

## **A novel beam steering of hybrid switchable beam textile antenna**

### **Abstract**

A novel hybrid switchable beam textile antenna (HSBTA) is proposed in this research. The HSBTA introduced by a coaxial probe technique to feed current flow to center of HSBTA and distribute the current to four circles of radiating elements. This research found that the integration of RF switches and electronic components is successfully embedded into wearable textile antenna using a silver-conductive epoxy adhesive. The four RF switches are then incorporated at four ideal locations of HSBTA's circle radiating elements to generate the beam steering ability with directivity as high as 6.8 dBi. With the help of particular RF switching scheme, the HSBTA has successfully tailored the beam to four different angles of  $0^\circ/360^\circ$ ,  $90^\circ$ ,  $180^\circ$ , and  $270^\circ$  at single operating frequency of 2.45 GHz. Dimensionwise,  $88 \times 88$  mm<sup>2</sup> could lead the HSBTA to be deployed on smart garment for wireless body area network application.

### **Keywords**

Hybrid switchable beam textile antenna (HSBTA); Coaxial probe techniques