

UNIVERSITI TEKNOLOGI MARA

**DESIGN OF RECTANGULAR MICROSTRIP
PATCH ANTENNA USING COMPLEMENTARY
SPLIT RING RESONATOR (CSRR)**

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ABSTRACT

Miniaturization of single element rectangular microstrip patch antenna (RMPA) operating at 2.4 GHz is designed using complementary split ring resonator (CSRR) technique. The presence of the negative effective permittivity produced by the different arrangements of CSRR etched on the ground plane leads to antenna size reduction. At the end of this project, the antenna designed with CSRR Pattern 3 leads to the maximum size reduction of 41.03% whereas CSRR etched at the center produced minimum size reduction of 31.59%. The RMPA loaded with CSRR Pattern 2 and 4 are respectively 37.64% and 35.65% smaller than the conventional single element RMPA. The antenna designs of these compact antennas are well suited for the monolithic fabrication of microwave active antennas used for WLAN communication system.

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