

# Abstracts

## Four-element planar Butler matrix using half-wavelength open stubs

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*H. Hayashi, D.A. Hitko and C.G. Sodini. "Four-element planar Butler matrix using half-wavelength open stubs." 2002 Microwave and Wireless Components Letters 12.3 (Mar. 2002 [MWCL]): 73-75.*

A simple design of a four-element planar Butler matrix is presented, comprising half-wavelength open stubs to improve relative-phase characteristics between output ports. Over the frequency range from 0.85 to 0.90 GHz, the experimental matrix exhibits phase errors (in the desired phase differences between output ports) and couplings of within 2/spl deg/ and -6.45/spl plusmn/0.25 dB, respectively.

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