

TABLE OF CONTENT

PREFACE	ii
ACKNOWLEDGE	iii
TABLE OF CONTENT	v
LIST OF FIGURE	viii
LIST OF TABLE	xi
I INTRODUCTION	1
1.1 Background	1
1.2 Formulation of Problem	2
1.3 Purpose of Research	3
1.4 Scope of Problem	3
1.5 Research Methods	3
1.6 Book Structure of This Thesis	4
II BASIC CONCEPT	6
2.1 Antenna	6
2.2 Microstrip Antenna	6
2.3 UltraWideband Microstrip Antenna Concept	6
2.3.1 Rectangular Microstrip Antenna	7
2.4 Feeding Circuit Technique	9
2.5 Trapezoidal-Cut Groundplane Structure	11
2.6 Microstrip Antenna Parameters	12
2.6.1 VSWR (Voltage Standing Wave Ratio)	12
2.6.2 Returnloss	12
2.6.3 Gain	13
2.6.4 Radiation Pattern	14
III SYSTEM MODEL AND THE TECHNIQUE	16
3.1 Framework	16
3.2 Planning Flowchart	16
3.3 Determining The Antenna Spesification	18

3.3.1	Selection of Material for Substrate, Groundplane and Patch	18
3.3.2	Antenna Dimensions Calculation	19
3.4	Desgin and Simulation of Antenna	20
3.4.1	Initial Antenna Design Process	21
3.4.2	Simulation With Half Groundplane Method	28
3.4.3	Simulation With Trapezoidal Groundplane method	33
3.4.4	Simulation With Trapezoidal-Cut Grounplane Method	37
3.5	Antenna Realization	41
IV SYSTEM MODEL ANALYSIS		44
4.1	Preliminary	44
4.2	Analysis of Full Ground Rectangular Antenna Microstrip	44
4.3	Analysis of Half Ground Rectangular Antenna Microstrip	48
4.4	Analysis of Trapezoidal Groundplane Microstrip Antenna	51
4.5	Analysis of Slit Ridged Ground Microstrip Antenna	54
4.6	Antenna Parameters Measurement Analysis	56
4.6.1	Measurement Procedure for VSWR, Return Loss	57
4.6.2	VSWR and Bandwidth Antenna Measurement Melsult	58
4.6.2.1	VSWR measurement result	58
4.6.2.2	Returnloss Measurement Result	60
4.6.2.3	Bandwidth Measurement Result	61
4.6.3	Analysis Measurement of VSWR, Bandwidth, Returnloss	63
4.7	Radiation Pattern Measurement Analysis	64
4.7.1	Radiation Pattern Measurement Procedure	65
4.7.2	Analysis of Radiation Pattern	66
4.8	Polarization Measurement Analysis of The Antenna	67
4.8.1	Measurement Procedure for Polarization	67
4.8.2	Analysis of Polarization	69
4.9	Gain Measurement Analysis The Antenna	70
4.9.1	Measurement Procedure for Gain	70
4.9.2	Gain Measurement Result	71
4.9.3	Analysis Measurement of Gain	73
V CONCLUSION AND SUGGESTION		75
5.1	Conclusion	75
5.2	suggestion	76
REFERENCE		77

ATTACHMENT