Abstracts

Microwave device combining filtering and radiating functions for telecommunication satellites

H. Blondeaux, D. Baillargeat, P. Leveque, S. Verdeyme, P. Vaudon, P. Guillon, A. Carlier and Y. Cailloce. "Microwave device combining filtering and radiating functions for telecommunication satellites." 2001 MTT-S International Microwave Symposium Digest 01.1 (2001 Vol. I [MWSYM]): 137-140 vol.1.

An original new design of microwave structure for integrating filter and antenna functions on a single device is presented. The structure is composed of a partially metallized dielectric plate enclosed in a parallelepipedic cavity. This topology allows a high integration in a planar environment type, and is suitable for high frequency filtering and power applications. In order to validate the multilayer radiant filter concept, an open two-pole filter using two superposed cavities coupled by a metallic iris is presented. Its filtering and radiating functions are optimized at the same time to present some required electrical performances. Moreover, to show the variety of uses of the antenna, two examples are described. The first one presents a coupled array of two radiant filters, and the second one an antenna with circular polarization radiation.

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