Abstracts

Surface-wave propagation on a grounded dielectric slab covered by a high-permittivity material

B. Horsfield and J.A.R. Ball. "Surface-wave propagation on a grounded dielectric slab covered by a high-permittivity material." 2000 Microwave and Guided Wave Letters 10.5 (May 2000 [MGWL]): 171-173.

A grounded dielectric slab covered by a higher permittivity material would not normally be expected to support surface waves. This conclusion must be modified when the covering material is sufficiently lossy. Assuming a thin slab, approximate analysis shows that the fundamental TM/sub 0/ surface wave is able to propagate if the cover loss is high enough. A numerical analysis has verified these conclusions. Propagation of higher order TM and TE modes is found to be possible above cutoff frequencies, which reduce as cover loss is increased. These results are of significance when printed circuit transmission lines such as microstrip or slotline are used as contact sensors, e,g., for moist materials.

❑ Return to main document.