

Design of X-Band Diplexer for Transmitter Sub-Subsystem in a Future Radio Occultation Experiment

Trushit Upadhyaya^{1*}, Varun Sheel², Jayesh Pabari², Sonam Jitarwal², Srirag Nambiar², Upesh Patel¹

¹Electronics & Communication Department, Faculty of Technology & Engineering, Charotar University of Science & Technology, Changa, Anand, Gujarat, India

²Physical Research Laboratory, Ahmedabad, Gujarat, India

* trushitupadhyaya.ec@charusat.ac.in

Abstract:

This study presents an engineered microstrip diplexer for X-Band Satellite application. A typical Diplexer is a three-port passive device which furnishes access to two separate devices to use distinct frequency channel. The proposed diplexer is integral part of Radio Occultation Experiment Transmitter sub-system. The presented design attempts to separate two extremely close bands at 8402.4 MHz and 8440 MHz to be fed to a Power Amplifier and an Antenna by means of two compact band-pass strip- filters. The proposed diplexer has high isolation and fair selectivity/stopband performance to meet the transmitter requirement. The design can be extended further by implementation of a matching network to improve the frequency selectivity.

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