

1×4 Patch Array All-Textile Antenna for WLAN Applications

Abstract

This paper proposes the design of 1×4 patch array all-Textile antenna for Wireless Local Area Networks (WLAN) applications. The wearable antenna needs to have low profile and lightweight since such antenna is intended to operate in the vicinity of the human body. The key parameters are studied to determine their effects towards the performance of the antenna. The proposed design uses ShieldIt as the top radiator and ground plane, while fabric Felt is used as a substrate, sandwiched between the top radiator and ground plane. The obtained results show that there is improvement in the proposed array antenna in terms of gain enhancement and impedance bandwidth, maximum up to 143.6% and 19.08%, respectively, against single patch structure.

Keywords

All-Textile antenna; Patch array; Wearable antenna; Wireless local area network