Loop-type Bandpass Shielding Enclosures for Mobile Applications

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ABSTRACT

This paper presents a bandpass shielding enclosure (BPSE) design for handheld wireless communication devices having IEEE 802.11 b/g wireless local-area network (WLAN) module. This design is mainly based well-known frequency selective surfaces which are further designed to construct a three-dimensional shielding enclosure. The loop-type apertures are used to design the BPSE. The BPSE is required to provide high transmittance at the specified communication band and high shielding effectiveness outside this band, and to have little influence on the radiation characteristics of an internal antenna located inside the enclosure. The simulated and measured results obtained demonstrate that the BPSE designed by using the loop-type apertures can have bandpass property and can shield interference outside the band. Besides, there is little influence on the impedance-matching bandwidth and radiation patterns of the internal antenna. Consequently, the objectives of this design are achieved.

Keywords : frequency-selective surface, shielding ; shielding ; electromagnetic interference ; wireless communication

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