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Description:	<ul style="list-style-type: none"> <li>• Complete photometric system for smoke detection</li> <li>• Integrates photometric front end, 2 LEDs, and 2 PDs</li> </ul>	 <a href="#">Download Datasheet</a>

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Topic: I just bought a HP 8903B Audio Analyzer, any recommended upgrades etc? (Read)

volvo\_nut\_v70 and 1 Guest are viewing this topic.

**TERRA Operative**

Frequent Contributor



Posts: 790

Country:

Voider of warranties



**I just bought a HP 8903B Audio Analyzer, any recommended upgrades etc?**

« on: February 25, 2018, 08:15:41 am »

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I just got myself a mint condition HP 8903B Audio Analyzer for \$450 and I'm just wondering if there are any recommended maintenance things, or upgrades I should do?

Things like replacing any known bad caps, or other things to improve performance?

« Last Edit: February 25, 2018, 10:25:18 am by TERRA Operative »

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Any circuit design must contain at least one part which is obsolete, two parts which are unobtainable, and three parts which are still under development.

<https://www.youtube.com/user/NearFarMedia/>

**CrazyTiger**

Contributor

Posts: 36

Country:



**Re: I just bought a HP 8903B Audio Analyzer, any recommended upgrades etc?**

« Reply #1 on: February 25, 2018, 09:45:17 am »

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Get the complementary HP8902A and HP8901B. Would make a good happy family 😊

Congrats on the audio analyzer.

« Last Edit: February 25, 2018, 09:48:26 am by CrazyTiger »

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**macboy**

Super Contributor



Posts: 2011

Country:

**Re: I just bought a HP 8903B Audio Analyzer, any recommended upgrades etc?**

« Reply #2 on: February 27, 2018, 02:31:44 pm »

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The service manual has a good performance verification procedure. Really though, I'd measure the ripple on the supplies, and if fine, don't mess with caps etc.



Run a loopback test with a known good BNC cable (many are garbage, and a sensitive instrument like this falters with those). Verify frequency and AC/DC levels, then measure distortion. At 1 kHz, 3 V output, you should measure around 0.0020% distortion (THD+N) with the 80 kHz low pass enabled. Maybe a little lower with the 30 kHz low pass. At full range, maybe 0.01% or higher. Mine doesn't have the 400 Hz low pass (does yours?) but that can drop a couple more ppm from the measurement by reducing AC mains hum. The loopback test basically exercises the entire instrument, so if it gives good results, you can have confidence it works well.

The SM has a procedure to tune to notch filter by adjusting a single trimmer. This is best done with an oscilloscope on the monitor output. Trigger the scope from the oscillator signal, but display only the monitor signal. The optimum set point is easily visualized on the scope.

The weak point of this machine is its oscillator. With a cleaner oscillator, the measurement floor can be as good as 0.0005 to 0.0007% THD+N (80 kHz LP).

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The following users thanked this post: thm\_w

**TERRA Operative**

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Posts: 790

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**Re: I just bought a HP 8903B Audio Analyzer, any recommended upgrades etc?**

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« Reply #3 on: June 18, 2018, 04:25:36 pm »

(Late reply!)

I don't have the 400Hz low pass, but I found a guy selling an 'all in one' expansion card so you can choose what to have enabled. I might look into it.

I have some BNC cables I crimped myself with Canare connectors and High quality RG cable, so no worries there.

I'll work through the service manual as you suggest. Do you have any ideas about improving the oscillator?

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Any circuit design must contain at least one part which is obsolete, two parts which are unobtainable, and three parts which are still under development.

<https://www.youtube.com/user/NearFarMedia/>

**cncjerry**

Supporter



Posts: 974



**Re: I just bought a HP 8903B Audio Analyzer, any recommended upgrades etc?**

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« Reply #4 on: September 07, 2018, 03:37:21 pm »

i am looking for an 8903B now and was wondering what to look for?

Jerry

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**HighPrecision**

Supporter



Posts: 42

Country:



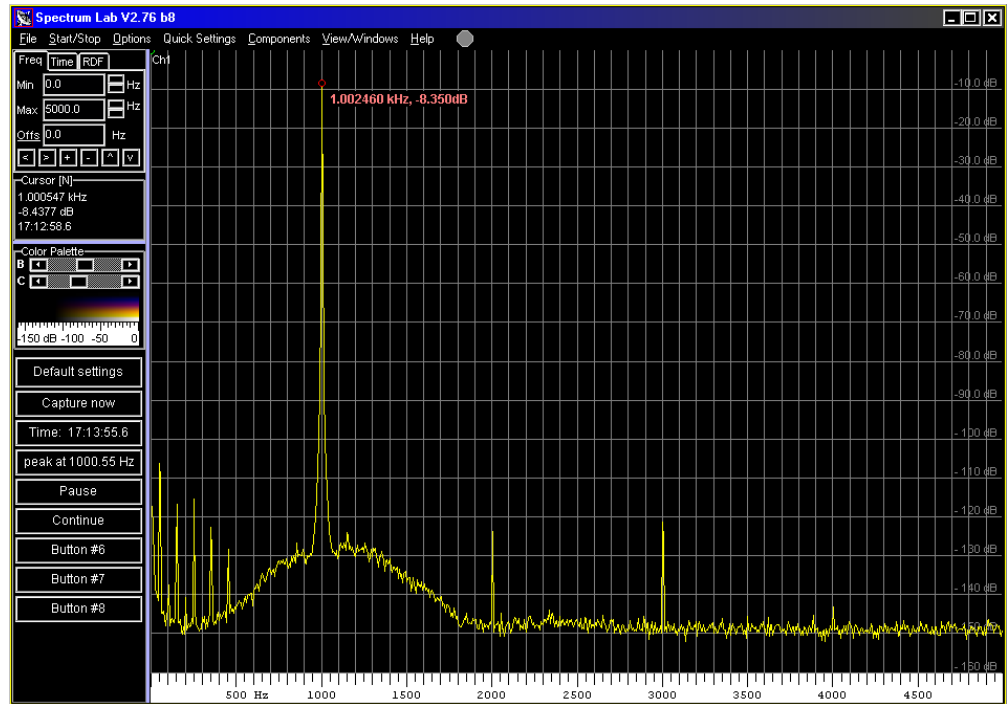
**Re: I just bought a HP 8903B Audio Analyzer, any recommended upgrades etc?**

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« Reply #5 on: September 07, 2018, 05:04:02 pm »

7-8 years ago I've taken a noise measurement on my HP 8903B internal oscillator output, using a non-commercial USB2 sound card based on AK5394A ADC (SDR-Widget) and the Spectrum-Lab software. Sound card was powered by a tablet PC with only internal battery power.

Third harmonic level is approx. 113 dB down from 1 kHz generated signal, about 0.00024% distortion, also visible are power-supply odd harmonics (50 Hz mains here) and phase noise at 1 kHz signal basement.



SDR-Widget\_HP8903B@1V-1KHz.png (25.72 kB, 954x672 - viewed 256 times.)

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skylape

Newbie

Posts: 3

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### Re: I just bought a HP 8903B Audio Analyzer, any recommended upgrades etc?

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« **Reply #6 on:** July 04, 2020, 07:31:43 am »

Would you mind sharing the link to this vendor? Im thinking about getting a HP 8903 for roughly the same price as well. I might put in some opt cards.

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