



US006727856B1

(12) **United States Patent  
Hill**

(10) **Patent No.: US 6,727,856 B1**  
(45) **Date of Patent: Apr. 27, 2004**

(54) **ANTENNA SYSTEM FOR A WIRELESS  
DEVICE**

6,437,745 B1 \* 8/2002 Vaisanen et al. .... 343/702  
6,580,397 B2 \* 6/2003 Lindell ..... 343/702  
6,618,014 B2 \* 9/2003 Stoiljkovic et al. .... 343/702  
2003/0090422 A1 \* 5/2003 Diamant ..... 343/700 MS

(75) Inventor: **Robert J. Hill**, Prunedale, CA (US)

\* cited by examiner

(73) Assignee: **Good Technology, Inc.**, Sunnyvale, CA (US)

*Primary Examiner*—Tan Ho

(\*) Notice: Subject to any disclaimer, the term of this patent is extended or adjusted under 35 U.S.C. 154(b) by 63 days.

(74) *Attorney, Agent, or Firm*—Blakely Sokoloff Taylor & Zafman LLP

(21) Appl. No.: **10/164,819**

(57) **ABSTRACT**

(22) Filed: **Jun. 6, 2002**

An enclosure for a wireless device is described which may be used as the device's antenna. In one embodiment, the enclosure is comprised of two charged front and back conducting plates which propagate an electric field used to transmit and receive vertically polarized omnidirectional electromagnetic signals from a first orientation. In addition, the size of the plates are selected to propagate a second electric field which is used to transmit and receive vertically polarized electromagnetic signals in a second orientation, where, in one embodiment, the second orientation is orthogonal to the first orientation.

(51) **Int. Cl.**<sup>7</sup> ..... **H01Q 1/26**

(52) **U.S. Cl.** ..... **343/701; 343/702**

(58) **Field of Search** ..... 343/701, 702,  
343/700 MS

(56) **References Cited**

**U.S. PATENT DOCUMENTS**

3,736,591 A \* 5/1973 Rennels et al. .... 343/702  
6,195,054 B1 \* 2/2001 Washino et al. .... 343/702

**28 Claims, 15 Drawing Sheets**

