

**Monopole with Defect Ground Structured (DGS)
antenna for Body Centric Wireless Communication
(BCWC) application.**

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ABSTRACT

This paper presents the comparison between monopole antenna with Defected Ground Structured (DGS) and conventional monopole antenna. The printed monopole antenna proposed to operate at 2.45GHz Industrial, Scientific and Medical (ISM) band with the application for body-centric wireless communications (BCWC) . The antenna was designed and simulated using the Computer Simulation Technology (CST) microwave studio. The substrate of the antenna was fabricated using RT5807 with dielectric constant and height of 2.33 and 0.504 mm respectively. The monopole antenna is added with a DGS by using double H-shape DGS at the ground plane to contributes the performances of monopole antenna. The result shows that the monopole antenna with DGS gives better performance in term of return loss, antenna size, gain and directivity.

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CHAPTER 1

INTRODUCTION

1.1 INTRODUCTION

The term of wireless communications have been familiar nowadays because of their developed rapidly in the millennium era especially during the last 10 years. In the future achievement of the personal communication devices will be designed to give more applications such as imaging, speech, data communication and etc. Multi-band or wideband is the important element to meet with requirement of the communication terminal antenna that sufficiently covers the possible operating bands. The number of antenna has been designed increase nowadays but when numbers of operating bands increase the designing antenna becomes more complex. The antenna must with a compact size in order to be placed inside the system. To get real, the planar monopole is the best choice for wide-band application, wide band bandwidth compact and simple structure and ease to fabricate [1]. Historically, by accommodate from the practical on the theory of antennas, some characteristics of pros and cons are still on the discussions from hundred years ago after found the conception of this monopole antenna [2].

This monopole antenna have been widely used from many types of antenna and mostly employed in radio engineering [3]. Utilizing of monopole antennas in modern wireless communication system will give an advantage to the application Body Centric Wireless Communication (BCWC) on the microstrip monopole antenna. The printed monopole antenna proposed to operate at 2.45GHz Industrial, Scientific and Medical (ISM) band with the application for body-centric wireless communications (BCWC)[4]. Monopole antenna is one of the types which are extensively being