

DESIGNING VIVALDI ANTENNA USING CST SOFTWARE

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ABSTRACT

This thesis is concerned with investigations of the different size of opening width and length of the slot flare Vivaldi Antenna. The different size of opening width and length will effect on the VSWR and S11. The Vivaldi Antenna is designed to cover frequency from 2 to 18 GHz, which fall within the operational frequency for the military. The simulation process is by using the CST Microwave Studio Software. In this research, the dimension of antenna is 55mm x 40mm. Then these antennas are constructed using RT/Duroid® 5870 which have dielectric constant ϵ_r 2.33. The six different sizes of opening length and opening width have been constructed using the CST microwave software. Then, the value of S11 and VSWR are measured at 10 GHz which is the passband frequency between 2 – 18 GHz. The specification of this Vivaldi Antenna for S11 and VSWR is lower than -10 dB and 2.0 respectively. Furthermore, the radiation pattern of the antenna has been produced. Found that the best size is for type 3 compared to the others. At frequency 10 GHz, the value of S11 is -44.25 dB and the value VSWR is 1.01. After found the best result on the size of opening length and opening width, the next stage is the prototype of Vivaldi antenna. Only type 3 is done for the fabrication. This reason are because of the substrate that are using in this antenna are very expensive and are not available in Malaysia. At the end of work, the Vivaldi Antenna has been produces that can be operate between 2 – 18 GHz.

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