Many modern radar systems employ complex modulation techniques to improve range resolution performance. Linear FM Chirp is a common intra-pulse modulation used for pulse compression. Pulse compression allows a radar to achieve the fine range resolution and single target resolving capability of a “narrow pulse width” radar without sacrificing absolute range performance.

**Problem**

The analysis of modern chirped radars is challenging. Linearity of the chirp is critical to system performance. Conventional repetitive averaging techniques are time-consuming and do not capture single-shot deviations. Use of frequency discriminators and digitizers to achieve a single-shot view is complex and sensitive to calibration. A fast and direct view of chirp linearity and timing is needed to improve design characterization and shorten design cycles.
Solution
The Agilent Technologies 53310A Modulation Domain Analyzer’s ability to measure and display a signal’s continuous frequency over time makes dynamic frequency analysis of radar pulses easy. Views of single-shot chirp linearity are obtained by measuring the continuous frequency of the IF chirp. The chirp bandwidth, linearity and timing are all easily analyzed with the 53310A’s frequency vs. time display.

Related Applications
Related Applications
- Profiling stepped frequency radars
- Profiling agile sequences of hopping radios and frequency agile radars
- Profiling stepped pulse repetition interval (PRI) sequences
- Characterizing EW jammer performance
- Characterizing VCO tuning linearity
- Electronic surveillance

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 Agilent 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.

By internet, phone, or fax, get assistance with all your test and measurement needs.

Online Assistance
www.agilent.com/find/assist

Phone or Fax
United States:
(tel) 1 800 452 4844
Canada:
(tel) 1 877 894 4414
(fax) (905) 206 4120
Europe:
(tel) (31 20) 547 2323
(fax) (31 20) 547 2390
Japan:
(tel) (81) 426 56 7832
(fax) (81) 426 56 7840
Latin America:
(tel) (305) 269 7500
(fax) (305) 269 7599
Australia:
(tel) 1 800 629 485
(fax) (61 3) 9272 0749
New Zealand:
(tel) 0 800 738 378
(fax) (64 4) 495 8950
Asia Pacific:
(tel) (852) 3197 7777
(fax) (852) 2506 9284

Product specifications and descriptions in this document subject to change without notice.

Copyright © 1998, 2000 Agilent Technologies
Printed in U.S.A. 8/00
5966-4481E