ABSTRACT

CCTV (Closed Circuit Television) is a security and surveillance system that receives data in the form of audio and video that is sent from the transmitter side to the receiver where the monitor is used as a display-to-display data that has been received in the form of images (visual) and audio data through speakers. This study designed and realized a 4×4 MIMO antenna with the advantage of providing greater bandwidth. With a 4×4 MIMO configuration, it means that there will be 4 antenna arrangements that can increase the transfer rate and performance of wireless connectivity. Butler Matrix has functionality over CCTV performance with an arrayed antenna system. In this study, a 4x4 MIMO antenna with Butler Matrix was designed and built which can be applied to an antenna system for CCTV at a frequency of 2.4 GHz. The purpose of this study is to design and analyze the results of the antenna parameter values. The research method used is literature study, design, optimization, and analysis. The simulation used is AWR Design Environment 2009 software. Results The antenna parameters produced are VSWR of 1.924, 1.227, 1.829, 1.537, Return Loss of -23.02 dB, -20.88 dB, 1.829 dB, 1.573 dB, gain 8.537 dBi. The results obtained are in accordance with the standard specifications of the antenna as a signal receiver for CCTV.

Keywords: CCTV, 4x4 MIMO, Butler Matrix, 2.4 GHz