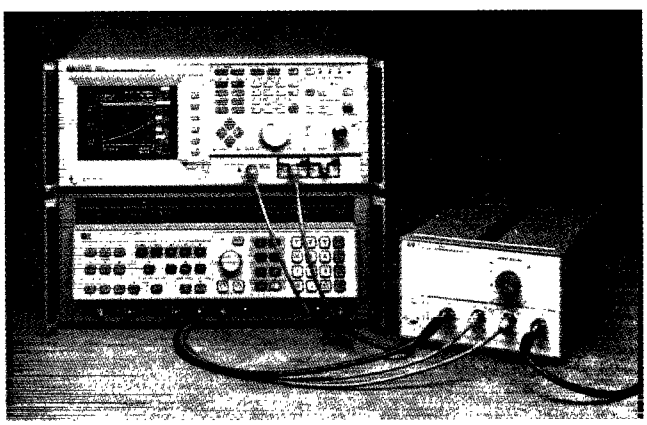
Powerful Radar Signal Characterization

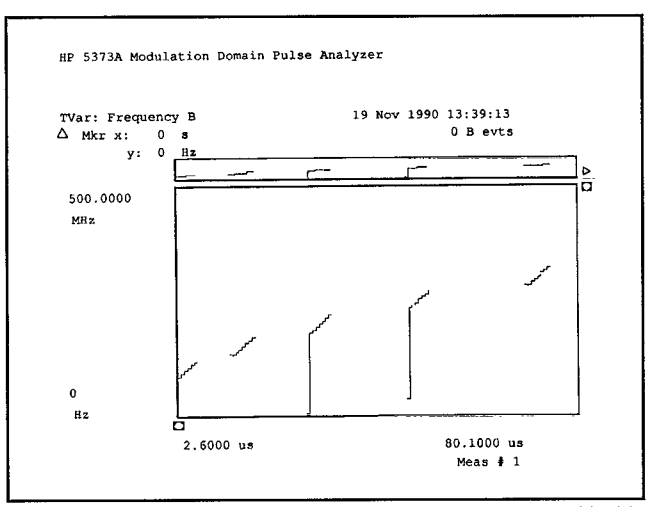
Combining the HP 5364A microwave mixer/detector with an HP modulation domain analyzer and a local oscillator extends the modulation domain to 18 GHz.

The HP 5364A microwave mixer/detector is designed to ensure downconversion with minimal distortion and group delay over its 500-MHz IF bandwidth. Configure the HP 5364A with your own local oscillator or an HP source such as the HP 8671A synthesized CW generator, the HP 8673C synthesized signal generator, or the HP 8673E synthesized signal generator. In addition to the IF channel, the HP 5364A provides a video detector output to trigger the HP 5373A. The video output can also be used to directly measure pulse width, rise and fall time, and PRF/PRI.

Radar chirp-linearity is easily characterized in the modulation domain. The HP 5364A microwave mixer/detector can be used to downconvert the chirp to baseband, maximizing measurement resolution. A frequency vs. time display clearly shows deviation from linearity. The HP 5373A features display-averaging which dramatically improves the resolution of measurements on repetitive signals.



Use the HP 5364A microwave mixer/detector (shown, right, with the HP 5373A) to bring the modulation domain to microwave frequencies between 2 and 18 GHz. The HP 5364A can be used with any modulation domain analyzer.



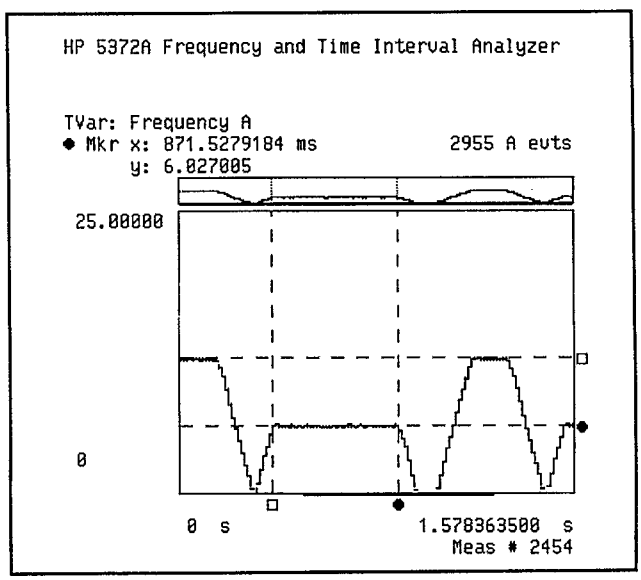
The power of modulation domain analysis can be seen with this HP 5373A frequency vs. time graph of a frequency chirp on an agile carrier with a varying PRI.

Characterize Motion Control Systems

Pulse encoders for motion control systems deliver pulse streams that correspond to linear or rotary position. Position and velocity can be analyzed by characterizing the timing of pulses delivered by the encoder.

Continuous time-interval and frequency measurements with the HP 53310A give insight about positioning system performance. Variations in velocity or rotational non-linearities can be easily analyzed by viewing the time variation display: a plot of velocity versus time. For closed-loop systems, factors such as system damping, overshoot, and response time can be quickly verified—independently of the system's control.

- Rotational or linear velocity vs. time profiles
- Position control analysis
- Analyze damping, overshoot, and response time



The velocity (frequency) vs. time graph allows easy analysis of the print sweep and double-speed return of a motion-control servo used in a graphics printer.