

LIST OF TABLES

LIST OF TABLES

Table 1. 1. RSRR metasurface antenna specifications.	7
Table 1. 2. Microstrip antenna specifications.	7
Table 2. 1. State of the art.....	16
Table 3. 1. Initial dimension of microstrip antenna.	28
Table 3. 2. Dimensi awal unit cell RSRR.....	29
Table 4. 1. Adjustment 1 on RSRR.....	43
Table 4. 2. Adjustment 2 on RSRR.....	45
Table 4. 3. Adjustment 3 on RSRR.....	48
Table 4. 4. Adjustment 4 on RSRR.....	51
Table 4. 5. Adjustment 5 on RSRR.....	53
Table 4. 6. Adjustment 6 on RSRR.....	55
Table 4. 7. RSRR metamaterial final dimension.....	57
Table 4. 8. Dimensions chosen of metasurface antenna.....	64
Table 4. 9. S_{21} measurement on microstrip.....	68
Table 4. 10. S_{21} measurement on the metasurface.....	71
Table 4. 11. Performance results of the designed antenna.....	72
Table 4. 12. Simulation result of inner RSRR and gap to gain and bandwidth.....	81
Table 4. 13. Relation of length, width, gap and inner RSRR to gain and bandwidth.....	81