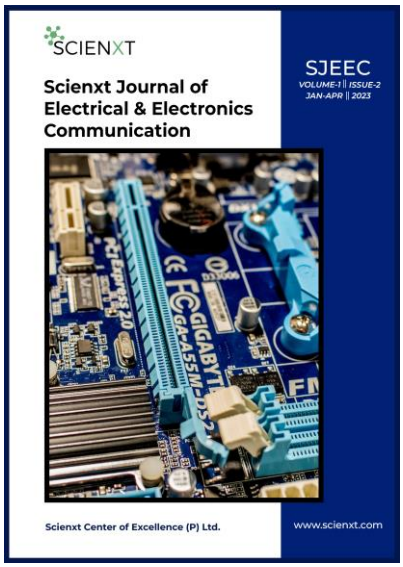

Design and Simulation Analysis of DAB Converter for Aircraft Battery Storage System

Varshini B[1*]
Department of Electrical and Electronics Engineering
RV College of Engineering, Bengaluru, India

S G Srivani[2]
Department of Electrical and Electronics Engineering
RV College of Engineering, Bengaluru, India

Vandana Jha[3]
Department of Electrical and Electronics Engineering
RV College of Engineering, Bengaluru, India

**Corresponding Author: Varshini. B*
Email: varshinib.epe21@rvce.edu.in

Abstract:

This paper examines the use of an ultracapacitor-based battery system paired with a bidirectional double dynamic bridges (DAB) DC to DC converter, targeting the demanding power needs of aviation-related equipment such as controllers and avionics. The DAB converter analysis yielded equations for both RMS and average currents, in addition to peak and RMS currents for the coupling inductor. Multiple simulations were conducted to validate the functionality of the DAB DC-DC conversion, affirming the study's accuracy. The research is substantiated with data, focusing on parameters of 7kW power, 3901/80 voltages, and a 20 kHz frequency

Keywords:

Dual active bridge phase switch control, ultracapacitor battery backup and bidirectional DC-DC converter.