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| **Title:** | Design and Analysis of a 6G Terahertz Aeronautical Antenna Based on Graphene | | | |
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| **Published Conference Name:** | 2024 3rd International Conference on Advancement in Electrical and Electronic Engineering (ICAEEE 2024) | | | |
| **Type of Publication:** | International Conference | | | |
|  |  | |  |  |
| **Publisher:** | IEEE | | | |
| **Publication Date:** | 24 June 2024 | | | |
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| **DOI:** | [10.1109/ICAEEE62219.2024.10561643](https://doi.org/10.1109/ICAEEE62219.2024.10561643) | | | |
| **URL:** | <https://ieeexplore.ieee.org/document/10561643> | | | |
| **Other Related Info.:** |  | | | |
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| **Abstract:** |  |
| Modern technology requires high data transmission for wireless communication. 6G (sixth-generation wireless) is the next generation of wireless technology, following 5G. 6G networks will be able to operate at higher frequencies than 5G networks, resulting in dramatically improved capacity and lower latency. One of the goals of the 6G internet is to allow communications with a latency of one microsecond. A patch antenna is a good choice for its tiny size and configurable frequency. Patch antennas are now popular for use in medical devices, Wi-Fi routers, mobile phones, spacecraft, and aircraft. In this paper, a novel material, Graphene based 6G antenna is proposed for THz applications. This paper proposes a triangular patch antenna for THz applications where Copper is used as ground, Rogers is used at the substrate as an insulator, and graphene is used at the patch as a conductor. The dimension of the antenna is (23×18×1.6)μm. The performance of the proposed antenna is analyzed using CST simulation software. Based on the simulation results, The return loss of the antenna is found -95.71 dB at the 6.82 THz resonant frequency, and the VSWR of the antenna is 1.00. The Far-Field directivity of the antenna is 5.076 dBi. Therefore, the proposed antenna is suitable for aerospace applications. | |