

HIGHER RADIAL MODES OF AZIMUTHAL SURFACE WAVES IN MAGNETOACTIVE CYLINDRICAL WAVEGUIDES

Azimuthal surface waves (ASWs) are eigen modes of the cylindrical plasma-dielectric-metal structures both in presence and without axial d-c magnetic field. They are actively studied due to possible applications in plasma electronics, radiophysics, nanotechnologies, and biomedical diagnostics. Higher radial modes are known to propagate at higher frequencies and shorter wave lengths as compared to those of the zero-th mode which is of interest for practical applications. To get advantage of excitation of higher radial modes of ASWs one has first to know their dispersion properties. The paper generalizes the results of earlier papers via including axial d-c magnetic field and considering the higher radial modes. Account for the axial d-c magnetic field removes degeneration of the waves' spectrum in respect of the sign of azimuthal wave number.

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