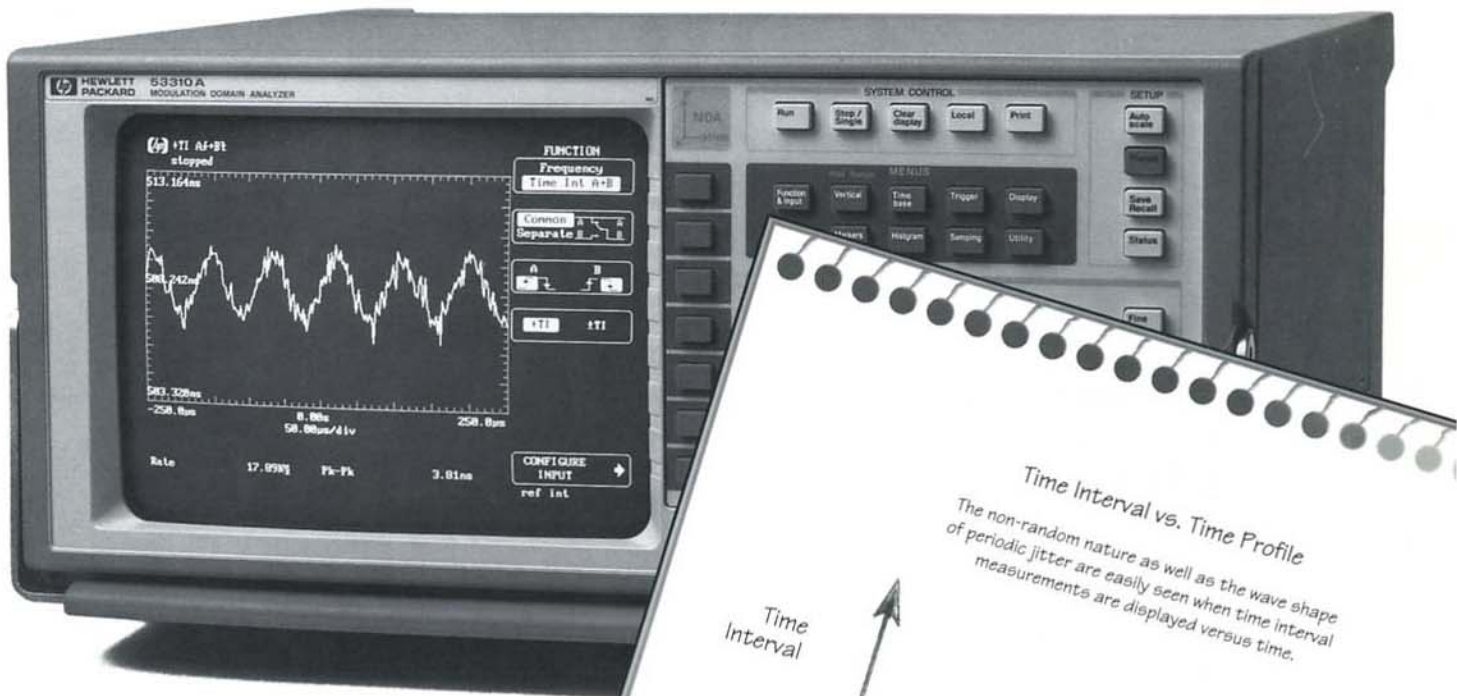


Quick Identification of Periodic Jitter Sources

Application Brief AN 1200-4

HP 53310A Modulation
Domain Analyzer



Time Interval vs. Time Profile
The non-random nature as well as the wave shape of periodic jitter are easily seen when time interval measurements are displayed versus time.

Determine Jitter Sources
At the push of a button, the jitter's periodic rate is measured. Taken along with the wave shape, this gives valuable clues as to the source of the interference.

Quantify the Magnitude of the Problem
Peak-to-peak jitter amplitude will indicate how tightly coupled the jitter source is to the circuit under test.

Identify Periodic Jitter Sources Quickly

Situation

Timing jitter is found everywhere, even in the most stable of circuits. Its usual effect is to obscure the information a system is designed to process. Thus characterizing jitter and determining its source is a crucial task for maintaining a smooth and reliable flow of data in today's complex information systems.

Problem

Jitter is almost always unintentional and can have a wide variety of sources. A key step in identifying a jitter source is to determine if the jitter has any coherent components. This requires the ability to plot timing measurements versus time and to analyze the plot for any periodic elements. Current methods for doing this are either complex and expensive or only show peak-to-peak jitter.

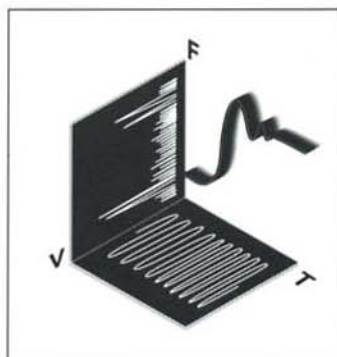
Solution

The HP 53310A Modulation Domain Analyzer is an easy-to-use, inexpensive tool for displaying time interval measurements versus time. Any repetitive pattern in the jitter is immediately apparent. The HP 53310A's analysis features readily give peak-to-peak and periodic rate information. Taking all of these clues together significantly aids the identification and correction of periodic jitter sources.

The Modulation Domain Gives You a New Way to View Your Complex Signals

Better ways to analyze your complex signals don't come along often. Now Hewlett-Packard brings you the Modulation Domain - a way of looking at frequency or time interval measurements that directly and clearly reveals both intentional and unintentional modulation.

For frequency analysis, it's the missing piece of the puzzle. The Time Domain shows you amplitude (voltage) vs. time. The Frequency Domain gives you amplitude vs. frequency. The Modulation Domain plots frequency vs. time - an intuitive and insightful way of examining your signal's dynamic frequency modulation.



For timing measurements, the Modulation Domain's view of time interval vs. time allows you to both see and quantify timing jitter directly - taking you one step beyond the Time Domain's qualitative view.

Related Applications

- Data to clock jitter
- Power supply regulation
- Oscillator and clock signal radiation
- Conducted and radiated RFI
- Digital design prototype testing

For more information, call your local Hewlett-Packard Test and Measurement Sales Office listed in your telephone directory.

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