

# Agilent U8903A Audio Analyzer

Fast and accurate multi-channels audio analysis made affordable  
(Replacement of the HP 8903B)



# New U8903A Audio Analyzer

↪ Replacing the Popular HP 8903B Audio Analyzer

**Fast and accurate multi-channels audio analysis made affordable**

## The new U8903A Audio Analyzer has:

- ◆ 5.7" Color Display
- ◆ Softkey for easy function selection
- ◆ One button quick access menu
- ◆ USB/LAN/GPIB connectivity
- ◆ Dual-channel generator outputs and analyzer inputs with XLR connectors
- ◆ Fast and accurate measurement and analysis on essential audio parameters
- ◆ High quality test signals generator
- ◆ Next generation capabilities and replaces HP 8903B



# See the improvements for yourself! U8903A and HP 8903B Outlook Comparison

One-button access to:

- ✓ Analyzer
- ✓ Generator
- ✓ Sweep
- ✓ Graph – FFT or Time dom.

Plug and play  
USB 2.0

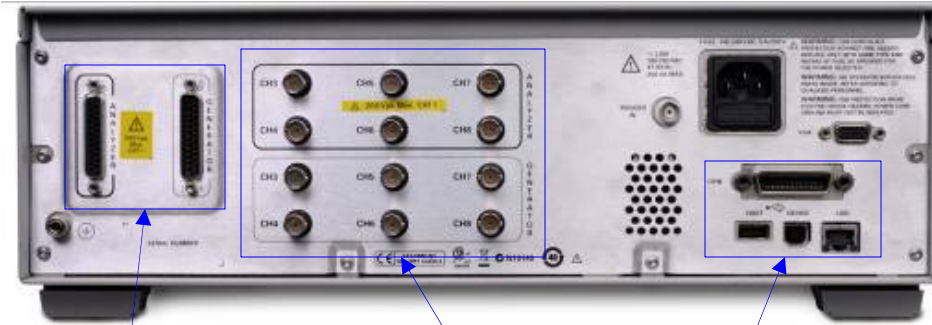
Front Panel



- ✓ 5.7 inch color display
- ✓ Localized Help function
- ✓ Softkeys for easy function selection

Dual-channel  
generator outputs  
and analyzer inputs  
with XLR  
connectors

Rear Panel



Two DB-25 connectors for  
multi-channel connections

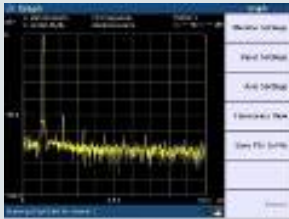
Six additional input  
and output channels

USB/LAN/GPIB  
Interface

 Full Spec to Spec Comparison Table

# Key Benefits

U8903A Feature	Description	Benefits/Value
<b>Scalable Structure</b>	“Main box + 3 plug-in card slots” structure standard main box consist of 2 channels	<b>Upgradable in future – additional analog input/ output.</b> Support digital audio in future.
<b>Simple</b>	User-friendly GUI Easy function selections. Generator/ Analyzer/ Graph/ Sweep mode within a press of a button. Graphical view for FFT analysis and sweep functions.	<b>Designed for convenience – easy to operate</b>  <b>See measurement results at a glance.</b>
<b>Extensive selections of filters</b>	Contains standards: LP, HP and Weighting filters. User defined filter can be transfer to U8903A through USB port.	<b>Easily upload special filters via the USB port.</b>
<b>Accurate and Versatile</b>	High measurement accuracy. Low inherent distortion and noise (-101dB) Offers various selections of detectors and measurement parameters	<b>Give accurate characterization of audio frequencies.</b>
<b>High quality test signals</b>	Sine/ Multitones/ Square/ Arbitrary/ Noise/ IMD/ DFD with low inherent distortion and flatness Include user define waveform capability via the use of the USB port	<b>Provides reliable and customizable test signal sources for DUT.</b>



# Target Applications



U8903A  
Audio Analyzer



## CE Audio and Pro Acoustic

Amplifier, MP3, TV, STB, Walkie-Talkie,  
Sound system, Mobile phone...



## Analog IC and Component

Amplifier, Speaker, DAC, Microphone,  
MEMS, ...



## Broadcasting and Network Operating

Transmission, repair, maintenance, installation



## Auto Infotainment

Radio, Car AV/GPS System, ...



## Authority Test Lab

Calibration, Certification, Compliance  
Test...



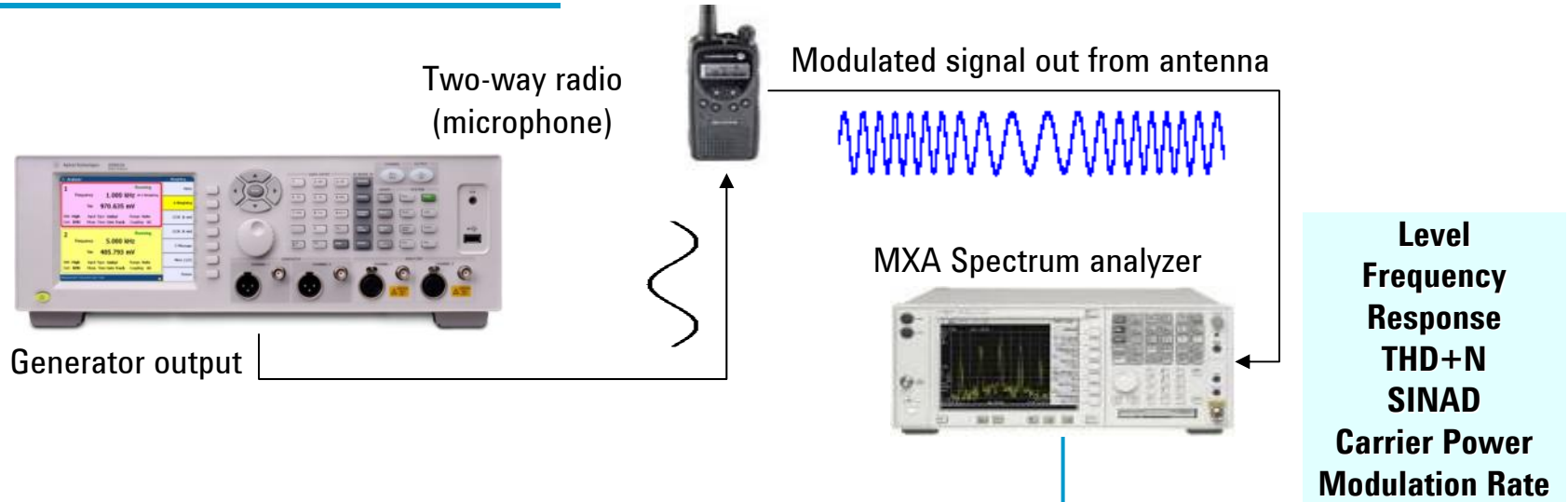
## Military and Defense

Military Radio, Calibration Lab



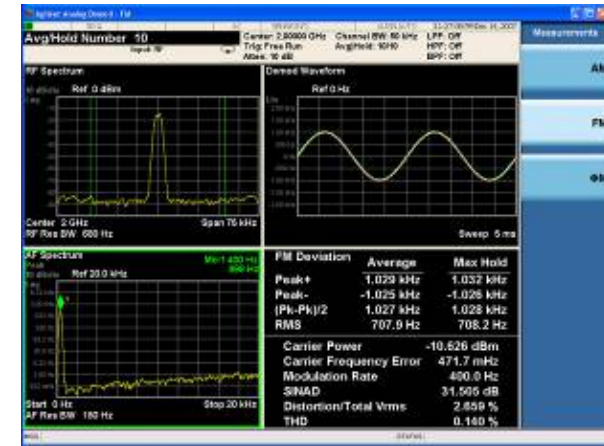
# Application Examples

## Radio Transmitter HW Test



Test Procedure
Connect DUT (microphone) to Audio Analyzer (generator output)
Connect DUT (antenna) to Spectrum Analyzer (input)
Set the Spectrum Analyzer frequency same as DUT's transmits frequency.
Start the test, acquire the test result
Report Generation from PC and print out a hard copy

The test result are showed on LCD display or, Test report is generated at PC and print a hardcopy



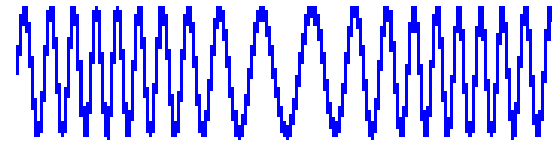
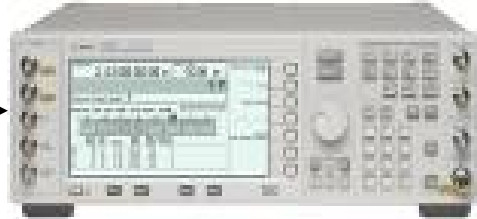
MXA Browser on PC

# Application Examples

## Radio Receiver HW Test

**Carrier Power  
FM Deviation**

ESG Signal generator



Modulated signal input to the antenna

GPIB



Two-way radio  
(speaker)



Generator output



Analyzer input

**Level, Frequency Response,  
THD+N, SINAD**

LAN

**USB/GPIB Converter  
(82357B)**

USB



The test result are showed on LCD display or, Test report is generated at PC and print a hardcopy

### Test Procedure

Connect Audio Analyzer (generator output) to Signal Generator (external input)

Connect Signal Generator (output) to DUT (antenna)

Connect DUT's speaker output to AA (analyzer input)

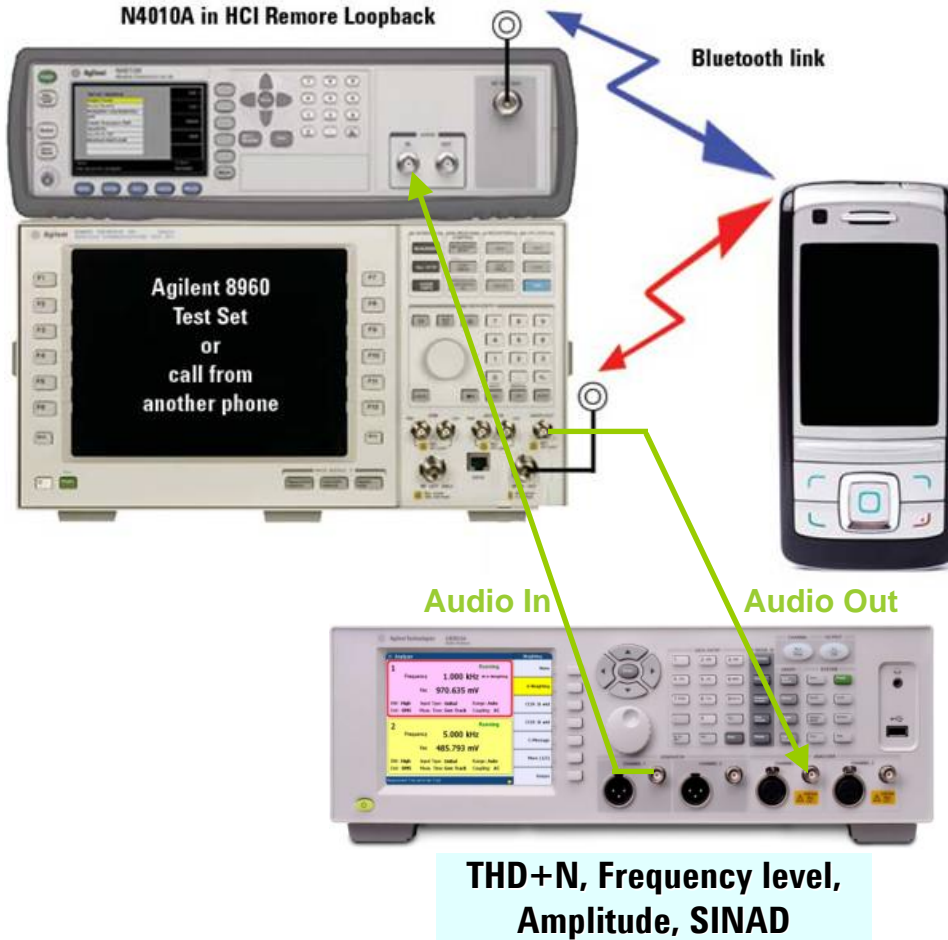
Set the Signal Generator frequency same as DUT's transmits frequency.

Start the test, acquire the test result. Adjust the Signal Generator carrier power to achieve the SINAD = 12dB (Audio Analyzer).

Report Generation from PC and print out a hard copy

# Application Examples

## Cell Phone Hand Set (Audio) Testing



Test Procedure
Audio Analyzer (generator) output 1kHz tone to the N4010A (audio input).
Bluetooth signal + audio signal output from N4010A antenna.
The bluetooth signal detected and recieved by DUT (cell phone).
Connect DUT (cell phone) to 8960 for GSM connection.
Tap the audio 1kHz tone from 8960 back to Audio Analyzer (analyzer input).
Measure THD+N, Frequency level, amplitude and SINAD.

# U8903A Product Options



Product	Description
U8903A-200	2 channels Audio Analyzer
U8903A-101	Male XLR to Female XLR, 2m, 150ohm, black
U8903A-104	Male BNC to Male BNC cable, 2m, 50ohm, black
U8903A-108	Male BNC to Male RCA cable, 2m, black
U8903A-908	Rack mount kit
U8903A-ABJ	Japanese User Guide

\*\* Price indicated in US dollar, it may be different from country to country and change without prior notification, please contact Agilent to obtain the local price.

# HP 8903B Commands VS Equivalent U8903A SCPI Commands

Migration guide : <http://cp.literature.agilent.com/litweb/pdf/5990-4135EN.pdf>

The HP 8903B employs a simple, instrument specific command set (R2D2) for remote programming due to limited processing power at that time.

The new U8903A uses the modern SCPI command where it is easier to use and common in the industries.

## **Unsupported and Equivalent Commands**

***8903B commands that are not supported on the U8903A are generally for features that are obsolete and therefore not supported on the U8903A. Refer to the [migration guide](#) for more details.***

***The 8903B commands that are fully supported by equivalent commands on the U8903A are also listed in migration guide.***

# Resources for U8903A

Data sheet: <http://cp.literature.agilent.com/litweb/pdf/5990-3831EN.pdf>

User's guide: <http://cp.literature.agilent.com/litweb/pdf/U8903-90002.pdf>

Programmer's guide: <http://cp.literature.agilent.com/litweb/pdf/U8903-90027.pdf>

Quick Start Guide: <http://cp.literature.agilent.com/litweb/pdf/U8903-90006.pdf>

**Migration guide** : <http://cp.literature.agilent.com/litweb/pdf/5990-4135EN.pdf>.

## Where to Find the Details?

- Website: [www.agilent.com/find/audioanalyzer](http://www.agilent.com/find/audioanalyzer)

## For support:

Contact your local Agilent office

<http://www.home.agilent.com/agilent/contactInformation.jsp?cc=US&lc=eng&nid=-11143.0&pageMode=HB&tmprop=TM>

# “Why Buy Agilent U8903A Audio Analyzer?”



**Fast and accurate audio measurements in a single box!**

## 1. Protect your long term investment:

- Versatile solution (source and measure, user define filters and output waveforms, multiple test functions, frequency and time domain...)
- Scalable platform with up to 8 independent input/output channels for future upgrades
- Built on Agilent proven record of excellent quality and reliability standard of previous HP 8903B Audio Analyzer

## 2. Reduce time to market:

- Parallel testing with each independent channel
- 4X more accurate and 7X Faster than HP 8903B

## 3. Reduce cost of ownership

- One box solutions with slot-in modules for various applications.
- Trade in your old HP 8903B a **20% discount** on your U8903A purchase. Find out more: [www.agilent.com/find/audioanalyzerpromo](http://www.agilent.com/find/audioanalyzerpromo).
- Financial solutions: Easy Buy, Easy Rent, Easy Lease...  
[www.microlease.com/agilent](http://www.microlease.com/agilent)

# Appendix

# Specifications and Features Comparison

## U8903A and HP 8903B

Features	Agilent U8903A	HP 8903B
Channels (Input/ Output)	2/ 2 (upgrade to 8/ 8)	1/ 1
Display	5.7 inch TFT Color LCD display	Annunciators Display
I/O interface	GPIB/ LAN/ USB	GPIB
Connectors	BNC (unbalanced), XLR (balanced)	BNC (unbalanced)
<u>Audio Generator:</u>		
Impedance	Unbal: 50Ω, 600Ω Bal: 100Ω, 600Ω	Unbal: 50Ω, 600Ω
Frequency:		
- Range	5Hz to 80kHz	20Hz to 100kHz
- Accuracy	5ppm (0.0005%)	0.3%
Output Level:	0 V to 16 Vrms (balanced)	
- Range	0 V to 8 Vrms (unbalanced)	0.6 mV to 6 Vrms (unbalanced)
- Accuracy	± 1%	Better then 3%
Waveform Generation	Sine, Dual Sine, Variable Phase, Square, Arbitrary, IMD, DFD	Sine

# Specifications and Features Comparison

## U8903A and HP 8903B - Continue

Features	Agilent U8903A	HP 8903B
<u>Audio Generator:</u>		
Noise Generation	Gaussian and Rectangular PDF	×
Multitones Generation	60 tones	×
<u>Audio Analyzer:</u>		
Impedance	Bal: 200k $\Omega$ Unbal: 100k $\Omega$	Bal: 100k $\Omega$
Frequency		
- Range	10Hz to 100kHz	20Hz to 100kHz
- Accuracy	5ppm (0.0005%)	0.004%
Input Level:		
- AC measurement range	< 1 $\mu$ V to 140 Vrms	0.3 mV to 300 Vrms
- AC accuracy	$\pm$ 1%	$\pm$ 4%
- DC measurement range	0 to $\pm$ 200V	4V to 300V
- DC accuracy	$\pm$ 1%	$\pm$ 1%
THD+N/ SINAD (20Hz to 20kHz)	$\leq$ -101dB	$\leq$ -80dB

# Specifications and Features Comparison

## U8903A and HP 8903B - Continue

Features	Agilent U8903A	HP 8903B
<u>Audio Analyzer:</u>		
Audio filters:	15kHz, 20kHz, 30kHz	30kHz, 80kHz
- Low pass filter	20Hz, 100Hz, 400Hz	400Hz
- High pass filter	A-Weighting, C-Message, CCIR-468, CCIR-ARM, CCITT	A-Weighting, C-Message, CCIR- 468, CCIR-ARM, CCITT
- Weighting filter	✓	✗
- User-defined filter		
AC level detection	RMS, Peak-to-Peak, Quasi Peak	RMS
IMD and DFD measurement	✓	✗
Phase measurement	✓	✗
Cross Talk measurement	✓	✗
FFT Analyzer:	Up to 32768 points	✗
- Size/ Acquisition length	Rectangular, Hann, Hamming, Blackman- Harris, Rife-Vincent 1 and 3, Flattop	
- Window		
Sweep Capability	Mode: Frequency/ Amplitude level	Mode: Frequency
Price	USD 12,000 (US list price)	USD 7000