A NEW TRANSMISSION LINE MODEL FOR THE PERFORMANCE ANALYSIS OF RECTANGULAR MICROSTRIP PATCH ANTENNA ELEMENT AND ARRAY

By

Eng. MAMDOUH SHAKER YACOUB

A Thesis Submitted to the

Faculty of Engineering at Cairo University

in Partial Fulfillment of the

Requirements for the Degree of

DOCTOR OF PHILOSOPHY

in

Electronics & Communications Engineering

Under the Supervision of

A. Prof. Dr. ADEL ZAKY BOTROS

FACULTY OF ENGINEERING

CAIRO UNIVERSITY

GIZA, EGYPT

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