Abstracts

Theory and experiment of a rectangular slot on a sphere

Kwok Wa Leung. "Theory and experiment of a rectangular slot on a sphere." 1998 Transactions on Microwave Theory and Techniques 46.12 (Dec. 1998, Part I [T-MTT]): 2117-2123.

A rectangular slot on a spherical cavity is studied theoretically and experimentally. The Green's functions interior and exterior to the cavity are found rigorously using the mode-matching method. An integral equation of magnetic current in the slot is formulated, which is solved using the moment method. The singularity problem in admittance calculations is tackled and the result is very computationally efficient. Both the slot and cavity resonances are examined. Moreover, the natural and forced resonances of the cavity are addressed. The effects of slot length, cavity size, excitation location, and cavity dielectric constant on the input impedance are discussed. Very good agreement between theory and experiment is obtained.

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