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Evaluation of Commercial Phase Shifters for Cryogenic Applications

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Details of our work on evaluating commercial phase shifters for cavity impedance matching at cryogenic temperatures are presented. A brief overview of the circuitry is given followed by information on two candidate phase shifters – one surface mount and one packaged. The test and modelling procedures for both bench and cryogenic measurements are outlined. Initial cryogenic measurements indicated no variation in phase with bias voltage – this problem was traced to the use silicon varactors in these commercial units. The circuit topologies were studied and GaAs varactor replacements are being ordered.

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