Patch Loaded DRA for Broadband WLAN Applications

Abstract

A wideband patch loaded dielectric resonator antenna (DRA) is discussed here. The rectangular ring shaped slot coupling is used to excite the proposed antenna. In this paper, rectangular ring shaped slot coupled DRA and patch loaded DRA is studied and compared. The combined effect of patch radiator with rectangular ring shaped slot coupled DRA, on the return loss is observed. Simulation is done using Ansoft HFSS which is based on finite element method. Simple DRA resonates at two frequencies centered at 2.25 GHz having return loss of -14.41 db and 4.61 GHz with a return loss of -19.29 db; The patch loaded DRA shows resonance at frequencies centered around 2.19 GHz having return loss of -32.3 db and 4.4 GHz with a return loss of -29.18 db. The patch loaded DRA is based on the multi resonance technique that combines the resonance of slot coupled dielectric resonator and micro strip patch.
antenna. The bandwidth achieved for simple DRA is 26.8 % while patch loaded DRA offers 44.1 %. As the patch loaded DRA has larger bandwidth, may be used for wideband WLAN applications like WiFi, Bluetooth, Wimax etc.

References

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- Temex, "Dielectric materials," User guide

Index Terms

Computer Science  Wireless Systems

Keywords

Bandwidth  DRA  Multi-resonance  patch  slot coupling