N9030B PXA X-Series Signal Analyzer Multi-touch

Introduction

This PXA configuration guide will help you determine which performance options, measurement applications, accessories, and services to include with your new PXA or to add as upgrades to an existing PXA.

For more information

For a summary of specifications, refer to the N9030B data sheet (literature number 5992-1317EN).

A full set of specifications is available in the N9030B PXA Signal Analyzer Specification Guide at www.keysight.com/find/pxa_specifications.

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Included in Base Product

Standard options and accessories come with the PXA base model at no additional charge and do not need to be ordered.

They include:

- Spectrum analyzer measurement application
- Hex-core, high-performance processor, 32 GB RAM, with flash calibration file memory
- Removable M.2 NVMe solid-state drive
- Mechanical attenuator
- 25 MHz analysis bandwidth
- Digital processor with 2 GB capture memory
- Fast sweep capability
- LO/IM nulling
- Low frequency extension
- Noise floor extension
- Precision frequency reference
- Microsoft Windows 10 operating system
- Real-time link for real-time IQ data streaming up to 40 MHz
- Multi-language user interface
- User guides
- Receiver calibrator (RCal) control license
- Power cord

Configure your PXA Signal Analyzer

This step-by-step process will help you configure your new PXA X-Series signal analyzer. Tailor the performance to meet your requirements.

Step 1. Select maximum frequency range (required option)

Description	Option number	Additional information
Frequency range, 2 Hz to 3.6 GHz	N9030B-503	
Frequency range, 2 Hz to 8.4 GHz	N9030B-508	
Frequency range, 2 Hz to 13.6 GHz	N9030B-513	
Frequency range, 2 Hz to 26.5 GHz	N9030B-526	
Frequency range, 2 Hz to 44 GHz	N9030B-544	
Frequency range, 2 Hz to 50 GHz	N9030B-550	

Step 2. Add a preamplifier

Description	Option number	Additional information
Preamplifier, 100 kHz to 3.6 GHz	N9030B-P03	Compatible with frequency range options: 503, 508, 513, 526, 544, and 550
Preamplifier, 100 kHz to 8.4 GHz	N9030B-P08	Compatible with frequency range options: 508, 513, 526, 544, and 550
Preamplifier, 100 kHz to 13.6 GHz	N9030B-P13	Compatible with frequency range options: 513, 526, 544, and 550
Preamplifier, 100 kHz to 26.5 GHz	N9030B-P26	Compatible with frequency range options: 526, 544, and 550
Preamplifier, 100 kHz to 44 GHz	N9030B-P44	Compatible with frequency range option 544
Preamplifier, 100 kHz to 50 GHz	N9030B-P50	Compatible with frequency range option 550

Step 3. Choose an attenuator

Description	Option number	Additional information
Mechanical attenuator	Standard	2 dB steps, 0 to 70 dB; licensed as N9030B-FSA
Electronic attenuator up to 3.6 GHz	N9030B-EA3	Add in addition to the mechanical attenuator; 1 dB steps, 0 to 24 dB

Step 4. Choose analysis bandwidth

Description	Option number	Additional information
25 MHz analysis bandwidth	Standard	Licensed as Option N9030B-B25
40 MHz analysis bandwidth	N9030B-B40	Extends the analysis bandwidth from 25 to 40 MHz (Option MPB required for measurements > 3.6 GHz)
85 MHz analysis bandwidth	N9030B-B85	Extends the analysis bandwidth from 25 to 85 MHz (Option MPB required for measurements > 3.6 GHz)
160 MHz analysis bandwidth	N9030B-B1X	Extends analysis bandwidth from 25 to 160 MHz (Option MPB required for measurements > 3.6 GHz)
255 MHz analysis bandwidth	N9030B-B2X	Extends analysis bandwidth from 25 to 255 MHz (Not compatible with frequency range Option N9030B-503) (Requires Options EP0 and MPB)
510 MHz analysis bandwidth	N9030B-B5X	Extends analysis bandwidth from 25 to 510 MHz (Not compatible with frequency range Option N9030B-503) (Requires Options EP0 and MPB)
Microwave preselector bypass	N9030B-MPB	Bypass the microwave preselector for wider bandwidth IF

Step 5. Choose performance options

Description	Option number	Additional information
Digital processor with 2 GB capture memory	Standard	Licensed as N9030B-DP2
Digital processor with 4 GB capture memory	Standard	Standard in instruments with serial number prefixes >MY/SG/US5608 when Option B85, B1X, B2X or B5X is installed. licensed as N9030B-DP4
Fast sweep capability	Standard	Improves sweep speed at swept-tune mode; licensed as N9030B-FS1 and N9030B-FS2
LO/IM nulling	Standard	Minimizes the LO feed-thru and intermodulation distortion; licensed as N9030B-NUL
Noise floor extension	Standard	Improves displayed average noise level (DANL), second-generation algorithm (instrument alignment process); licensed as N9030B-NF2
Precision frequency reference	Standard	Aging rate: ± 1 x 10^{-7}/year; licensed as N9030B-PFR
Enhanced phase noise, DDS LO	N9030B-EP0	Improves phase noise; not compatible with Option B85 or B1X or frequency range Option 503; requires Option MPB or LNP
Low noise path	N9030B-LNP	Improves sensitivity (DANL) in frequency bands above 3.6 GHz
Full bypass path	N9030B-FBP	Bypass the microwave preselector and enable the low noise path for improved sensitivity above 3.6 GHz; requires Option LNP, MPB and B2X or B5X; not compatible with frequency range Option 503
External mixing	N9030B-EXM	Provides external mixing with Keysight and third-party mixers; single port[1] for LO out and IF in (SMA female)
APC 3.5 mm connector	N9030B-C35	3.5 mm connector on 26.5 GHz PXA (compatible with Option 526 only)
Frequency range extension to 52 GHz	N9030B-H52	Extends factory-adjusted characterized performance to 52 GHz; requires Option 550 and B2X or B5X
I/Q baseband inputs, analog	N9030B-BBA	Single-ended/differential, 50 Ω/1 M Ω impedance (compatible with frequency range Options 503, 508, 513, and 526; not compatible with bandwidth Option B5X or Audio input Option 107)
Audio input and digitizer	N9030B-107	Specifically for the measuring receiver and/or avionics measurements, requires measuring receiver app N9091EM0E (for general-purpose audio measurements) and/or avionics app N9092EM0E (for specialized baseband avionics measurements only); 100 kΩ input impedance; not compatible with Options B5X or BBA.

1. When used with Keysight 11970 Series external mixers, an external diplexer is required. Recommended diplexer can be purchased from Keysight as N9029BE13.

Step 6. Add real-time spectrum analysis

Description	Option number	Additional information
Real-time analysis up to maximum available BW, basic detection	N9030RT1B	Includes frequency mask trigger (FMT) and time qualified trigger (TQT); minimum 17.3 µs signal duration for 100% probability of intercept (POI); requires Option B85, B1X, B2X, or B5X which determines maximum real-time bandwidth
Real-time analysis up to maximum available BW, optimum detection	N9030RT2B	Includes frequency mask trigger; minimum 3.57 µs signal duration for 100% probability of intercept (POI); requires bandwidth Option B85, B1X, B2X, or B5X which determines the maximum real-time BW; node-locked license only
Frequency mask trigger, basic detection	N90EMFT1B	Enables frequency mask triggering with N9067C pulse application and 89600 VSA software to detect signals as short as 15 µs duration; included in N9030RT1B (Option RT1) requires bandwidth options B85, B1X, B2X, or B5X
Frequency mask trigger, optimum detection	N90EMFT2B	Enables frequency mask triggering with N9067EM0E pulse application and 89600 VSA software to detect signals as short as 3.6 µs duration; included in N9030RT2B (Option RT2) requires bandwidth options B85, B1X, B2X, or B5X; node-locked license only
Duplex IF RTSA	N90EMDUAB	Enables control of 2x255 MHz DIF for optimized frequency and time domain analysis in RTSA mode; Requires option B5X and N9030RT1B (Option RT1) or N9030RT2B (Option RT2)
Real-time I/Q data streaming	N9030B-RTS	Stream gap-free 16 bit I/Q data up to 255 MHz bandwidth for offline analysis. High speed LVDS connector allows connection to third-party X-COM Systems data recorder IQC5255B. Requires N9030RT1B (Option RT1) or N9030RT2B (Option RT2)

Step 7. Add instrument features

Description	Option number	Additional information
Enhanced display package	N90EMEDPB	Includes spectrogram, trace zoom, and zone span
Basic EMI precompliance	N90EMEMCB	Perform basic EMI precompliance measurements with CISPR 16-1-1 detectors and bandwidths; tune and listen, and measure at marker are also available
Time domain scan	N90EMTDSB	Improves scan speed for EMC pre-compliance tests; requires N6141EM0E EMI measurement application and Option DP2, or B40 (or wider bandwidth option)
External source control	N90EMESCB	External source control for selected Keysight EXG, MXG, and PSG signal generators; supports external mixing; includes 3 BNC cables and 1 cross-over LAN cable
Fast power up to available maximum analysis bandwidth	N90EMFP2B	Accelerates the power measurements such as ACPR; requires Option B40, B85, B1X, B2X, or B5X
Resolution bandwidth extended	N90EMRBEB	Extends the maximum RBW in Zero Span; requires option B85, B1X, B2X, or B5X

Step 8. Add security features

Description	Option number	Additional information
Additional removable M.2 NVMe solid-state drive (SSD), for PCA processor	N9030B-SS3	Provides a fully-imaged, removable SSD in addition to the one installed in instruments, with Windows 10 operating system
Exclude launch program	N9030B-SF1	Prevents the launching of Windows programs from the instrument application
Prohibit saving results	N9030B-SF2	Prevents instrument application from saving/recall of measurement results or user configurations to/from instrument's data storage

Step 9. Add rear panel output utilities

Description	Option number	Additional information
Second IF output	N9030B-CR3	Wideband IF out; center frequency depends on IF path; output on Aux IF connector at rear panel
Arbitrary IF out	N9030B-CRP	IF out 10 to 75 MHz (in 500 kHz steps); output on Aux IF connector at rear panel
Y-axis video out	N9030B-YAV	Screen video (0–1-volt open circuit); log video and linear video
Aux log video out	N9030B-ALV	Fast rise time video out; output on Aux IF connector
Real-time link	Standard	The LVDS connector allows PXA to connect to the X-COM data recorder for data streaming (up to 40 MHz BW) and N5106A PXB baseband generator and channel emulator; licensed as N9030B-RTL

Step 10. Choose measurement application or software and license type

Note: Keysight offers 4 license types for the measurement applications and instrument features, in 2 license terms: Perpetual or Subscription.

License types:

- **Node-locked**: Allows you to use the license on one instrument/computer at a time
- **Transportable**: Allows you to use the license on one instrument/computer at a time. This license may be transferred to another instrument/computer using Keysight's online tool
- **Floating**: Allows you to access the license on the networked instruments/computers from a server, one at a time. For concurrent access, multiple licenses may be purchased
- **USB Portable**: Allows you to access the license from one instrument/computer to another by end-user only with certified USB dongle, purchased separately

License terms:

- **Perpetual**: License can be used in perpetuity. For perpetual license holders, a separate support contract is required to access Keysight technical support and software updates
- **Subscription**: License is time limited to a defined period, such as 12-months. A valid support contract is included in the pricing for subscription licenses.

For detailed information, we strongly recommend you visit the X-Series measurement application collection page: www.keysight.com/find/xseriesapps

Description	Option number	Additional information
General purpose		
Spectrum analyzer and IQ analyzer	Standard	Traditional spectrum analysis plus many new and enhanced functions
Power Suite	N90EMPSMB	Power measurements based on industry specifications
Analog demodulation	N9063EM0E	Adds one-button measurement for AM/FM/PM demodulation with metrics, tune and listen, and AF spectrum; supports audio output (output voltage proportional to frequency deviation). FM Stereo and RDS are included.
Phase noise	N9068EM0E	Adds one-button measurements for analyzing phase noise in frequency domain (log plot) and time domain (spot frequency), supports external mixing
Noise figure	N9069EM0E (requires preamplifier)	Adds one-button measurements for noise figure, gain, and related metrics; requires preamplifier to meet specifications; works with Keysight U1831C USB noise source, N400xA Series smart noise sources and 346 Series noise sources; supports U7227 USB external preamplifiers Includes the advanced NF measurement features including external LO control over GPIB/LAN/USB, multi-stage converter tests with system LO, and manual mode to simulate the legacy NF meter
Vector modulation analysis Digital Demodulation	N9054EM0E	Performs one-button flexible modulation analysis measurements with FSK, PSK, QAM, MSK, ASK, APSK, VSB etc. and poprular format preset
Vector modulation analysis Custom OFDM	N9054EM1E	Performs one-button custom OFDM modulation analysis measurement with user- defined settings or recalling 89600 VSA or Signal Studio output files
Power amplifier measurement	N9055EM0E	Characterizes power amplifier (PA) with pre-distortion applied in RF and millimeter wave, with simple and integrated multi-touch user interface; supports ET (Envelop Tracking) with dual-channel VXG
Channel quality	N9056EM0E	Performs repeatable channel response measurements as group delay and other characteristics with multi-tone signals for wideband component testing
Pulse analysis	N9067EM0E	Characterize pulsed RF signals in the time domain, with phase frequency and statistical analysis of large pulse sets; enables fixed and variable length gated acquisition for capturing pulses of varying pulse width and PRI (requires 4 GB capture memory Option DP4)
EMI	N6141EM0E	Performs pre-compliance conducted and radiated emission measurements
Remote language compatibility	N9061EM0E	Adds capability to emulate HP/Agilent 8566/68 and 856xE/EC spectrum analyzers
SCPI command language compatibility	N9062EM0E	Adds capability to emulate the R&S FSP/FSU/FSL/FSV/FSW spectrum analyzers or ESU EMI receiver
MATLAB software	N6171A	

Description	Option number	Additional information
Cellular communications		
GSM/EDGE/Evo	N9071EM0E	Standard-based, one-button GSM/EDGE/EDGE Evolution measurements
W-CDMA/HSPA+	N9073EM0E	Standard-based, one-button W-CDMA, HSPA and HSPA+ measurements
LTE/LTE-Advanced FDD	N9080EM0E	Standard-based, one-button LTE/LTE-Advanced FDD measurements
NB-IoT & eMTC FDD	N9080EM3E	Standard-based, one-button NB-IoT/eMTC measurements
LTE V2X	N9080EM4E	Standard-based, one-button LTE-V2X transmitter measurements
LTE/LTE-Advanced TDD	N9082EM0E	Standard-based, one-button LTE/LTE-Advanced TDD measurements
Multi-standard radio	N9083EM0E	Standard -based, one-button MSR measurements on any combination of LTE-FDD, W-CDMA/ HSPA/HSPA+, and GSM/EDGE/EDGE Evo signals
5G NR (New Radio)	N9085EM0E (requires Option B2X, B5X or H1G)	Standard-based, one-button 5G NR (New Radio) downlink and uplink measurements
Wireless connectivity		
WLAN 802.11a/b/g/j/p/n/af/ah	N9077EM0E	Standard-based, one-button 802.11 a/b/g/j/p/n/af/ah measurement
WLAN 802.11ac/ax	N9077EM1E	Standard-based, one-button 802.11ac/ax measurement
WLAN 802.11be	N9077EM2E	Standard-based, one-button 802.11 be measurement
Bluetooth®	N9081EM0E	Standard-based, one-button *Bluetooth*® (BR/EDR, Low Energy 4.0/4.2 and *Bluetooth*® 5/5.1) measurements; supports Qualcomm Bluetooth High Speed Link as QBHSL
Short Range Comm and IoT	N9084EM0E	Standard-based, one-button LoRa CSS measurement, 802.15.4 for ZigBee measurement and G.9959 for Z-Wave measurement
Measuring receiver and avionics		
Measuring receiver	N9091EM0E	Provides metrology-grade accuracy for calibrating the signal generators and step attenuators
Avionics measurements	N9092EM0E	Verifies RF/baseband signals used for aircraft navigations including VOR (VHF Omnidirectional Range) and ILS (Instrument Landing System)

Step 11. Choose 89600 VSA software licenses

Description	Model number	Additional information
Basic vector signal analysis and hardware connectivity	89601200C (required core option)	Provides the tools and user interface that make up the 89600 VSA software including time and frequency domain measurement, hardware connectivity, recordings, and playback
		Channel quality modulation analysis
General purpose		
Digital demodulation analysis	89601AYAC	Analysis of >40 modulation formats, including custom APSK and presets for communication formats like GSM/EDGE, ZigBee FSK, *Bluetooth*® BR, APCO25 and SOQPSK
		Proprietary and pre-standard, customized IQ constellation signals
		TEDS modulation analysis
		Channel response measurements such as phase/magnitude response and multi-tone group delay
Custom OFDM modulation analysis	89601BHFC	Proprietary and pre-standard OFDM formats
Direct data connectivity	89601101C	Push IQ data into the 89600 VSA software through API programming
PowerSuite measurement	89601PSMC	PowerSuite measurement for ACP and EVM
Cellular communication		
5G NR modulation analysis	89601BHNC	5G NR modulation analysis
		Pre-5G modulation analysis
LTE/LTE-A FDD modulation analysis	89601BHGC	LTE FDD modulation analysis
		LTE-Advanced FDD modulation analysis
LTE/LTE-A TDD modulation analysis	89601BHHC	LTE TDD modulation analysis
		LTE-Advanced TDD modulation analysis
3G modulation analysis bundle	89601B7NC	W-CDMA/HSPA+ modulation analysis
		TD-SCDMA/HSPA modulation analysis
		cdma2000 modulation analysis
		1xEV-DO and 1xEV-DV modulation analysis
Channel sounding signal analysis	89601CSDC	Performs channel sounding measurement

Description	Model number	Additional information
Wireless connectivity		
Wireless connectivity modulation analysis	89601B7RC	WLAN 802.11a/b/g/j/p modulation analysis
		WiMax modulation analysis
High throughput WLAN modulation analysis	89601BHXC	WLAN 802.11n/ac modulation analysis
		WLAN 802.11ax modulation analysis
IoT modulation analysis	89601BHTC	NB-IoT modulation analysis
		RFID modulation analysis
Radar analysis		
Pulse analysis	89601BHQC	Pulsed modulated radar signal analysis
FMCW radar analysis	89601BHPC	For multi-chirp linear FM modulated signals or automotive radar
Other standard formats		
DOCSIS modulation analysis	89601BHMC	DOCSIS3.1 downstream and upstream modulation analysis
Multi-vendor hardware connectivity	89601301C	Connect multi-vendor hardware for modulation analysis

Step 12. Choose accessories

Description	Option number	Additional information
User guides	Standard	US - English localization
		All user documentation is included in the embedded help system inside the PXA
		User documentation can be downloaded from: www.keysight.com/find/pxa_manuals
Power cord	Standard	Depends on the region of use
Adapter, 2.4 mm (f) to 2.4 mm (f)	Standard	Only for PXA with Option 544 or 550
Adapter, 2.4 mm (f) to 2.92 mm (f)	Standard	Only for PXA with Option 544 or 550
Receiver calibration (RCal) module	U9361C/F/G/M	Enables magnitude and complex corrections; see U9361C/F/G//M configuration guide (3120-1408EN) for details
Rack mount	1CM113A	Adds rack mount flanges to the PXA
Front handles	1CN103A	Adds front handles to the PXA
Rack mount with handles	1CP105A	Adds rack mount flanges and handles to the PXA
Rack slide	1CR014A	Adds a non-tilting rack slide to the PXA
USB DVD-ROM/CD-R/RW drive	1DVR001A	Enhances the usability of the Windows operating system
Mouse, USB interface	1MSE001A	Enhances usability of the 89600 VSA software
Minimum loss pad, 50 to 75 Ω (type-N to BNC)	MLP001A	50 Ω type-N male to 75 Ω BNC female adapter
		Frequency range: 9 MHz to 2 GHz
		Input/output return loss: 20 and 11 dB
		Insertion loss: 5.7 dB
Front panel cover	CV1117A	Protective cover for front panel
V-band waveguide harmonic mixer, 50 to 75 GHz	M1970V-001	Requires Option EXM; USB mixer with smart features
Extended V-band waveguide harmonic mixer, 50 to 80 GHz	M1970V-002	Requires Option EXM; USB mixer with smart features
E-band waveguide harmonic mixer, 60 to 90 GHz	M1970E	Requires Option EXM; USB mixer with smart features
W-band waveguide harmonic mixer, 75 to 110 GHz	M1970W	Requires Option EXM; USB mixer with smart features
E-band waveguide harmonic mixer, 60 to 90 GHz	M1971E-001	Requires Option EXM; USB mixer with smart features and 3 signal paths

Description	Option number	Additional information
Extended E-band waveguide harmonic mixer, 55 to 90 GHz	M1971E-003	Requires Option EXM; USB mixer with smart features and 3 signal paths
V-band waveguide harmonic mixer, 55 to 75 GHz	M1971V	Requires Option EXM; USB mixer with smart features and 3 signal paths
W-band waveguide harmonic mixer, 75 to 110 GHz	M1971W	Requires Option EXM; USB mixer with smart features and 3 signal paths
26 to 40 GHz waveguide harmonic mixer	11970A	Requires Option EXM and N9029BE13 diplexer
33 to 50 GHz waveguide harmonic mixer	11970Q	Requires Option EXM and N9029BE13 diplexer
40 to 60 GHz waveguide harmonic mixer	11970U	Requires Option EXM and N9029BE13 diplexer
50 to 75 GHz waveguide harmonic mixer	11970V	Requires Option EXM and N9029BE13 diplexer
75 to 110 GHz waveguide harmonic mixer	11970W	Requires Option EXM and N9029BE13 diplexer
LO/IF diplexer	N9029BE13	Ordering convenience; required for 11970 Series external mixers
50 to 75 GHz frequency extension module	N9029BV-W15	VDI signal analyzer frequency extension module; requires Option EXM
60 to 90 GHz frequency extension module	N9029BV-W12	VDI signal analyzer frequency extension module; requires Option EXM
75 to 110 GHz frequency extension module	N9029BV-W10	VDI signal analyzer frequency extension module; requires Option EXM
90 to 140 GHz frequency extension module	N9029BV-W08	VDI signal analyzer frequency extension module; requires Option EXM
110 to 170 GHz frequency extension module	N9029BV-W06	VDI signal analyzer frequency extension module; requires Option EXM
140 to 220 GHz frequency extension module	N9029BV-W05	VDI signal analyzer frequency extension module; requires Option EXM
170-260 GHz frequency extension module	N9029BV-W04	VDI signal analyzer frequency extension module; requires Option EXM
220 to 330 GHz frequency extension module	N9029BV-W03	VDI signal analyzer frequency extension module; requires Option EXM
260 to 400 GHz frequency extension module	N9029BV-W2B	VDI signal analyzer frequency extension module; requires Option EXM
330 to 500 GHz frequency extension module	N9029BV-W02	VDI signal analyzer frequency extension module; requires Option EXM
550 to 750 GHz frequency extension module	N9029BV-W1B	VDI signal analyzer frequency extension module; requires Option EXM

Description	Option number	Additional information
750 to 1100 GHz frequency extension module	N9029BV-W01	VDI signal analyzer frequency extension module; requires Option EXM
USB external preamplifier, 10 MHz to 4 GHz	U7227A	
USB external preamplifier, 0.1 to 26.5 GHz	U7227C	
USB external preamplifier, 2 to 50 GHz	U7227F	
Measuring receiver connector accessory kit, 26.5 GHz	N9030B-033	Provides a set of metrology-grade coaxial connector adapters including quantity 2 of each: type-N (f) to 3.5 mm (f), APC-7 to APC-3.5 (f), 3.5 mm (f) to 3.5 mm (f), 3.5 mm (m) to 3.5 mm (f); and a 3.5 mm (m-f) RF cable assembly.
Measuring receiver connector accessory kit, 50 GHz	N9030B-034	Provides a set of metrology-grade coaxial connector adapters including quantity 2 of each: type-N (f) to 2.4 mm (f), APC-7 to 2.4 mm (f), 2.4 mm (f) to 3.5 mm (f), 2.4 mm (f) to 2.4 mm (f), 2.4 mm (f) to 3.5 mm (m); and a 2.4 mm (m-f) 50 GHz cable assembly.

Step 13. Add calibration, technical training, support, and upgrade services

Description	Option number	Additional information
Commercial calibration certificate with test data	N9030B-UK6	Calibration certificate only available at time of instrument purchase; only provides measurement results
Keysight Calibration + Uncertainties + Guardbanding (accredited cal)	N9030B-AMG	Provides ISO 17025A accredited calibration from factory
ANSI Z540-1-1994 Calibration	N9030B-A6J	Provides ANSI Z540 compliant calibration from factory
Calibration Assurance Plan, Return-to-Keysight, 3 years	R-50C-011-3	Keysight tests your instrument against its original specifications and automatically makes adjustments if outside of specified parameters; pre- and post-adjustment measurement data reports also provided
Calibration Assurance Plan, Return-to-Keysight, 5 years	R-50C-011-5	
Calibration Assurance Plan, Return-to-Keysight, 7 years	R-50C-011-7	
Calibration Assurance Plan, Return-to-Keysight, 10 years	R-50C-011-10	

Instrument Upgrades

Fast license-key upgrades for options that do not require additional hardware:

1. Place an order for the upgrade with Keysight and request to receive the option upgrade entitlement certificate and a one-time software upgrade license through email
2. Redeem the certificate through the Web by following the instructions on the certificate
3. Install the license file and latest software in the PXA
4. Begin using the new capability [1, 2]

Installation and testing information is available at: www.keysight.com/find/pxa_upgrades

Upgrades for analysis bandwidth depend on the vintage of the instrument and the options already installed. More than one option may be required to achieve desired wider analysis bandwidth. Use our web-based calculator to find the upgrade options you may need: www.keysight.com/find/BW-selector

Description	Upgrade number	Requirements (PXA must already include the following)	Additional information
Increase frequency from 3.6 to 8.4 GHz	N9030BU-F01	503	
Increase frequency from 3.6 to 13.6 GHz	N9030BU-F02	503	
Increase frequency from 3.6 to 26.5 GHz	N9030BU-F03	503	
Increase frequency from 3.6 to 44 GHz	N9030BU-F04	503	Not compatible with Opt BBA

[1] At the time of manufacture, the hardware related to many of these options was fully adjusted and the option performance was verified to be within its warranted specifications. Within one year of the initial calibration date of the analyzer, this option is fully calibrated with no further adjustment or verification testing.

[2] If this analyzer has been adjusted as part of a repair or calibration during its first year, or if the analyzer is more than one year old, additional adjustment and performance verification tests are required to ensure that some newly installed options are functioning properly. However, the completion of these tests does not guarantee that the analyzer meets all warranted specifications.

Description	Upgrade number	Requirements (PXA must already include the following)	Additional information
Increase frequency from 3.6 to 50 GHz	N9030BU-F05	503	Not compatible with Opt BBA
Increase frequency from 8.4 to 13.6 GHz	N9030BU-F06	508	
Increase frequency from 8.4 to 26.5 GHz	N9030BU-F07	508	
Increase frequency from 8.4 to 44 GHz	N9030BU-F08	508	Not compatible with Opt BBA, or B2X or B5X
Increase frequency from 8.4 to 50 GHz	N9030BU-F09	508	Not compatible with Opt BBA, or B2X or B5X
Increase frequency from 8.4 to 44 GHz	N9030BU-F16	508, B5X	Not compatible with Opt BBA, 107
Increase frequency from 8.4 to 50 GHz	N9030BU-F17	508, B5X	Not compatible with Opt BBA, 107
Increase frequency from 8.4 to 44 GHz	N9030BU-F22	508, B2X	Not compatible with Opt BBA
Increase frequency from 8.4 to 50 GHz	N9030BU-F23	508, B2X	Not compatible with Opt BBA
Increase frequency from 13.6 to 26.5 GHz	N9030BU-F10	513	Not compatible with Opt BBA, or B2X or B5X
Increase frequency from 13.6 to 44 GHz	N9030BU-F11	513	Not compatible with Opt BBA, or B2X or B5X
Increase frequency from 13.6 to 50 GHz	N9030BU-F12	513	Not compatible with Opt BBA, 107
Increase frequency from 13.6 to 44 GHz	N9030BU-F18	513, B5X	Not compatible with Opt BBA, 107
Increase frequency from 13.6 to 50 GHz	N9030BU-F19	513, B5X	
Increase frequency from 13.6 to 44 GHz	N9030BU-F24	513, B2X	Not compatible with Opt BBA
Increase frequency from 13.6 to 50 GHz	N9030BU-F25	513, B2X	Not compatible with Opt BBA
Increase frequency from 26.5 to 44 GHz	N9030BU-F13	526	Not compatible with Opt BBA, or B2X or B5X
Increase frequency from 26.5 to 50 GHz	N9030BU-F14	526	Not compatible with Opt BBA, or B2X or B5X
Increase frequency from 26.5 to 44 GHz	N9030BU-F20	526, B5X	Not compatible with Opt BBA, 107

Description	Upgrade number	Requirements (PXA must already include the following)	Additional information
Increase frequency from 26.5 to 50 GHz	N9030BU-F21	526, B5X	Not compatible with Opt BBA, 107
Increase frequency from 26.5 to 44 GHz	N9030BU-F26	526, B2X	Not compatible with Opt BBA
Increase frequency from 26.5 to 50 GHz	N9030BU-F27	526, B2X	Not compatible with Opt BBA
Increase frequency from 44 GHz to 50 GHz	N9030BU-F15	544	Not compatible with Opt BBA; Includes 50 GHz preamplifier
Increase analysis bandwidth from 25 to 40 MHz	N9030BU-B40	MPB	Also enables 40 MHz per channel baseband bandwidth ifvOption BBA is installed
Increase analysis bandwidth from 25 or 40 MHz to 85 MHz	N9030BU-B85	MPB	Includes additional hardware; not compatible with EP0
Increase analysis bandwidth from 25 to 160 MHz	N9030BU-B1X	MPB	Includes additional hardware; not compatible with EP0
Increase analysis bandwidth from 40 to 160 MHz	N9030BU-BU3	MPB, B40	Includes additional hardware; not compatible with EP0
Increase analysis bandwidth from 85 to 160 MHz	N9030BU-BU7	MPB, B85	
Increase analysis bandwidth from 25 or 40 MHz to 255 MHz (for RF and microwave PXA)	N9030BU-B2X	MPB, 508, 513, or 526	Includes EP0 and additional hardware; not compatible with Option 503, 544, or 550
Increase analysis bandwidth from 25 or 40 MHz to 255 MHz (for RF and microwave PXA)	N9030BU-BUQ	MPB, EP0, 508, 513, or 526	Includes additional hardware; not compatible with Option 503, 544, or 550
Increase analysis bandwidth from 25 or 40 MHz to 255 MHz (for millimeter wave PXA)	N9030BU-BUW	MPB, 544 or 550	Includes EP0 and additional hardware; not compatible with 503, 508, 513, 526, B1X, B85 or BBA
Increase analysis bandwidth from 25 or 40 MHz to 255 MHz (for millimeter wave PXA)	N9030BU-BUS	MPB, EP0, 544 or 550	Includes additional hardware; not compatible with 503, 508, 513, 526, B1X, B85 or BBA
Increase analysis bandwidth from 85 or 160 MHz to 255 MHz (for RF and microwave PXA)	N9030BU-BU8	MPB, B85 or B1X, and 508, 513, or 526	Includes EP0 and additional hardware which replaces B85 or B1X; not compatible with Option 503, 544, or 550
Increase analysis bandwidth from 85 or 160 MHz to 255 MHz (for millimeter wave PXA)	N9030BU-BUX	MPB, 544, 550, B85 or B1X	Includes EP0 and additional hardware; not compatible with 503, 508, 513, 526

Description	Upgrade number	Requirements (PXA must already include the following)	Additional information
Increase analysis bandwidth from 25 or 40 MHz to 510 MHz (for RF and microwave PXA)	N9030BU-B5X	MPB, 508, 513, or 526	Includes EP0 and additional hardware; not compatible with Option BBA or Option 503, 544, or 550
Increase analysis bandwidth from 25 or 40 MHz to 510 MHz (for RF and microwave PXA)	N9030BU-BUR	MPB, EP0, 508, 513, or 526	Includes additional hardware; not compatible with Option BBA or Option 503, 544, or 550
Increase analysis bandwidth from 25 or 40 MHz to 510 MHz (for millimeter wave PXA)	N9030BU-BUT	MPB, EP0, 544 or 550	Includes additional hardware; not compatible with 503, 508, 513, 526, B1X, B85 or BBA
Increase analysis bandwidth from 85 or 160 MHz to 510 MHz (for RF and microwave PXA)	N9030BU-BU9	MPB, B85 or B1X, and 508, 513, or 526	Includes EP0 and additional hardware which replaces B85 or B1X; not compatible with Option BBA or Option 503, 544, or 550
Increase analysis bandwidth from 255 to 510 MHz (for RF and microwave PXA)	N9030BU-BUF	MPB, EP0, B2X, 508, 513, or 526	Includes additional hardware; not compatible with Option BBA, or Option 503, 544, or 550
Increase analysis bandwidth from 255 to 510 MHz (for millimeter-wave PXA)	N9030BU-BUM	MPB, EP0, B2X, 544 or 550	Includes additional hardware; not compatible with Option 503, 508, 513, or 526
Increase analysis bandwidth from 25 or 40 MHz to 510 MHz (for millimeter-wave PXA)	N9030BU-BUG	MPB, B25 or B40 and 544 or 550	Includes EPO and additional hardware; not compatible with Option 503, 508, 513, 526
Increase analysis bandwidth from 85 or 160 MHz to 510 MHz (for millimeter-wave PXA)	N9030BU-BUJ	MPB, B85 or B1X, and 544 or 550	Includes EPO and additional hardware which replaces B85 or B1X; not compatible with Option 503, 508, 513, 526
Digital processor with 4 GB capture memory	N9030BU-DP4	B85, B1X, or B2X	Includes hardware and license key for instruments with serial number prefixes < MY/SG/US5608
Real-time analysis up to maximum available BW, basic detection	N9030BU-RT1	B85, B1X, B2X or B5X (Analysis BW option determines maximum real-time BW)	Includes frequency mask trigger; minimum 17.3 µs signal duration for 100% POI. Also orderable at N9030RT1B (requires F/W revision A.21.04 onward)
Real-time analysis up to maximum available BW, optimum detection	N9030BU-RT2	B85, B1X, B2X or B5X (Analysis BW option determines maximum real-time BW)	Includes frequency mask trigger; minimum 3.57 µs signal duration for 100% POI. Also orderable at N9030RT2B (requires F/W revision A.21.04 onward)

Description	Upgrade number	Requirements (PXA must already include the following)	Additional information
Duplex IF RTSA	N9030BU-DUA	B5X and RT1 or RT2	Also orderable at N903EMDUAB (requires F/W revision A.21.04 onward)
Frequency mask trigger, basic detection	N9030BU-FT1	B85, B1X, B2X, or B5X	Also orderable at N90EMFT1B (requires F/W revision A.21.04 onward)
Frequency mask trigger, optimum detection	N9030BU-FT2	B85, B1X, B2X, or B5X	Also orderable at N90EMFT2B (requires F/W revision A.21.04 onward)
Real-time I/Q data streaming	N9030BU-RTS	N9030RT1B (Option RT1) or N9030RT2B (Option RT2)	Includes additional hardware
Enhanced phase noise, DDS LO (for RF and microwave PXA)	N9030BU-EP0	MPB or LNP, 508, 513, or 526	Includes additional hardware; not compatible with frequency range Options 503, 544, or 550 or bandwidth Options B85 or B1X
Add time domain scan capability	N9030BU-TDS	N6141EM0E	For EMC pre-compliance tests only. Also orderable at N90EMTDSB (requires F/W revision A.21.04 onward)
Add resolution bandwidth extended	N9030BU-RBE	B85, B1X, B2X or B5X	Also orderable at N90EMRBEB (requires F/W revision A.21.04 onward)
Add an electronic attenuator, 3.6 GHz	N9030BU-EA3	None	
Add preamplifier, 3.6 GHz	N9030BU-P03	550, 544, 526, 513, 508, or 503	
Add preamplifier, 8.4 GHz	N9030BU-P08	550, 544, 526, 513, or 508	
Add preamplifier, 13.6 GHz	N9030BU-P13	550, 544, 526, or 513	
Add preamplifier, 26.5 GHz	N9030BU-P26	550, 544, or 526	
Add preamplifier, 44 GHz	N9030BU-P44	544	Not compatible with Option 550
Add preamplifier, 50 GHz	N9030BU-P50	550	
Add APC 3.5 mm connector	N9030BU-C35	526	Includes additional hardware; not compatible with Option 503, 508, 513, 544 or 550
Add I/Q baseband inputs, analog	N9030BU-BBA	526, 513, 508, or 503	Includes additional hardware; not compatible with Option 544, 550 or B5X
Add removable solid-state drive (SSD)	N9030BU-SS1	PC6, or PC6S	Provides additional removable solid-state drive, with Windows 10 operating system

Description	Upgrade number	Requirements (PXA must already include the following)	Additional information
Add removable solid-state drive (SSD)	N9030BU-SS2	PC8	Provides additional removable solid-state drive, with Windows 10 operating system
Add removable M.2 NVMe solid-state drive (SSD)	N9030BU-SS3	PCA	Provides additional removable solid-state drive, with Windows 10 operating system
Add external mixing	N9030BU-EXM	None	Includes additional hardware
Add second IF output	N9030BU-CR3	None	Provides wideband IF out, output center frequency depends on IF path
Add microwave preselector bypass	N9030BU-MPB	LNP	Option LNP must be currently installed; See also Option HL1 and HL2
Add low noise path	N9030BU-LNP	MPB	Option MPB must be currently installed; See also Option HL1 and HL2
Add preselector bypass and low noise path on uW instruments	N9030BU-HL1	526, 513, or 508	Includes additional hardware; installs both Options MPB and LNP when neither are previously installed; for instruments with frequency range ≤ 26.5 GHz
Add preselector bypass and low noise path on mmW instruments	N9030BU-HL2	544 or 550	Includes additional hardware; installs both Options MPB and LNP when neither are previously installed; for instruments with frequency range ≥ 44 GHz
Add full bypass path	N9030BU-FBP	LNP, MPB, and B2X or B5X	Bypass the microwave preselector and enable the low noise path for improved sensitivity above 3.6 GHz: not compatible with frequency range Option 503
Add Y-axis video output	N9030BU-YAV	None	
Arbitrary IF output	N9030BU-CRP	None	Provides user programmable IF out (10 to 75 MHz, at 500 kHz step)
Add auxiliary log video out	N9030BU-ALV	None	
Add fast power	N9030BU-FP2	B40, B85, B1X, B2X, or B5X	Accelerates power measurements such as ACPR. Also orderable at N90EMFP2B (requires F/W revision A.21.04 onward)
Add precompliance EMI features	N9030BU-EMC	None	Also orderable at N90EMEMCB (requires F/W revision A.21.04 onward)
Add enhanced display package	N9030BU-EDP	None	Also orderable at N90EMEDPB (requires F/W revision A.21.04 onward)
Add external source control	N9030BU-ESC	None	Adds feature to control selected Keysight EXG, MXG, and PSG signal generators; includes 3 BNC cables and 1 cross-over LAN cable. Also orderable at N90EMESCB (requires F/W revision A.21.04 onward)

Description	Upgrade number	Requirements (PXA must already include the following)	Additional information
Add security features, exclude launch program	N9030BU-SF1	None	Prevents the launching of Windows programs from the instrument application
Add security features, prohibit saving results	N9030BU-SF2	None	Prevents instrument application from saving /recall of measurement results or user configurations to/from instrument's data storage
Add audio input and digitizer	N9030BU-107	None	Specifically for measuring receiver and/or avionics measurements. not compatible with Option B5X, or BBA
USB DVD-ROM/CD-R/RW drive	1DVR001A	None	Includes additional hardware
Rack mount and handle kit	1CP105A	None	Includes additional hardware
Rack slide kit	1CR014A	None	Includes additional hardware
Front handle kit	1CN103A	None	Includes additional hardware
Rack mount kit	1CM113A	None	Rack mount flanges; not compatible with Options 1CP, 1CN; includes additional hardware
Minimum loss pad, 50 to 75 Ω (type-N to BNC)	MLP001A	None	50 Ω type-N male to 75 Ω BNC female adapter; frequency range: 9 MHz to 2 GHz; input/output return loss: 20 and 11 dB; insertion loss: 5.7 dB; includes additional hardware
Upgrade operating system to Windows 10	N9030BU-SS1	PC6, W7X	Provides a removable solid-state drive with Windows 10 operating system
Upgrade to PC6S, quad-core, high- performance processor, 16 GB RAM, with flash calibration file memory	N9030BU-PCS	PC6	Upgrade to quad-core, high-performance processor, 16 GB RAM, with flash calibration file memory and removable solid-state drive
Upgrade to PC8, hex-core, high-performance processor, 32 GB RAM, with flash calibration file memory	N9030BU-PC8	PC6, or PC6S	Upgrade to PC8, hex-core, high-performance processor, 32 GB RAM, with flash calibration file memory and removable solid-state drive
Upgrade to PCA, hex-core, high-performance processor, 32 GB RAM, with flash calibration file memory	N9030BU-PCA	PC6, PC6S, or PC8	Upgrade to PCA, hex-core, high performance processor, 32 GB RAM, with flash calibration file memory and removable M.2 NVMe solid-state drive
Measuring receiver connector accessory kit, 26.5 GHz	N9030BU-033	None	Provides a set of metrology-grade coaxial connector adapters including quantity 2 of each: type-N (f) to 3.5 mm (f), APC-7 to APC-3.5 (f), 3.5 mm (f) to 3.5 mm (f), 3.5

Description	Upgrade number	Requirements (PXA must already include the following)	Additional information
			mm (m) to 3.5 mm (f); and a 3.5 mm (m-f) RF cable assembly.
Measuring receiver connector accessory kit, 50 GHz	N9030BU-034	None	Provides a set of metrology-grade coaxial connector adapters including quantity 2 of each: type-N (f) to 2.4 mm (f), APC-7 to 2.4 mm (f), 2.4 mm (f) to 3.5 mm (f), 2.4 mm (f) to 3.5 mm (f), 2.4 mm (f) to 3.5 mm (m); and a 2.4 mm (m-f) 50 GHz cable assembly.
Korean version of Getting Started Guide	N9030BU-AB1	None	
Chinese version of Getting Started Guide	N9030BU-AB2	None	
Spanish version of Getting Started Guide	N9030BU-ABE	None	
French version of Getting Started Guide	N9030BU-ABF	None	
Japanese version of Getting Started Guide	N9030BU-ABJ	None	
Russian version of Getting Started Guide	N9030BU-AKT	None	

Related Literature

Keysight PXA signal analyzers

Publication title	Publication number
X-Series Signal Analyzers - Brochure	5992-1316EN
N9030B PXA X-Series Signal Analyzer, Multi-touch - Data Sheet	5992-1317EN
X-Series Measurement Applications - Brochure	5990-8019EN

For more information on accessories go to: www.keysight.com/find/accessories

Other calibration options may be available; for more information on calibration go to: www.keysight.com/find/calibration

For more information on training and application support services go to: www.keysight.com/find/training