

ELECTRONIC COUNTERS

Modulation Domain Analyzers

HP 5371A, 5372A, 5373A, 53310A

Measurement Solutions

Window Margin Analysis for Disk and Tape Drive Characterization

The HP 5372A features hardware data reduction to sort time-interval measurements into histograms as fast as 13.3 million measurements per second. Analyze data from a histogram, or have the HP 5372A display window margin information directly. These are fast and accurate methods of viewing a drive's overall timing performance in research and development or in production.

Use the time-interval detect capability of the HP 5372A to monitor for timing errors. An inhibit input can gate out sector header, ECC, and servo fields to measure only in data fields.

The HP 5372A can measure data-to-data as fast as every 75 ns. For faster systems, a random event sampling mode ensures that histogram information is equally sampled across all code spacings.

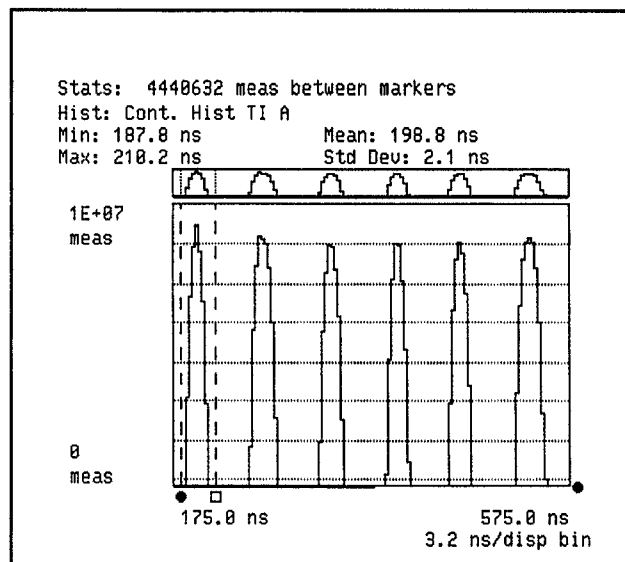
Direct VCO Characterization with Frequency Versus Time Displays

Voltage-controlled oscillators are a key component in many electronic systems. VCO switching and settling characteristics directly affect total system performance. Switching and settling measurements have traditionally been made using discriminators and a storage oscilloscope, but the modulation domain simplifies this characterization by directly showing frequency or phase settling versus time. View the step response and easily characterize ringing and overshoot, settling time, and post-tuning drift. The optional 2-GHz Channel C on the HP 5372A or HP 53310A extends VCO analysis to cover 100-MHz to 2-GHz frequency steps. The HP 5364A Microwave Mixer/Detector lets you analyze VCO's operating between 2 GHz and 18 GHz.

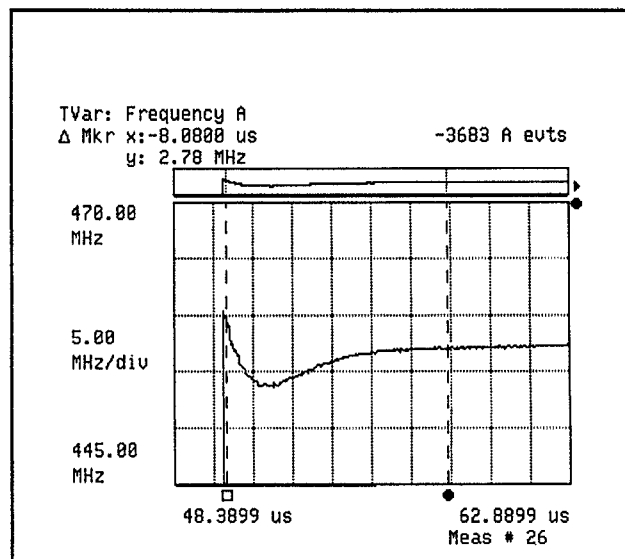
Modulation Analysis for Mobile Communications

Mobile communications systems employ a variety of techniques to transmit data over crowded airways. Digital frequency modulation (MSK or GMSK) efficiently encodes data, and time multiplexing (TDMA) techniques increase the number of users on each frequency, but the resulting signals are short bursts with complex characteristics. The HP 53310A simplifies the analysis of these signals in real time and provides a direct profile of modulation in a single TDMA burst. Peak deviation, center frequency, and bit intervals are quickly verified using measurement markers.

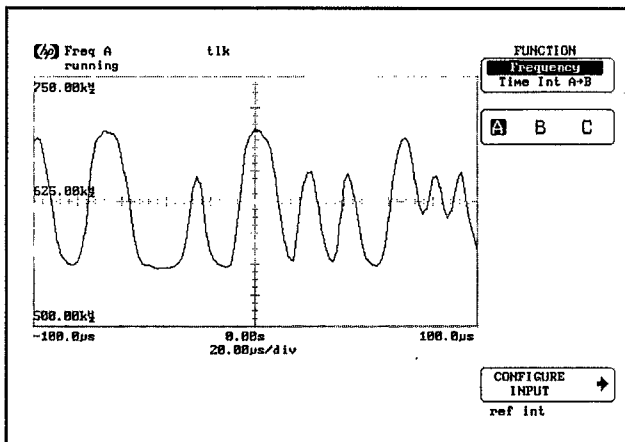
Other cellular telephone systems are similarly challenging. They depend on frequency switching to select the correct carrier channel and to minimize multipath fading effects. The HP 53310A can verify switching times and overshoot of the VCOs and frequency synthesizers that control these operations. A direct frequency profile of channel switching is provided on an easy-to-interpret display.



Flexible graphic capabilities let you retrieve statistical information for any single distribution of this RLL (2,7) histogram.



A plot of frequency vs time simplifies VCO switching and post-tuning drift analysis.



Examine complex modulation in advanced mobile communications systems such as GSM Pan-European Digital Cellular. The HP 53310A provides a direct frequency vs. time profile of GMSK modulation in a single TDMA burst.