# Abstracts

## A 20 GHz Microwave Sampler (Short Papers)

*K. Madani and C.S. Aitchison. "A 20 GHz Microwave Sampler (Short Papers)." 1992 Transactions on Microwave Theory and Techniques 40.10 (Oct. 1992 [T-MTT]): 1960-1963.*

This paper describes a microwave sampler circuit which operates over the frequency band 1-20 GHz and has a number of novel features. These features include a new wideband microstrip to slot balum and a wideband active isolator whose function is to reduce the local oscillator to RF leakage from the input port of the sampler. The signal to noise ratio over the input bandwidth is greater than 20 dB at an input power level of -32 dBm. This signal to noise ratio is measured in an IF bandwidth of 175 MHz and includes the contribution from the IF amplifier. The sampler, which is made on alumina using MIC techniques has an integrated impulse generator which is driven with a sinusoidal local oscillator of only 20 dBm over the frequency band 250-350 MHz. The IF signal is in the band 10-175 MHz. The RF input VSWR is better than 2:1 up to 20 GHz whilst the local oscillator to RF breakthrough is better than -58 dBm (-78 dBc) when driven with a local oscillator of 20 dBm. This unusually low leakage has been achieved by using the active isolator prior to the sampling circuit.

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