\* Abstract:

For 5G applications, a compact inset coupled-fed high bandwidth triangle antenna is demonstrated. A large bandwidth can be achieved by combining the inset and coupling feeding with a triangle-shaped patch. With a VSWR of less than 2, the suggested antenna's working frequency of 3.6 GHz spans the frequency range needed for 5G applications, which is between 2.8 and 5.6 GHz. The primary characteristics of the suggested antenna are its smaller dimensions (20.5 × 13.5 mm2) and about 35% increased bandwidth. Significant factors that match the simulated results exactly are S11, radiation pattern, radiation efficiency, and peak gain in the proceeding of the proposed antenna. With the addition of two parallel rectangular strips with a triangular-shaped patch, the antenna is capable to achieve 40% reductions in size, 81.74% radiation efficiency, and

2.61 dB peak gain for the suggested antenna. With a center frequency of 3.6 GHz and a reflection coefficient of 28.6 dB, the fractional bandwidth is 66.67% (2.8 GHz to 5.6 GHz). With a smaller surface wave and an excellent omnidirectional radiation pattern, the antenna's inset coupling feeding arrangement makes it appropriate for Sub-GHz 5G applications.