

LIST OF FIGURES

1.1	Total Data Based on the questionnaire	3
2.1	Microstrip Patch Antenna configuration.	7
2.2	Representative shapes of Microstrip patch elements adopted from [1].	8
2.3	Several example of batik patterns	12
2.4	Antenna design of Xi shape patch[8]	12
2.5	Antenna design of Meng shape patch[9]	12
3.1	Flowchart blueprint of work progression.	13
3.2	Proximity Couple Feed Microstrip design.	18
3.3	Initial Design of Antenna; (a) Front View, (b) Feed line view, (c) Back view.	18
3.4	VSWR of initial MPA design	19
3.5	Total Efficiency of initial MPA design	20
3.6	Surface Current of Initial Design on; (a) Phase 0 (b) Phase 90	20
3.7	Batik Pattern which applied toward the MPA	21
4.1	The Base Variant of Batik Pattern A	22
4.2	The Second Variant of Batik Pattern A	23
4.3	The Third Variant of Batik Pattern A	23
4.4	VSWR Value for Batik Pattern A Variants	24
4.5	Total Efficiency Value for Batik Pattern A Variants	25
4.6	Surface Current pattern for Batik Pattern A Variants on Phase 0	25
4.7	Surface Current Pattern for Batik Pattern A Variants on Phase 90 . . .	26
4.8	Realized Gain of Batik Pattern A Variants	26
4.9	The Base Variant of Batik Pattern B	27
4.10	The Second Variant of Batik Pattern B	27
4.11	The Third Variant of Batik Pattern B	28
4.12	VSWR Value for Batik Pattern B Variants	29
4.13	Total Efficiency Value for Batik Pattern B Variants	29
4.14	Surface Current pattern for Batik Pattern B Variants on Phase 0	30
4.15	Surface Current pattern for Batik Pattern B Variants on Phase 90 . . .	30
4.16	Realized Gain of Batik Pattern B Variants	30
4.17	First type optimization on three variant of Batik Pattern A	31

4.18	Second type optimization on three variant of Batik Pattern A	31
4.19	VSWR Value for Batik Pattern A Optimize Variants	32
4.20	Total Efficiency Value for Batik Pattern A Optimize Variants	33
4.21	Surface Current pattern for Batik Pattern A Optimize Variants on Phase 0	34
4.22	Surface Current pattern for Batik Pattern A Optimize Variants on Phase 90	34
4.23	Realized Gain of Batik Pattern A Optimize Variants	35
4.24	First type optimization on three variant of Batik Pattern B	35
4.25	Second type optimization on three variant of Batik Pattern B	35
4.26	VSWR Value for Batik Pattern B Optimize Variants	36
4.27	Total Efficiency Value for Batik Pattern B Optimize Variants	36
4.28	Surface Current pattern for Batik Pattern B Optimize Variants on Phase 0	37
4.29	Surface Current pattern for Batik Pattern B Optimize Variants on Phase 90	38
4.30	Realized Gain of Batik Pattern B Optimize Variants	38
4.31	Different size of patch implied to MPA	39
4.32	Surface Current pattern for Effective Radius Variants on Phase 0	39
4.33	Surface Current pattern for Effective Radius Variants on Phase 90	40
4.34	Radiation Pattern optimized Variants 1	40
4.35	Radiation Pattern optimized Variants 2	41