Title: AN INTEGRATED ANTENNA SYSTEM

Abstract: The present invention provides a system, apparatus and method for providing a selectably-tuned miniature antenna. The integrated antenna system has a casing (20) with a plurality of conductive pins (30) aligned along parallel sides, such as a standard DIP package or surface mount integrated circuit package. The antenna system also has a plurality of resonating elements (40) each having a first connection and a second connection. Each resonating element is connected at the first connection to a different one of the conductive pins of the casing. Each resonating element is also electrically connected at the second connection to others resonating element at a common pin, which is typically connected to ground. The system also has an antenna element (60); and each resonating element is electrically coupled to that antenna element.
before the expiration of the time limit for amending the claims and to be republished in the event of receipt of amendments

For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.

(88) Date of publication of the international search report:
14 November 2002
INTERNATIONAL SEARCH REPORT

A. CLASSIFICATION OF SUBJECT MATTER

IPC(7) : H01Q 1/36, 1/24, 9/00; H04B 1/38
US CL : 343/700MS, 702, 745, 906; 455/89, 90

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

U.S. : 343/700MS, 702, 745, 906; 455/89, 90

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

NONE

Electronic database consulted during the international search (name of database and, where practicable, search terms used)

WEST (ANTENNA, RESONANT$ Element, PIN)

C. DOCUMENTS CONSIDERED TO BE RELEVANT

<table>
<thead>
<tr>
<th>Category</th>
<th>Citation of document, with indication, where appropriate, of the relevant passages</th>
<th>Relevant to claim No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>US 5,684,492 A (KAGOSHIMA ET AL) 04 NOVEMBER 1997 (04.11.1997), ENTIRE DOCUMENT.</td>
<td>1-10</td>
</tr>
<tr>
<td>A</td>
<td>US 5,861,854 A (KAWAHATA ET AL) 19 JANUARY 1999 (19.01.1999), ENTIRE DOCUMENT.</td>
<td>1-10</td>
</tr>
<tr>
<td>A</td>
<td>US 6,091,373 A (RAGUENET) 18 JULY 2000 (18.01.2000), ENTIRE DOCUMENT.</td>
<td>1-10</td>
</tr>
<tr>
<td>A,E</td>
<td>US 6,396,442 B1 (KAWAHATA ET AL) 28 MAY 2002 (28.05.2002), ENTIRE DOCUMENT.</td>
<td>1-10</td>
</tr>
</tbody>
</table>

See patent family annex.

Further documents are listed in the continuation of Box C.

Date of the actual completion of the international search

08 AUGUST 2002

Date of mailing of the international search report

11 SEP 2002

Name and mailing address of the ISA/US Commissioner of Patents and Trademarks

Box PCT
Washington, D.C. 20231
Facsimile No. (703) 305-3230

Authorized officer

Telephone No. (703) 308-4081

Form PCT/ISA/210 (second sheet) (July 1998)*