

Simplify Analysis of Phase Modulators With Time Domain Testing

Product Note 70820-8

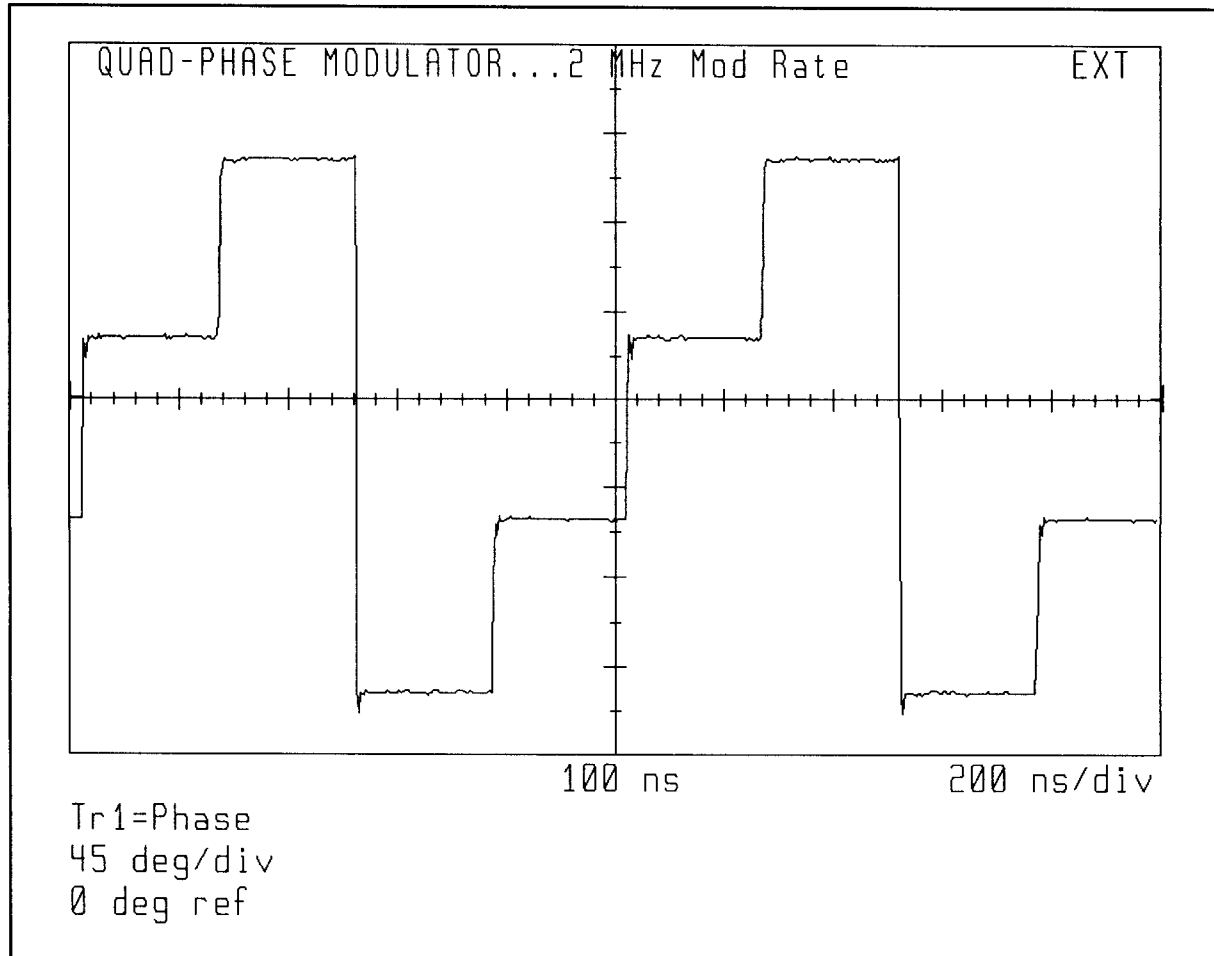


Figure 1: The HP 71500A measures a quad phase modulator. Display show phase demodulation versus time.

Phase modulation in the frequency domain requires interpreting Bessel functions. The HP 71500A Microwave Transition Analyzer provides time domain analysis of phase modulation. Whether digital phase modulation or analog the HP 71500A can measure:

- Phase switching time**
- Phase settling times**
- Video feedthrough**

Phase Switching Time

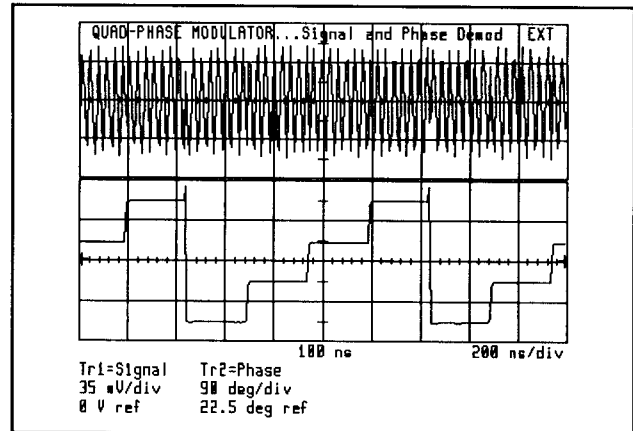


Figure 2: The HP 71500A internally demodulates the signal, letting you see more than just the carrier vs time.

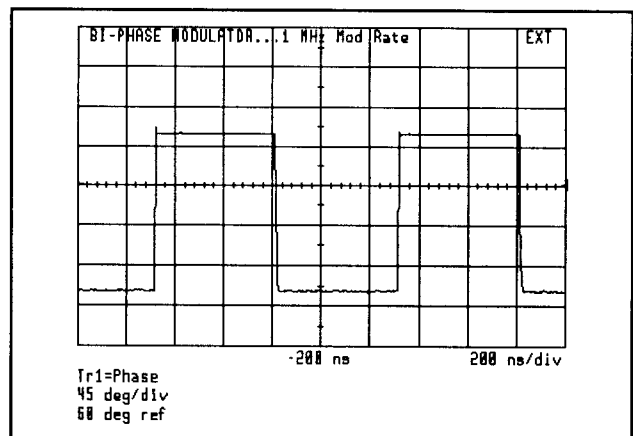


Figure 3: A bi-phase modulator operates at a 1 MHz modulation rate. Phase states are four divisions apart or 180 degrees.

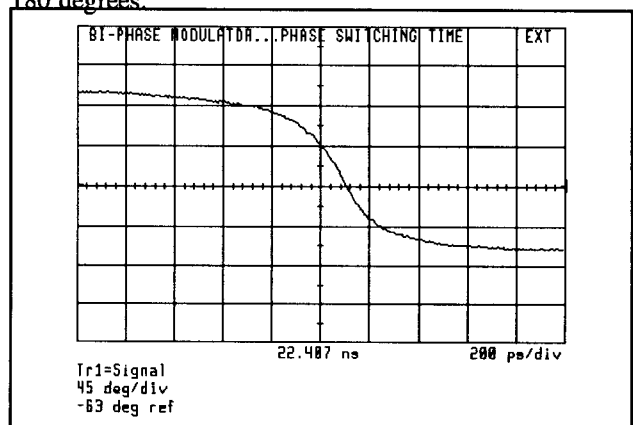


Figure 4: This modulator switches phase states in about 600 ps.

Phase Settling Times

Video feedthrough

Constellation Displays

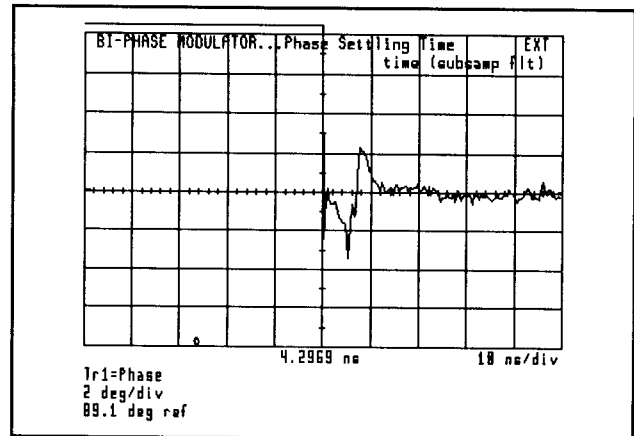


Figure 5: Measure the phase settling time of a phase modulator.

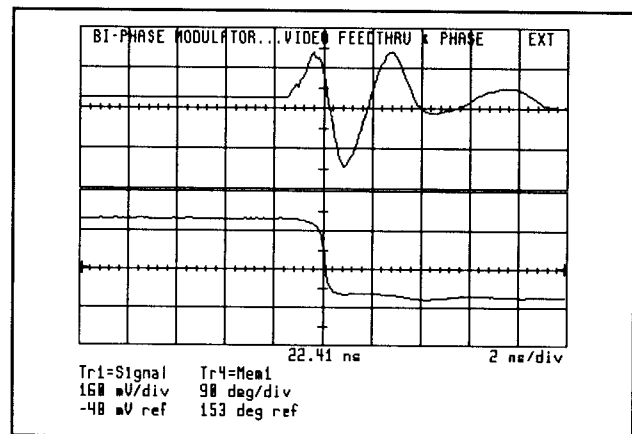


Figure 6: Video feedthrough of the modulation signal can also be measured.

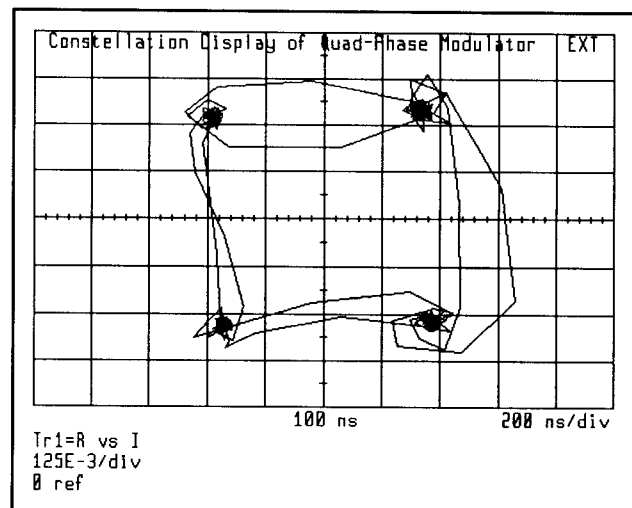


Figure 7: The data may be displayed as a constellation diagram as well.

About the HP 71500A:

The HP 71500A is part of the HP 70000 Modular Measurement System. The HP 71500A consists of the HP 70820A Microwave Transition Analyzer Module and the HP 70004A Color Display.

The HP 71500A requires a stable signal of known frequency. This is normally accomplished by driving your circuits with a synthesized source, usually under HP-IB control of the HP 71500A.

The HP 71500A dc-40 GHz Microwave Transition Analyzer is a new measurement tool that provides many benefits in addition to the measurements mentioned above. Learn about the HP 71500A phase measuring advantages and much more including gain and phase vs frequency measurements, and pulsed frequency and power sweeps from your HP sales representative.

Contact your HP sales representative and see how the HP 71500A gives you the measurement edge.

Video:

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|--|--------|
| Microwave Design in Radar and Communications | 90454T |
| Switched and Pulsed-RF Component Testing | 90453T |

Color Brochure:

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|---|------------|
| The HP 71500A Microwave Transition Analyzer | 5091-0791E |
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Product Note (70820-1):

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| "The Microwave Transition Analyzer: A Versatile Measurement Set for Bench and Test" | 5952-2543 |
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Product Note (70820-2):

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| "The Microwave Transition Analyzer: Measure 25 ps Transitions on Switched and Pulsed Microwave Component Testing" | 5952-2546 |
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