

Abstract: 2.45 GHz beam-steering textile antenna for WBAN application

A beam-steering textile antenna for wireless body area network (WBAN) applications is proposed and investigated in this work. This proposed antenna is centrally-fed by a coaxial probe before currents are distributed to the four circular radiating elements. This novel structure successfully integrated the reconfigurable feature into a wearable textile antenna using electronic components. Four RF switches are integrated at an ideal location of each arm without any external circuit. With certain specific RF switch configurations, the proposed antenna generated beam steering angles at 0° , 90° , 180° and 270° with a maximum directivity of 6.8 dBi at $0^\circ/360^\circ$. Its small size of 88 mm² square, flexible and wearable features enables this antenna to be easily integrated onto safety jacket and rain coat for tracking, search and rescue based communication purposes.