

Study of Single-arm Rectangular Spiral Antenna

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ABSTRACT

This thesis studies the properties of a single-arm rectangular spiral antenna for mobile communication terminals. In this thesis, we reveals and demonstrates new effects from adding a finite frequency-selective surface (FSS) to a single-arm rectangular spiral antenna. Because of the added FSS, a broadband spiral antenna can be transformed into a dual-band antenna. In addition, the main beams in these two bands can be nearly orthogonal. Therefore, the antenna can be simultaneously applied to satellite and ground-based communications. A prototype of this FSS-added spiral antenna was created and examined. Its simulated and measured results demonstrate that the newly explored effects indeed occur.

Keywords : spiral antenna ; broadband antenna ; frequency-selective surface

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