In this paper, Reflectarray antenna design operating in Ka-Band at 28GHz for the future fifth generation (5G) wireless communication applications is presented. This reflectarray antenna is proposed and designed based on the two different resonant elements i.e. circular loop with split rings and square loop with split rings. The characterization of each reflectarray element is further carried out in terms of reflection loss, reflection phase, 10% bandwidth and static phase range, respectively. Simulations have been performed using CST MWS simulation software based on Finite Integral Method (FIM). The 10% bandwidth, Figure of Merit (FOM) and the reflection characteristics (including reflection loss and reflection phase) have demonstrated the possibility of using the designated reflectarray antenna optimizely for 5G wireless communications. These antennas have a significant advantage of being light weight and cost effective as compared to the existing conventional bulky reflectors and phased arrays. Due to the remarkable performance of the proposed reflectarray antenna array, it can be considered as a good candidate for 5G communication applications.
References


Index Terms

Computer Science  Wireless
Keywords

Reflectarray antenna, Finite Integral Method (FIM), Figure of Merit (FOM), Bandwidth, Gain, Fifth Generation (5G), Wireless communication, Reflection phase and Reflection loss.