

Title : Microstrip Antenna in Cylindrical Waveguide as a Microwave Device at 2.4 GHz

Researcher : Asst. Prof. Punyawit Jamjareekul Institution : Dhurakij Pundit University

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Abstract

This research study, design, and construct microstrip antenna in a cylindrical waveguide as a microwave device at 2.4 GHz which is composed of cylindrical waveguide antenna, rectangular patch-typed microstrip antenna, and 180° hybrid ring. The operating frequency is equal to 2.4 GHz so as to avoid noise signals of 2.45 GHz from any wireless devices in wireless local area networks (WLANs). The experimental results are verified by comparing them with the ADS (advanced design system)-based numerical results in order to confirm the design and construction exactly. The result conclusions have been shown that the experimental results have a good agreement with the numerical results. In contrast, the isolation between sum port and delta port of 180° hybrid ring measured in practice at 2.4 GHz is different from the theoretical isolation extremely but it is low and can be accepted. The advantage of this research is to be applied as a device for detecting and tracking any desired targets, but it is necessary to design and construct a tracking receiver additionally. Therefore, a tracking receiver will be designed, constructed, and proposed by the author in the future.