



Figure 13: Measured and simulated gain of the proposed multiband antenna.

Figure 13 shows the simulated and measured gains of the proposed antenna over the operating frequency band. It is observed that the antenna has a stable performance over the proposed bands.

4. Conclusions

A novel compact coplanar waveguide (CPW) monopole fractal-shaped antenna with a slotted ground plane has been studied. This structure operates at three different bands: Bluetooth, WiMAX and WLAN. This multiband antenna has been designed by adding six small fractal hexagons to the hexagon-shape radiator monopole antenna with slotted ground plane. The performance enhancements in terms of compactness, gain stability, return loss, bandwidth and radiation pattern have been obtained and verified experimentally. The antenna exhibits an omnidirectional radiation pattern in the H -plane and bidirectional in the E -plane. However, the proposed antenna occupies the smallest area and has simpler geometry to realize the required operating bands compared to other designs as shown in Table 2. The position and the bandwidth of the bands can be controlled easily, which makes the proposed antenna suitable for multiband wireless communication systems.

Acknowledgements

The authors would like to extend their thanks to the Center for Energy, Materials and Telecommunications of the National Institute of Scientific Research INRS-EMT, University of Quebec, Montreal, Canada, for the technical support and help.

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