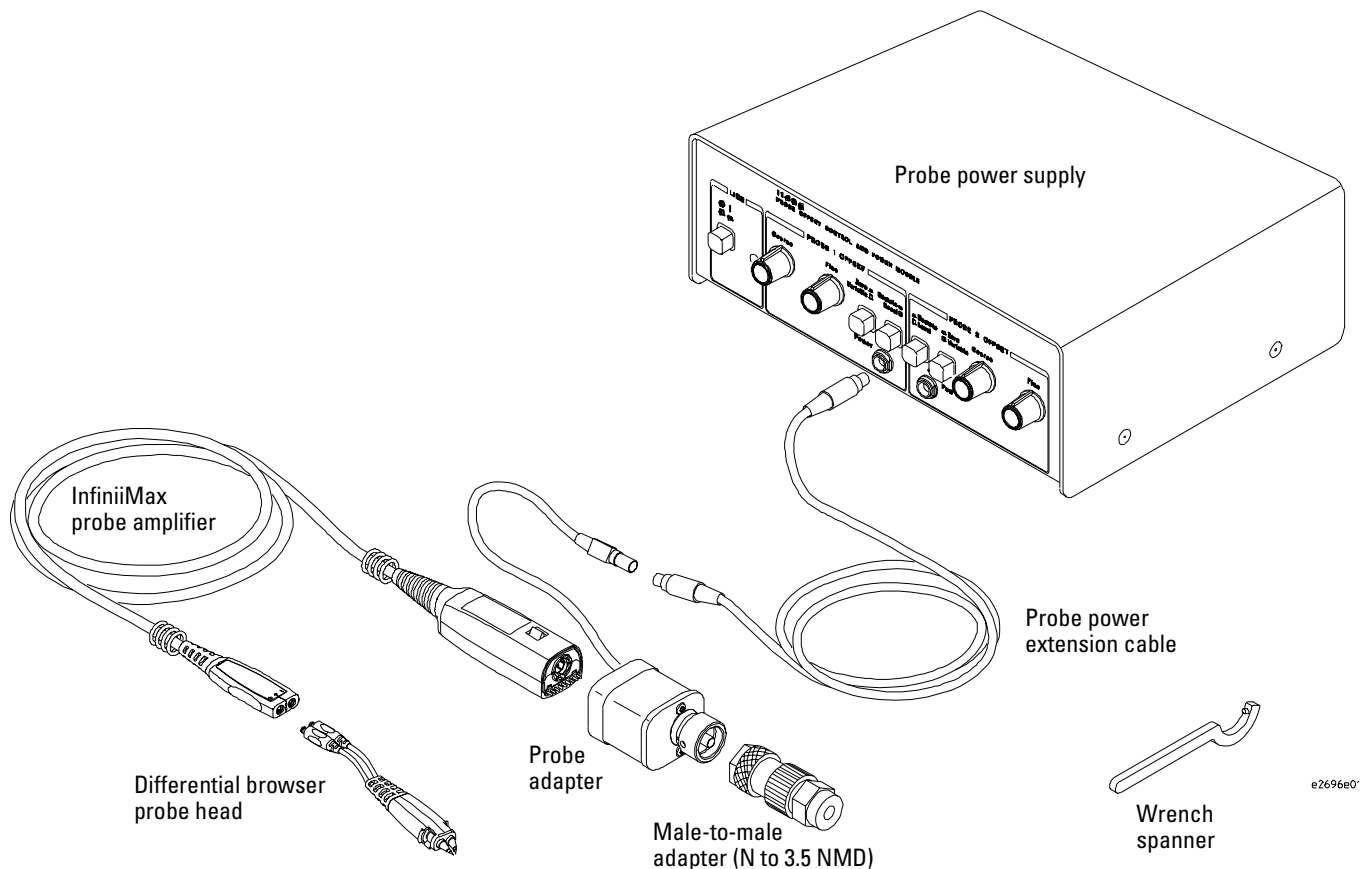


Agilent E2696A General-purpose 6-GHz Probing Solution

The Agilent E2696A is a general-purpose, wide-band probe with power supply and adapters. It is intended for use with instruments such as spectrum analyzers and network analyzers or anywhere that a wide-band, high-impedance voltage probe is needed.

The E2696A consists of the following Agilent parts:

- 1134A 7 GHz InfiniiMax probe amplifier
- N1022A probe adapter
- N1022-60014 male-to-male adapter (N to 3.5 NMD)
- 08513-20014 wrench spanner
- E2675A differential browser probe head
- 1143A probe power supply
- 01143-61602, 1.5-meter (59-inch) probe power extension cable



e2696e0r

Probe kit assembly

CAUTION:

Ensure good connection and avoid damage to connectors. Use the wrench spanner to hold the probe adapter's connector steady while turning the male to male adapter. This action threads the male-to-male adapter into the probe adapter.

Operating notes

Spectrum and network analyzers typically do not tolerate significant DC offset in the incoming signal. It is important to note that the E2696A does not block the DC component of incoming signals. The probe output can produce up to $\sim\pm 400$ mV DC into 50Ω .

- If the signal you are probing does not have a DC component, then you can set the 1143A probe power supply button for "Zero Offset" and make your measurements. If you are probing a differential signal, you'll want to set the 1143A probe power supply for "Zero Offset".

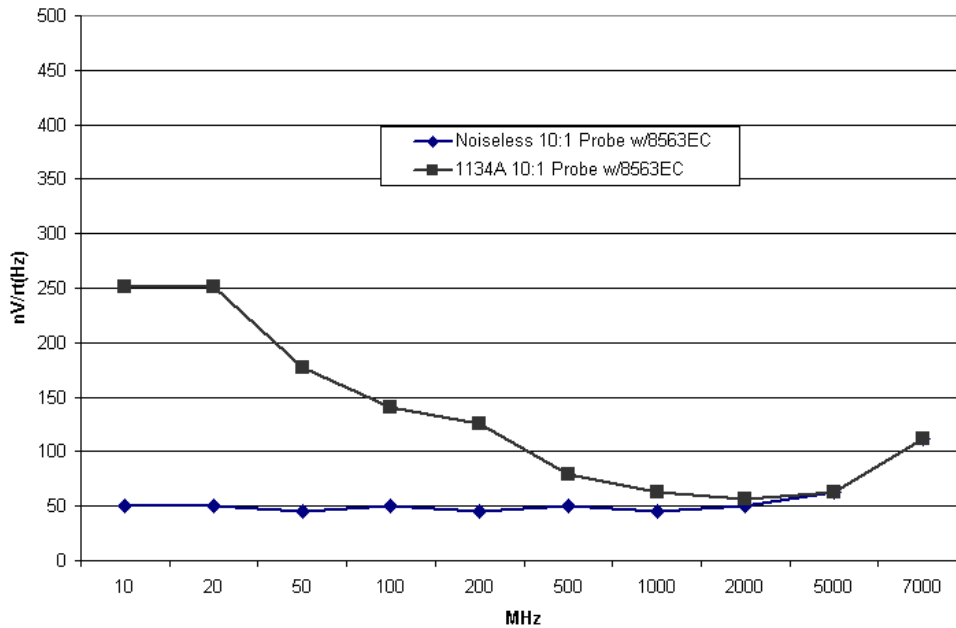
- If the signal has a DC component, you can set the variable offset control on the 1143A probe power supply to center the probe output signal about ground. Since spectrum analyzers can't measure DC, you will have to set the offset while measuring the DC voltage on the output of the probe with a 50 Ω load attached. You can do this with a 50 Ω feed through and a DVM, or you can use an oscilloscope with a 50 Ω input.
- If your spectrum analyzer doesn't have a DC 50 Ω termination, the offset gain will be low by ~30%. Also the response at the DC blocking corner frequency will be non-flat, which shouldn't be a concern since frequencies measured are typically fairly high.

See Also

Refer to the manuals supplied with the 1134A probe amplifier, N1022A probe adapter, and 1143A power supply for more information.

Noise Spectral Density

The following chart shows the noise spectral density of a noiseless 10:1 probe and an Agilent 1134A 10:1 probe with an Agilent 8563EC spectrum analyzer.



Harmonic distortion of InfiniiMax 1143A Probes

Total Harmonic distortion is defined as the ratio of the total power in the harmonics to the power in the fundamental. The amplitude used to test harmonic distortion is selected by calculating the maximum allowable signal at each frequency based on the max slew rate of 18V/nS (for single-ended signals) times 90% or the max dynamic range spec. All voltages are RMS. The following table shows the total harmonic distortion of an Agilent 1134A 10:1 probe with an Agilent 8563EC spectrum analyzer.

Frequency (MHz)	THD (%)	Input (mV)
500	0.011292926	1590
1000	0.011497324	1290
2000	0.082779541	914
3000	0.161948753	605
4000	0.115313527	454
5000	0.006014161	367
6000	0.007825444	306
7000	0.02709614	259

