N9042B UXA Signal Analyzer

2 Hz to 26.5, 44, or 50 GHz

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

KEYSIGHT TECHNOLOGIES

Included in the Base Product

The options and accessories are included as standard on the N9042B UXA X-Series Signal Analyzer base instrument at no additional charge and do not need to be ordered separately. They include:

- Spectrum analyzer software application
- KeysightCare Assured First Year Support (includes Return to Keysight Warranty – 1 year)
- Getting Started and Troubleshooting Guide
- Enhanced phase noise
- Fast sweep capability
- Enhanced fast sweep speed
- Full bypass path for frequencies above 3.6 GHz
- Microwave preselector bypass for frequencies above 3.6 GHz
- Low noise path for improved sensitivity above 3.6 GHz
- Wideband digital IF
- 25 MHz and 40 MHz IF analysis bandwidth
- 1 GHz bandwidth auxiliary IF output
- Enhanced display package
- External mixing for frequency coverage extension up to 1.1 THz
- Low frequency enabled–Fine step mechanical attenuator
- LO/IM nulling
- Noise floor extension; instrument alignment
- Precision frequency reference
- Real-time data link for real-time IQ data streaming up to 40 MHz
- Hex-core, high-performance processor, 32 GB RAM, with flash calibration file memory
- Digital processor with 16 GB capture memory
- Removable solid-state drive
- Microsoft Windows 10 operating system
- Multi-language user interface
- Multi-touch user interface
- Receiver calibrator (RCal) control license
- Country-specific power cord
- Front and rear panel covers for protection during transit

Configure your N9042B UXA signal analyzer

This step-by-step process will help you to configure the N9042B UXA signal analyzer. Tailor the performance and features to meet your requirements.

The N9042B UXA is a wideband millimeter-wave signal analyzer in the X-series signal analyzer portfolio. For detailed specifications, please refer to the N9042B UXA X-Series Signal Analyzer, Multi-touch - Data Sheet (3121-1037.EN).

Step 1. Choose maximum frequency range

Description	Option number	Additional information
Frequency range, 2 Hz to 26.5 GHz	N9042B-526	
Frequency range, 2 Hz to 44 GHz	N9042B-544	
Frequency range, 2 Hz to 50 GHz	N9042B-550	

Step 2. Select analysis bandwidth

Description	Option number	Additional information
Analysis Bandwidth, 1 GHz	N9042B-R10	
Analysis Bandwidth, 1.5 GHz	N9042B-R15	
Analysis Bandwidth, 2 GHz	N9042B-R20	
Analysis Bandwidth, 4 GHz	N9042B-R40	
Analysis Bandwidth, 11 GHz		See N9042B-CRW in "Step 8 – Select connection options"

Step 3. Choose an attenuator

Description	Option number	Additional information
Mechanical attenuator	Standard	2 dB steps, 0 to 70 dB; licensed as N9042B-FSA
Electronic attenuator up to 3.6 GHz	N9040B-EA3	Add in addition to the mechanical attenuator; 1 dB steps, 0 to 24 dB

Step 4. Specify performance options

Description	Option number	Additional information
Digital processor with 4 GB capture memory	Standard	Licensed as N9042B-DP4
Enhanced phase noise performance	Standard	DDS-based LO assembly; licensed as N9042B-EP0
External mixing	Standard	Provides external mixing with Keysight and third-party mixers; single port [1] for LO out and IF in (SMA female); licensed as N9042B-EXM
Fast sweep capability	Standard	Improves sweep speed at swept mode; licensed as N9042B-FS1 and FS2
LO/IM nulling	Standard	Minimizes the LO feed-thru and the intermodulation distortion; licensed as N9042B-NUL
Low noise path	Standard	Improves sensitivity (DANL) in frequency bands above 3.6 GHz without degrading dynamic range; licensed as N9042B-LNP
Microwave preselector bypass	Standard	Bypass the microwave preselector for wider bandwidth IF; licensed as N9042B-MPB
Full bypass path	Standard	Bypass the microwave preselector and enable the low noise path for improved sensitivity above 3.6 GHz; standard in instruments when Option R10, R15, R20 or R40 is installed; licensed as N9042B-FBP
Precision frequency reference	Standard	Aging rate: ± 1 x 10-7/year; licensed as N9042B-PFR
Noise floor extension	Standard	Improves analyzer's DANL performance; licensed as N9042B-NF2
Enhanced display package	Standard	Includes spectrogram, trace zoom, and zone span in SA mode; licensed as N90E1EDPB
Fast power, up to maximum available analysis bandwidth	Standard	Accelerate power measurements such as ACPR; licensed as N90E1FP2B
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
External digitizer control	N9042B-EDC	Requires N9042B-CRW
External mixing, wide bandwidth	N9042B-EXW	Enables use of the V3050A signal analyzer frequency extender

1. When used with Keysight 11970 Series external mixers, an external diplexer is required. Recommended diplexer can be purchased from Keysight as N9029AE13, or from OML Inc. as DPL313B.

Step 5. Add a preamplifier

Description	Option number	Additional information
Preamplifier, 26.5 GHz	N9042B-P26	Compatible with N9042B-526 only
Preamplifier, 44 GHz	N9042B-P44	Compatible with N9042B-544 only
Preamplifier, 44 GHz, basic	N9042B-P4L	Compatible with N9042B-544 only; non-IVL, no export control
Preamplifier, 50 GHz	N9042B-P50	Compatible with N9042B-550 only
Preamplifier, 50 GHz, basic	N9042B-P5L	Compatible with N9042B-550 only: non-IVL, no export control
Low noise amplifier	Standard	Licensed as N9042B-LNA

Step 6. Specify PC security

Description	Option number	Additional information
Security features, exclude launching programs	N9042B-SF1	Prevents the launching of Windows programs from the instrument application
Security features, prohibit saving results	N9042B-SF2	Prevents instrument application from saving/recall of measurement results or user configurations to/from instrument's data storage
Additional removable solid-state drive, Win10	N9042B-SS1	Provides a fully-imaged, removable SSD in addition to the one installed in instruments, with Windows 10 operating system

Step 7. Choose source connectivity

Description	Option number	Additional information
External source control	N9042B-ESC	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

Step 8. Select connection options

Description	Option number	Additional information
Auxiliary log video output	N9042B-ALV	Fast rise time video out; output on Aux IF connector
Y-axis video output	N9042B-YAV	Screen video (0-1 volt open circuit); log video and linear video
Connector rear, programmable IF output	N9042B-CRP	IF out 10 to 75 MHz (in 500 kHz steps); output on Aux IF connector at rear panel
Connector, IF out, wide	N9042B-CRW	Enables front panel Wide IF Out connector that provides 11 GHz BW IF signal from the internal wideband signal paths. Is required for N9042B-EDC, External Digitizer Control

Step 9. Choose measurement applications and license type

Note: Keysight offers flexible license types and terms for the measurement applications, refer to page 11 of X-Series Measurement Applications - Brochure (5989-8019EN).

Description	Option number	Additional information
General purpose		
Spectrum analyzer	Standard	Traditional spectrum analysis plus many new and enhanced functions; power measurements based on industry specifications; licensed as N9060EM1E
EMI Measurement Application	N6141EM0E	Performs pre-compliance conducted and radiated emission measurements
Vector Modulation Analysis Digital Demodulation Measurement Application	N9054EM0E	Performs one-button flexible modulation analysis measurements with FSK, PSK, QAM, MSK, ASK, APSK, VSB etc. and popular format preset
Vector Modulation Analysis Custom OFDM Application	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 Application	N9055EM0E	Perform power amplifier measurements with connection to the signal source
Remote Language Compatibility Measurement Application	N9061EM0E	Adds capability to emulate HP/Agilent 8566/68 and 856xE/EC spectrum analyzers
SCPI Language Compatibility Measurement Application	N9062EM0E	Adds capability to emulate the R&S FSP/FSU/FSL/FSV/FSW spectrum analyzers or ESU EMI receiver
Analog Demodulation Measurement Application	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 Measurement Application	N9068EM0E	Adds one-button measurements for analyzing phase noise in frequency domain (log plot) and time domain (spot frequency), supports external mixing
Cellular communications		
GSM/EDGE/Evo Measurement Application	N9071EM0E	Standard-based, one-button GSM/EDGE/EDGE Evolution measurements
W-CDMA/HSPA+ Measurement Application	N9073EM0E	Standard-based, one-button W-CDMA, HSPA and HSPA+ measurements
LTE and LTE-Advanced FDD Measurement Application	N9080EM0E	Standard-based, one-button LTE/LTE-Advanced FDD measurements
NB-IoT and eMTC FDD Measurement Application	N9080EM3E	Standard-based, one-button NB-IoT/eMTC measurements
LTE V2X Measurement Application	N9080EM4E	Standard-based, one-button LTE-V2X transmitter measurements

LTE and LTE-Advanced TDD Measurement Application	N9082EM0E	Standard-based, one-button LTE/LTE-Advanced TDD measurements
5G NR Measurement Application	N9085EM0E	Standard-based, one-button 5G NR (New Radio) downlink and uplink measurements
Wireless connectivity		
WLAN 802.11a/b/g/j/p/n/af/ah Measurement Application	N9077EM0E	Standard-based, one-button 802.11a/b/g/j/p/n/af/ah measurement
WLAN 802.11ac/ax Measurement Application	N9077EM1E	Standard-based, one-button 802.11ac/ax measurement
WLAN 802.11be Measurement Application	N9077EM2E	Standard-based, one-button WLAN 802.11be measurements
Bluetooth® Measurement Application	N9081EM0E	Standard-based, one-button *Bluetooth* (BR/EDR, Low Energy 4.0/4.2 and *Bluetooth* 5) measurements
Short Range Communications and IoT Measurement Application	N9084EM0E	Standard-based, one-button LoRa CSS measurement, 802.15.4 for ZigBee measurement and G.9959 for Z-Wave measurement

Step 10. Choose 89600 VSA software licenses

Description	Option 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
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
Custom OFDM modulation analysis	89601BHFC	Proprietary and pre-standard OFDM formats such as WLAN, DAB, DVBT/H, DVB-SH, ISDB-T and more
Cellular communication		
LTE/LTE-A FDD modulation analysis	89601BHGC	LTE FDD, LTE-Advanced FDD
3G modulation analysis	89601B7NC	W-CDMA/HSPA+, TD-SCDMA/HSPA, cdma2000, 1xEV-DO and 1xEV-DV
LTE/LTE-A TDD modulation analysis	89601BHHC	LTE FDD, LTE-Advanced FDD modulation analysis
5G NR modulation analysis	89601BHNC	5G NR, Pre-5G

Wireless connectivity		
Wireless connectivity modulation analysis	89601B7RC	WLAN 802.11a/b/g/j/p, WiMax modulation analysis
High throughput WLAN modulation analysis	89601BHXC	WLAN 802.11n/ac, WLAN 802.11ax, WLAN 802.11be
IoT modulation analysis	89601BHTC	NB-IoT, RFID, HRP UWB (802.15.4/4z)
Radar analysis		
FMCW radar analysis	89601BHPC	For multi-chip linear FM modulated signals or automotive radar
Pulse analysis	89601BHQC	Pulsed modulated radar signal analysis and frequency hopping signal analysis
Other standard formats		
DOCSIS modulation analysis	89601BHMC	DOCSIS3.1 downstream and upstream modulation analysis

Step 11. Select accessories

Description	Option number	Additional information
Signal analyzer frequency extender	V3050A	Requires N9042B-EXW; extends frequency from 50 GHz to 67, 90 or 110 GHz
Receiver calibration (RCal) module	U9361C/F/G/M	Enables magnitude and complex corrections
Power cord	Standard	Dependent upon the region of use
ROM/CD-R/RW drive	1DVR001A	Enhances the usability of the Windows OS
USB Mouse	1MSE001A	Enhances the 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: 20/11 dB, Insertion loss: 5.7 dB
Rack mount flange kit 265.9 mm H (6U) - two flange brackets, two standard rails	N9042B-2CM	Adds rack mount flanges and rails to the UXA (light gray/dark gray)
Rack mount flange and handle kit 265.9mm H (6U) - two brackets, handles, rails	N9042B-2CP	Adds rack mount flanges, rails and handles to the UXA (light gray/dark gray)
Front panel cover	Standard	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
E-band waveguide harmonic mixer, 55 to 90 GHz	M1971E-003	Requires Option EXM; USB mixer with smart features and 3 signal paths
E-band waveguide harmonic mixer, 50 to 75 GHz	M1971V	Requires Option EXM; USB mixer with smart features and 3 signal paths
E-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 N9029AE13 diplexer
33 to 50 GHz waveguide harmonic mixer	11970Q	Requires Option EXM and N9029AE13 diplexer
40 to 60 GHz waveguide harmonic mixer	11970U	Requires Option EXM and N9029AE13 diplexer
50 to 75 GHz waveguide harmonic mixer	11970V	Requires Option EXM and N9029AE13 diplexer
75 to 110 GHz waveguide harmonic mixer	11970W	Requires Option EXM and N9029AE13 diplexer
LO/IF diplexer	N9029AE13	Ordering convenience; required for 11970 Series external mixers
USB external preamplifier, 10 MHz to 4 GHz	U7227A	
USB external preamplifier, 0.1 to 26.5 GHz	U7227C	

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

Step 12. Order service and support

Description	Option number	Additional information
KeysightCare Assured First Year Support	Standard	Includes Return to Keysight Extended Warranty
KeysightCare upgrades – warranty and calibration		
KeysightCare Assured - Extend to 2 years	R-55A-001-2	Includes Return to Keysight Extended Warranty
KeysightCare Assured - Extend to 3 years	R-55A-001-3	
KeysightCare Assured - Extend to 5 years	R-55A-001-5	
KeysightCare Enhanced - Upgrade 1 year	R-55B-001-1	Includes KeysightCare Assured Services (Return to Keysight Warranty) plus Return to Keysight Calibration
KeysightCare Enhanced - Extend to 2 years	R-55B-001-2	
KeysightCare Enhanced - Extend to 3 years	R-55B-001-3	
KeysightCare Enhanced - Extend to 5 years	R-55B-001-5	
Calibration services		
Calibration Plan -Return to Keysight – 3 years	R-50C-011-3	
Calibration Plan -Return to Keysight – 3 years	R-50C-011-3	
Product assistance		
Remote scheduled productivity assistance. Select 1 to 999 hours	PS-S10	
Startup assistance, daily	PS-S20	
Custom services	PS-X10	

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

Related resources

- N9042B UXA X-Series Signal Analyzer, Multi-touch - Data Sheet, 3121-1037.EN

Learn more at: www.keysight.com

For more information on Keysight Technologies' products, applications or services, please contact your local Keysight office. The complete list is available at: www.keysight.com/find/contactus

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