

Design and Simulation of Graphene Based Hybrid Reconfiguration Antenna for Tera-Hertz Applications

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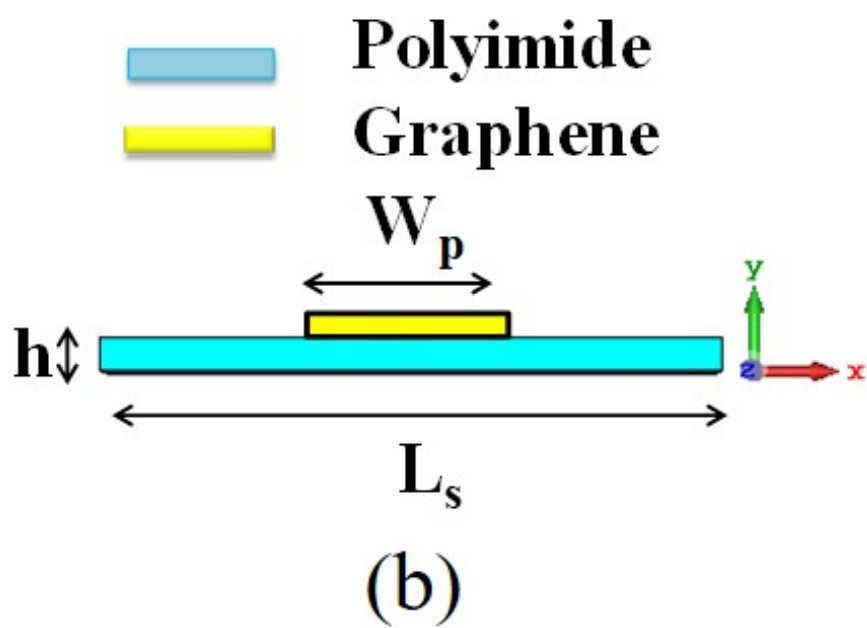
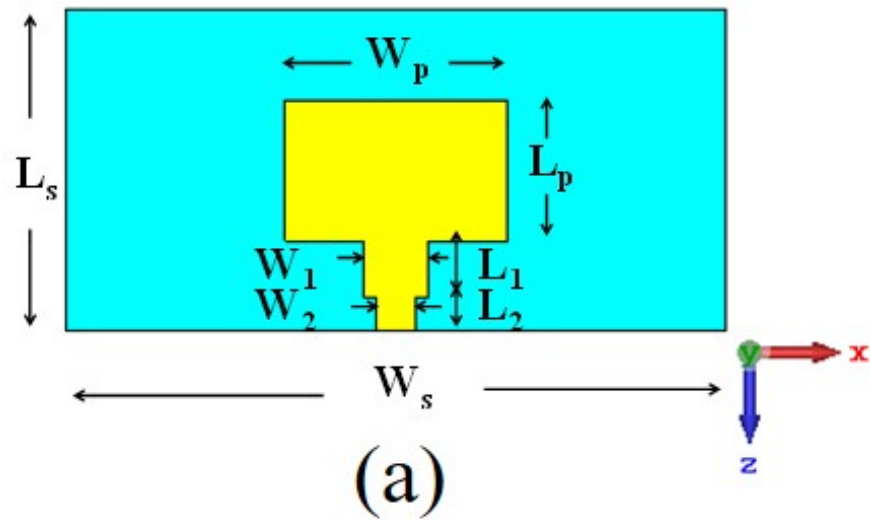
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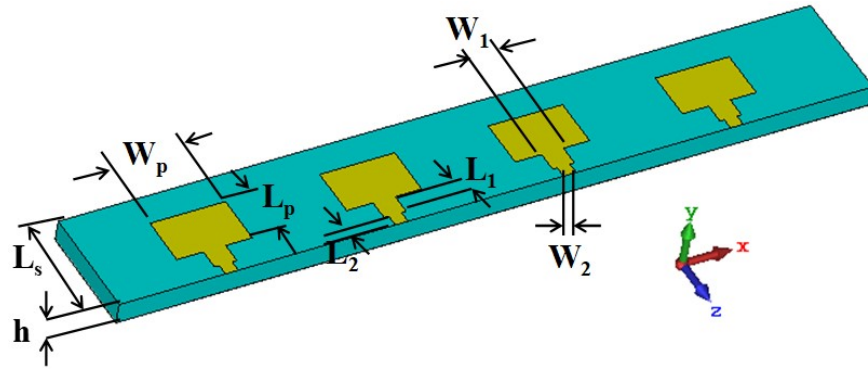
Abstract

The present paper has been solving the problem of getting all the three types of reconfigurations in a single antenna without using more than one antenna and that fulfil the requirement of multifunctional system with better performance with the confined volume at higher frequency. At high frequency (THz), the communication system comprise of higher transmission data rate and the low transmitting power with reliable wireless systems. This paper represents the design and analysis of monolayer graphene based reconfigurable array antenna (patches are 1×4 array on polyimide substrate) at terahertz (THz) band for three reconfiguration frequency, radiation pattern and polarization. The results obtained show that the designed antenna resonates at frequency, 0.71 THz with 10.17 dB gain, directivity, 12.69 dB as well as with 60% efficiency, and the reconfiguration in frequency is achieved from frequency ranges, 0.64 THz-0.74 THz, reconfiguration in radiation pattern is achieved 82° - 115° and reconfiguration in polarization is achieved as linear, right hand circular polarization and left hand circular polarization using commercial software CST microwave studio.

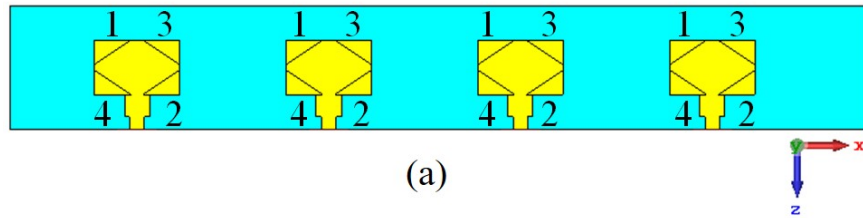
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Graphene_Reconfigurable_antenna_5G.doc available at <https://authorea.com/users/305869/articles/436626-design-and-simulation-of-graphene-based-hybrid-reconfiguration-antenna-for-tera-hertz-applications>

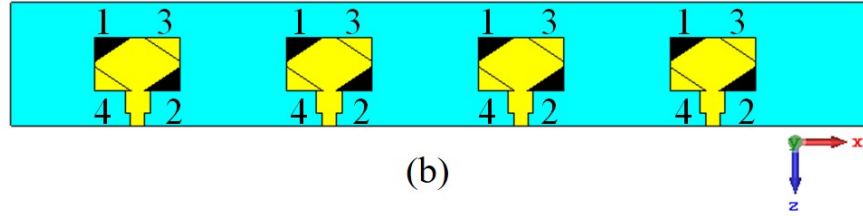






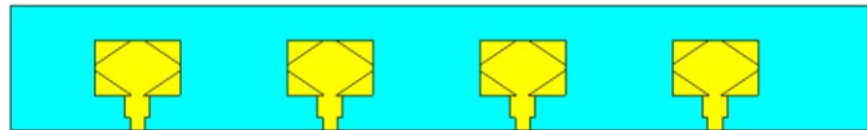
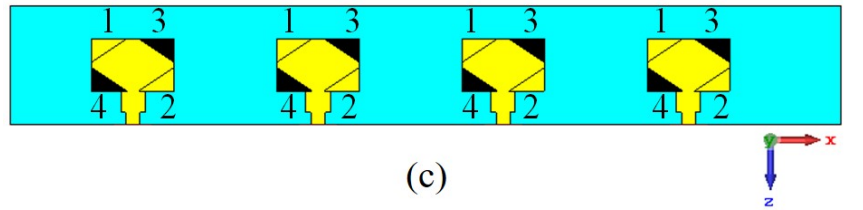
 Graphene in ON state

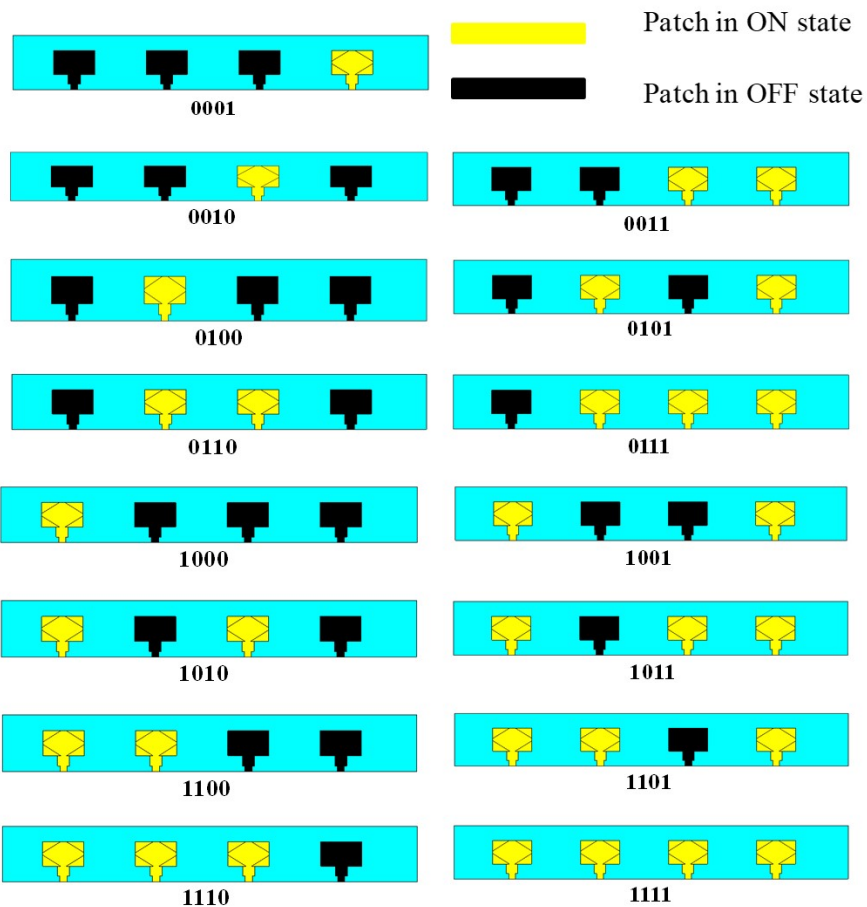
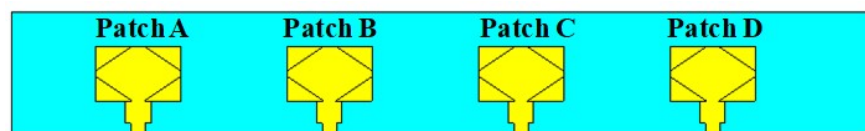


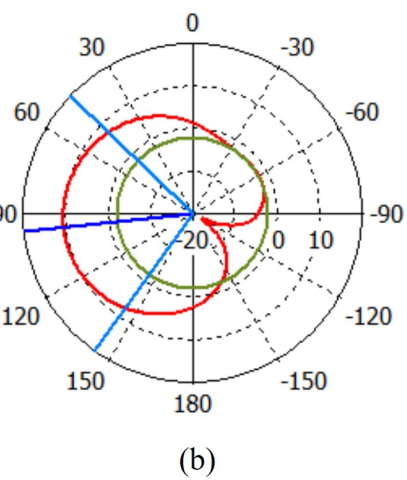
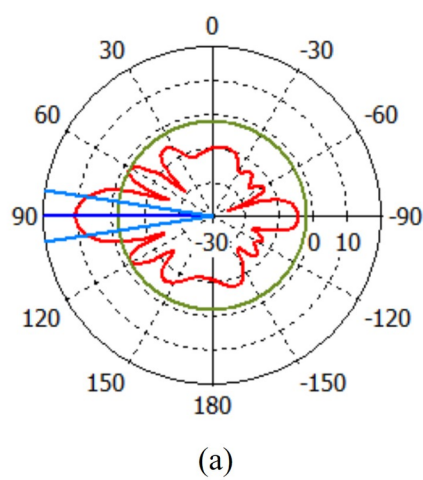
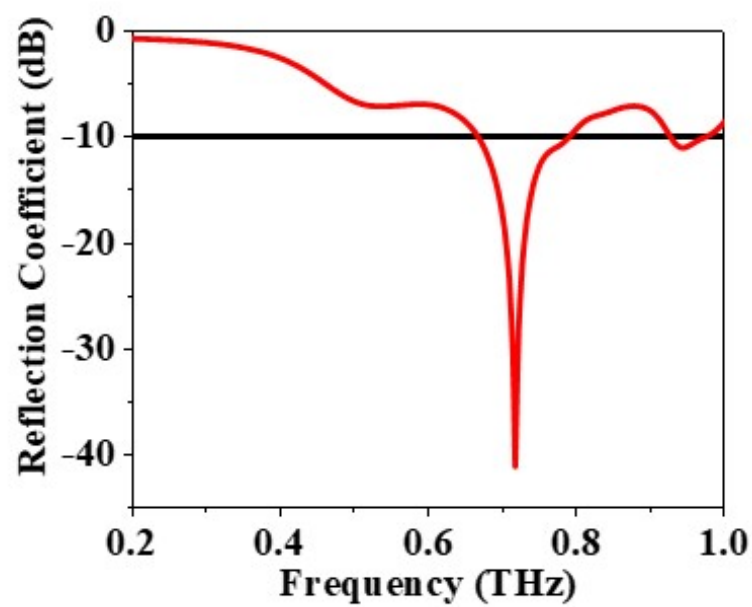
 Graphene in OFF state
 Graphene in ON state

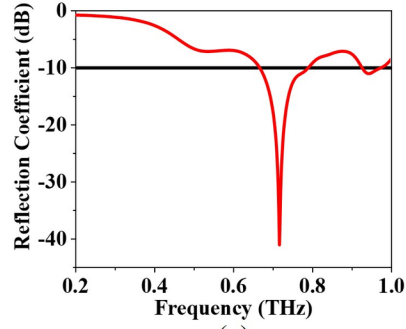


 Graphene in OFF state
 Graphene in ON state

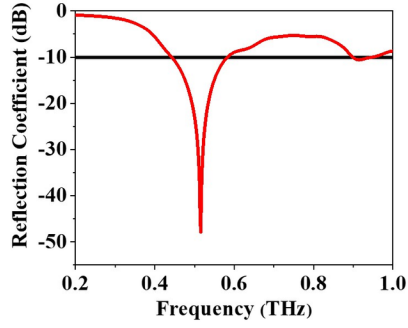




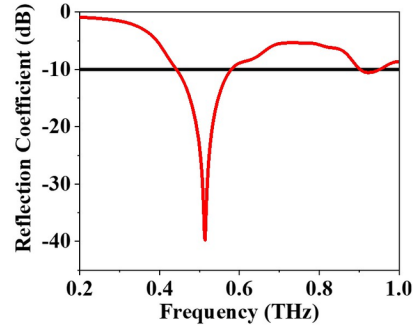




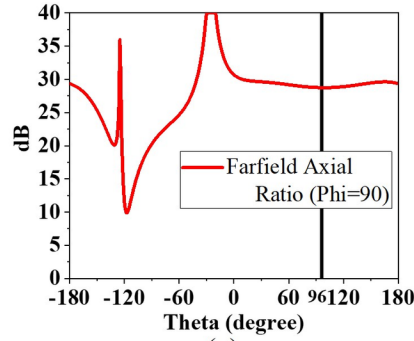
(a)



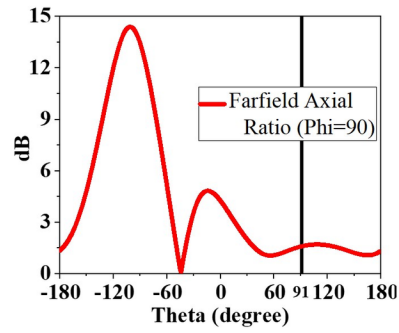
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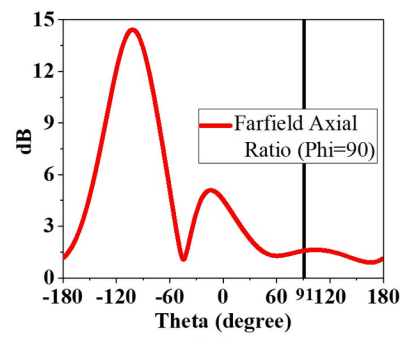
(c)



(a)



(b)



(c)

