Asymptotic High-Frequency Modes of Homogeneous Waveguide Structures with Impedance Boundaries (Correction)

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The treatment of Section V in the above paper was incomplete and, as such, a bit misleading. In fact, the existence question for solutions of equation (53) for f/sub 2/ = (pi/sub 2/, m/sub 2/) did not properly take into account the degeneracy of the basic modes f/sub 1/ = (pi/sub 1/, m/sub 1/). It is known that for a solution to exist, the right-hand side of a deterministic equation like (53) must be orthogonal to all solutions of the homogeneous adjoint problem, which in this case is the basic problem with solutions f/sub 1/. Without degeneracy, equation (56) would be that condition. However, since there are at least two linearly independent solutions f/sub 1i/, there are at least two such conditions, which leads to a contradiction except if f/sub 1/ in (53) is chosen in a special way. Let us denote the admissible f/sub 1/ in (53) by f'/sub 1/ and it can be written as a linear combination of any complete set of degenerate basic modes corresponding to the same parameter beta/sub 1/:f'/sub 1/ = Sigma alpha/sub i/f/sub 1i/.

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