Abstracts

High Temperature Superconducting Space-Qualified Multiplexer and Delay Lines

S.H. Talisa, M.A. Janocko, D.L. Meier, J. Talvacchio, C. Moskowitz, D.C. Buck, R.S. Nye, S.J. Pieseski and G.R. Wagner. "High Temperature Superconducting Space-Qualified Multiplexer and Delay Lines." 1996 Transactions on Microwave Theory and Techniques 44.7 (Jul. 1996, Part II [T-MTT] (Special Issue on the Microwave and Millimeter Wave Applications of High Temperature Superconductivity)): 1229-1239.

A high temperature superconducting (HTS) four-channel multiplexer and a delay line were fabricated, space qualified and tested as part of the U. S. Navy's High Temperature Superconductivity Space Experiment II (HTSSE-II). The multiplexer had an architecture that included two branch-line hybrids and two identical parallel-coupled line filters per channel. Its operation was centered at 4 GHz, with 50-MHz-wide channels. It was fully integrated, with microstrip interconnections between channels and thin-film load terminations in the out-of-phase port of the output hybrid. The delay line was made up of two cascaded modules for a total delay of 45 ns between 2 and 6 GHz. Both devices were made using 5-cm-diameter LaAlO/sub 3/ wafers coated with epitaxial thin film YBa/sub 2/ Cu/sub 3/O/sub 7/, on both sides in the case of the delay line. Both devices operated at 77 K.

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