Patent Search

Invention Title	A METHOD FOR REDUCTION OF V- FOLDING EFFECT TO IMPROVE PERFORMANCE OF FLEXIBLE KAPTON SUBSTRATE
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Abstract:

The present invention describes a method for Reduction of V- folding effect to improve performance of flexible Kapton Substrate. In the present invention, a systematic and complete analysis of the percentage of folding in patch antennas is performed to improve the performance. The designed antenna was operated at 0.1 - 5.0 GHz to improve the gain and examine the folding performance used in many S-band applications like radar, satellite, and multimedia applications. A non-shifting operating frequency is achieved at 3.4 GHz for all percentage-wise folding with a flat(unfold) bandwidth of 360.8 MHz with good acceptable performance. This study presents the effect of V-folding from the simulation process. The results of this study can be used to predict the performance of the antenna when it is placed on a product of a sharp edge according to the designed object pattern. Accompanied Drawings [FIG.1-8]

Complete Specification

DESC:FIELD OF INVENTION:
This invention generally relates to the field of the wireless technology, communication between the devices with different types of antennas (patch antennas) systems, assemblies, techniques and methods, and more particularly relates to a method for Reduction of V- folding effect to improve performance of flexible Kapton Substrate.
BACKGROUND OF THE INVENTION
To meet public and industrial needs, electronics and communication engineering are moving toward smart technologies, such as smart devices for health care, smart cities, smart homes, and smart cars. In all aspects, wireless communications are needed with different conformal structures. Among different types of communication terminal, because of design simplicity and the possible frequency bands, patch antennas (PAs) are the most useful for wireless communication. Antenna design engineers are constantly seeking reliable antenna design solutions that are integrable into future electronic and communication devices. According to different applications, antenna design concerning the wearable-device shape can be challenging. Solutions involving flexible patch antennas (FPA) have become a trend in antenna design engineering. One of the greatest challenges in wireless communication is choosing a flexible antenna with the best communication performance. Most bent antennas proposed use textiles, Kapton, and other flexible materials. Innovative flexible antenna designs have been developed using different materials for different applications. Recently, the study of electronics and antenna design on flexible substrates, such as PET, Kapton, and gaining attention. Kapton is one of the best low-cost polyimide film substrates for manufacturing in aircraft, spacecraft, X-rays, 3D printing, flexible printed circuit boards (PCBs), and antennas. Moreover, Kapton has good insulation properties with extraordinary temperature stability. Kapton is compact, light, and has conformal design capability, including multiband and wideband performance in bent configurations. Despite the increasing study of flexible antennas, further research on design methods suitable for Internet-of-things objects integrated into communication systems for

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