

**UNIVERSITI TEKNOLOGI MARA**

**DESIGN OF MICROSTRIP PATCH ARRAY  
ANTENNA WITH REFLECTOR**

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## ABSTRACT

This paper presents a rectangular array microstrip patch antenna with parasitic reflector that able to be operated for S-band application. This antenna is designed to operate at 2.3GHZ by using microstrip line feed mechanism with quarter wavelength impedance transformer to match  $100\Omega$  patch element to  $50\Omega$  input. The physical parameters of the structure as well as single, separated and conventional (no reflector) parasitic reflector are analyzed. Reflection coefficient ( $S_{11}$ ), voltage standing wave ratio (VSWR), radiation pattern and efficiency for these single, separated and conventional (no reflector) parasitic reflector carried out. Results are in good agreement between simulated and measurement which validates the proposed design.

*Keywords*—Rectangular, Microstrip Patch Antenna, Single, Separated, Conventional, Parasitic reflector, Reflection Coefficient, bandwidth, Radiation pattern, gain, efficiency, VSWR

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