y9077B-2FP/2TP and Y9077B-3FP/3TP and Y9077B-4FP/4TP
V9077B-KFP	V9077B-KTP	WLAN combined stream MIMO measurements
V9081B/Y9081B Blu	Jetooth	
V9081B-2FP	V9081B-2TP	Bluetooth measurement application
Y9081B-2FP	Y9081B-2TP	Bluetooth measurement and waveform application
V9075B/Y9075B Mc	bile WiMAX	
V9075B-2FP	V9075B-2TP	Mobile WiMAX measurement application
Y9075B-2FP	Y9075B-2TP	Mobile WiMAX measurement and waveform application
General purpose		
V9063B analog dem	odulation measurement appl	lication
V9063B-2FP	V9063B-2TP	Analog demodulation measurement application
V9064B vector signa	al analysis	
V9064B-1FP	V9064B-1TP	Vector signal analysis application, VXA
V9064B-2FP	V9064B-2TP	Flexible digital modulation analysis measurement
Switched MIMO cap		
V9065B-SFP	V9065B-STP	Switched MIMO capability; requires V9077B-2FP/2TP and V9077B-3FP/3TP for 802.11n Switched MIMO; requires V9077B-2FP/2TP, V9077B-3FP/3TP and V9077B-4FP/4TP for 802.11ac Switched MIMO

1. V/Y9077B-4FP/4TP requires at least E6640A-B85 for WLAN 802.11ac measurement for 80 MHz and E6640A-B1X for WLAN 802.11ac measurement for 160 MHz.

2. V/Y9077B-WFP/WTP requires a hardware upgrade if ordered stand-alone, please contact Keysight for more information.

Select Measurement Applications or Software and License Types (continued)

All measurement applications, Signal Studio, and waveform pack licenses apply to all TRXs configured in the EXM. *Note:* If "Y" application licenses are selected you do not need to purchase the corresponding Signal Studio license. The Signal Studio software can be downloaded from **www.keysight.com** at no charge and unlimited waveforms, for the specific "Y" application purchased, can be created and loaded into the EXM.

Fixed perspetalVersoftable perspetalDescriptionCatularCatularCatularCatularCatularNPG008NY-0008-ETPBasic W-CDWA/HSPA R7NY-0008-ETPNY-0008-ETPBasic W-CDWA/HSPA R8NY-0008-ETPNY-0008-OTPAdvanced W-CDWA/HSPA R10NY-0018-ETPNY-0018-OTPAdvanced W-CDWA/HSPA R10NY-018-BTPNY-0018-OTPAdvanced W-CDWA/HSPA R10NY-018-ETPNY-0018-OTPAdvanced Codma2000NY-018-ETPNY-018-ETPBasic DAdvanced W-CDWA/HSPANY-018-ETPNY-018-ETPAdvanced M-2000NY-0208-ETPNY-0208-ETPBasic DSME/DGENY-0208-ETPNY-0208-ETPBasic DSME/DGENY-0208-ETPNY-0208-ETPBasic DSME/DGE/EDGE EvoNY-0208-ETPNY-0208-ETPBasic DS-SCMA/HSDPANY-0208-ETPNY-0208-ETPSasic DS-SCMA/HSDPANY-0218-ETPNY-0208-ETPSasic DS-SCMA/HSDPANY-0228-ETPNY-0248-ETPBasic TF-DD R3NY-0248-ETPNY-0248-ETPBasic TF-DD R3NY-0248-ETPNY-0248-ETPAdvanced TD R10NY-0248-ETPNY-0248-ETPAdvanced TD R10NY-0248-ETP <td< th=""><th colspan="3">Step 2. Choose the Signal Studio software (optional)</th></td<>	Step 2. Choose the Signal Studio software (optional)		
N7600B Signal Studie for W-CDMA/HSPA+ N7600E-FEP N7600B-FTP Basic W-CDMA/HSPA+ R8 N7600E-FFP N7600B-FTP Basic W-CDMA/HSPA+ R8 N7601B-FFP N7601B-FTP Basic vCDMA/HSPA+ R10 N7601B-FFP N7601B-FTP Basic VCDMA N7601B-FFP N7601B-FTP Basic VCDMA N7602B-FFP N7602B-FTP Basic CDGE Evo N7602B-FFP N7602B-TP Basic CDGE Evo N7612B-GTP Advanced CDC-SCDMA/HSDPA N7612B-GTP Advanced TD-SCDMA/HSDPA N7612B-STP N7612B-GTP N7612B-STP N7612B-GT	Fixed perpetual	Transportable perpetual	Description
N76008-EFP N76008-TP Basic W-CDMA/HSPA R7 N76008-FFP N76008-TP Basic W-CDMA/HSPA R8 N76008-FFP N76008-TP Advanced W-CDMA/HSPA R0 N76018-Signal Studio for cdm2000/LKV-DO N76018-EFP N76018-FFP N76018-FFP N76018-TP Basic cdm2000 N76018-FFP N76018-TP Advanced cdm2000 N76018-FFP N76018-TP Advanced cdm2000 N76018-FFP N76018-TP Advanced cdm2000 N76018-FFP N76018-TP Basic SM/EDGE N76028-FFP N76028-TFP Basic CSM/EDGE N76028-FFP N76028-TFP Basic CSM/EDGE N76028-FFP N76028-TFP Basic CSM/EDGE N76028-FFP N76028-TFP Basic CSM/EDGE N76028-TFP N76028-TFP Basic TD SCDMA/HSDPA N76028-GFP N76028-TFP Basic TD SCDMA/HSDPA N76128-Signal Studio for LE/LF-Advanced TD N76248-TP N6248-TFP Basic TF FDD R9 N76248-SFP N76248-TFP Basic TF FDD R9 N76248-SFP N76248-SFP <t< th=""><th>Cellular communicati</th><th>ons</th><th></th></t<>	Cellular communicati	ons	
N26008-FFP N26008-FFP Advanced W-CDMA/HSPA+ R8 N26018-GPF N26008-GPF Advanced W-CDMA/HSPA+ R0 N26018-GPF N26018-STP Advanced CM-CDMA/HSPA+ R0 N26018-Strap Studio for dna2000/14EV-D0 N26018-STP Advanced Cdma2000 N26018-FFP N76018-FFP Basic 14EV-D0 N26018-FFP N26018-FFP N76018-FTP Basic 14EV-D0 N26028-FFP N26028-FFP N76028-FTP Basic 14EV-D0 N26028-FFP N26028-FFP N26028-FTP Basic 250E Evo N26028-FFP N26028-FFP N26028-FTP Basic D0E Evo N26028-FFP N26028-FFP N26028-FTP Basic TD-SCDMA/HSDPA N26128-FFP N26128-FFP N26128-FFP Advanced TD-SCDMA/HSDPA N26128-FFP N26128-FFP N26128-FFP Advanced TD-SCDMA/HSDPA N26128-FF N26128-FFP N2628-FFP Advanced TD-SCDMA/HSDPA N2628-FF N2628-FFP N2628-FF Advanced TD-SCDMA/HSDPA N2628-FF N26248-FFP N26248-FF Advanced TD-SCDMA/HSDPA N26248-SF N26248-FFP<	N7600B Signal Studio	for W-CDMA/HSPA+	
N76008-QFP N76008-QTP Advanced W-CDMA/HSPA+ R10 N76018-EFP N76018-ETP Basic tofma2000 N76017-EFP N76018-GP N76018-GP N76018-EFP N76018-GP Advanced cdma2000 N76018-EFP N76018-RTP Basic txEV-D0 N76018-EFP N76018-RTP Advanced txEV-D0 N76028-EFP N76028-EFP Basic CSW/EDGE N76028-EFP N76028-FTP Basic CSW/EDGE N76028-EFP N76028-FTP Basic CSW/EDGE N76028-EFP N76028-FTP Basic CSW/EDGE N76028-FTP N76028-FTP Basic CSW/EDGE N76028-EFP N76028-FTP Basic CSW/EDGE N76028-EFP N76028-ETP Basic CSW/EDGE N76128-Signal Studio for TLF-LTE-Marced N76248-Signal Studio for TLF-SCMA/HSDPA N76248-EFP N76248-TP Basic LTE FDD R9 N76248-FFP N76248-TP Basic LTE FDD R9 N76248-SFP N76248-TP Basic LTE TDD R9 N76248-SFP N76248-SFP Advanced TD CD N76258-SFP N76258-SFP Adv	N7600B-EFP	N7600B-ETP	Basic W-CDMA/HSPA R7
N7601B Signal Studio for cdma2000/1xEV-DO N7601B-EFP N7601B-GPP Advanced cdma2000 N7601F-FP N7601B-FTP Basic 1xEV-DO N7601B-FFP N7601B-FTP Basic 1xEV-DO N7601B-FFP N7601B-FTP Advanced 1xEV-DO N7602B-Signal Studio for GSM/EDGE/EDGE Evo N7602B-FFP N7602B-GP R502B-GPF N7602B-FFP N7602B-GPF Advanced GSM/EDGE/EDGE Evo N7612B-Signal Studio for DT-SCDMA/HSDPA Advanced GSM/EDGE/EDGE Evo N7612B-GPF N7612B-GPF Advanced TD-SCDMA/HSDPA N7612B-GPF N7612B-GPF Advanced TD-SCDMA/HSDPA N7612B-GPF N7612B-GPF Advanced TD-SCDMA/HSDPA N7612B-GPF N7612B-GPF Advanced TD-SCDMA/HSDPA N7612B-GPF N7612B-GPF Advanced TE FDD R9 N7624B-SPF N7624B-SPF Advanced TD SCDMA/HSDPA N7624B-SPF N7624B-SPF Advanced TD R10 N7624B-SPF N7624B-SPF Advanced TD R10 N7625B-GPF N7617B-FFF Basic ITE TDD R9 N7625B-FFF N7617B-FFF	N7600B-FFP	N7600B-FTP	Basic W-CDMA/HSPA+ R8
N7601B-EFPN7601B-ETPBasic cdm2000N7601B-QFPN7601B-GPPAdvanced cdm2000N7601B-FFPN7601B-FFPBasic txEV-D0N7601B-FFPN7601B-RTPBasic txEV-D0N7601B-FFPN7601B-RTPAdvanced txEV-D0N7602B-FFPN7602B-FTPBasic GSM/EDGEN7602B-FFPN7602B-FTPBasic EDGE EvoN7602B-FFPN7602B-GTPAdvanced GSM/EDGE/EDGE EvoN7602B-GPPN7602B-GTPAdvanced GSM/EDGE/EDGE EvoN7612B-GPPN7602B-GTPAdvanced GSM/EDGE/EDGE EvoN7612B-GPPN7612B-GTPBasic TD-SCDMA/HSDPAN7612B-GPPN7612B-GTPAdvanced TD-SCDMA/HSDPAN7612B-GPPN7612B-GTPAdvanced TD-SCDMA/HSDPAN7612B-GPPN7612B-GTPAdvanced TD-SCDMA/HSDPAN762AB-SIgnal Studio for LTE/LTE-AdvancedTTE FDD R9N762AB-SIFPN762AB-STPAdvanced FDD R9N762AB-SIFPN762AB-STPAdvanced FDD R9N762AB-SIFPN762AB-GPFAdvanced TD R10N762AB-SIFPN762AB-GPFAdvanced TD R10Wreese connectivityVVN7617B-FTPBasic UTE-Advanced TD R10N7617B-FTPN7617B-FTPBasic B02.11a/b/g/j/p WLANN7617B-FTPN7617B-FTPBasic B02.11a/b/g/j/p WLANN7617B-FTPN7617B-FTPBasic B02.11a/b/g/j/p WLANN7617B-FTPN7617B-FTPBasic B02.11a/b/g/j/p WLANN7617B-FTPN7617B-FTPBasic B02.11a/b/g/j/p WLANN7617B-FTPN7617B-FTPBasic B02.11a/b/g/j/p WLANN76	N7600B-QFP	N7600B-QTP	Advanced W-CDMA/HSPA+ R10
N76018-QFP N76018-OTP Advanced cdma2000 N76018-FFP N76018-RTP Basic 1xEV-D0 N76018-RFP N76018-RTP Advanced 1xEV-D0 N76028-Signal Studio for GSW-KDGK-KDGE Evo N76028-Signal Studio for GSW-KDGK-KDGE/EDGE Evo N76028-FFP N76028-FTP Basic GSM/EDGE N76028-GFP N76028-TTP Basic EDGE Evo N76028-GFP N76028-GTP Advanced CSM/EDGE/EDGE Evo N76128-Signal Studio for TD-SCDMA/HSDPA N76128-GTP Advanced TD-SCDMA/HSDPA N76128-GFP N76128-GTP Advanced TD-SCDMA/HSDPA N76128-Signal Studio for LE/LTE-Advanced N76248-HTP Basic LTE FDD R9 N76248-FP N76248-STP Advanced LTE FDD R9 N76248-SFP N76248-STP Basic LTE FDD R9 N76248-SFP N76248-STP Basic LTE TDD R9 N76258-FF N76258-GTP Basic LTE TDD R9 N76258-SFP N76258-STP Basic LTE TDD R9 N76258-SFP N76258-GTP Advanced LTE TDD R9 N76258-SFP N76258-STP Basic LTE DD R9 N76178-SFP N76178-STP <td< td=""><td>N7601B Signal Studio</td><td>for cdma2000/1xEV-DO</td><td></td></td<>	N7601B Signal Studio	for cdma2000/1xEV-DO	
N76018-FFPN76018-FTPBasic 1xEV-D0N76018-FFPN76018-FTPAdvanced 1xEV-D0N76028-FFPN76028-ETPBasic GSM/EDGEN76028-FFPN76028-FTPBasic CSM/EDGEN76028-FFPN76028-TPBasic CSM/EDGEN76028-OFPN76028-OTPAdvanced GSM/EDGE/EDGE EvoN76128-FFPN76028-OTPAdvanced GSM/EDGE/EDGE EvoN76128-OFPN76128-TPBasic TD-SCDMA/HSDPAN76128-OFPN76128-OTPAdvanced TD-SCDMA/HSDPAN76128-OFPN76128-OTPAdvanced TD-SCDMA/HSDPAN76128-OFPN76128-OTPAdvanced TD-SCDMA/HSDPAN76248-Signal Studio for LTE/LTE-AdvancedTD-SCDMA/HSDPAN76248-FFPN76248-STPAdvanced ITE FDD R9N76248-SFPN76248-STPAdvanced FDD R10N76258-FFPN76258-OTPAdvanced ITE TDD R9N76258-JFPBasic LTE-Advanced FDD R10N76258-JFPBasic LTE-Advanced TDD R10N76258-JFPN76258-JFPBasic DEF-Advanced TDD R10N76178-Signal Studio for WLAN 802.11a/b/g/n/j/p/acN76178-FFPN76178-FTPBasic 802.11a/b/g//p WLANN76178-FFPN76178-FTPAdvanced 802.11a/b/g//p WLANN76178-FFPN76178-FTPBasic 802.11a/b/g//p WLANN76178-FFPN76178-FTPAdvanced 802.11a/b/g//p WLANN76178-FFPN76178-FTPAdvanced 802.11a/b/g//p WLANN76178-FFPN76178-FTPAdvanced 802.11a/b/g//p WLANN76178-FFPN76178-FTPAdvanced 802.11a	N7601B-EFP	N7601B-ETP	Basic cdma2000
N7601B-RFPN7601B-RTPAdvanced 1xEV-D0N7602B-Signal Studio for GSM/EDGE/EDGE EvoN7602B-FFPN7602B-FTPBasic GSM/EDGEN7602B-GFPN7602B-GTPBasic EDGE EvoN7602B-QFPN7602B-QTPAdvanced GSM/EDGE/EDGE EvoN7602B-GFPN7602B-GTPBasic EDGE EvoN7612B-Signal Studio for TD-SCDMA/HSDPAN7612B-GTPN7612B-GFPN7612B-GTPBasic TD-SCDMA/HSDPAN7612B-GFPN7612B-GTPAdvanced TD-SCDMA/HSDPAN7612B-GFPN7612B-GTPAdvanced TD-SCDMA/HSDPAN7624B-Signal Studio for ITE/ATE-AdvancedTE/ADVAnced TD-SCDMA/HSDPAN7624B-SFPN7624B-HTPBasic LTE FDD R9N7624B-SFPN7624B-STPAdvanced TDD R9N7624B-SFPN7624B-STPBasic LTE TDD R9N7625B-GFPN7625B-GTPBasic LTE TDD R9N7625B-GFPN7625B-GTPAdvanced TDD R10Wrietess connectivityWrietess connectivityN7617B-SFPN7617B-FTPBasic 802.11a/b/g/i/p WLANN7617B-FFPN7617B-FTPBasic 802.11a/b/g/i/p WLANN7617B-FFPN7617B-FTPBasic 802.11a/b/g/i/p WLANN7617B-FFPN7617B-FTPBasic 802.11a/b/g/i/p MLANN7617B-FFPN7617B-FTPBasic 802.11a/b/g/i/p MLANN7617B-FFPN7617B-FTPBasic 802.11a/b/g/i/p MLANN7617B-FFPN7617B-FTPBasic 802.11a/b/g/i/p MLANN7617B-FFPN7617B-FTPBasic 802.11a/b/g/i/p MLANN7617B-FFPN7617B-FTPBasic 802.11a/b/g/i/p MLANN7617B-FFPN7617B-FTP <t< td=""><td>N7601B-QFP</td><td>N7601B-QTP</td><td>Advanced cdma2000</td></t<>	N7601B-QFP	N7601B-QTP	Advanced cdma2000
N7602B Signal Studio for GSM/EDGE/EDGE EvoN7602B-EFPN76028-ETPBasic GSM/EDGEN7602B-EFPN7602B-TPBasic EDGE EvoN7602B-QFPN7602B-QTPAdvanced GSM/EDGE/EDGE EvoN7602B-QFPN7602B-QTPAdvanced GSM/EDGE/EDGE EvoN7612B-Signal Studio for TD-SCDMA/HSDPAN7612B-GFPN7612B-QTPAdvanced TD-SCDMA/HSDPAN7612B-QFPN7612B-QTPAdvanced TD-SCDMA/HSDPAN7612B-QFPN7612B-QTPAdvanced TD-SCDMA/HSDPAN7624B-SFPN7624B-TPBasic LTE FDD R9N7624B-SFPN7624B-TPAdvanced LTE FDD R9N7624B-SFPN7624B-TPBasic LTE TDD R9N7625B-SFPN7625B-GTPAdvanced LTE TDD R9N7625B-SFPN7625B-GTPAdvanced LTE TDD R9N7625B-GFPN7625B-GTPAdvanced LTE TDD R9N7625B-GFPN7625B-GTPAdvanced LTE TDD R9N7625B-GFPN7625B-GTPAdvanced B0211a/b/g/j/p WLANN7617B-SFPN7617B-FTPBasic 80211a/b/g/j/p WLANN7617B-FFPN7617B-FTPAdvanced 80211a/b/g/j/p WLANN7617B-FFPN7617B-FTPAdvanced 80211a/b/g/j/p WLANN7617B-FFPN7617B-FTPAdvanced 80211a/b/g/j/p WLANN7617B-FFPN7617B-FTPBasic 80211a/b/g/j/p WLANN7617B-FFPN7617B-FTPAdvanced 80211a/b/g/j/p WLANN7617B-FFPN7617B-FTPAdvanced 80211a/b/g/j/p WLANN7617B-FFPN7617B-FTPAdvanced 80211a/b/g/j/p WLANN7617B-FFPN7617B-FTPAdvanced 80211a/b/g/j/p WLANN7617B-FFP <td>N7601B-FFP</td> <td>N7601B-FTP</td> <td>Basic 1xEV-DO</td>	N7601B-FFP	N7601B-FTP	Basic 1xEV-DO
N76028-EFPN76028-ETPBasic CSM/EDGEN76028-FFPN76028-FTPBasic EDGE EvoN76028-GFPN76028-GTPAdvanced GSM/EDGE/EDGE EvoN76128-GFPN76028-GTPBasic TD-SCDMA/HSDPAN76128-GFPN76128-GTPBasic TD-SCDMA/HSDPAN76128-GFPN76128-GTPAdvanced TD-SCDMA/HSDPAN76128-GFPN76128-GTPAdvanced TD-SCDMA/HSDPAN76128-GFPN76248-GTPAdvanced TD-SCDMA/HSDPAN76248-SFPN76248-HTPBasic LTE FDD R9N76248-JFPN76248-JTPAdvanced DD R10N76258-SFPN76258-GTPAdvanced LTE TDD R9N76258-GFPN76258-GTPAdvanced LTE TDD R9N76258-GFPN76258-GTPAdvanced LTE TDD R9N76258-GFPN76258-GTPAdvanced DD R10Wireless connectivityVN76178-FTPBasic LTE-Advanced TDD R10N76178-FFPN76178-FTPN76178-FTPBasic 802.11a/b/g//p WLANN76178-FFPN76178-FTPAdvanced 802.11a/b/g//p WLANN76178-FFPN76178-FTPN76178-FTPBasic 802.11a/b/g//p WLANN76178-FFPN76178-FTPAdvanced 802.11a/b/g//p WLANN76178-FTPN76178-FTPN76178-FTPBasic 802.11a/b/g//p WLANN76178-FTPN76178-FTPAdvanced 802.11a/b/g//p WLANN76178-FTPN76178-FTPN76178-FTPAdvanced 802.11a/b/g//p WLANN76178-FTPN76178-FTPN76178-FTPAdvanced 802.11a/b/g//p MLANN76178-FTPN76178-FTP <td>N7601B-RFP</td> <td>N7601B-RTP</td> <td>Advanced 1xEV-DO</td>	N7601B-RFP	N7601B-RTP	Advanced 1xEV-DO
N7602B-FFPN7602B-FTPBasic EDGE EvoN7602B-QFPN7602B-QTPAdvanced GSM/EDGE/EDGE EvoN7612B-SEPN7612B-TPBasic TD-SCDMA/HSDPAN7612B-EFPN7612B-TPBasic TD-SCDMA/HSDPAN7612B-QFPN7612B-QTPAdvanced TD-SCDMA/HSDPAN7624B Signal Studio for LTE/LTE-AdvancedN7624B Signal Studio for LTE/LTE-AdvancedN7624B-HFPN7624B-STPAdvanced LTE FDD R9N7624B-SFPN7624B-STPAdvanced TD R9N7624B-JFPN7624B-JTPBasic LTE FDD R9N7624B-JFPN7624B-JTPBasic LTE TDD R9N7625B-JFPN7625B-GTPAdvanced LTE TDD R9N7625B-GFPN7625B-GTPAdvanced LTE TDD R9N7625B-JFPN7625B-GTPBasic LTE Advanced TDD R10Wireless connectivityWroteSs CHPN7617B-FTPBasic 802.11a/b/g/i/j/p WLANN7617B-FTPN7617B-FTPBasic 802.11a/b/g/i/j/p WLANN7617B-FTPN7617B-FTPBasic 802.11a/b/g/i/j/p WLANN7617B-FTPBasic 802.11a WLANN761	N7602B Signal Studio	for GSM/EDGE/EDGE Evo	
N7602B-QFPN7602B-QTPAdvanced GSM/EDGE/EDGE EvoN7612B Signal Studio for TD-SCDMA/HSDPAN7612B-EFPN7612B-ETPBasic TD-SCDMA/HSDPAN7612B-QFPN7612B-QTPAdvanced TD-SCDMA/HSDPAN7624B-QFPN7612B-QTPAdvanced TD-SCDMA/HSDPAN7624B-SFPN7624B-HTPBasic LTE FDD R9N7624B-SFPN7624B-JTPBasic LTE FDD R9N7624B-JFPN7624B-JTPBasic LTE FDD R9N7625B Signal Studio for LTE/LTE-Advanced TDDN7625B Signal Studio for LTE/LTE-Advanced TDDN7625B-GFPN7625B-QFPN7625B-QFPN7625B-QFPAdvanced LTE TDD R9N7625B-JFPN7625B-QFPN7625B-JFPBasic DTE TDD R9N7655B-JFPN7625B-QFPN767B-GTB-GTPBasic 802.11a/b/g/i/p WLANN7617B-FFPN7617B-FTPBasic 802.11a/b/g/i/p WLANN7617B-FFPN7617B-FTPBasic 802.11a/b/g/i/p WLANN7617B-FFPN7617B-FTPBasic 802.11a/b/g/i/p WLANN7617B-FFPN7617B-FTPBasic 802.11a/b/g/i/p WLANN7617B-FTPBasic 802.11a/b/g/i/p WLANN7617B-FFPN7617B-FTPAdvanced 802.11a/b/g/i/p WLANN7617B-FTPBasic 802.11a/b/g/i/p WLANN7617B-FTPAdvanced 802.11a/b/g/i/p MLANN7617B-FTPAdvanced 802.11a/b/g/i/p MLANN7617B-FTPAdvanced 802.11a/b/g/i/p MLANN7617B-FTPN7617B-GTPN7617B-GTPMavanced 802.11a/b/g/i/p MLANN7617B-FTPN76	N7602B-EFP	N7602B-ETP	Basic GSM/EDGE
N7612B Signal Studio for TD-SCDMA/HSDPAN7612B-EFPN7612B-ETPBasic TD-SCDMA/HSDPAN7612B-QFPN7612B-QTPAdvanced TD-SCDMA/HSDPAN7624B-GPPN7612B-QTPAdvanced TD-SCDMA/HSDPAN7624B-SFPN7624B-HTPBasic LTE FDD R9N7624B-JFPN7624B-JTPBasic LTE-Advanced FDD R9N7625B-SFPN7624B-JTPBasic LTE-Advanced FDD R10N7625B Signal Studio for LTE/LTE-Advanced TDDN7625B-GFPN7625B-GTPBasic LTE TDD R9N7625B-JFPN7625B-QTPAdvanced LTE TDD R9N7625B-JFPN7625B-QTPAdvanced LTE TDD R9N7625B-JFPN7625B-JTPBasic LTE-Advanced TDD R10Wireless connectivityWrieless connectivityN7617B-FFPN7617B-FTPBasic 802.11a/b/g/j/p WLANN7617B-FFPN7617B-FTPBasic 802.11a/b/g/j/p WLANN7617B-FFPN7617B-FTPBasic 802.11a/b/g/j/p WLANN7617B-FFPN7617B-FTPBasic 802.11a/b/g/j/p WLANN7617B-FFPN7617B-FTPBasic 802.11a/b/g/j/p WLANN7617B-FTPBasic 802.11a WLANN7617B-FTPAdvanced 802.11n WLANN7617B-FTPN7617B-GTPBasic 802.11a CWLANN7617B-GFPN7617B-GTPBasic 802.11a CWLANN7617B-GTPBasic 802.11a CWLANN7617B-FTPAdvanced 802.11a CWLANN7617B-FTPN7617B-GTPBasic 802.11a CWLANN7617B-FTPN7617B-GTP	N7602B-FFP	N7602B-FTP	Basic EDGE Evo
N7612B-EFPN7612B-ETPBasic TD-SCDMA/HSDPAN7612B-QFPN7612B-QTPAdvanced TD-SCDMA/HSDPAN7624B Signal Studio for LTE/LTE-AdvancedN7624B-HFPN7624B-HTPBasic LTE FDD R9N7624B-SFPN7624B-STPAdvanced LTE FDD R9N7624B-SFPN7624B-JTPBasic LTE-Advanced FDD R10N7625B Signal Studio for LTE/LTE-Advanced TDDN7625B Signal Studio for LTE/LTE-Advanced TDDN7625B Signal Studio for LTE/LTE-Advanced TDDN7625B Signal Studio for LTE/LTE-Advanced TDD R9N7625B-JFPN7625B-QTPAdvanced LTE TDD R9N7625B-JFPN7625B-JTPBasic LTE-Advanced TDD R10Wireless connectivityN7617B Signal Studio for WLAN 802.11a/b/g/n/j/p/acN7617B-FFPN7617B-FTPBasic 802.11a/b/g/j/p WLANN7617B-FFPN7617B-FTPBasic 802.11a/b/g/j/p WLANN7617B-FFPN7617B-FTPBasic 802.11a/b/g/j/p WLANN7617B-FFPN7617B-FTPBasic 802.11a/b/g/j/p WLANN7617B-FFPN7617B-FTPBasic 802.11a/b/g/j/p WLANN7617B-FFPN7617B-FTPBasic 802.11n WLANN7617B-FFPN7617B-GTPBasic 802.11n WLANN7617B-FFPN7617B-GTPBasic 802.11n WLANN7617B-FFPN7617B-GTPBasic 802.11n WLANN7617B-FFPN7617B-GTPBasic 802.11a WLANN7617B-FFPN7617B-GTPBasic 802.11a WLANN7617B-FFPN7617B-GTPBasic 802.11a	N7602B-QFP	N7602B-QTP	Advanced GSM/EDGE/EDGE Evo
N7612B-QFPN7612B-QTPAdvanced TD-SCDMA/HSDPAN7624B Signal Studio for LTE/LTE-AdvancedN7624B-HFPN7624B-HTPBasic LTE FDD R9N7624B-SFPN7624B-STPAdvanced LTE FDD R9N7624B-JFPN7624B-STPBasic LTE-Advanced FDD R10N7625B Signal Studio for LTE/LTE-Advanced TDDN7625B-GPPN7625B-GTPBasic LTE TDD R9N7625B-GPPN7625B-GTPBasic LTE TDD R9N7625B-JFPN7625B-GTPBasic LTE-Advanced TDD R10Wireless connectivityN7617B-STPBasic S02.11a/b/g/i/p WLANN7617B-FFPN7617B-FTPBasic 802.11a/b/g/j/p WLANN7617B-FFPN7617B-GTPBasic 802.11a WLANN7617B-FFPN7617B-GTPBasic 802.11a WLANN7617B-GFPN7617B-GTPBasic 802.11a WLANN7617B-FFPN7617B-GTPBasic 802.11a WLANN7617B-GFPN7617B-GTPBasic 802.11a WLANN7617B-GFPN7617B-GTPBasic 802.11a WLANN7617B-GFPN7606B-GTPAdvanced Bluetooth V 1.1 <t< td=""><td>N7612B Signal Studio</td><td>for TD-SCDMA/HSDPA</td><td></td></t<>	N7612B Signal Studio	for TD-SCDMA/HSDPA	
N7624B Signal Studio for LTE/LTE-AdvancedN7624B-HFPN7624B-HTPBasic LTE FDD R9N7624B-SFPN7624B-STPAdvanced LTE FDD R9N7624B-JFPN7624B-JTPBasic LTE-Advanced FDD R10N7625B Signal Studio for LTE/LTE-Advanced TDDN7625B-EFPN7625B-ETPN7625B-EFPN7625B-GTPAdvanced LTE TDD R9N7625B-JFPN7625B-JTPBasic LTE TDD R9N7625B-JFPN7625B-JTPBasic LTE-Advanced TDD R10Wireless connectivityWireless connectivityN7617B-SFPN7617B-FTPBasic 802.11a/b/g/j/p WLANN7617B-FFPN7617B-FTPBasic 802.11a/b/g/j/p MLANN7617B-FFPN7617B-FTPAdvanced 802.11a/b/g/j/p MLANN7617B-FFPN7617B-FTPBasic 802.11a/b/g/j/p MLANN7617B-FFPN7617B-FTPBasic 802.11a/b/g/j/p MLANN7617B-FFPN7617B-FTPBasic 802.11a/b/g/j/p MLANN7617B-FFPN7617B-FTPBasic 802.11a/b/g/j/p MLANN7617B-FFPN7617B-FTPBasic 802.11a/b/g/j/p MLANN7617B-FFPN7617B-FT	N7612B-EFP	N7612B-ETP	Basic TD-SCDMA/HSDPA
N7624B-HFPN7624B-HTPBasic LTE FDD R9N7624B-SFPN7624B-STPAdvanced LTE FDD R9N7624B-JFPN7624B-JTPBasic LTE-Advanced FDD R10N7625B Signal Studio for LTE/LTE-Advanced TDDN7625B-EFPN7625B-EFPN7625B-QFPN7625B-QTPAdvanced LTE TDD R9N7625B-JFPN7625B-JTPBasic LTE-Advanced TDD R10Wireless connectivityN7625B-JTPBasic LTE-Advanced TDD R10Wireless connectivityN7617B-STPN7617B-STPN7617B-STPN7617B-FTPBasic 802.11a/b/g//j/p WLANN7617B-FFPN7617B-FTPBasic 802.11a/b/g/j/j WLANN7617B-SFPN7617B-STPAdvanced 802.11a/b/g/j/j WLANN7617B-SFPN7617B-STPAdvanced 802.11a/b/g/j/j WLANN7617B-SFPN7617B-STPUpdate to 802.11a/b/g/j/j WLANN7617B-SFPN7617B-STPUpdate to 802.11a/b/g/j/j WLANN7617B-SFPN7617B-STPUpdate to 802.11a/b/g/j/j WLANN7617B-SFPN7617B-GTPBasic 802.11n WLANN7617B-GFPN7617B-GTPBasic 802.11a WLANN7617B-GFPN7617B-GTPBasic 802.11a WLANN7617B-GFPN7617B-GTPUpdate to 802.11a WLANN7617B-GFPN7617B-GTPUpdate to 802.11a /b/g/j/p and 802.11nN7606B Signal Studio for BluetoothUpdate to 802.11a /b/g/j/p and 802.11nN7606B-SFPN7606B-RTPAdvanced Bluetooth V 1.1N7606B-SFPN7606B-STPAdvanced Bluetooth V 2.1+EDRN7606B-SFPN7606B-STPAdvanced Bluetooth V 2.1+EDRN7606B-SFPN7606B-STPA	N7612B-QFP	N7612B-QTP	Advanced TD-SCDMA/HSDPA
N7624B-SFPN7624B-STPAdvanced LTE FDD R9N7624B-JFPN7624B-JTPBasic LTE-Advanced FDD R10N7625B Signal Studio for LTE/LTE-Advanced TDDN7625B-GFPN7625B-GFPBasic LTE TDD R9N7625B-QFPN7625B-QTPAdvanced LTE TDD R9N7625B-JFPN7625B-JTPBasic LTE-Advanced TDD R10Wireless connectivityN7617B Signal Studio for WLAN 802.11a/b/g/n/j/p/acN7617B-FFPN7617B-FTPBasic 802.11a/b/g/n/j/p/pwLANN7617B-FFPN7617B-RTPAdvanced 802.11a/b/g/j/p WLANN7617B-FFPN7617B-RTPAdvanced 802.11a/b/g/j/p WLANN7617B-FFPN7617B-RTPAdvanced 802.11a/b/g/j/p WLANN7617B-FFPN7617B-RTPAdvanced 802.11a/b/g/j/p WLANN7617B-FFPN7617B-RTPAdvanced 802.11a/b/g/j/p WLANN7617B-FFPN7617B-RTPAdvanced 802.11a/b/g/j/p WLANN7617B-FFPN7617B-RTPAdvanced 802.11n WLANN7617B-FFPN7617B-RTPUpdate to 802.11n WLANN7617B-FFPN7617B-GTPBasic 802.11ac WLANN7617B-FFPN7617B-GTPAdvanced 802.11ac WLANN7617B-FFPN7617B-GTPAdvanced 802.11ac WLANN7617B-HFPV7617B-GTPAdvanced 802.11ac WLANN7617B-GFPN7617B-GTPAdvanced 802.11ac WLANN7617B-FFPN7617B-GTPAdvanced 802.11ac WLANN7606B Signal Studio for BluetoothN7606B-GFPN7606B-GTP </td <td>N7624B Signal Studio</td> <td>for LTE/LTE-Advanced</td> <td></td>	N7624B Signal Studio	for LTE/LTE-Advanced	
N7624B-JFPN7624B-JTPBasic LTE-Advanced FDD R10N7625B Signal Studio for LTE/LTE-Advanced TDDN7625B-EFPN7625B-ETPBasic LTE TDD R9N7625B-QFPN7625B-QTPAdvanced LTE TDD R9N7625B-JFPN7625B-JTPBasic LTE-Advanced TDD R10Wireless connectivityWreless connectivityN7617B Signal Studio for VLAN 802.11a/b/g/n/j/p/acN7617B Signal Studio for VLAN 802.11a/b/g/n/j/p/acN7617B-FFPN7617B-FTPBasic 802.11a/b/g/j/p WLANN7617B-FFPN7617B-RTPAdvanced 802.11a/b/g/j/p WLANN7617B-FFPN7617B-RTPAdvanced 802.11a/b/g/j/p WLANN7617B-FFPN7617B-RTPAdvanced 802.11n WLANN7617B-FFPN7617B-RTPAdvanced 802.11n WLANN7617B-GFPN7617B-GTPBasic 802.11n WLANN7617B-GFPN7617B-GTPBasic 802.11a c WLANN7617B-GFPN7617B-GTPBasic 802.11a c WLANN7617B-GFPN7617B-GTPBasic 802.11a c WLANN7617B-FFPAdvanced 802.11a c WLANN7617B-FFPN7617B-GTPBasic 802.11a c WLANN7617B-GFPN7617B-GTPUpdate to 802.11a c WLANN7617B-GFPN7617B-GTPAdvanced Bluetooth V 1.1N7606B-QFPN7606B-QTPAdvanced Bluetooth V 1.1N7606B-SFPN7606B-STPAdvanced Bluetooth V 2.1+EDRN7606B-SFPN7606B-STPAdvanced Bluetooth Low EnergyN7609B Signal Studio for Ubal Navigation Sa	N7624B-HFP	N7624B-HTP	Basic LTE FDD R9
N7625B Signal Studio for LTE/LTE-Advanced TDDN7625B-EFPN7625B-ETPBasic LTE TDD R9N7625B-QFPN7625B-QTPAdvanced LTE TDD R9N7625B-JFPN7625B-JTPBasic LTE-Advanced TDD R10Wireless connectivityN7617B Signal Studio for VLAN 802.11a/b/g/n/j/p/acN7617B Signal Studio for VLAN 802.11a/b/g/n/j/p/acN7617B-FFPN7617B-FTPBasic 802.11a/b/g/j/p WLANN7617B-FFPN7617B-RTPAdvanced 802.11a/b/g/j/p WLANN7617B-FFPN7617B-FTPBasic 802.11n WLANN7617B-FFPN7617B-RTPAdvanced 802.11n WLANN7617B-FFPN7617B-RTPAdvanced 802.11n WLANN7617B-FFPN7617B-GTPBasic 802.11n WLANN7617B-FFPN7617B-GTPBasic 802.11a WLANN7617B-FFPN7617B-GTPBasic 802.11a WLANN7617B-FFPN7617B-GTPBasic 802.11a WLANN7617B-FFPN7617B-TFPAdvanced 802.11a WLANN7617B-FFPN7617B-TFPAdvanced 802.11ac WLANN7617B-FFPN7617B-TFPAdvanced 802.11ac WLANN7617B-FFPN7606B-QTPAdvanced Bluetooth V 1.1N7606B-QFPN7606B-RTPAdvanced Bluetooth V 1.1N7606B-SFPAdvanced Bluetooth V 2.1+EDRN7609B Signal Studio for Global Navigation Satellite Systems (GNSS)	N7624B-SFP	N7624B-STP	Advanced LTE FDD R9
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N7617B Signal Studio for WLAN 802.11a/b/g/n/j/p/acN7617B-FFPN7617B-FTPBasic 802.11a/b/g/j/p WLANN7617B-RFPN7617B-RTPAdvanced 802.11a/b/g/j/p WLANN7617B-FFPN7617B-FTPBasic 802.11n WLANN7617B-RFPN7617B-RTPAdvanced 802.11n WLANN7617B-SFPN7617B-STPUpdate to 802.11n WLANN7617B-GFPN7617B-GTPBasic 802.11a WLANN7617B-GFPN7617B-GTPBasic 802.11a WLANN7617B-TFPN7617B-GTPBasic 802.11a WLANN7617B-TFPN7617B-GTPBasic 802.11a WLANN7617B-TFPN7617B-GTPBasic 802.11a WLANN7617B-TFPN7617B-GTPBasic 802.11a WLANN7617B-TFPN7617B-GTPBasic 802.11a WLANN7617B-TFPN7617B-TTPAdvanced 802.11a WLANN7617B-TFPN7617B-TTPAdvanced 802.11a WLANN7617B-TFPN7617B-TTPUpdate to 802.11a WLANN7617B-TFPN7617B-TTPAdvanced 802.11a WLANN7606B Signal Studio for BluetoothN7617B-TTPN7606B-GFPN7606B-GTPAdvanced Bluetooth V 1.1N7606B-RFPN7606B-RTPAdvanced Bluetooth V 2.1+EDRN7606B-SFPN7606B-STPAdvanced Bluetooth Low EnergyN7609B Signal Studio for Global Navigation Satellite Systems (GNSS)	N7625B-JFP	N7625B-JTP	Basic LTE-Advanced TDD R10
N7617B-FFPN7617B-FTPBasic 802.11a/b/g/j/p WLANN7617B-RFPN7617B-RTPAdvanced 802.11a/b/g/j/p WLANN7617B-FFPN7617B-FTPBasic 802.11n WLANN7617B-RFPN7617B-RTPAdvanced 802.11n WLANN7617B-SFPN7617B-STPUpdate to 802.11n WLANN7617B-GFPN7617B-GTPBasic 802.11a WLANN7617B-FFPN7617B-GTPBasic 802.11a WLANN7617B-GFPN7617B-GTPBasic 802.11a WLANN7617B-FFPN7617B-GTPBasic 802.11a WLANN7617B-FFPN7617B-TTPAdvanced 802.11a WLANN7617B-FFPN7617B-TTPAdvanced 802.11a WLANN7617B-FFPN7617B-TTPAdvanced 802.11a WLANN7617B-FFPN7617B-TTPAdvanced 802.11a WLANN7617B-FFPN7617B-TTPAdvanced 802.11a WLANN7617B-FFPN7617B-TTPAdvanced 802.11a WLANN7606B Signal Studio for BluetoothV1.1N7606B-QFPN7606B-QTPAdvanced Bluetooth V 1.1N7606B-SFPN7606B-STPAdvanced Bluetooth V 2.1+EDRN7606B-SFPN7606B-STPAdvanced Bluetooth Low EnergyN7609B Signal Studio for Global Navigation Satellite Systems (GNSS)N7609B Signal Studio for Global Navigation Satellite Systems (GNSS)	Wireless connectivity	1	
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N7617B-HFPN7617B-HTPUpdate to 802.11a/b/g/j/p and 802.11nN7606B Signal Studio for BluetoothBluetoothN7606B-QFPN7606B-QTPAdvanced Bluetooth V 1.1N7606B-RFPN7606B-RTPAdvanced Bluetooth V 2.1+EDRN7606B-SFPN7606B-STPAdvanced Bluetooth Low EnergyN7609B Signal Studio for Global Navigation Satellite Systems (GNSS)	N7617B-GFP	N7617B-GTP	Basic 802.11ac WLAN
N7606B Signal Studio for Bluetooth N7606B-QFP N7606B-QTP Advanced Bluetooth V 1.1 N7606B-RFP N7606B-RTP Advanced Bluetooth V 2.1+EDR N7606B-SFP N7606B-STP Advanced Bluetooth Low Energy N7609B Signal Studio for Global Navigation Satellite Systems (GNSS)	N7617B-TFP	N7617B-TTP	Advanced 802.11ac WLAN
N7606B-QFPN7606B-QTPAdvanced Bluetooth V 1.1N7606B-RFPN7606B-RTPAdvanced Bluetooth V 2.1+EDRN7606B-SFPN7606B-STPAdvanced Bluetooth Low EnergyN7609B Signal Studio for Global Navigation Satellite Systems (GNSS)	N7617B-HFP	N7617B-HTP	Update to 802.11a/b/g/j/p and 802.11n
N7606B-RFPN7606B-RTPAdvanced Bluetooth V 2.1+EDRN7606B-SFPN7606B-STPAdvanced Bluetooth Low EnergyN7609B Signal Studio for Global Navigation Satellite Systems (GNSS)	N7606B Signal Studio for <i>Bluetooth</i>		
N7606B-SFPN7606B-STPAdvanced Bluetooth Low EnergyN7609B Signal Studio for Global Navigation Satellite Systems (GNSS)	N7606B-QFP	N7606B-QTP	Advanced Bluetooth V 1.1
N7609B Signal Studio for Global Navigation Satellite Systems (GNSS)	N7606B-RFP	N7606B-RTP	Advanced <i>Bluetooth</i> V 2.1+EDR
N7609B Signal Studio for Global Navigation Satellite Systems (GNSS)	N7606B-SFP	N7606B-STP	Advanced Bluetooth Low Energy
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Select Measurement Applications or Software and License Types (continued)

All measurement applications, Signal Studio, and waveform pack licenses apply to all TRXs configured in the EXM.

Fixed perpetual	Transportable perpetual	Description	
	inalispoi table perpetuat	Description	
General purpose			
N7611B Signal Studio	for Broadcast Radio		
N7611B-RFP	N7611B-RTP	Advanced DAB/DAB+/DMB	
N7611B-SFP	N7611B-STP	ETI support for DAB/DMB	
N7623B Signal Studio	o for Digital Video		
N7623B-NFP	N7623B-NTP	Advanced ATSC-M/H	
N7623B-PFP	N7623B-PTP	Advanced BER tools	
N7623B-QFP	N7623B-QTP	Advanced DVB-T/H/C/J.83 Annex A/C	
N7623B-RFP	N7623B-RTP	Advanced ISDB-T	
N7623B-SFP	N7623B-STP	Advanced DTMB	
N7623B-UFP	N7623B-UTP	Advanced ATSC	
N7623B-VFP	N7623B-VTP	Advanced DVB-S	
N7623B-WFP	N7623B-WTP	Advanced DVB-S2	
N7623B-YFP	N7623B-YTP	Advanced CMMB	
N7623B-ZFP	N7623B-ZTP	Advanced DVB-T2	
Step 3. Choose the Waveform 5 and 50-pack (optional)			
Ordering number	Description		
E6640A-221-229	Waveform license 5-pack 1	to 9	
E6640A-253-2591	Waveform license 50-pack	4 to 10	

1. Waveform 50-pack (quantity 3): E6640A-250, 251, and 252 are included as standard in the base product.

Select Accessories (optional)

Choose the accessories (optional)		
Ordering number	Description	
E6640A-KYB	Keyboard, USB	
E6640A-MSE	Mouse, USB	
E6640A-1CP	Rack mount and front handle kit	
Y1217A	Rack rail kit	

Select Warranty, Calibration, and Services (optional)

Step 1. Choose a warranty plan (optional)		
Ordering number	Description	
Standard	Return-to-Keysight warranty: 3 years ¹	
R-51B-001-5Z	Warranty Assurance Plan - Return-to-Keysight: 5 years	
Step 2. Choose calibratio	on certificate	
Ordering number	Description	
E6640A-UK6	Commercial calibration certificate with test data	
Step 3. Choose services	(optional)	
Ordering number	Description	
PS-S20	Startup assistance	
PS-S20-01	Recommended startup assistance	
PS-S10	Remote scheduled productivity assistance. Select 1 to 999 hours	
PS-X10	Custom services to be qualified by a Keysight technical consultant	
1 For more detailed infor	reation on the Keysight Queer warranty on to your keysight and (Threat/April/Orranty)	

1. For more detailed information on the Keysight 3-year warranty go to www.keysight.com/find/ThreeYearWarranty.

Select Upgrades (optional)

These upgrade options can be added after your initial purchase to increase your product capabilities, including hardware, software, and accessories according to your specific test requirements.

There are two types of hardware upgrades:

1. Add one or more TRX(s) to an existing unit (up to a maximum total of four TRXs per EXM)

2. Upgrade existing TRX(s) capabilities (frequency range and/or measurement bandwidth) via a license key (these do not require additional hardware)

Measurement application and Signal Studio software can be ordered standalone as an upgrade. All measurement application, Signal Studio, and waveform pack licenses apply to all TRXs configured in the EXM.

Hardware upgrade to add TRX		
Increase the TRX count		
Ordering number	Description	
Choose TRX type (select	one)	
E6640AU-TRX	Add two full-duplex and two half-duplex ports TRX to EXM, may only be added to an existing 2FD unit	
E6640AU-TR4	Add four full-duplex ports TRX to EXM, may only be added to an existing 4FD unit	
Choose frequency range of	option for the added TRX (select one)	
E6640AU-504	380 to 3.8 GHz (cellular communications)	
E6640AU-5WC	1.1 to 1.8, 2.3 to 2.6, and 4.8 to 6 GHz (wireless connectivity)	
E6640AU-506	380 MHz to 6 GHz (cellular communications and wireless connectivity)	
Choose measurement ban	ndwidth option for the added TRX (optional ¹ , select one)	
E6640AU-B85	80 MHz bandwidth	
E6640AU-B1X	160 MHz bandwidth	
Choose commercial calibr	ration certificate for each TRX added (one per TRX) (optional)	
E6640AU-UK6	Commercial calibration certificate with test data	
1. The standard measurer	ment bandwidth for all TRXs is 40 MHz.	
Hardware upgrade to add	capabilities to your existing TRX via license key ¹	
Upgrade TRX frequency ra	ange and measurement bandwidth for your existing TRX via license key	
Ordering number	Description	

Ordering number	Description		
Upgrade frequency range option for any existing 2FD TRX (optional)			
E6640AK-516	Upgrade from 504 to 506 on 2FD TRX		
E6640AK-526	Upgrade from 5WC to 506 on 2FD TRX		
Upgrade measurement ba	andwidth option for any existing 2FD TRX (optional)		
E6640AK-B85	Upgrade from 40 to 80 MHz on 2FD TRX		
E6640AK-B1X	Upgrade from 40 to 160 MHz on 2FD TRX		
E6640AK-BU5	Upgrade from 80 to 160 MHz on 2FD TRX		
Upgrade frequency range	option for any existing 4FD TRX (optional)		
E6640AF-516	Upgrade from 504 to 506 on 4FD TRX		
E6640AF-526	Upgrade from 5WC to 506 on 4FD TRX		
Upgrade measurement ba	andwidth option for any one existing 4FD TRX (optional)		
E6640AF-B85	Upgrade from 40 to 80 MHz on 4FD TRX		
E6640AF-B1X	Upgrade from 40 to 160 MHz on 4FD TRX		
E6640AF-BU5	Upgrade from 80 to 160 MHz on 4FD TRX		

1. If you need to add frequency range or measurement bandwidth capabilities for more than one TRX, please upgrade each TRX individually.

Select Upgrades (optional) (continued)

Software upgrades	
Ordering number	Description
E6640AU-221-229	Waveform license 5-pack 1 to 9 upgrades
E6640AU-253-259	Waveform license 50-pack 4 to 10 upgrades
Accessory upgrades	
Ordering number	Description
E6640AU-KYB	Keyboard, USB
E6640AU-MSE	Mouse, USB
E6640AU-1CP	Rack mount and front handle kit

Example Configurations

4-up TRX for cellular communications configuration

	Ordering	Description
Hardware	E6640A-001	Add TRX1 to EXM
	E6640A-504	380 MHz to 3.8 GHz
	E6640A-002	Add TRX2 to EXM
	E6640A-504	380 MHz to 3.8 GHz
	E6640A-003	Add TRX3 to EXM
	E6640A-504	380 MHz to 3.8 GHz
	E6640A-004	Add TRX4 to EXM
	E6640A-504	380 MHz to 3.8 GHz
Software	V9071B-2FP or 2TP	GSM/EDGE measurement application
	V9071B-3FP or 3TP	EDGE Evo measurement application
	V9072B-2FP or 2TP	cdma2000 measurement application
	V9073B-1FP or 1TP	W-CDMA measurement application
	V9073B-2FP or 2TP	HSDPA/HSUPA measurement application
	V9073B-3FP or 3TP	HSPA+ measurement application
	V9076B-1FP or 1TP	1xEV-DO measurement application
	V9079B-1FP or 1TP	TD-SCDMA measurement application
	V9079B-2FP or 2TP	TD-HSPA measurement application
	V9080B-1FP or 1TP	LTE FDD measurement application
	V9082B-1FP or 1TP	LTE TDD measurement application

2-up TRX for WLAN 802.11a/b/g/n/ac, 802.11ac Wave 2 measurements (with unlimited WLAN waveforms), Switched MIMO, True MIMO, and *Bluetooth* configuration

Ordering	Description
E6640A-001	Add TRX1 to EXM
E6640A-5WC	1.1 to 1.8, 2.3 to 2.6, and 4.8 to 6 GHz
E6640A-B1X	160 MHz bandwidth
E6640A-002	Add TRX2 to EXM
E6640A-5WC	1.1 to 1.8, 2.3 to 2.6, and 4.8 to 6 GHz
E6640A-B1X	160 MHz bandwidth
E6640A-M22	Up to 2x2 True MIMO
Y9077B-2FP or 2TP	WLAN 802.11a/b/g measurement and waveform application
Y9077B-3FP or 3TP	WLAN 802.11n measurement and waveform application
Y9077B-4FP or 4TP	WLAN 802.11ac measurement and waveform application
Y9077B-WFP or WTP	WLAN 802.11ac Wave 2 measurement and waveform application
V9065B-SFP or STP	Switched MIMO capability
V9081B-2FP or 2TP	Bluetooth measurement application
	E6640A-001 E6640A-5WC E6640A-B1X E6640A-002 E6640A-5WC E6640A-B1X E6640A-B1X E6640A-M22 Y9077B-2FP or 2TP Y9077B-3FP or 3TP Y9077B-3FP or 3TP Y9077B-4FP or 4TP Y9077B-WFP or WTP V9065B-SFP or STP

Example Configurations (continued)

Hardware upgrade configuration – Example 1

Add two TRXs: One for wireless connectivity, the other for cellular communications

Add two INAS. One for w	ineless connectivity, the other			
	Ordering	Description		
	E6640AU-TRX	Add 2FD TRX to EXM		
	E6640AU-5WC	1.1 to 1.8, 2.3 to 2.6, and 4.8 to 6 GHz		
	E6640AU-B1X	160 MHz bandwidth		
	E6640AU-TRX	Add 2FD TRX to EXM		
	E6640AU-504	380 MHz to 3.8 GHz		
Hardware upgrade configuration – Example 2				
Add capabilities to your existing TRX via license key				
	Ordering	Description		
Upgrade frequency range and measurement bandwidth for your existing 2FD TRX1				
	E6640AK-516	Upgrade from 504 to 506		
	E6640AK-B1X	Upgrade from 40 to 160 MHz		
Upgrade frequency rang	e for your existing 4FD TRX2			
	E6640AF-526	Upgrade from 5WC to 506		
Hardware upgrade configuration – Example 3				
Add one 4FD TRX				
	Ordering	Description		
	E6640AU-TR4	Add TRX to EXM		
	E6640AU-504	380 MHz to 3.8 GHz		

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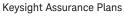
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