

**QUAD POLARIZATION WIDEBAND
SINUOUS ANTENNA ELEMENTS AND
ARRAYS**

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NATIONAL UNIVERSITY OF SINGAPORE

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**QUAD POLARIZATION WIDEBAND
SINUOUS ANTENNA ELEMENTS AND
ARRAYS**

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DECLARATION

I hereby declare that the thesis is my original work and it has been written by me in its entirety.

I have duly acknowledged all the sources of information which have been used in the thesis.

This thesis has also not been submitted for any degree in any university previously.

Ramanan Balakrishnan

1st February 2015

$$\nabla \cdot \mathbf{E} = \frac{\rho}{\epsilon_0}$$

$$\nabla \cdot \mathbf{B} = 0$$

$$\nabla \times \mathbf{E} = -\frac{\partial \mathbf{B}}{\partial t}$$

$$\nabla \times \mathbf{B} = \mu_0 \mathbf{J} + \mu_0 \epsilon_0 \frac{\partial \mathbf{E}}{\partial t}$$

and there was light

Acknowledgment

Let's thank some people here.

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Abstract

A section to summarize the main contributions of this thesis.

List of Tables

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List of Symbols

λ	wavelength
ϵ_r	relative dielectric constant
k	wave number, defined as $2\pi/\lambda$

List of Abbreviations

IEEE	Institute of Electrical and Electronics Engineers
PASS	Phased Array System Simulator
RF	Radio Frequency

Chapter 1

The basics

And so it begins ...

1.1 A simple section

A citation [\[1\]](#). Here is another citation [\[2\]](#).

1.1.1 A sub-section

Some more text here.

Chapter 2

Figures, sub-figures and more

Chapter 3

Let's talk tables

Chapter 4

Equations and code

Bibliography

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