

CPW Fed Patch Antenna on Flexible LLDPE Substrate for Wearable Applications in C-band

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Abstract—This paper focuses on the design of rectangular patch antenna in C-band on flexible LLDPE substrate with dielectric constant $\epsilon_r = 2.20$ and height $h = 1$ mm. The S_{11} parameter and radiation parameters were studied for different bending axes and bending curvatures. The performance of the antenna with different bending radius is found to be consistent with the flat profile antenna. A maximum shift of ~ 25 MHz in resonant frequency is observed for the bending profile. For convenient in wearable application CPW feeding is used. The resonant frequency with $S_{11} < -25$ dB and enhancement in -10 dB bandwidth of 35% is observed at the resonant frequency.

Keywords: Flexible substrate, wearable antenna, C-band.