

## **High performances stack microstrip antenna for under water communications at 2.4 GHz**

### **ABSTRACT**

This paper shows a new compact size stack microstrip antenna which is designed and simulated to improve and meet the radiation characteristics requirements in normal water. Thus, a rectangular patch with three periodic slots as Photonic Band Gap (PBG) have been cut from the patch. Furthermore, two elliptical rings at the back is resonating at 2.4 GHz for IEEE802.11 b/g/n standards and WLAN communications, with miniaturized dimensions of  $45 \times 40$  mm. Return loss, VSWR, radiation efficiency and gain have been exploited in order to define antennas' performance in both air and normal water.

**Keyword:** Efficiency; Gain; PBG; Shrunk size; Stack