

CONTENTS

ENDORSEMENT LETTER

STATEMENT OF ORIGINALITY

ABSTRACT iv

GRATITUDE NOTE v

Contents vi

List of Figures ix

List of Tables xi

LIST OF ABBREVIATION xii

I INTRODUCTION 1

- 1.1 Background 1
- 1.2 Problem Identification 2
- 1.3 Objective 2
- 1.4 Scope of This Thesis 2
- 1.5 Research Method 3
- 1.6 Book Structure 3

II BASIC CONCEPTS 5

- 2.1 Ultra-wideband (UWB) 5
- 2.2 Characteristic of Ultra-Wideband (UWB) 5
- 2.3 Antenna Parameters 6
- 2.4 Plannar Antenna 7
- 2.5 Specifications of Circular Patch Element 8
- 2.6 Artificial Magnetic Conductor 10

III DESIGNING ANTENNA 11

- 3.1 Flowchart Designing Antenna 11
- 3.2 Antenna Specifications 12
- 3.3 Design of Antenna Dimensions 12

3.3.1	Designing of Circular Antenna Patch Dimension	13
3.3.2	Designing of Transmission Line Dimension	13
3.3.3	Designing of Substrate Dimension	14
3.3.4	Designing of Groundplane Dimension	15
3.4	Design of AMC Structure	15
3.5	Designing in CST Software	17
3.5.1	Designing Iteration 0 In CST Software	17
3.5.2	Designing Iteration 1 In CST Software	19
3.5.3	Designing Iteration 2 in CST Software	21
3.5.4	Designing Iteration 3 In CST Software	23
3.5.5	Designing Iteration 4 In CST Software	27
3.5.6	Designing Iteration 5 In CST Software	28
3.5.7	Designing Iteration 6 In CST Software	30
3.5.8	Designing Iteration 7 In CST Software	31
3.6	Antenna Realization	33
IV	RESULT AND ANALYSIS	35
4.1	Antenna Measurement	35
4.2	VSWR Measurement Procedure	35
4.3	VSWR Measurement Result	36
4.4	Gain Measurement Procedure	38
4.5	Gain Measurement Result	39
4.6	Radiation Pattern Measurement Procedure	39
4.7	Radiation Pattern Measurement Result	40
4.8	VSWR Comparison	41
4.8.1	Observation Of UWB Antenna and AMC	42
4.8.2	Observation of Gap Comparison	42
4.8.3	Observation of Dimension Array Comparison	43
4.9	Gain Comparison	43
4.9.1	Observation Of UWB Antenna and AMC	43
4.9.2	Observation of Gap Comparison	44
4.9.3	Observation of Dimension Comparison	45
4.10	Radiation Pattern Comparison	45
4.10.1	Observation Of UWB Antenna and AMC	45
V	CONCLUSION AND SUGGESTION	49
5.1	Conclusion	49
5.2	Suggestion	49

