Abstracts

A Technique for Measuring Phase Modulation or Rapid Phase Changes of a Microwave Signal (1964 [MWSYM])

W.P. Ernst. "A Technique for Measuring Phase Modulation or Rapid Phase Changes of a Microwave Signal (1964 [MWSYM])." 1964 PTGMTT International Symposium Program and Digest 64.1 (1964 [MWSYM]): 94-97.

There have been many schemes devised to detect phase shift at microwave frequencies. Most of them are capable of high accuracy when measuring a steady state phase change. The problem becomes a little more complex when one desires to monitor phase when it is varying with time, where the time intervals may be in the order of a few microseconds. The double probe method has been adapted to measure phase modulation, but falls short in two instances: a) the range of phase change is limited, i.e., up to 90°; b) the technique is difficult to adapt to measurements at millimeter wavelengths, The "zebra-stripe" Wharton microwave interferometer is capable of handling wide dynamic phase shifts, but here again we find a disadvantage in that a large number of fringe shifts, caused by very large phase changes, make it cumbersome to resolve the phase vs time contour. Another scheme by Osborne presents the phase vs time as a polar plot, where timing pulses appear as dots on the display. Multiradian phase shifts are again difficult to resolve.

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