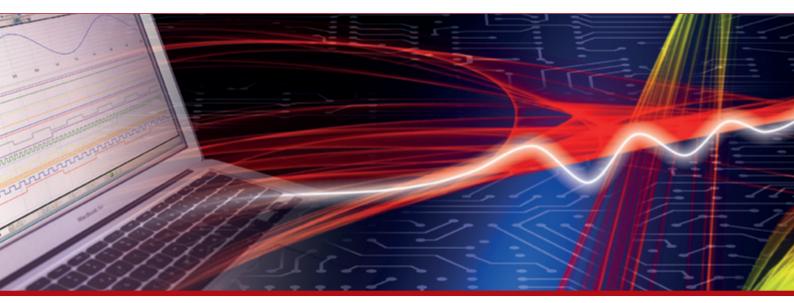# Product Datasheet - Technical Specifications

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Your contact

Technical and commercial sales, price information, quotations, demo/test equipment, consulting:

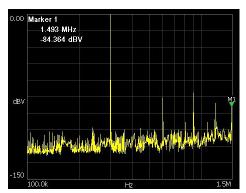Tel.:   **+49 - (0)81 41 - 52 71-0**

E-Mail: **sales@meilhaus.com**

www.meilhaus.com

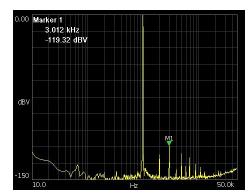# Keysight U8903B Performance Audio Analyzer

Make multi-function and high performance audio measurements with the new U8903B audio analyzer. The U8903B comes with low residual distortion of less than −110 dB and a wide analysis bandwidth of 1.5 MHz, offering the highest resolution available for two-channel measurements. And options such as *Bluetooth*® audio measurements, digital audio and the latest voice quality analysis, you get a test solution that is configurable to meet your specific application needs for audio and beyond.

The U8903B's test sequence function mode comes with a selection of preconfigured measurements, allowing users to select the most frequently used test sequences for their daily measurement.

Key features

– Low residual distortion of less than −110 dB
– Wide measurement bandwidth: measure at DC or from 10 Hz to 96 kHz or 1.5 MHz (with wide bandwidth option N3431A)
– Flexible configuration with digital options and up to eight analog analyzer channels
– *Bluetooth* option for *Bluetooth* audio testing. (For more information, refer to the U8903B Performance Audio Analyzer, *Bluetooth* Option - Product Fact Sheet, 5992-1014EN)
– Test sequence function to implement automatic test
– Speech and audio quality measurements with perceptual objective listening quality assessment (POLQA) and perceptual evaluation of speech quality (PESQ) standards
– Digital audio interface options (AES3/SPDIF or DSI)
– Logic level range of 1.2 V to 3.3 V (DSI)

An FFT plot of a 300 kHz source, showing the U8903B's unique ability to measure up to the 5th harmonic with unprecedented resolution

An FFT plot showing residual distortion

U8903B's GUI, showing 8 analyzer channel measurements

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Key specifications

Analog generator	
Connection type	XLR (balanced), BNC (unbalanced), BNC (common mode)
Grounding	True floating or grounded
Waveform	Sine, dual sine, variable phase, square, SMPTE IMD, DFD, noise, arbitrary, multi-tone
Frequency	5 Hz to 80 kHz
Output	0 to 16 V_{rms} (balanced), 0 to 8 V_{rms} (unbalanced)
Residual THD+N at 1 kHz, 1 V_{rms} (20 Hz to 20 kHz bandwidth)	< −108 dB, typically <−110 dB (at 23 °C ± 5 °C)
	< −100 dB (from 0 °C to 55 °C)
Residual THD	< −87 dB
WAV file playback	Up to 5 minutes depending on waveform file

Analog analyzer	
Frequency range	DC or from 10 Hz to 96 kHz or 1.5 MHz (with wide bandwidth option N3431A)
Measurement range	< 1 µV to 300 V_{rms}
Connection type	XLR (balanced), BNC (unbalanced), BNC (common mode)
Residual THD+N at 1 kHz, 1 V_{rms} (20 Hz to 20 kHz bandwidth)	< −108 dB, typically <−110 dB (at 23 °C ± 5 °C)
	< −100 dB (from 0 °C to 55 °C)
Residual noise (20 Hz to 20 kHz bandwidth)	≤ 1.3 $µV_{rms}$

Digital audio		
AES3/ SPDIF data format	Consumer or professional	
DSI data format	I^2S, left justified, right justified, DSP	
Logic level (DSI)	1.2 V to 3.3 V	
Audio bits	8 bit to 24 bit	
Input/ output level (AES3/ SPDIF)	Balanced	0.3 V_{pp} to 5.1 V_{pp}
	Unbalanced	0.3 V_{pp} to 2.5 V_{pp}
Connector type	AES3/ SPDIF	XLR (balanced), BNC (unbalanced), TOSLINK (optical)
	DSI	25-pin male D-SUB connector

Key specifications (continued)

Generator	
Frequency	5 Hz to 0.45 sampling rate (Fs)
Residual THD+N	≤ −140 dB

Analyzer	
Frequency	5 Hz to 0.45 sampling rate (Fs)
AC level range	< −120 dBFS to 0 dBFS
Residual THD+N	≤ −140 dB

Ordering information

Product model	Description
U8903B-STD	Performance audio analyzer, 2 channels

Standard shipped items:
- USB cable
- Power cord
- Keysight U8903B performance audio analyzer product reference CD-ROM
- Certificate of calibration

Measurement channel options	
U8903B-AN4	Analog analyzer, 4 channels
U8903B-AN8	Analog analyzer, 8 channels
U8903B-DGT	Digital audio card
U8903B-BLU	*Bluetooth* card

Bundling options	
U8903B-201	Performance audio analyzer with 4 analog analyzer channels, digital audio (AES3/ SPDIF and DSI digital audio)
U8903B-209	Performance audio analyzer; 2 channels with 50 Ohm impedance (increase bandwidth to 1.5 MHz)

Optional hardware	
U8903B-AUX	Two monitor outputs and one auxiliary output (DC)

www.keysight.com/find/U8903B

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Ordering information (continued)

Product model	Description
Optional software	
N3431A	Wide bandwidth option - 1.5 MHz (fixed perpetual license)
N3432A	POLQA measurement software (fixed perpetual license)
N3433A	POLQA & PESQ measurement software (fixed perpetual license)
N3434A	AES3/ SPDIF and DSI digital audio (fixed perpetual license)
N3435A	AES3/ SPDIF digital audio (fixed perpetual license)
N3436A	DSI digital audio (fixed perpetual license)
Optional accessories	
11500A	Cable assembly, Type-N (male) to Type-N (male), DC to 6.0 GHz
U8903A-101	Male BNC to male BNC cable; 1.2 m
U8903A-102	Male BNC to male RCA cable, 2 m
U8903A-103	Male XLR to female XLR cable; 2 m
U8903B-105	Cable, digital serial interface
U8903A-107	Cable, accessory - male XLR-2 male BNC analyzer, 0.26 m
U8903A-108	Cable, accessory - female XLR-2 male BNC generator, 0.26 m
U8903A-109	BNC accessory kit
U8903A-908	Rackmount kit
U8903B-1A7	Calibration + uncertainties + guardbanding
U8903B-A6J	ANSI Z540-1-1994 calibration
U8903B-UK6	Commercial calibration with test result data

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