

## ANALYSIS OF TUNABLE CIRCULAR PATCH ANTENNAS

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## ABSTRACT

The resonant or operating frequency of a circular patch antenna can be varied by placing passive metallic or tuning posts at suitable locations within the antenna's boundary. The present paper discusses a theoretical model developed for the analysis of the input performance of such tunable antennas. The antenna is modelled as a radial waveguide terminated by an admittance appropriate for the radiating aperture; the effects of the tuning posts are accounted for by their equivalent admittances placed at the locations of the posts. The input admittance of the antenna is then obtained from the equivalent radial line considerations. The operating frequency is obtained as that frequency where the input admittance becomes real. Comparison of analytical and measured results seems to establish the validity of the model for the purpose of design of such antennas.

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