

小型超宽带宽缝天线及其带阻功能设计

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Compact Ultra-Wideband Wide Slot Antenna and the Design of Its Band-Notched Function

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摘要 提出一种新型的小型超宽带(UWB)宽缝天线,并对其进行带阻功能设计.该天线采用椭圆结构的调谐支节,并由共面波导进行馈电.为获得超宽带工作特性,将其辐射缝隙设计为对称多边形.对该天线的性能进行仿真和实验研究,实测结果表明,该天线的-10 dB反射损耗频率范围为3.2~10.1 GHz.另外,通过在椭圆支节上开W形槽,使天线实现对无线局域网(5.150~5.825 GHz)频段的带阻功能.

关键词: [超宽带天线](#) [宽缝天线](#) [带阻特性](#)

Abstract:

A novel compact wide-slot planar antenna and its extended design with band-notched function are proposed for ultra-wideband (UWB) applications. The antenna is fed by coplanar wave guide (CPW) with an elliptical tuning stub. A symmetric polygonal wide-slot configuration is used to obtain ultra-wideband characteristics. The characteristics of the proposed antenna are investigated both numerically and experimentally. Experimental results show that the impedance bandwidth of the antenna reaches up to 3.2~10.1 GHz for $S_{11} \leq -10$ dB. In addition, by inserting W-shaped slots on the elliptical stub, band-notched function of the antenna is achieved for WLAN (5.150~5.825 GHz) applications.

Keywords: [ultra-wideband antennas](#), [wide slot antenna](#), [band-notched](#)

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