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Sabet et al.

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- (54) **MULTIFUNCTION ANTENNA**
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This patent is subject to a terminal dis-
 claimer.

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 27, 2002, now Pat. No. 6,664,932, which is a continuation-
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- (52) **U.S. Cl.** **343/700 MS; 343/767;**
343/770; 343/853; 343/848
- (58) **Field of Search** **343/700 MS, 702,**
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(57) **ABSTRACT**

A multifunction printed antenna for wireless and telematic
 applications. In one embodiment, GPS and satellite radio
 patch antenna elements are printed on one side of a printed
 circuit board and AMPS, PCS, GSM and terrestrial radio slot
 antenna elements are etched in a ground plane on an
 opposite side of the same printed circuit board. In an
 alternate embodiment, the GPS and satellite radio patch
 antenna elements are elements mounted on one printed
 circuit board and the AMPS, GSM, PCS and terrestrial radio
 slot antenna elements are etched in a ground plane on
 another printed circuit board rigidly secured orthogonal to
 the GPS and satellite printed circuit board.

18 Claims, 13 Drawing Sheets

