

**UNIVERSITI TEKNOLOGI MARA**

**DESIGN AND DEVELOPMENT OF DUAL  
BAND FREQUENCY SELECTIVE SURFACE  
(FSS) FOR REFLECTOR ANTENNA SYSTEM**

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## ABSTRACT

Frequency Selective Surfaces (FSS) are very thin layers which pass or reflect certain frequency of electromagnetic (EM) wave. Some specific designs of FSS have replaced bulky reflector systems in previous satellite communication by single reflector system for different frequency bands of applications. FSS increased communication capacity and more economical multi-mission satellites can be realized in the future. In response to overcome the overlapping issues of multiple beam antennas (MBA) for contoured beam antenna, this paper proposes a FSS structure for reflector antenna system that is transparent to 2.4 GHz frequency signal but opaque to 5.2 GHz frequency signal. The proposed FSS element design consists of a combination of square grid and Jerusalem cross is presented in this research. The square grid acts as a high-pass filter and the Jerusalem cross as a band stop filter. This study aims to analyse the performance of FSS structure for reflector antenna with dual feeds.

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