Agilent
N8972A, N8973A, N8974A, N8975A
NFA Series Noise Figure Analyzers

Configuration Guide

This configuration guide will assist with optimization of an NFA series noise figure analyzer for specific applications.

Models
- N8972A noise figure analyzer (10 MHz to 1.5 GHz)
- N8973A noise figure analyzer (10 MHz to 3.0 GHz)
- N8974A noise figure analyzer (10 MHz to 6.7 GHz)
- N8975A noise figure analyzer (10 MHz to 26.5 GHz)
NFA series noise figure analyzers

N8972A 10 MHz to 1.5 GHz NFA series noise figure analyzer
N8973A 10 MHz to 3.0 GHz NFA series noise figure analyzer
N8974A 10 MHz to 6.7 GHz NFA series noise figure analyzer
N8975A 10 MHz to 26.5 GHz NFA series noise figure analyzer

Standard NFA series
noise figure analyzers include:

- A flexible and intuitive user interface
- Easy measurement setup
- Low instrument uncertainty
- Color graphical display of noise figure and gain versus frequency
- Enhanced PC and printer connectivity
- SNS series noise source compatible
- Ability to automatically upload ENR calibration data from SNS series noise sources
- Local oscillator control through second dedicated GPIB

Upgrading a model

All options other than those marked with *, can be ordered at any time for use with an instrument.

Frequency reference
N897XA-1D5  NFA series high stability frequency reference*

Calibration documentation
N897XA-A6J  NFA series ANSI Z540 compliant calibration with test data*

Accessories
N897XA-1CP  NFA series rack mount and handle kit
N897XA-UK9  NFA series front panel cover
N897XA-1FP  NFA series calibration, performance verification and adjustment software

Documentation
A hard copy and CD version of the English language quick reference guide, user's guide, programmers reference, and calibration and performance verification manual are included with the NFA as standard. Selections can be made to change the localization of the manual set or to delete the hardcopy.

N897XA-AB0  NFA series manual set for Taiwan - Chinese localization
N897XA-AB1  NFA series manual set - Korean localization
N897XA-AB2  NFA series manual set - Chinese localization
N897XA-ABE  NFA series manual set - Spanish localization
N897XA-ABF  NFA series manual set - French localization
N897XA-ABZ  NFA series manual set - Italian localization
N897XA-ABD  NFA series manual set - German localization
N897XA-ABJ  NFA series manual set - Japanese localization
N897XA-0B0  Delete hard copy manual set*

Note: The localization options will include a localized version of the quick reference guide and user guide, and an English language version of the programmers reference, and calibration and performance verification manual.

Additional documentation
N897XA-0B1  NFA series manual set (English version)
N897XA-0B2  NFA series user manual (English version)
N897XA-0BF  NFA series programmer reference (English version)

Service options

Warranty
Standard warranty is 12 months.
R-51B  Return to Agilent warranty and service plan*

Calibration¹
For 3 years, order 36 months of the appropriate calibration plan shown below.
R-50C-001  Standard calibration plan*
R-50C-002  Standard compliant calibration plan*

¹ Options not available in all countries.

* Options marked with * may only be ordered at initial system purchase.
Noise sources
(required to make noise figure measurements)

The Agilent SNS Series of noise sources are recommended for use with the Agilent NFA. These noise sources work in conjunction with the NFA Series analyzers to simplify measurement set-up and improve accuracy.

**Frequency range:**
- N4000A nominal ENR 6dB: 10MHz to 18GHz
- N4001A nominal ENR 15dB: 10MHz to 18GHz
- N4002A nominal ENR 15dB: 10MHz to 26.5GHz

The new SNS Series of noise sources are designed specifically for use with the NFA Series of noise figure analyzers. The new noise sources cover the majority of applications with a range of frequencies, ENR and also coaxial connector types.

Unique calibration data is stored electronically inside the SNS and is automatically downloaded when connected to the Agilent noise figure analyzer. The SNS Series also has the capability to measure its own temperature so that compensation can be applied to its calibration. These features will lead to more reliable measurements.

Other compatible noise sources include the Agilent 346 (co-axial) series and the 347 (waveguide) series.

**Compatible local oscillators**

The NFA Series noise figure analyzers support the use of a local oscillator as part of your measurement setup, if you are making measurements on frequency translating devices or making measurements out of one standard frequency range of your noise figure analyzer. SCPI compatible signal generators are recommended, but users may also use their own custom command set.

*Please note: Care must be taken when specifying a local oscillator, as factors such as phase noise, spectral purity and noise floor of the signal generator may affect noise figure measurements. Filtering may therefore be required on some models of signal generators to enable accurate noise figure measurements to be made.*

**Compatible printers**

A supported printer is defined as one that is equipped with a parallel interface and accepts printer control language (PCL) level 3 or 5. Purchase an IEEE 1284 compliant printer cable to enable the printer to be used.

For further information

Agilent NFA Series – noise figure analyzer application and product information is listed below.

**Key literature**

Please visit the Agilent noise figure analysis web site for on-line access to literature or contact your local Agilent sales office or representative.

- **NFA Series - Noise Figure Analyzers, Brochure,** literature number 5980-0166E
- **NFA Series - Noise Figure Analyzers, Technical Specifications,** literature number 5980-0164E
- **NFA Series - Noise Figure Analyzer Programming Examples,** literature number 5968-9498E
- **Fundamental of RF and Microwave Noise Figure Measurements, Application Note 57-1,** literature number 5952-8255E
- **Noise Figure Measurement Accuracy Application Note 57-2,** literature number 5968-4545E
- **10 Hints for Making Successful Noise Figure Measurements, Application Note 57-3,** literature number 5980-0288E
- **SNS Series – Noise Sources, Product Overview,** literature number 5988-0081EN

**Key web resources**

For the latest information on our noise figure solutions, visit our web page at:

[www.agilent.com/find/nf](http://www.agilent.com/find/nf)

For the latest news on the component test industry, visit our web page at:

[www.agilent.com/find/component_test](http://www.agilent.com/find/component_test)

For on-line manuals, visit our web page at:

[www.agilent.com/find/manuals](http://www.agilent.com/find/manuals)

Fundamentals of Noise Figure Measurements Net Seminar (archived version)

[www.netseminar.com](http://www.netseminar.com)
Agilent Technologies’ Test and Measurement Support, Services, and Assistance

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Our Promise
Our Promise means your Agilent test and measurement equipment will meet its advertised performance and functionality. When you are choosing new equipment, we will help you with product information, including realistic performance specifications and practical recommendations from experienced test engineers. When you receive your new Agilent equipment, we can help verify that it works properly and help with initial product operation.

Your Advantage
Your Advantage means that Agilent offers a wide range of additional expert test and measurement services, which you can purchase according to your unique technical and business needs. Solve problems efficiently and gain a competitive edge by contracting with us for calibration, extra-cost upgrades, out-of-warranty repairs, and onsite education and training, as well as design, system integration, project management, and other professional engineering services. Experienced Agilent engineers and technicians worldwide can help you maximize your productivity, optimize the return on investment of your Agilent instruments and systems, and obtain dependable measurement accuracy for the life of those products.

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Agilent Open simplifies the process of connecting and programming test systems to help engineers design, validate, and manufacture electronic products. Agilent offers open connectivity for a broad range of system-ready instruments, open industry software, PC-standard I/O and global support, which are combined to more easily integrate test system development.

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(fax) (080) 769 0900
Latin America:
(tel) (305) 269 7500
Taiwan:
(fax) (0800) 047 866
Other Asia Pacific Countries:
(tel) (65) 6375 8100
(fax) (65) 6755 0042
Email: tm_ap@agilent.com
Contacts revised: 05/27/05

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