



US 20080001280A1

(19) **United States**

(12) **Patent Application Publication**
Kusumoto et al.

(10) **Pub. No.: US 2008/0001280 A1**

(43) **Pub. Date: Jan. 3, 2008**

(54) **IC CHIP, ANTENNA, AND
MANUFACTURING METHOD OF THE IC
CHIP AND THE ANTENNA**

Publication Classification

(76) Inventors: **Naoto Kusumoto**, Kanagawa (JP);
Takuya Tsurume, Tochigi (JP)

Correspondence Address:

ERIC ROBINSON

PMB 955

21010 SOUTHBANK ST.

POTOMAC FALLS, VA 20165 (US)

(51) **Int. Cl.**

H01Q 9/16 (2006.01)

H01L 21/60 (2006.01)

H01L 23/48 (2006.01)

H01Q 17/00 (2006.01)

(52) **U.S. Cl.** **257/692**; 29/601; 343/866;
438/106; 257/E23; 257/E21

(57)

ABSTRACT

An antenna used for an ID chip or the like is disclosed with planarized antenna unevenness and an IC chip having such the antenna with a flat surface is disclosed. Manufacturing an integrated circuit mounted with an antenna is facilitated. A laminated body formed by stacking a conductive film 11, a resin film 13, an integrated circuit 12, and a resin film 14 are rolled so that the resin film 14 is outside. Then, the laminated body is integrated in a roll form by softening the resin films 13, 14 by applying heat. By slicing the rolled laminated body along with the direction in which the rolled conductive film 31 appears in the cross section, an IC chip with antenna formed by the rolled conductive film 11 is formed.

(21) Appl. No.: **11/667,072**

(22) PCT Filed: **Nov. 4, 2005**

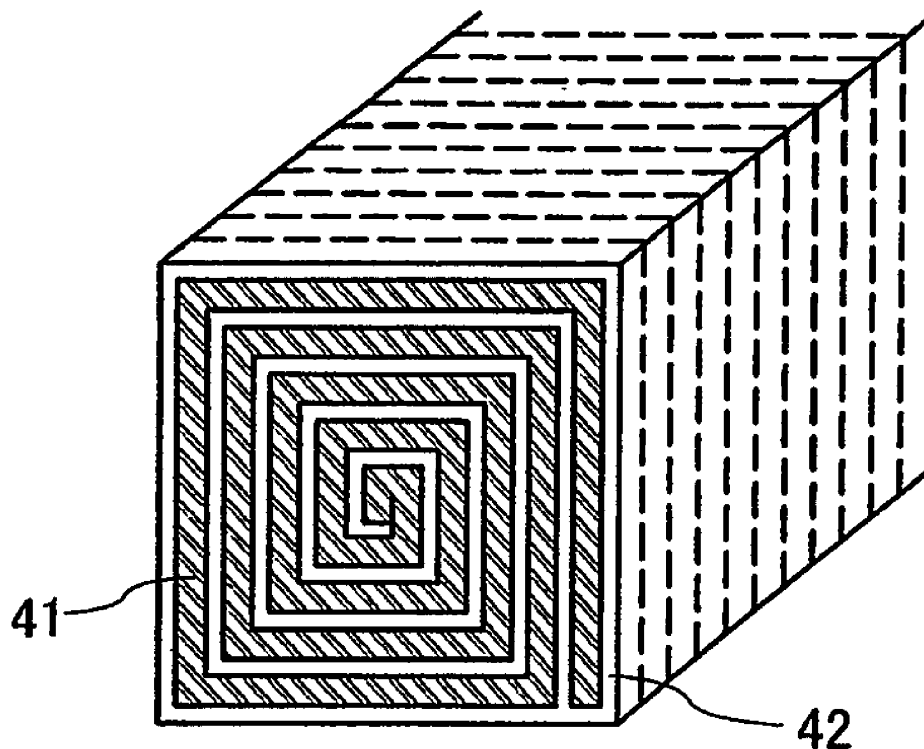
(86) PCT No.: **PCT/JP05/20664**

§ 371(c)(1),

(2), (4) Date: **May 4, 2007**

(30) **Foreign Application Priority Data**

Nov. 9, 2004 (JP) 2004-324948



Acrobat 文件



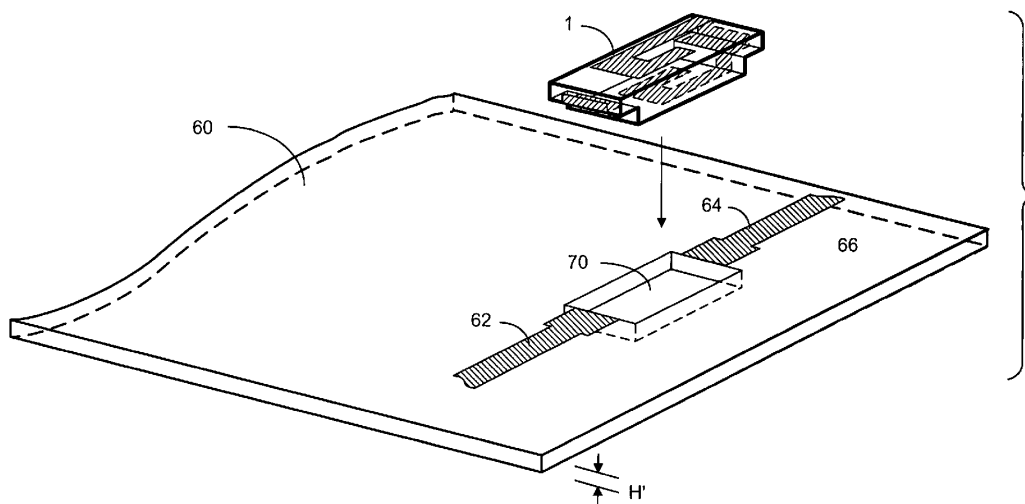
US 20080001822A1

(19) **United States**(12) **Patent Application Publication**
Vesterinen(10) **Pub. No.: US 2008/0001822 A1**(43) **Pub. Date: Jan. 3, 2008**(54) **ANTENNA COMPONENT AND ASSEMBLY****Publication Classification**(75) Inventor: **Jukka Vesterinen**, Jyväskylä (FI)(51) **Int. Cl.**
H01Q 1/38 (2006.01)(52) **U.S. Cl.** **343/700 MS; 343/702**(57) **ABSTRACT**

Correspondence Address:

**WARE FRESSOLA VAN DER SLUYS & ADOL-
PHSON, LLP**
BRADFORD GREEN, BUILDING 5, 755 MAIN
STREET, P O BOX 224
MONROE, CT 06468(73) Assignee: **Nokia Corporation**(21) Appl. No.: **11/478,457**(22) Filed: **Jun. 28, 2006**

A radio antenna is designed for use on a circuit board having a slot. The antenna is shaped such that one radiator segment is located in the slot while the other segment is located outside the slot. As such, the total thickness of the circuit board and the disposed antenna can be reduced. The antenna can be a chip antenna having a support block for disposing the radiator segments on opposite sides of the support block. The support block can have steps so that one or more different radiator segments can be disposed on the step surfaces, and the circuit board has a plurality of electrically conductive strips separately connected to the radiator segments on the step surfaces to provide grounding and feed to the antenna.



Acrobat 文件



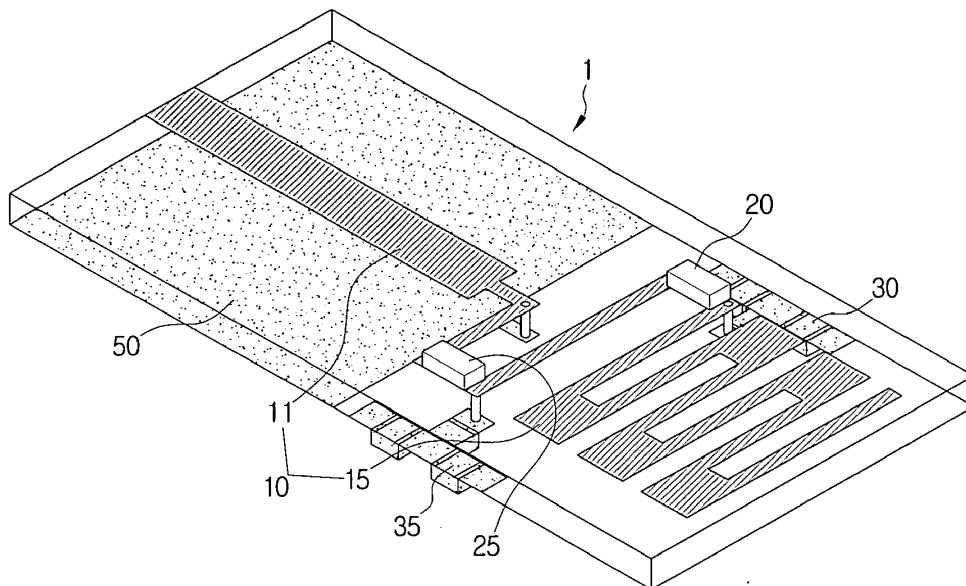
US 20080001823A1

(19) **United States**(12) **Patent Application Publication**
Jung et al.(10) **Pub. No.: US 2008/0001823 A1**(43) **Pub. Date: Jan. 3, 2008**(54) **ANTENNA CAPABLE OF MICRO-TUNING
AND MACRO TUNING FOR WIRELESS
TERMINAL****Publication Classification**(51) **Int. Cl.**
H01Q 1/38 (2006.01)(75) **Inventors:** **Chang-won Jung**, Yongin-si (KR);
Yong-jin Kim, Yongin-si (KR);
Young-eil Kim, Yongin-si (KR);
Se-hyun Park, Yongin-si (KR)(52) **U.S. Cl.** **343/700 MS; 343/702; 343/895****Correspondence Address:**
SUGHRUE MION, PLLC
2100 PENNSYLVANIA AVENUE, N.W., SUITE
800
WASHINGTON, DC 20037(73) **Assignee:** **SAMSUNG ELECTRONICS**
CO., LTD., Suwon-si (KR)(21) **Appl. No.:** **11/606,146**(22) **Filed:** **Nov. 30, 2006**(30) **Foreign Application Priority Data**

Jul. 3, 2006 (KR) 10-2006-0062027

ABSTRACT

Disclosed is an antenna capable of micro-tuning and macro-tuning for a wireless terminal, comprising: a radiator radiating electromagnetic waves; a ground connected to the radiator; at least one switching element positioned at a lengthwise region of the radiator, for shorting or opening the region of the radiator; and a voltage controlling element positioned at the radiator between the switching element and the ground, for controlling the extent of a voltage potential applied across the radiator. In accordance with the present invention, the antenna is capable of the macro-tuning between the service bands and micro-tuning for channel control within the service bands. Furthermore, the size of the antenna is significantly reduced and the antenna is installed on a circuit board in a patch type, thereby simplifying a work process.



Acrobat 文件



US 20080001826A1

(19) **United States**(12) **Patent Application Publication**
Su et al.(10) **Pub. No.: US 2008/0001826 A1**(43) **Pub. Date: Jan. 3, 2008**(54) **MULTI-BAND ANTENNA**(30) **Foreign Application Priority Data**(75) Inventors: **Wen-Fong Su**, Tu-Cheng (TW);
Hsien-Sheng Tseng, Tu-Cheng
(TW); **Shang-Jen Chen**, Tu-Cheng
(TW); **Lung-Sheng Tai**, Tu-Cheng
(TW)

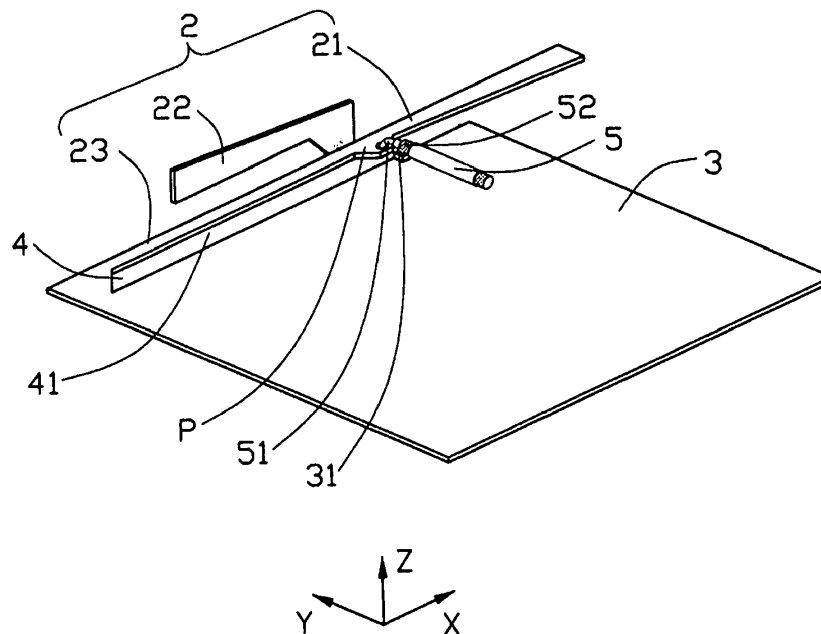
Jul. 3, 2006 (TW) 9524096

Publication Classification(51) **Int. Cl.**
H01Q 1/38 (2006.01)(52) **U.S. Cl.** **343/700 MS; 343/702**(57) **ABSTRACT**

Correspondence Address:

WEI TE CHUNG
FOXCONN INTERNATIONAL, INC.
1650 MEMOREX DRIVE
SANTA CLARA, CA 95050(73) Assignee: **HON HAI PRECISION IND.**
CO., LTD.(21) Appl. No.: **11/824,784**(22) Filed: **Jul. 3, 2007**

A multi-band antenna, made by an integral plate and comprises a radiating element, a grounding element, a slit formed as part of the plate, and a feeding line; wherein horizontal conductive portion of said plate are separated from each other with said slit between them and serve as the radiating element and the ground element respectively; the feeding line, comprising an inner conductor connected with the radiating element and an outer conductor connected with the grounding element; wherein said radiating element comprising at least two radiating portions defining at least one radiating arm with gradually increasing width, and at least two radiating portion cooperatively acting to achieve a Ultra Wide Band antenna.

1
~

Acrobat 文件



US 20080001828A1

(19) **United States**

(12) **Patent Application Publication**
Black et al.

(10) **Pub. No.: US 2008/0001828 A1**

(43) **Pub. Date: Jan. 3, 2008**

(54) **DUAL AUTODIPLEXING ANTENNA**

(57) **ABSTRACT**

(76) Inventors: **Greg R. Black**, Vernon Hills, IL (US); **Vijay L. Asrani**, Round Lake, IL (US); **Adrian Napoles**, Lake Villa, IL (US)

Correspondence Address:
PHILIP H. BURRUS, IV
460 Grant Street
Atlanta, GA 30312

(21) Appl. No.: **11/428,027**

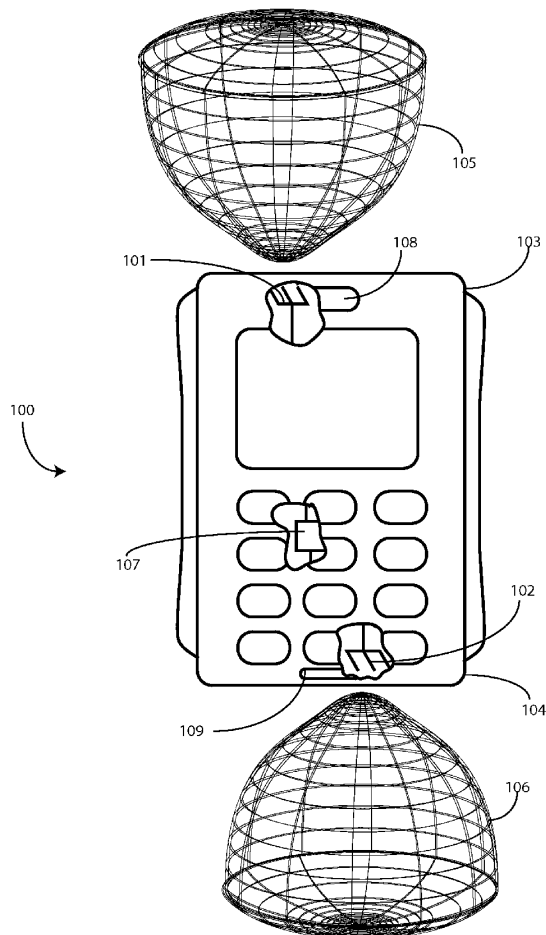
(22) Filed: **Jun. 30, 2006**

Publication Classification

(51) **Int. Cl.**
H01Q 1/24 (2006.01)

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

A dual autodiplexing antenna (300) redirects power flow (303) from an unloaded antenna to a loaded antenna, thereby improving communication performance under loaded conditions. The dual autodiplexing antenna (300) includes a first antenna (101) disposed at a first end (103) of a portable two-way communication device (100). A second antenna (102) is disposed at the distal end (104) of the portable two-way communication device (100). The first antenna (101) and second antenna (102) are coupled to a transceiver (107) by a first transmission line matching circuit (201) and a second transmission line matching circuit (202), respectively. In one embodiment, the first antenna (101) is configured to primarily operate in a first bandwidth, while the second antenna (102) is configured to primarily operate in a second bandwidth. When one of the first antenna (101) or second antenna (102) is loaded, power flow (303) is redirected to the lesser loaded antenna.



Acrobat 文件



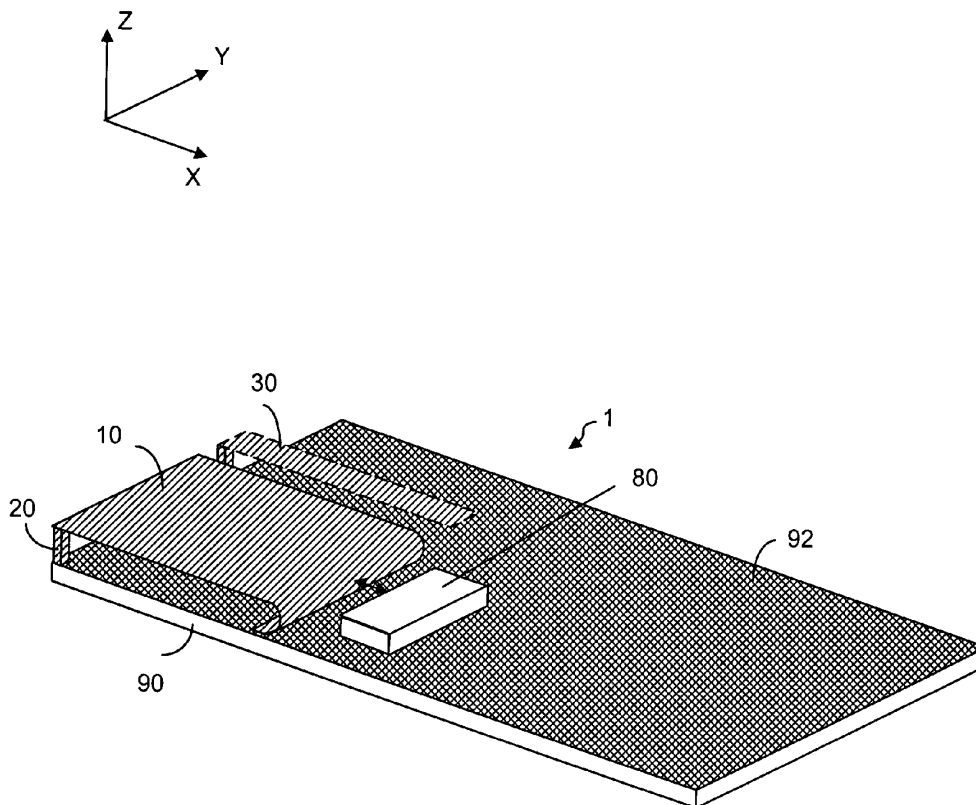
US 20080001829A1

(19) **United States**(12) **Patent Application Publication****Rahola et al.**(10) **Pub. No.: US 2008/0001829 A1**(43) **Pub. Date: Jan. 3, 2008**(54) **MECHANICALLY TUNABLE ANTENNA FOR COMMUNICATION DEVICES****Publication Classification**(51) **Int. Cl.**
H01Q 1/24 (2006.01)(52) **U.S. Cl.** **343/702; 343/700 MS**(57) **ABSTRACT**(75) Inventors: **Jussi Rahola**, Espoo (FI); **Jani Ollikainen**, Helsinki (FI); **Kenichi Hashizume**, Yoshioka-town (JP); **Matti Ryynanen**, Helsinki (FI)

Correspondence Address:

Kenneth Q. Lao**Ware, Fressola, Van Der Sluys & Adolphson LLP****755 Main Street, P.O. Box 224****Monroe, CT 06468**(73) Assignee: **Nokia Corporation**(21) Appl. No.: **11/478,839**(22) Filed: **Jun. 30, 2006**

A radio antenna assembly for use in a communication device has an antenna element disposed adjacent to a ground plane to form a physical relationship with the ground plane. A mechanical device is used to change the physical relationship for changing the operating impedance of the antenna element or shifting the frequency band of the antenna assembly. The physical relationship can be changed by mechanically changing the shape of the antenna element. When the antenna element comprises a first radiating element and a second radiating element disposed at a lateral distance from the first radiating element, the physical relationship can be changed by changing the distance. When a physical object is disposed between the antenna element and the ground plane, the physical relationship can be changed by moving or twisting the physical object. The object can be electrically conducting, dielectric or magnetic.



Acrobat 文件



US 20080001831A1

(19) **United States**

(12) **Patent Application Publication**
Park et al.

(10) **Pub. No.: US 2008/0001831 A1**

(43) **Pub. Date: Jan. 3, 2008**

(54) **MOBILE TERMINAL AND MOBILE
TERMINAL ANTENNA FOR REDUCING
ELECTROMAGNETIC WAVES RADIATED
TOWARDS HUMAN BODY**

(30) **Foreign Application Priority Data**

Jun. 30, 2006 (KR) 10-2006-0060440

Publication Classification

(75) Inventors: **Se-hyun Park**, Yongin-si (KR);
Wee-sang Park, Yongin-si (KR);
Yong-eil Kim, Yongin-si (KR);
Jae-hee Kim, Pohang-si (KR)

(51) **Int. Cl.**
H01Q 1/24 (2006.01)

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

Correspondence Address:
SUGHRUE MION, PLLC
2100 PENNSYLVANIA AVENUE, N.W., SUITE
800
WASHINGTON, DC 20037

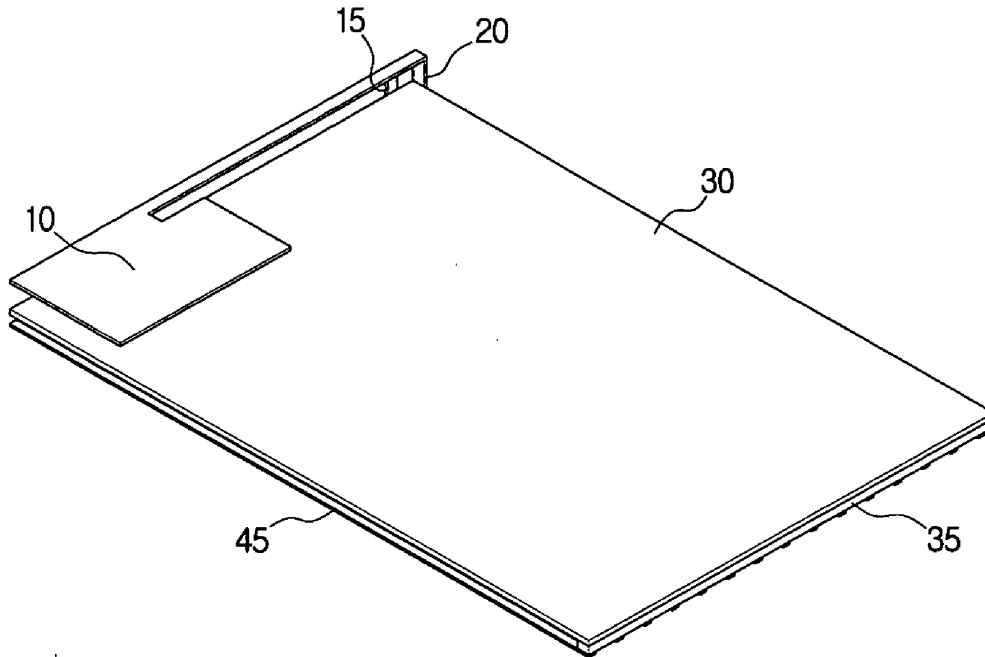
(57) **ABSTRACT**

A mobile terminal and a mobile terminal antenna reduce the intensity of electromagnetic waves radiated in the direction of a human body. The mobile terminal antenna includes a radiator, which radiates electromagnetic waves; a ground which is connected with the radiator, and a radiation preventer which has a metallic bar on one side of the ground in parallel with the ground at an interval. Accordingly, the electromagnetic radiation exposure to the human body can be reduced by altering the radiation emission pattern, while the performance of the antenna can be simultaneously enhanced.

(73) Assignees: **SAMSUNG ELECTRONICS.,
LTD.**, Suwon-si (KR); **Samsung
Electro-Mechanics Co., LTD.**,
Suwon-si (KR)

(21) Appl. No.: **11/634,865**

(22) Filed: **Dec. 7, 2006**



Acrobat 文件



US 20080001833A1

(19) **United States**(12) **Patent Application Publication**
Kaneoya(10) **Pub. No.: US 2008/0001833 A1**(43) **Pub. Date: Jan. 3, 2008**(54) **ANTENNA AND PORTABLE WIRELESS
DEVICE****Publication Classification**(75) Inventor: **Masanori Kaneoya,**
Musashimurayama-shi (JP)(51) **Int. Cl.**
H01Q 1/38 (2006.01)
H01Q 1/22 (2006.01)(52) **U.S. Cl.** **343/702; 343/700 MS**

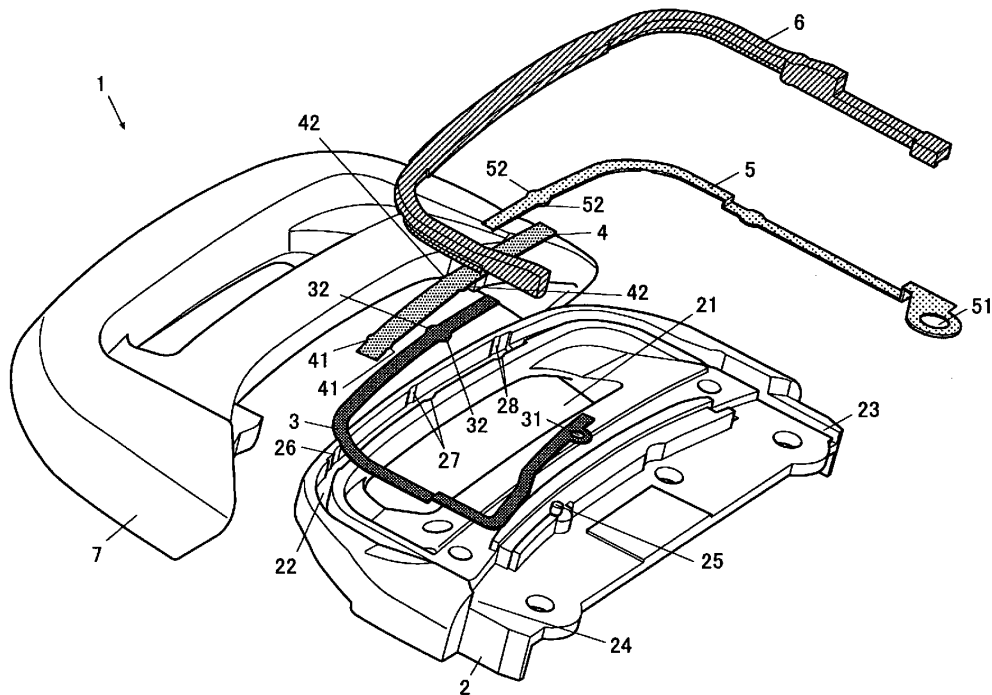
Correspondence Address:

COHEN, PONTANI, LIEBERMAN & PAVANE
551 FIFTH AVENUE, SUITE 1210
NEW YORK, NY 10176(57) **ABSTRACT**(73) Assignee: **Casio Hitachi Mobile**
Communications Co., Ltd., Tokyo
(JP)

A dual-band antenna with little limitation on the mounting space, which allows two antenna elements coping with different frequency bands to be laid out at a narrow space, and a portable wireless device having the same are provided. A band-like first antenna element, a sheet-like dielectric element, and a band-like second antenna element are fitted in a groove of a support member. The end portion of the second antenna element overlaps with the end portion of the first antenna element, and the dielectric element is sandwiched therebetween. The sandwiched dielectric element constitutes a capacitor, and first antenna element, the capacitor and the second antenna element are connected in series. The other end portion of the second antenna element is connected to a circuit in a bottom casing, and power is supplied through the other end portion thereof.

(21) Appl. No.: **11/820,130**(22) Filed: **Jun. 18, 2007**(30) **Foreign Application Priority Data**

Jun. 28, 2006 (JP) 2006-178830



Acrobat 文件



(12) **Patent Application Publication**
Yegin et al.

(43) **Pub. Date:** **Jan. 3, 2008**

Related U.S. Application Data

(63) Continuation of application No. 10/903,041, filed on Jul. 30, 2004, now Pat. No. 7,248,225.

Publication Classification

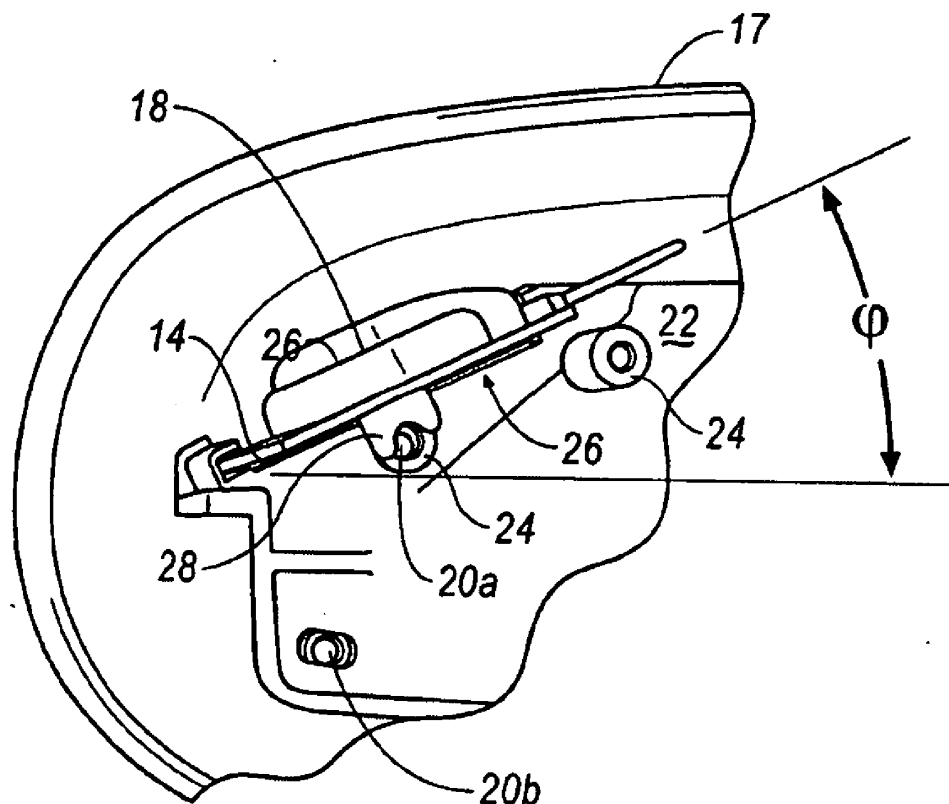
(51) **Int. Cl.**
H01Q 1/32 (2006.01)

(52) **U.S. Cl.** 343/713

(57) **ABSTRACT**

An antenna assembly is disclosed. The antenna assembly includes an externally-located vehicular mirror housing and an antenna assembly. The externally-located vehicular mirror housing includes a cable exit passage. The antenna assembly includes at least one antenna element mounted on a circuit board. The antenna assembly is located within the externally-located vehicular mirror housing. The cable exit passage passes an antenna cable extending from the circuit board and into the vehicle cabin.

(22) Filed: **Jan. 12, 2007**



Acrobat 文件



US 20080001836A1

(19) **United States**

(12) **Patent Application Publication**
Guthrie

(10) **Pub. No.: US 2008/0001836 A1**

(43) **Pub. Date: Jan. 3, 2008**

(54) **SLOT ANTENNA**

Related U.S. Application Data

(75) Inventor: **Warren E. Guthrie**, West Olive, MI
(US)

(60) Provisional application No. 60/803,042, filed on May
24, 2006.

Correspondence Address:

WARNER NORCROSS & JUDD LLP
900 FIFTH THIRD CENTER
111 LYON STREET, N.W.
GRAND RAPIDS, MI 49503-2487 (US)

Publication Classification

(51) **Int. Cl.**
H01Q 13/10 (2006.01)

(52) **U.S. Cl.** **343/767**

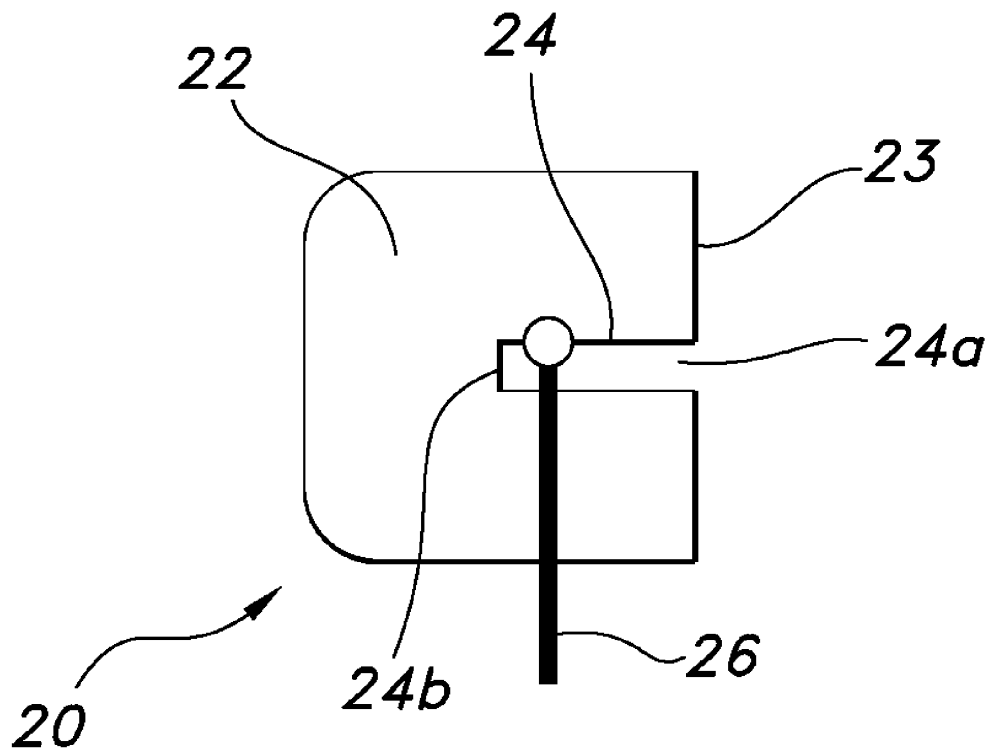
(57) **ABSTRACT**

The specification discloses a slot antenna in which the slot opens through an edge of the conductor. Preferably, the slot is nonlinear (e.g. a zigzag shape) enabling a compact configuration in which a relatively long slot is configured in a relatively small conductor.

(73) Assignee: **TWISTHINK, L.L.C.**, Holland, MI
(US)

(21) Appl. No.: **11/752,553**

(22) Filed: **May 23, 2007**



Acrobat 文件



US 20080001837A1

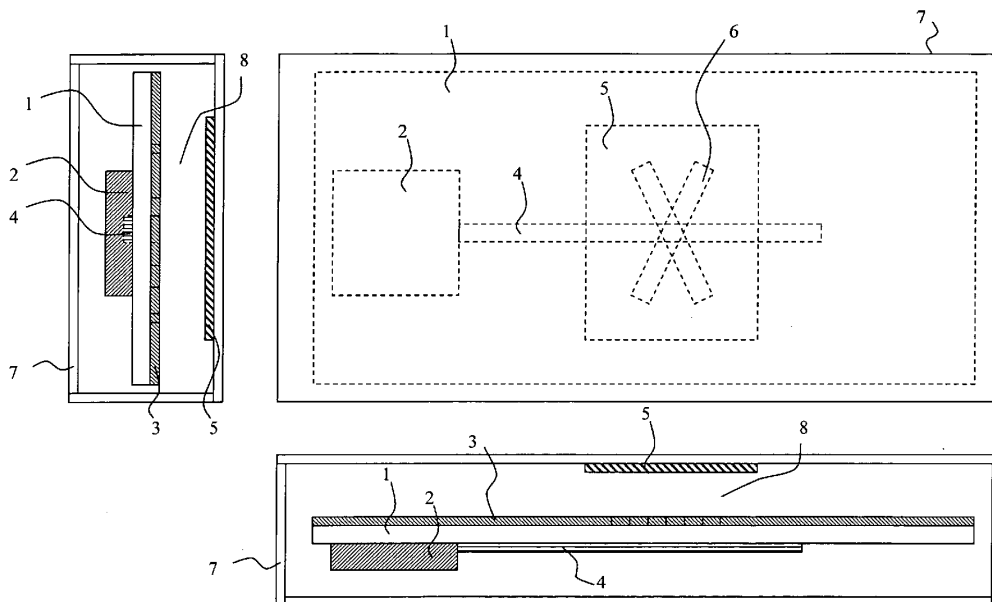
(19) **United States**(12) **Patent Application Publication**
Liu(10) **Pub. No.: US 2008/0001837 A1**(43) **Pub. Date: Jan. 3, 2008**(54) **PORTABLE COMMUNICATION DEVICE
WITH SLOT-COUPLED ANTENNA MODULE****Publication Classification**(51) **Int. Cl.**
H01Q 13/10 (2006.01)(52) **U.S. Cl.** **343/767**(57) **ABSTRACT**(75) **Inventor: I-Ru Liu, Taipei City (TW)**

Correspondence Address:

**BIRCH STEWART KOLASCH & BIRCH
PO BOX 747
FALLS CHURCH, VA 22040-0747**(73) **Assignee: Accton Technology Corporation**(21) **Appl. No.: 11/802,027**(22) **Filed: May 18, 2007**(30) **Foreign Application Priority Data**

Jul. 3, 2006 (TW) 095124188

The present invention discloses a portable communication device with slot-coupled antenna module the slot-coupled antenna module comprises: a dielectric substrate, radio module, ground plane, air substrate, and patch radiator. The radio module contains a feed line and stub that are coupled on the surface of the dielectric substrate and extending along the long side of the dielectric substrate in parallel. The ground plane with slot-coupled structure is coupled on the other surface of the dielectric substrate, the feed line and stub pass through the intersect portion of the coupled slots. The air gap is therefore formed between the ground plane and the patch radiator, and the patch radiator is substantially parallel with the ground plane and locating substantially on the position of the coupled slots.



Acrobat 文件



US 20080001838A1

(19) **United States**

(12) **Patent Application Publication**
Huang et al.

(10) **Pub. No.: US 2008/0001838 A1**

(43) **Pub. Date: Jan. 3, 2008**

(54) **PLANAR ANTENNA FOR RADIO
FREQUENCY IDENTIFICATION TAG**

(30) **Foreign Application Priority Data**

Jun. 29, 2006 (TW) 95123484

(75) Inventors: **Chi-Fang Huang, Taipei (TW);
Jing-Qing Zhan, Taipei (TW)**

Publication Classification

(51) **Int. Cl.**
H01Q 9/28 (2006.01)

(52) **U.S. Cl.** **343/795; 343/700 MS**

(57) **ABSTRACT**

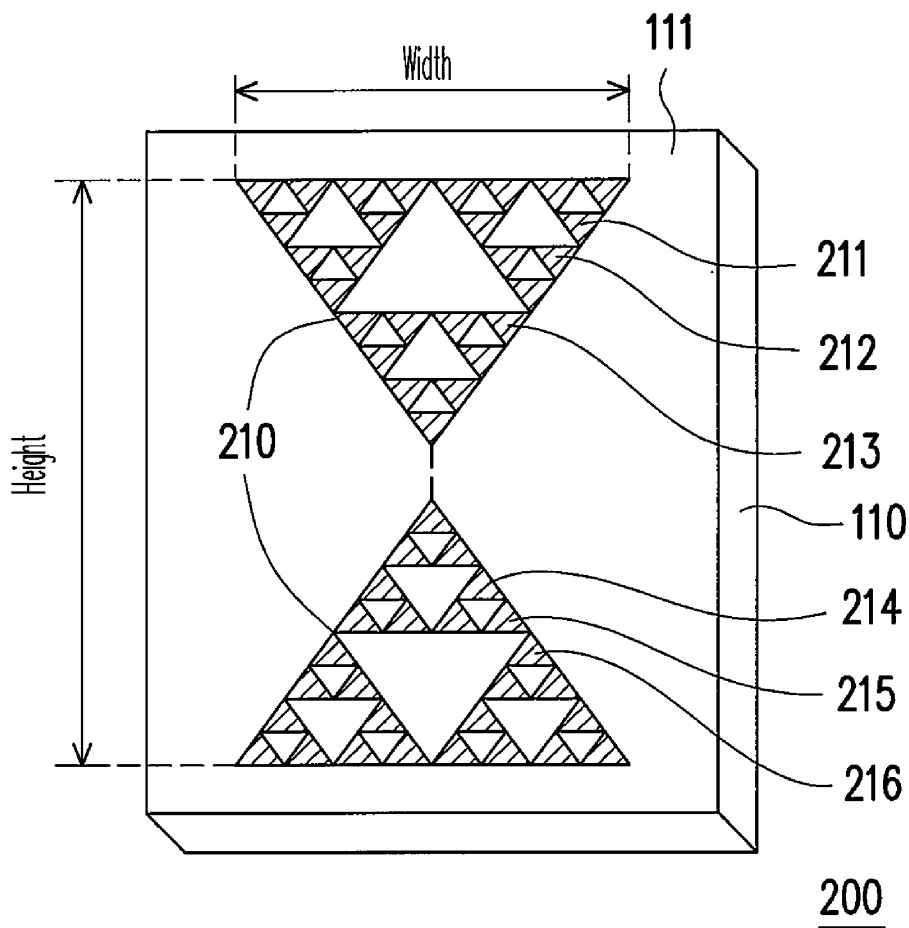
Correspondence Address:
**JIANQ CHYUN INTELLECTUAL PROPERTY
OFFICE
7 FLOOR-1, NO. 100, ROOSEVELT ROAD,
SECTION 2
TAIPEI 100**

(73) Assignee: **TATUNG COMPANY, Taipei
(TW)**

(21) Appl. No.: **11/557,500**

(22) Filed: **Nov. 8, 2006**

A planar antenna for a radio frequency identification tag which receives or transmits an electromagnetic signal is provided. The planar antenna comprises a dielectric slab and a fractal dipole antenna. The height of the fractal dipole antenna is 0.3 to 0.7 times of the half wavelength of the electromagnetic signal, and the width of the fractal dipole antenna is 0.7 to 1.1 times of the half wavelength of the electromagnetic signal. The planar antenna achieves miniaturization and a good matching by utilizing the optimal size of the fractal dipole antenna.



Acrobat 文件



US 20080001839A1

(19) **United States**(12) **Patent Application Publication**
Wei et al.(10) **Pub. No.: US 2008/0001839 A1**(43) **Pub. Date: Jan. 3, 2008**(54) **MULTI-FREQUENCY ANTENNA AND
RELATED MOBILE DEVICE**(30) **Foreign Application Priority Data**

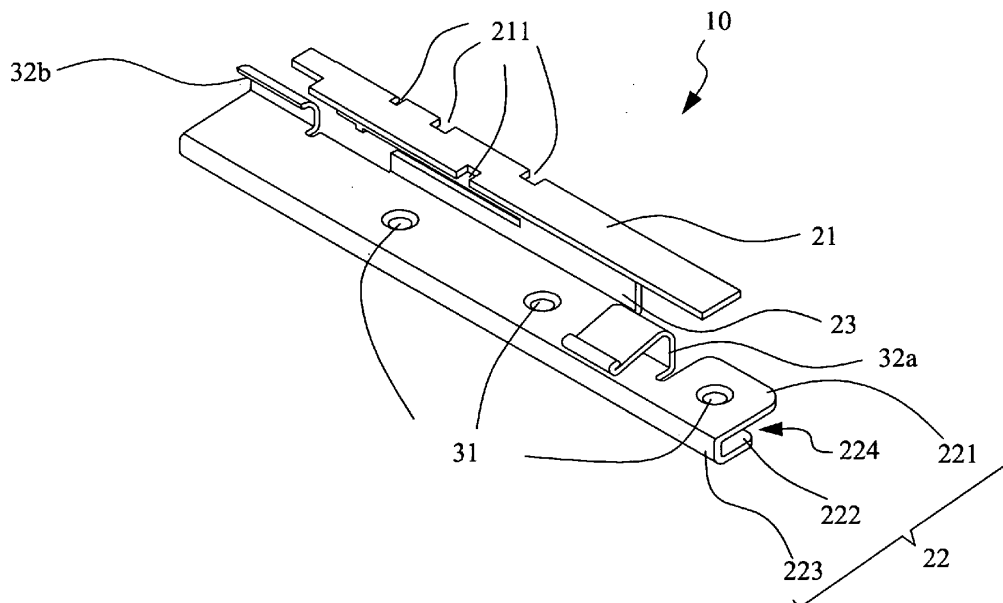
Jun. 30, 2006 (TW) 095123987

(75) Inventors: **Shen-Pin Wei, Taipei Hsien (TW);
Chia-Tien Li, Taipei Hsien (TW)****Publication Classification**(51) **Int. Cl.**
H01Q 1/48 (2006.01)(52) **U.S. Cl.** **343/848**(57) **ABSTRACT**

Correspondence Address:

**BACON & THOMAS, PLLC
625 SLATERS LANE, FOURTH FLOOR
ALEXANDRIA, VA 22314**(73) Assignee: **WISTRON NEWEB CORP.,
Taipei Hsien (TW)**(21) Appl. No.: **11/724,182**(22) Filed: **Mar. 15, 2007**

A multi-frequency antenna is disclosed. The multi-frequency antenna is positioned on a mobile device for transmitting wireless signals. The multi-frequency antenna comprises a radiating element, a grounding element and a connecting element. The connecting element is connected to the radiating element and the grounding element. The grounding element has a substantially U-shape structure so that it is capable of clipping with an edge of the mobile device.



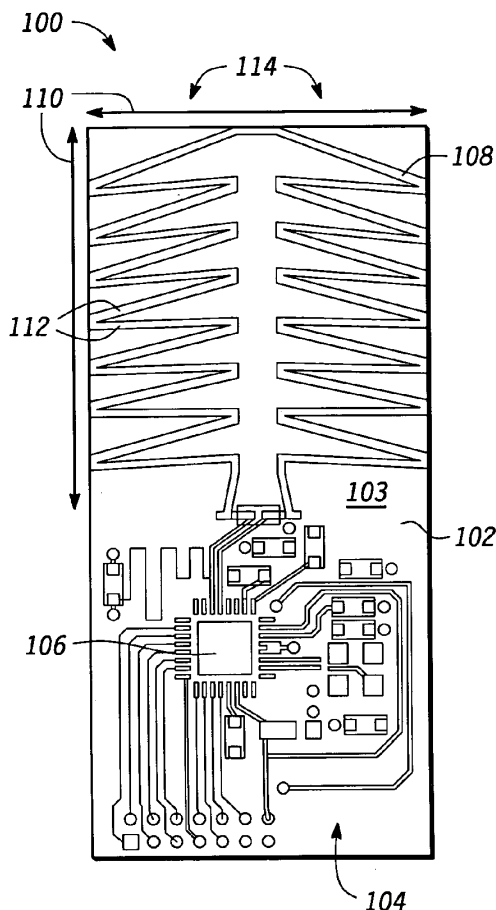
Acrobat 文件



US 20080001840A1

(19) **United States**(12) **Patent Application Publication**
Wong et al.(10) **Pub. No.: US 2008/0001840 A1**(43) **Pub. Date: Jan. 3, 2008**(54) **STACKED LOOP ANTENNA**(52) **U.S. CL. 343/867; 343/742**(76) Inventors: **Hang Wong**, Kowloon (HK);
Kwai Man Luk, Kowloon (HK);
Chi Hou Chan, Kowloon (HK);
Quan Xue, Kowloon (HK)Correspondence Address:
FREESCALE SEMICONDUCTOR, INC.
LAW DEPARTMENT
7700 WEST PARMER LANE MD:TX32/PL02
AUSTIN, TX 78729(21) Appl. No.: **11/476,387**(22) Filed: **Jun. 28, 2006****Publication Classification**(51) **Int. Cl.**
H01Q 21/00 (2006.01)
H01Q 11/12 (2006.01)(57) **ABSTRACT**

A small transceiver device and antenna system has an insulating layer with first and second surfaces. A transmit loop element having transmit loop segments is formed on the first surface. The transmit loop segments are disposed in a transmit zigzag configuration. A receive loop element having receive loop segments is formed on the second surface. The receive loop segments are disposed in a receive zigzag configuration. Each receive loop segment in the receive zigzag configuration is skewed with respect to a closest transmit loop segment disposed in the transmit zigzag configuration. The transmit loop segments can be grouped in two or more transmit zigzag configurations, and the receive loop segments can be grouped in two or more receive zigzag configurations.



Acrobat 文件

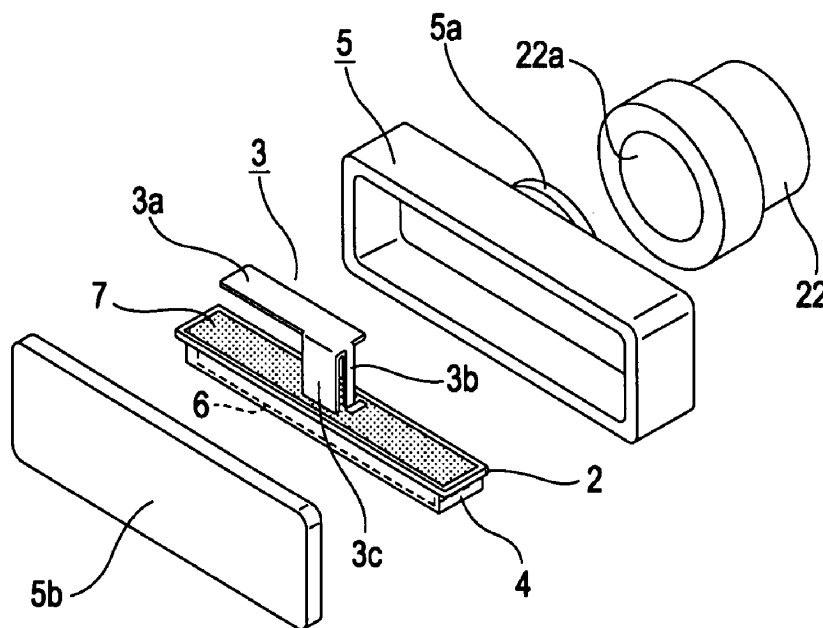


US 20080001842A1

(19) **United States**(12) **Patent Application Publication**
Shigihara et al.(10) **Pub. No.: US 2008/0001842 A1**(43) **Pub. Date: Jan. 3, 2008**(54) **ANTENNA APPARATUS FOR
TRANSPONDER****Publication Classification**(75) Inventors: **Makoto Shigihara**, Fukushima-ken
(JP); **Yasuhiro Konno**,
Fukushima-ken (JP)(51) **Int. Cl.**
H01Q 1/42 (2006.01)(52) **U.S. Cl.** **343/872**(57) **ABSTRACT**Correspondence Address:
BEYER WEAVER LLP
P.O. BOX 70250
OAKLAND, CA 94612-0250(73) Assignee: **ALPS ELECTRIC CO., LTD.**(21) Appl. No.: **11/809,051**(22) Filed: **May 30, 2007**(30) **Foreign Application Priority Data**

Jun. 30, 2006 (JP) 2006-181930

An antenna apparatus is mounted at a wheel rim as a transponder of a system for monitoring a tire pressure or the like, and attached at an end portion of an air valve. The apparatus includes a circuit board having an electronic circuit portion and a grounding conductor layer, a sheet-metal inverse-F type antenna element, a sheet-metal shield case conducting to the grounding conductor layer to cover the electronic circuit portion, and a resin case for accommodating these components. One side surface extending in a longitudinal direction of a space defined between the circuit board and the radiating conductor of the antenna element faces one of sidewalls of a tire, and the other side surface thereof faces a wall surface of the wheel rim with a distance interposed therebetween, the distance being about one-fourth of a wavelength of a radio wave to be used.



Acrobat 文件



US 20080005889A1

(19) **United States**(12) **Patent Application Publication****Chen et al.**(10) **Pub. No.: US 2008/0005889 A1**(43) **Pub. Date: Jan. 10, 2008**(54) **FLEXIBLE ANTENNA APPARATUS AND A MANUFACTURING METHOD THEREOF****Publication Classification**(51) **Int. Cl.****H01P 11/00** (2006.01)**H01Q 13/00** (2006.01)(52) **U.S. Cl.** **29/600; 156/60**(76) Inventors: **Bin-Hung Chen**, Hsinchu (TW);
Chih-Ming Chen, Hsinchu (TW)

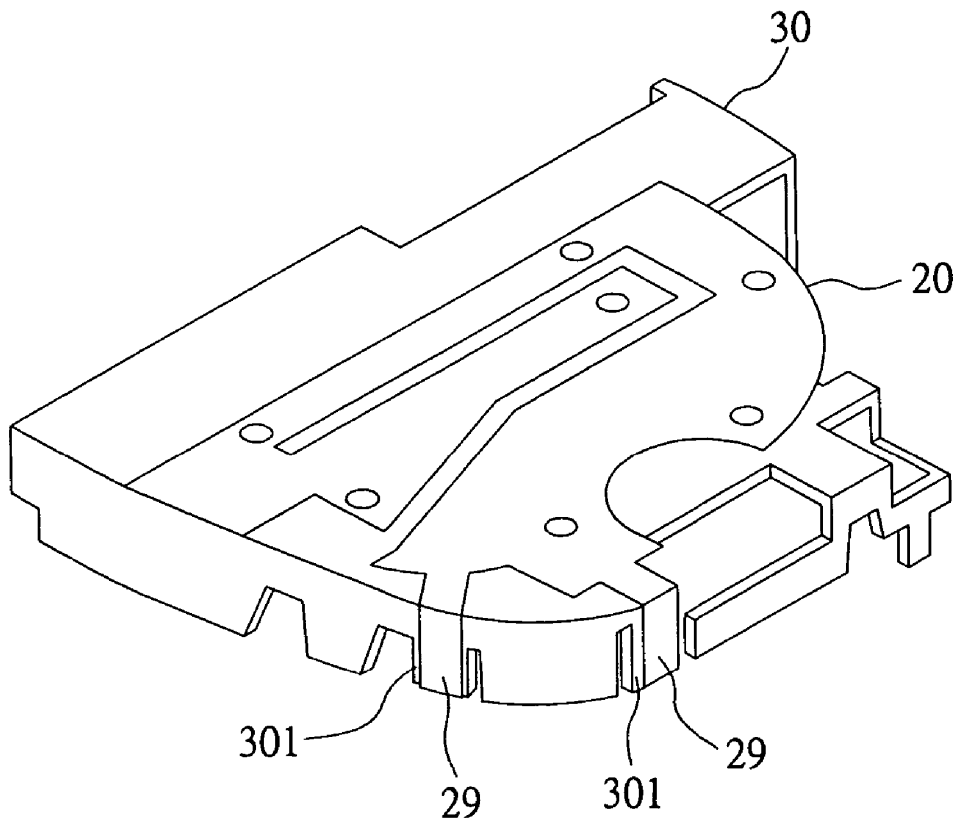
Correspondence Address:

ROSENBERG, KLEIN & LEE**3458 ELLICOTT CENTER DRIVE-SUITE 101****ELLICOTT CITY, MD 21043 (US)**(21) Appl. No.: **11/648,597**(22) Filed: **Jan. 3, 2007****Related U.S. Application Data**

(62) Division of application No. 11/199,079, filed on Aug. 9, 2005, now Pat. No. 7,256,742.

ABSTRACT

A flexible antenna apparatus and a manufacturing method thereof are provided for wireless communication devices. The flexible antenna has a metal layer with an adhesive layer pasted onto the back surface of the metal layer, so that it can be directly pasted onto the housing of the wireless communication device. On another side of the metal layer, there is a transparent protective layer and the metal layer reserves a zone without the transparent protective layer for electrically coupling to the electrical substrate of the wireless communication device. The present flexible antenna apparatus reduces the developing time and cost of the device and the manufacturing process more convenient. The flexible antenna apparatus is suitable for all wireless communication devices and increases the flexibility of the manufacturing process by adding a holder having at least one plastic pin, or a pin.



Acrobat 文件



US 20080007456A1

(19) **United States**(12) **Patent Application Publication****Chen et al.**(10) **Pub. No.: US 2008/0007456 A1**(43) **Pub. Date: Jan. 10, 2008**(54) **ANTENNA STRUCTURE AND MEDIUM COMPONENT FOR USE IN PLANAR INVERTED-F ANTENNA**(76) Inventors: **Chin-Hao Chen**, Taipei (TW);
Chen-Ming Chiang, Taipei (TW);
Chun-Chen Chao, Taipei (TW)

Correspondence Address:

ROSENBERG, KLEIN & LEE
3458 ELLICOTT CENTER DRIVE-SUITE 101
ELLICOTT CITY, MD 21043 (US)(21) Appl. No.: **11/648,588**(22) Filed: **Jan. 3, 2007**(30) **Foreign Application Priority Data**

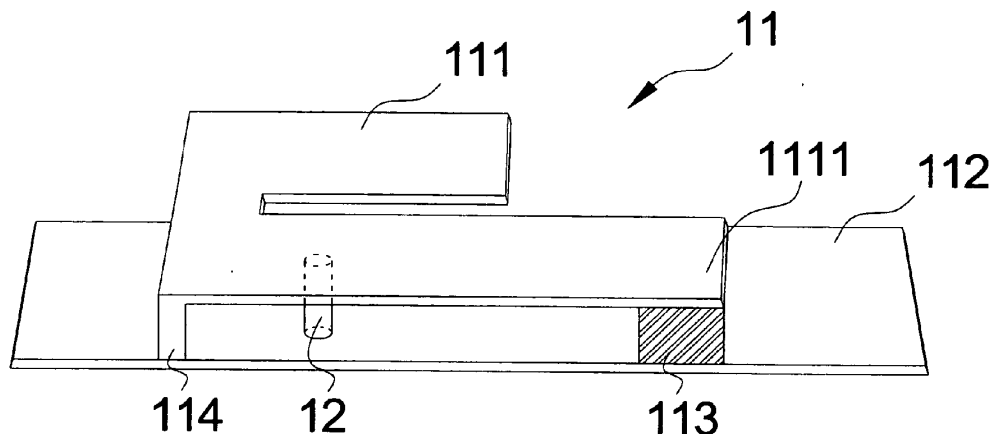
Jan. 4, 2006 (TW)..... 095200180

Publication Classification(51) **Int. Cl.****H01Q 1/38** (2006.01)**H01Q 9/06** (2006.01)(52) **U.S. Cl.** **343/700 MS**

(57)

ABSTRACT

An antenna structure and a medium component for use in a planar inverted-F antenna are disclosed. The antenna structure comprises a radiation component, a ground component and a medium component. A space is between the radiation component and the ground component for generating resonance effects to transmit and to receive electromagnetic waves. The medium component is set into the space which is between the radiation component and the ground component for fastening the space, but also has insulation and waterproof functions. The efficacy for the antenna structure transmitting and receiving electromagnetic waves can be ensured.



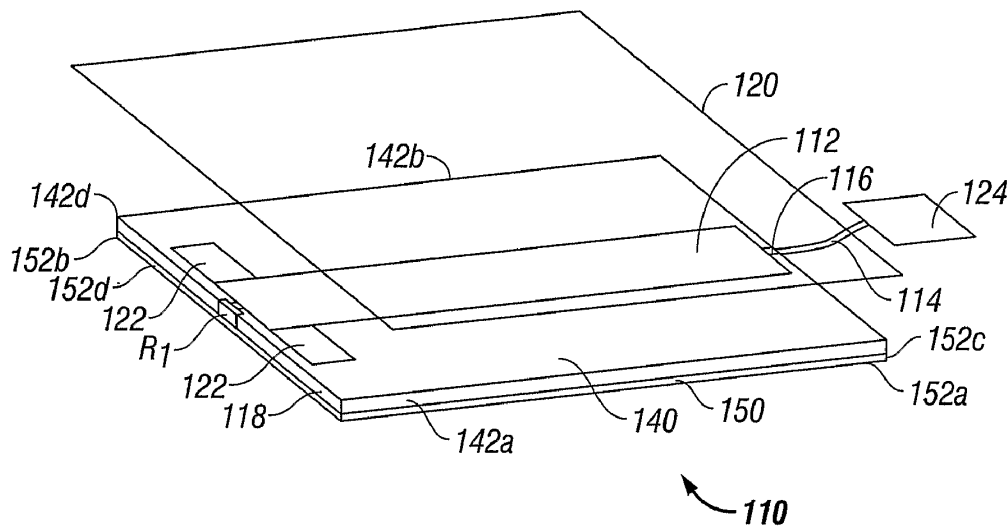
Acrobat 文件



US 20080007457A1

(19) **United States**(12) **Patent Application Publication**
Copeland et al.(10) **Pub. No.: US 2008/0007457 A1**(43) **Pub. Date: Jan. 10, 2008**(54) **RFID NEAR FIELD LINEAR ANTENNA****Related U.S. Application Data**(75) Inventors: **Richard L. Copeland**, Lake Worth, FL
(US); **Gary Mark Shafer**, Boca Raton,
FL (US)(60) Provisional application No. 60/624,402, filed on Nov.
2, 2004. Provisional application No. 60/659,380, filed
on Mar. 7, 2005.Correspondence Address:
IP LEGAL DEPARTMENT
TYCO FIRE & SECURITY SERVICES
ONE TOWN CENTER ROAD
BOCA RATON, FL 33486 (US)**Publication Classification**(73) Assignee: **Sensomatic Electronics Corporation**,
Boca Rato, FL(51) **Int. Cl.**
H01Q 1/38 (2006.01)
H01Q 9/06 (2006.01)
(52) **U.S. Cl.** **343/700 MS**(21) Appl. No.: **11/666,806**(22) PCT Filed: **Nov. 2, 2005**(86) PCT No.: **PCT/US05/39587**§ 371(c)(1),
(2), (4) Date: **Apr. 30, 2007**(57) **ABSTRACT**

A near field linear element microstrip antenna is disclosed which is configured to read an RFID label such that a localized electric E field emitted by the antenna at an operating wavelength resides substantially within a zone defined by the near field. The localized E field directs a current distribution along an effective length of the antenna corresponding to a half-wave to a full-wave structure.



Acrobat 文件



US 20080007458A1

(19) **United States**

(12) **Patent Application Publication**
Tseng et al.

(10) **Pub. No.: US 2008/0007458 A1**

(43) **Pub. Date: Jan. 10, 2008**

(54) **ANTENNA**

(30) **Foreign Application Priority Data**

(75) Inventors: **Kuan-Hsueh Tseng**, Taipei (TW);
Yi-Ling Chiu, Taipei (TW);
Chia-Tien Li, Taipei (TW)

Jul. 4, 2006 (TW) TW95124300

Publication Classification

(51) **Int. Cl.**
H01Q 1/38 (2006.01)

(52) **U.S. Cl.** **343/700 MS; 343/702**

(57) **ABSTRACT**

Correspondence Address:
QUINTERO LAW OFFICE, PC
2210 MAIN STREET, SUITE 200
SANTA MONICA, CA 90405

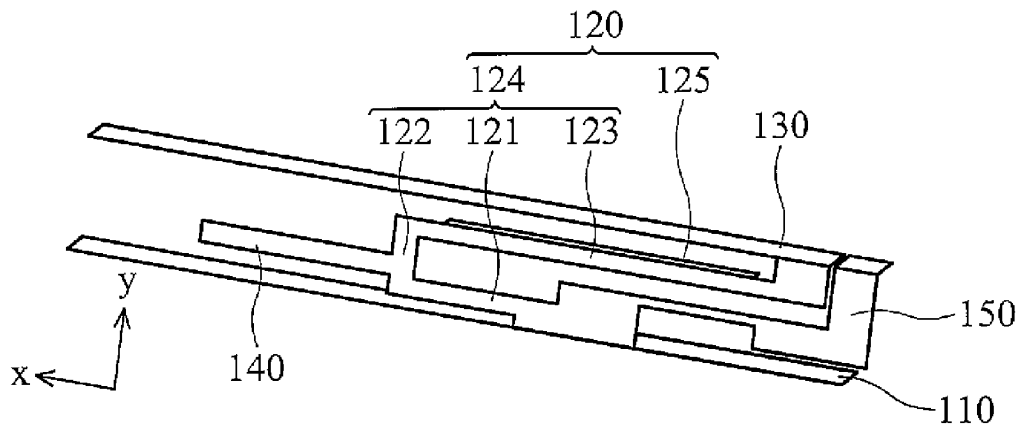
(73) Assignee: **WISTRON NEWEB CORP.**,
TAIPEI HSIEN (TW)

(21) Appl. No.: **11/674,055**

(22) Filed: **Feb. 12, 2007**

An antenna comprises a ground element, a transmission element, a conductive element and a coupling element. The conductive element connects the ground element and the transmission element. The coupling element extends from the conductive element substantially parallel to the transmission element, wherein the coupling element is located on a first plane, the transmission element is located on a second plane, and the second plane is parallel to the first plane.

100



Acrobat 文件



US 20080007459A1

(19) **United States**(12) **Patent Application Publication**
Koskiniemi et al.(10) **Pub. No.: US 2008/0007459 A1**(43) **Pub. Date: Jan. 10, 2008**(54) **ANTENNA COMPONENT AND METHODS****Publication Classification**(76) Inventors: **Kimmo Koskiniemi**, Oulu (FI); **Vesa Kuronen**, Oulu (FI)(51) **Int. Cl.**
H01Q 1/38 (2006.01)
(52) **U.S. Cl.** **343/700 MS**

Correspondence Address:

GAZDZINSKI & ASSOCIATES
11440 WEST BERNARDO COURT, SUITE 375
SAN DIEGO, CA 92127 (US)(57) **ABSTRACT**

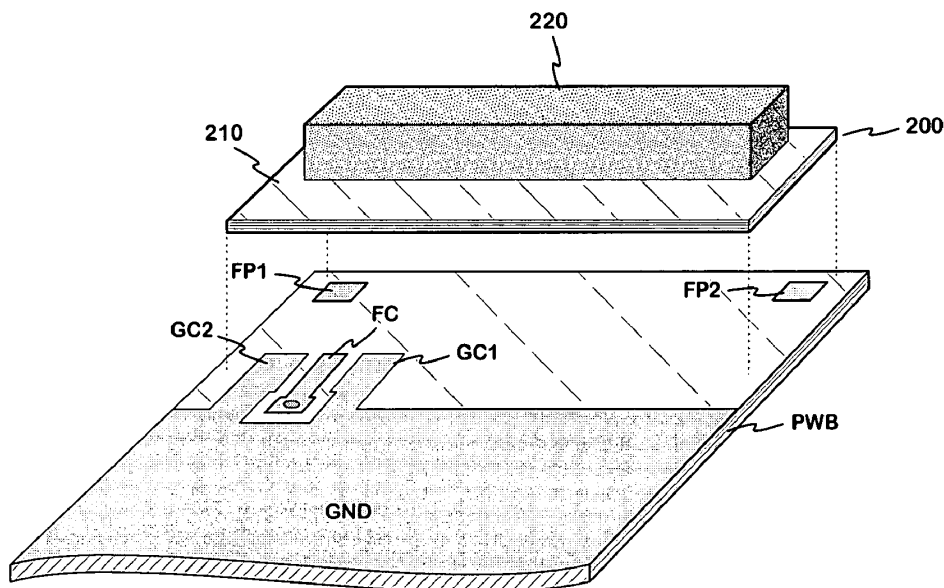
An antenna component suited for small-sized radio devices for forming a dielectric antenna. A small auxiliary circuit board (210) is used for the matching of the antenna, the matching being based on a conductor pattern on it. A substrate chip (220), on the surface of which the radiator is, and the auxiliary board are fastened to each other, whereby the radiator is electrically connected to said conductor pattern. The radiator, its substrate and the auxiliary board form a unitary, solid antenna component (200), which is mounted on the circuit board (PWB) of the radio device. The antenna with its feed and matching circuits can be designed and tested as a whole of its own, in which case the reproducibility is good. In the design of the circuit board of the radio device, the antenna needs to be taken into account only by reserving a space for the antenna component on the circuit board.

(21) Appl. No.: **11/801,894**(22) Filed: **May 11, 2007****Related U.S. Application Data**

(63) Continuation of application No. PCT/FI05/50382, filed on Oct. 27, 2005.

(30) **Foreign Application Priority Data**

Nov. 11, 2004 (FI)..... 20041455



Acrobat 文件



US 20080007460A1

(19) **United States**(12) **Patent Application Publication**
Ke et al.(10) **Pub. No.: US 2008/0007460 A1**(43) **Pub. Date: Jan. 10, 2008**(54) **MULTI-BAND ANTENNA**(30) **Foreign Application Priority Data**(75) Inventors: **Yun-Long Ke**, Tu-Cheng (TW);
Chen-Ta Hung, Tu-Cheng (TW);
Lung-Sheng Tai, Tu-Cheng (TW);
YaoO-Shien Huang, Tu-Cheng
(TW); **Po-Kang Ku**, Tu-Cheng
(TW)

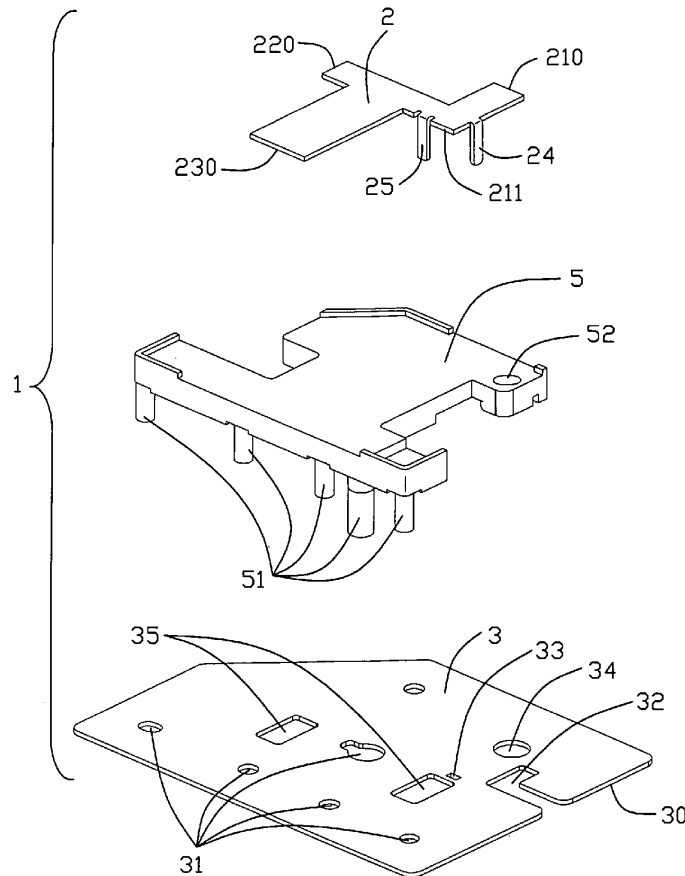
Jul. 10, 2006 (TW) 95125031

Publication Classification(51) **Int. Cl.**
H01Q 1/38 (2006.01)(52) **U.S. Cl.** **343/700 MS**(57) **ABSTRACT**

Correspondence Address:

WEI TE CHUNG
FOXCONN INTERNATIONAL, INC.
1650 MEMOREX DRIVE
SANTA CLARA, CA 95050(73) Assignee: **HON HAI PRECISION IND.**
CO., LTD.(21) Appl. No.: **11/824,783**(22) Filed: **Jul. 3, 2007**

A multi-band antenna includes a radiating element comprising a first metal patch, a second metal patch extending along a direction different from the first metal patch, a grounding element parallel to the radiating element with a certain distance, a resonant cavity produced by said certain distance between separated the radiating element and the grounding element, a first pad downward extending from an edge of the first metal patch to form a feeding pad, and a second pad downward extending from an edge of the second metal patch to form a grounding pad; wherein the edge from which the first pad extending is bordering the edge of the second metal patch with the second pad.



Acrobat 文件



US 20080007461A1

(19) **United States**

(12) **Patent Application Publication**
Su et al.

(10) **Pub. No.: US 2008/0007461 A1**

(43) **Pub. Date: Jan. 10, 2008**

(54) **MULTI-BAND ANTENNA**

(30) **Foreign Application Priority Data**

(75) Inventors: **Wen-Fong Su, Tu-Cheng (TW);**
Chen-Ta Hung, Tu-Cheng (TW);
Shu-Yean Wang, Tu-Cheng (TW)

Jul. 10, 2006 (TW) 95125030

Publication Classification

Correspondence Address:
WEI TE CHUNG
FOXCONN INTERNATIONAL, INC.
1650 MEMOREX DRIVE
SANTA CLARA, CA 95050

(51) **Int. Cl.**
H01Q 1/38 (2006.01)
H01Q 1/24 (2006.01)

(52) **U.S. Cl.** **343/700 MS; 343/702**

(57) **ABSTRACT**

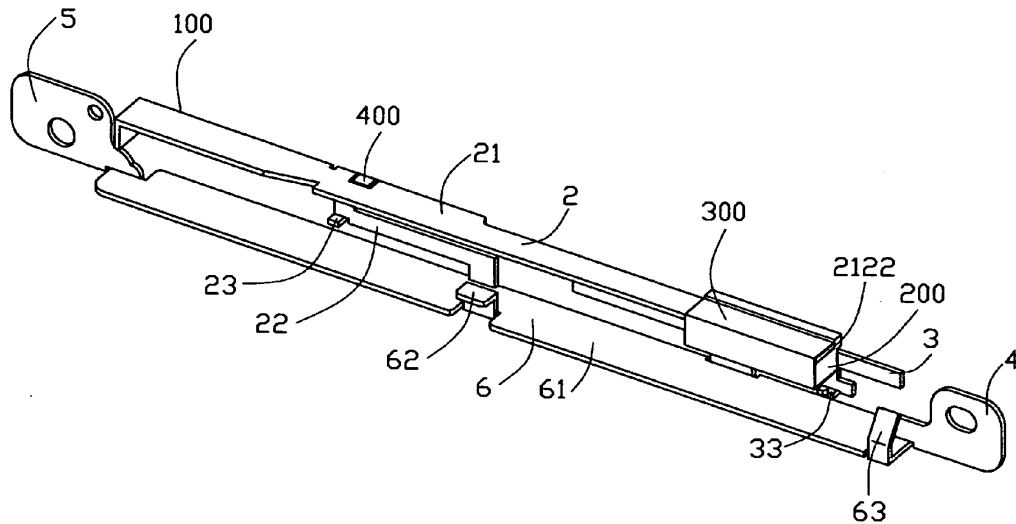
(73) Assignee: **HON HAI PRECISION IND.**
CO., LTD.

(21) Appl. No.: **11/825,891**

(22) Filed: **Jul. 10, 2007**

A multi-band antenna includes a radiating element having at least two frequency bands and comprising a gap on one side edge thereof, a grounding element coupling and being perpendicular to said radiating element, and a reactance assembled to said radiating element and received in said gap.

1



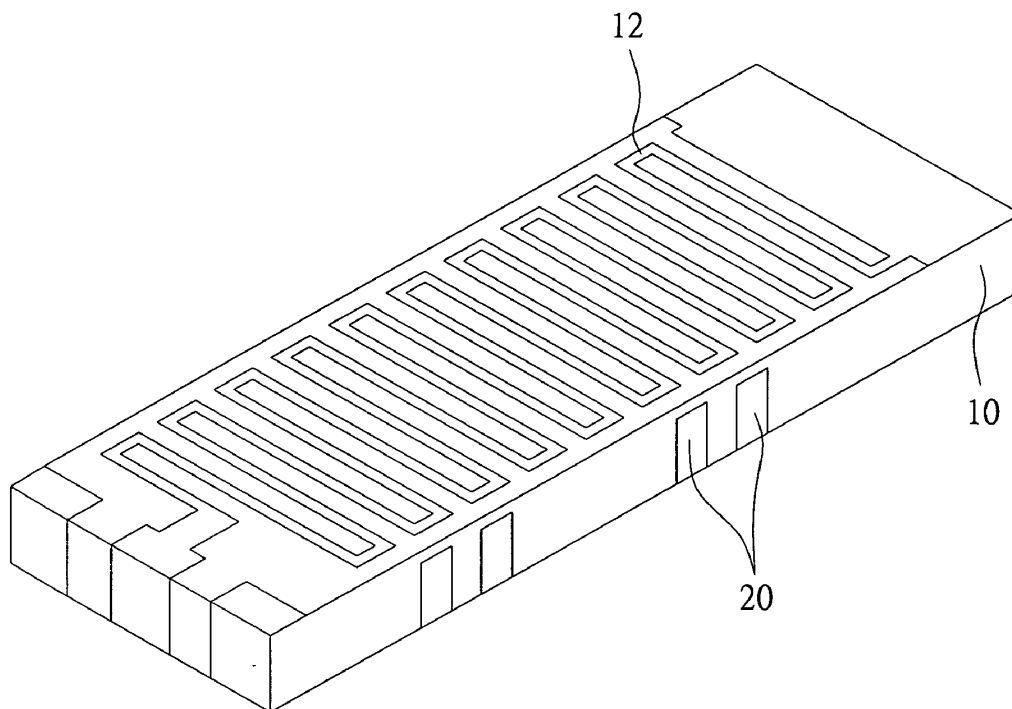
Acrobat 文件



US 20080007463A1

(19) **United States**(12) **Patent Application Publication**
Chen(10) **Pub. No.: US 2008/0007463 A1**(43) **Pub. Date: Jan. 10, 2008**(54) **FREQUENCY ADJUSTABLE ANTENNA
APPARATUS AND A MANUFACTURING
METHOD THEREOF**(76) Inventor: **Chih-Ming Chen**, Hsinchu (TW)Correspondence Address:
ROSENBERG, KLEIN & LEE
3458 ELLICOTT CENTER DRIVE-SUITE 101
ELLICOTT CITY, MD 21043(21) Appl. No.: **11/480,945**(22) Filed: **Jul. 6, 2006****Publication Classification**(51) **Int. Cl.**
H01Q 1/24 (2006.01)(52) **U.S. Cl.** **343/702; 343/700 MS**(57) **ABSTRACT**

A frequency adjustable antenna apparatus and a manufacturing method thereof are disclosed. The antenna apparatus includes a plurality of antenna paths and the length of the antenna path is changed via the soldering pads. Therefore, the receiving frequency of the antenna can be changed. The frequency adjustable antenna apparatus includes a body, a first path, at least one second path and a printed circuit board. The first path is located on an upper surface of the body and extends to a lower surface. The second path is located on the lower surface. The printed circuit board includes at least one soldering pad. When the lower surface of the body is pasted on the printed circuit board, the first path is connected with the second path via the soldering pads. Thereby, the length of the first path is changed to adjust the frequency of the antenna apparatus.



Acrobat 文件



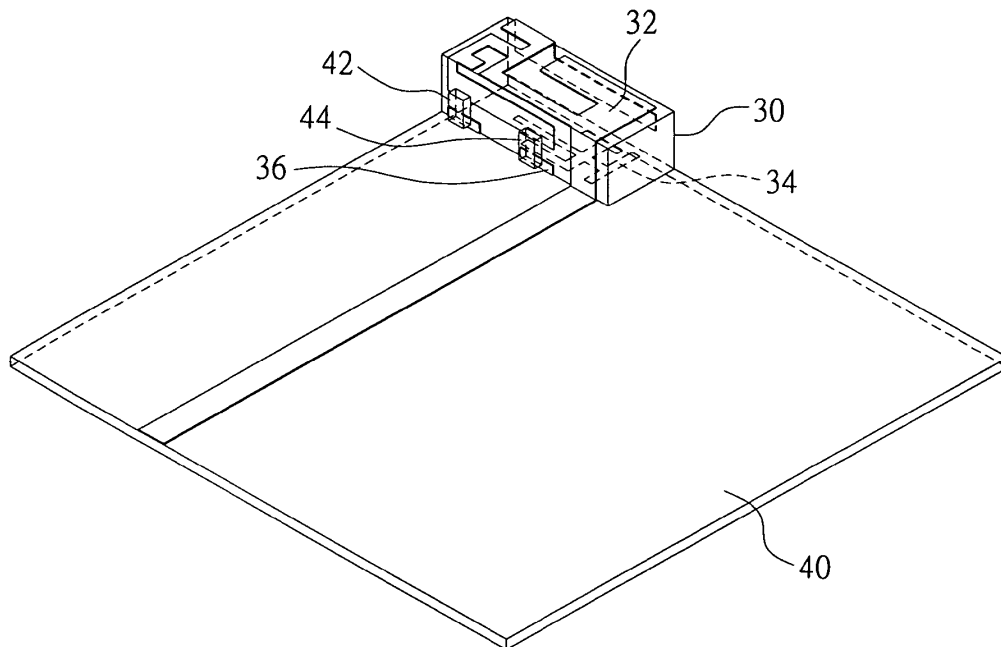
US 20080007464A1

(19) **United States**(12) **Patent Application Publication**
Hsu(10) **Pub. No.: US 2008/0007464 A1**(43) **Pub. Date: Jan. 10, 2008**(54) **MULTI-FUNCTION ANTENNA APPARATUS**(76) Inventor: **Cho-Kang Hsu, Hsinchu (TW)**

Correspondence Address:

ROSENBERG, KLEIN & LEE**3458 ELLICOTT CENTER DRIVE-SUITE 101**
ELLICOTT CITY, MD 21043(21) Appl. No.: **11/480,947**(22) Filed: **Jul. 6, 2006****Publication Classification**(51) **Int. Cl.**
H01Q 1/24 (2006.01)(52) **U.S. Cl.** **343/702; 343/700 MS**(57) **ABSTRACT**

A multi-function antenna apparatus utilizes a design having a plurality of paths and can be applied to both a substrate having a grounding layer and a substrate without a grounding layer. The multi-function antenna apparatus includes a body, a main path, a grounding path and a matching-resistance path. The main path is located on an upper surface of the body. The grounding path is located on a lower surface of the body. The matching-resistance path is located on a side surface of the body. The multi-function antenna apparatus of the present invention modifies the matching resistance of the multi-function antenna apparatus by adjusting the capacitance of the capacitor and the inductance of the inductor.



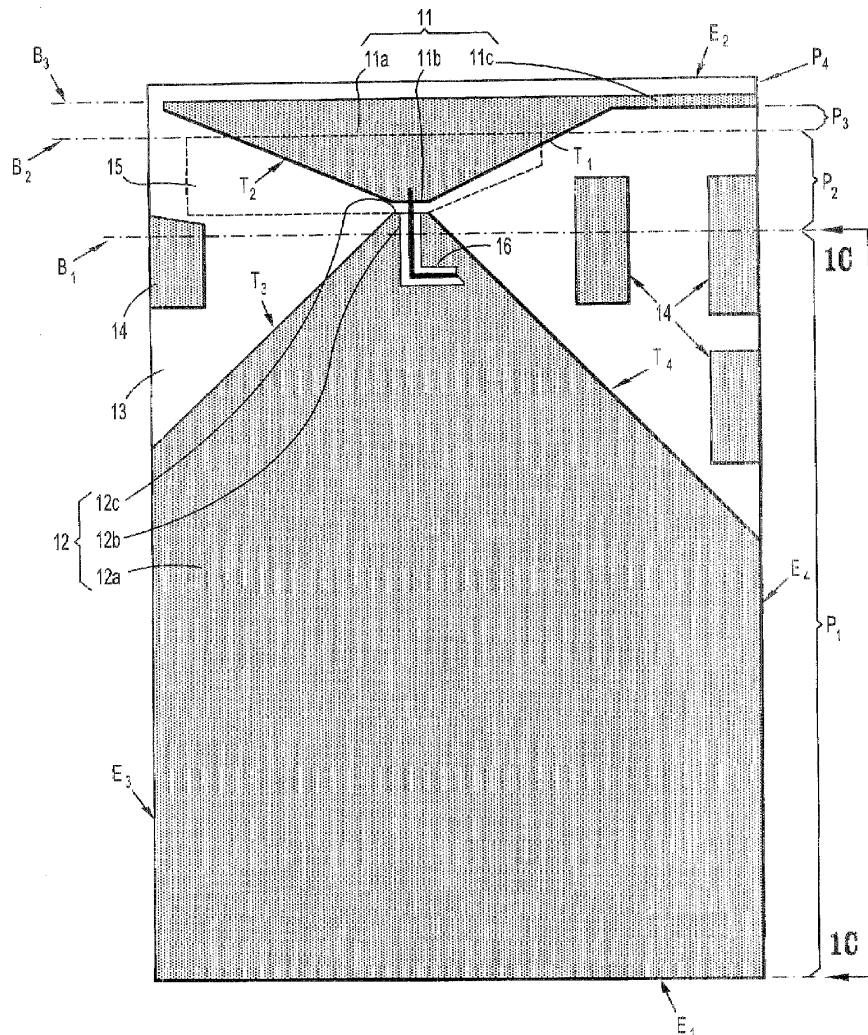
Acrobat 文件



US 20080007465A1

(19) **United States**(12) **Patent Application Publication**
Gaucher et al.(10) **Pub. No.: US 2008/0007465 A1**(43) **Pub. Date: Jan. 10, 2008**(54) **EMBEDDED MULTI-MODE ANTENNA
ARCHITECTURES FOR WIRELESS
DEVICES****Publication Classification**(51) **Int. Cl.**
H01Q 1/24 (2006.01)
H01Q 1/38 (2006.01)(76) **Inventors:** **Brian P. Gaucher**, Brookfield, CT
(US); **Duixian Liu**, Scarsdale, NY
(US); **Thomas R. Hildner**, Cary,
NC (US)(52) **U.S. Cl.** **343/702; 343/700 MS****Correspondence Address:**
F. CHAU & ASSOCIATES, LLC
130 WOODBURY ROAD
WOODBURY, NY 11797(57) **ABSTRACT**

Low-profile, compact embedded multi-mode antenna designs are provided for use with computing devices, such as laptop computers, which enable ease of integration within computing devices with limited space, while providing suitable antenna characteristics (e.g., impedance matching and radiation efficiency) over an operating bandwidth of about 0.8 GHz to about 11 GHz.

(21) **Appl. No.: 11/482,571**(22) **Filed: Jul. 7, 2006**

Acrobat 文件



(19) **United States**

(10) **Pub. No.: US 2008/0007467 A1**

(54) ANTENNA AND MOBILE TERMINAL USING THE SAME

(75) Inventor: **Dong Kyu Seo**, Ulsan-si (KR)

H01Q 1/24 (2006.01)

(52) **U.S. Cl.** 343/702; 343/700 MS

Correspondence Address:

660 S. FIGUEROA STREET

(73) Assignee: **LG Electronics Inc.**

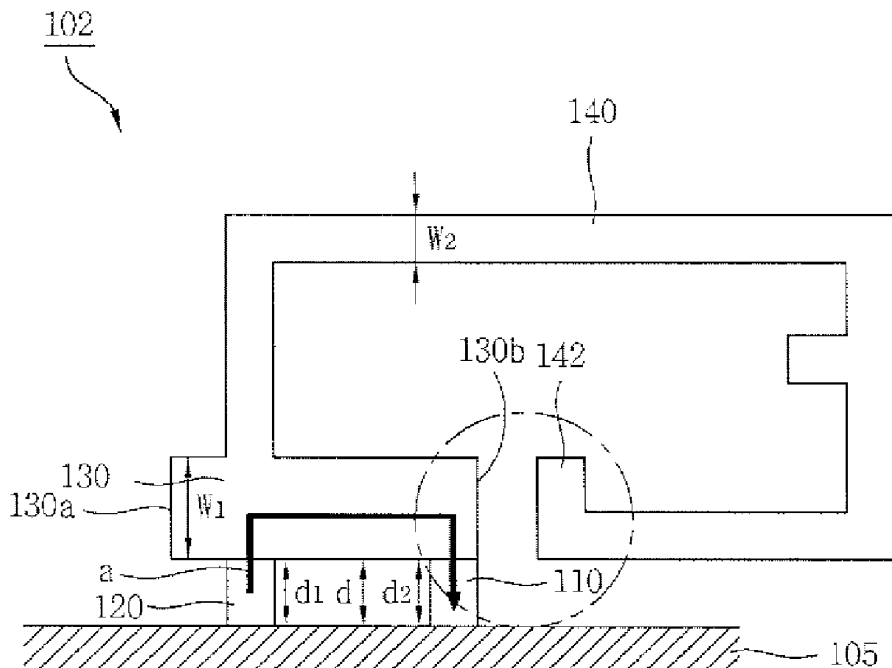
ABSTRACT

(21) Appl. No.: 11/774,161

(22) Filed: **Jul. 6, 2007**

(30) **Foreign Application Priority Data**

Jul. 7, 2006 (KR) 10-2006-0063805



Acrobat 文件



US 20080007469A1

(19) **United States**(12) **Patent Application Publication****Hung et al.**(10) **Pub. No.: US 2008/0007469 A1**(43) **Pub. Date: Jan. 10, 2008**(54) **MULTI-BAND ANTENNA****Publication Classification**

(75) Inventors: **Chen-Ta Hung**, Tu-Cheng (TW);
Shang-Jen Chen, Tu-Cheng (TW);
Hsien-Sheng Tseng, Tu-Cheng (TW)

(51) **Int. Cl.**
H01Q 1/24 (2006.01)

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

(57) **ABSTRACT**

Correspondence Address:
WEI TE CHUNG
FOXCONN INTERNATIONAL, INC.
1650 MEMOREX DRIVE
SANTA CLARA, CA 95050

(73) Assignee: **HON HAI PRECISION IND., CO., LTD.**

(21) Appl. No.: **11/825,889**

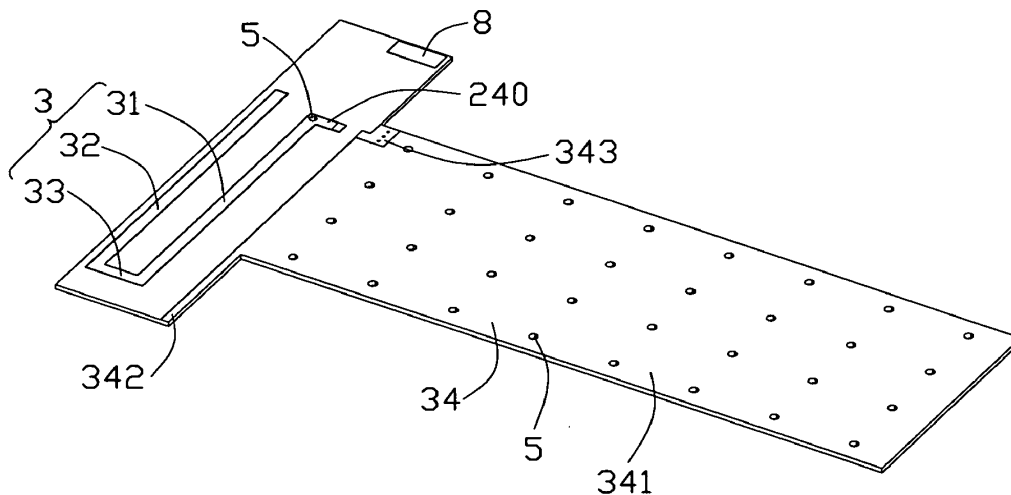
(22) Filed: **Jul. 9, 2007**

(30) **Foreign Application Priority Data**

Jul. 7, 2006 (CN) 200610086343.X

A multi-band antenna used in a portable electrical device can operate in WWAN. The multi-band antenna includes a PCB, a first antenna body, and a second antenna body. The PCB has a first surface and an opposite second surface and defines a through hole extending from the first surface to the second surface. The first antenna body is formed on the first surface of the PCB comprising a first radiating element and a first grounding element. The second antenna body is formed on the second surface of the PCB. The second antenna body comprises a second radiating element, a second grounding element, and a connecting element connecting the second radiating element and the second grounding element. The first radiating element and the second radiating element electrically connect with each other via the through hole of the PCB. A feeding line has an inner conductor electrically connecting to the first radiating element and an outer conductor electrically connecting to the first grounding element.

1
~



Acrobat 文件



US 20080007476A1

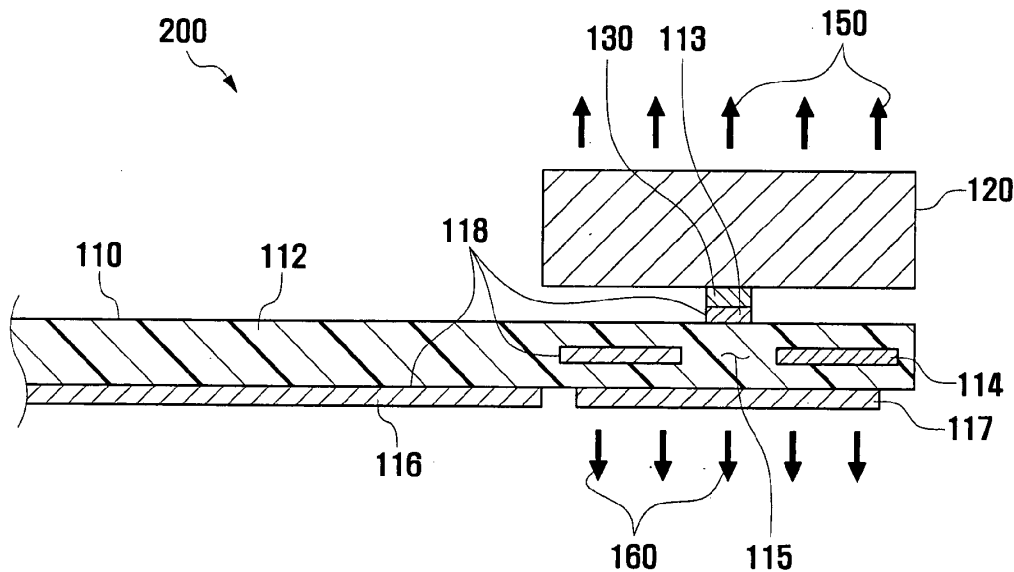
(19) **United States**(12) **Patent Application Publication**
Lee(10) **Pub. No.: US 2008/0007476 A1**(43) **Pub. Date: Jan. 10, 2008**(54) **DUAL RADIATING TYPE INNER ANTENNA
FOR MOBILE COMMUNICATION
TERMINAL****Publication Classification**(51) **Int. Cl.**
H01Q 23/00 (2006.01)(52) **U.S. Cl.** 343/850(57) **ABSTRACT**(75) **Inventor: Jong In Lee, Hwaseong-si (KR)**

Correspondence Address:
THE FARRELL LAW FIRM, P.C.
333 EARLE OVINGTON BOULEVARD, SUITE
701
UNIONDALE, NY 11553

(73) **Assignee: SAMSUNG ELECTRONICS**
CO., LTD., Suwon-si (KR)(21) **Appl. No.: 11/706,852**(22) **Filed: Feb. 15, 2007**(30) **Foreign Application Priority Data**

Jul. 10, 2006 (KR) 2006-0064632

The dual radiating type inner antenna includes a Printed Circuit Board (PCB), a first radiation plate disposed at an upper part of the PCB, a power supply unit connecting the PCB and the first radiation plate to supply a current to the first radiation plate, a power supply pad, a floating patch, and a second radiation plate. Current supplied to the power supply pad is radiated as first electromagnetic waves through the first radiation plate after passing through the power supply unit; and is radiated as second electromagnetic waves through the second radiation plate after being coupled through the slot of the floating patch to the power supply pad. Therefore, the inner antenna simultaneously radiates electromagnetic waves of different frequency bands, so that a usable frequency bandwidth can be expanded and the gain of the antenna can be increased. Accordingly, the inner antenna can maintain a stable antenna performance by solving a deterioration problem caused by a frequency shift due to an effect of a human body.



Acrobat 文件



US 20080007478A1

(19) **United States**(12) **Patent Application Publication****Jung et al.**(10) **Pub. No.: US 2008/0007478 A1**(43) **Pub. Date: Jan. 10, 2008**(54) **MULTIBAND ANTENNA WITH REMOVED COUPLING****Publication Classification**(75) Inventors: **Chang-won Jung**, Yongin-si (KR);
Young-eil Kim, Yongin-si (KR);
Se-hyun Park, Yongin-si (KR)(51) **Int. Cl.**
H01Q 1/36 (2006.01)(52) **U.S. Cl.** **343/895; 343/702**

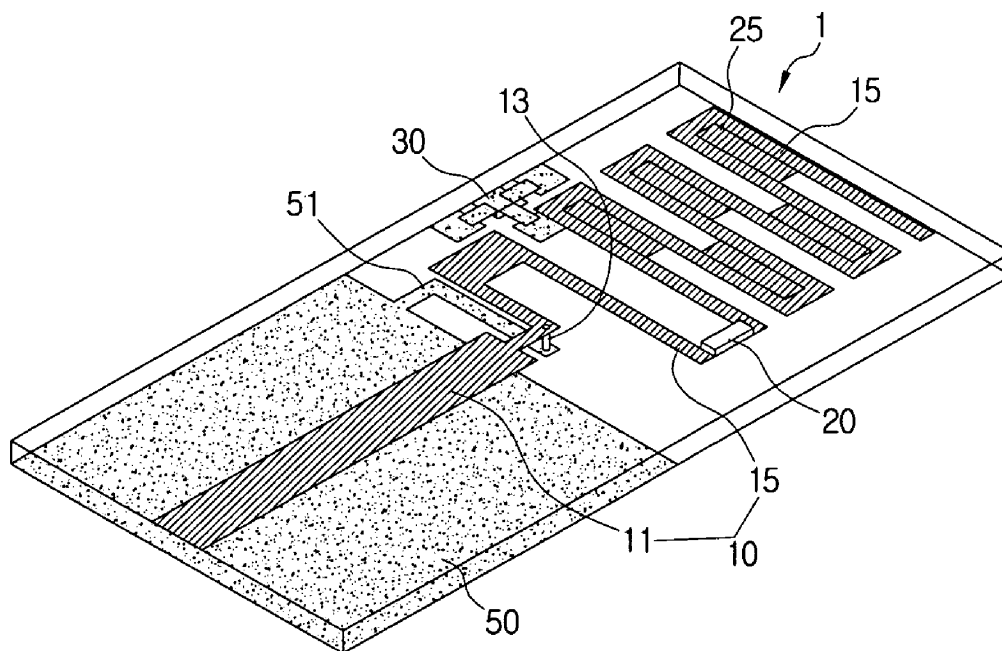
Correspondence Address:

SUGHRUE MION, PLLC**2100 PENNSYLVANIA AVENUE, N.W., SUITE 800****WASHINGTON, DC 20037**(73) Assignee: **SAMSUNG ELECTRONICS CO., LTD.**, Suwon-si (KR)(21) Appl. No.: **11/606,981**(22) Filed: **Dec. 1, 2006**(30) **Foreign Application Priority Data**

Jul. 4, 2006 (KR) 10-2006-0062612

(57) **ABSTRACT**

A multiband antenna with removed coupling includes a radiator formed as a meander line bent zigzag several times and having a gap filling part in at least one area between neighboring meander lines. The gap filling part interconnects the neighboring meander lines. The multiband antenna further includes a ground connected with the radiator and at least one switch element mounted in an area along the longitudinal direction of the radiator and configured to alternately short or open an area of the radiator. Accordingly, two different resonance frequencies can be tuned using the single antenna, and the antenna efficiency can be enhanced by removing the coupling between the resonant frequencies that are tuned through the gap filling.



Acrobat 文件



US 20080010810A1

(19) **United States**(12) **Patent Application Publication**
POZZOBON et al.(10) **Pub. No.: US 2008/0010810 A1**(43) **Pub. Date: Jan. 17, 2008**(54) **CODED ANTENNA****Related U.S. Application Data**(76) Inventors: **Frank POZZOBON**, Guelph (CA);
Paul R. MACPHERSON, Vancouver
(CA)(62) Division of application No. 10/900,178, filed on Jul.
28, 2004, now Pat. No. 7,242,367.**Publication Classification**(51) **Int. Cl.****H01Q 1/36** (2006.01)**H01F 7/06** (2006.01)(52) **U.S. Cl.** **29/600; 29/605; 29/606**

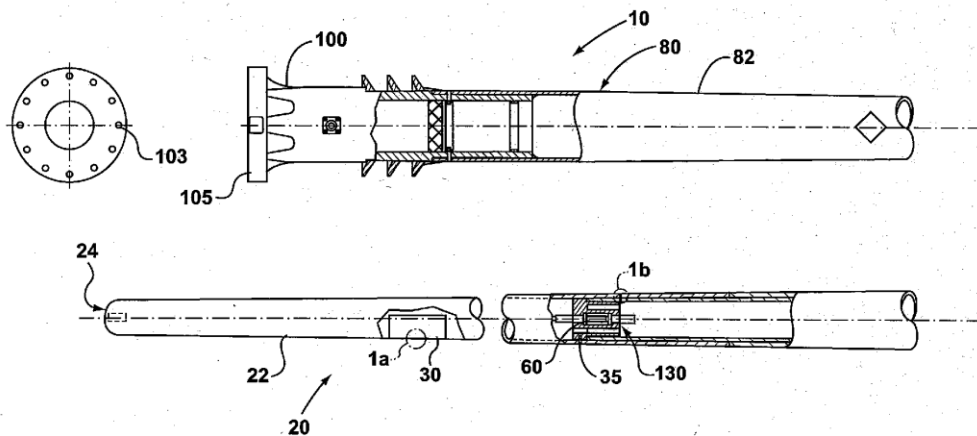
Correspondence Address:

MILLER THOMPSON, LLP**Scotia Plaza****40 King Street West, Suite 5800****TORONTO, ON M5H 3S1 (CA)**

(57)

ABSTRACT

A method of producing a whip antenna by tapering a length of aluminium tube and applying high velocity plasma to the aluminium tube. A ribbon conductor is also wound with a plurality of selected number of turns along the aluminium tube. A polymer coating is also applied to the antenna.

(21) Appl. No.: **11/774,057**(22) Filed: **Jul. 6, 2007**

Acrobat 文件



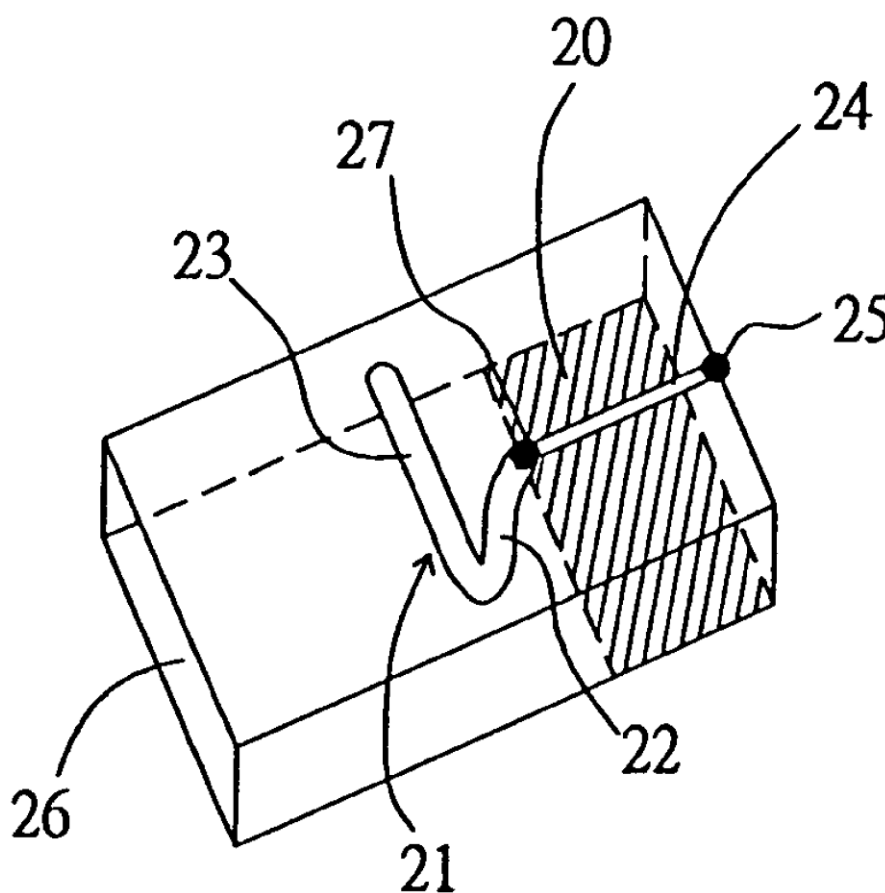
US 20080012769A1

(19) **United States**(12) **Patent Application Publication**
Cheng(10) **Pub. No.: US 2008/0012769 A1**(43) **Pub. Date: Jan. 17, 2008**(54) **DUAL BAND FLAT ANTENNA****Publication Classification**(75) Inventor: **Shih-Chieh Cheng**, Yongkang City
(TW)(51) **Int. Cl.**
H01Q 1/38 (2006.01)(52) **U.S. Cl.** **343/700 MS; 343/702**

Correspondence Address:

KUSNER & JAFFE
HIGHLAND PLACE SUITE 310
6151 WILSON MILLS ROAD
HIGHLAND HEIGHTS, OH 44143 (US)(57) **ABSTRACT**

The present invention provides a dual band and dual mode flat antenna. The antenna structure comprises a substrate; a ground member configured on the substrate; a hook radiator having a first portion radiator and a second portion radiator configured on the substrate, wherein the second portion radiator being connected to a first end of said first portion radiator; and a feed line connected to the second end of the first portion radiator of the hook radiator.

(73) Assignee: **Arcadyan Technology Corporation**(21) Appl. No.: **11/485,871**(22) Filed: **Jul. 13, 2006**

Acrobat 文件



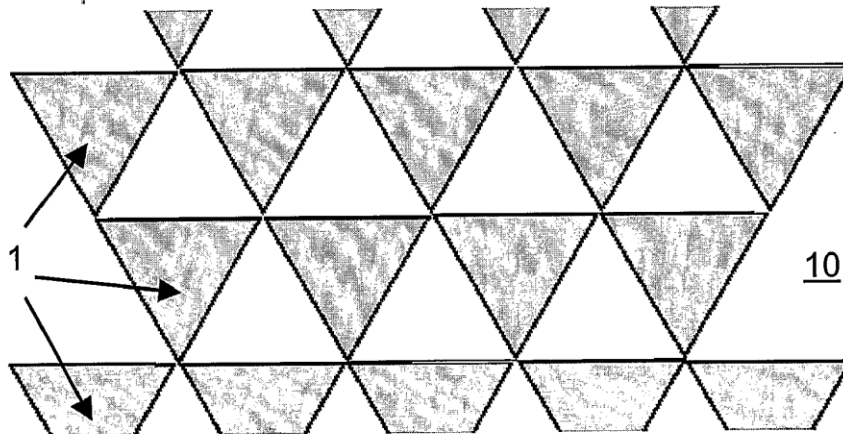
US 20080012770A1

(19) **United States**(12) **Patent Application Publication**
Hook et al.(10) **Pub. No.: US 2008/0012770 A1**(43) **Pub. Date: Jan. 17, 2008**(54) **PATCH ANTENNA****Publication Classification**(75) Inventors: **Anders Hook**, Hindas (SE); **Jessica Westerberg**, Kungälv (SE); **Joakim Johansson**, Tollsjo (SE)Correspondence Address:
ERICSSON INC.
6300 LEGACY DRIVE
M/S EVR 1-C-11
PLANO, TX 75024 (US)(51) **Int. Cl.****H01Q 9/04** (2006.01)**H01P 11/00** (2006.01)**H01Q 1/38** (2006.01)(52) **U.S. Cl. 343/700 MS; 29/600**(73) Assignee: **Telefonaktiebolaget LM Ericsson**
(publ), Stockholm (SE)(21) Appl. No.: **11/569,011**(22) PCT Filed: **Jun. 10, 2004**(86) PCT No.: **PCT/SE04/00918**

§ 371(c)(1),

(2), (4) Date: **Nov. 13, 2006**(57) **ABSTRACT**

A self-complementary patch antenna is disclosed. A hexagonal lattice (10) consisting of triangular conducting patches (1) is formed together with at least one dielectric layer onto a ground-plane. Each triangular patch is then fed by means of three RF signal probes in a symmetrical configuration positioned near each corner of the triangle, whereby an arbitrary lobe-steering and polarisation state can be established by selection of amplitude and phase for each RF signal probe.



Acrobat 文件



US 20080012772A1

(19) **United States**(12) **Patent Application Publication**
Ogawa et al.(10) **Pub. No.: US 2008/0012772 A1**(43) **Pub. Date: Jan. 17, 2008**(54) **CIRCULAR POLARIZED WAVE ANTENNA
AND METHOD FOR DESIGNING SAME****Publication Classification**(75) Inventors: **Tomoyuki Ogawa**, Hitachi (JP); **Ken
Takei**, Hitachi (JP)(51) **Int. Cl.****H01Q 19/02** (2006.01)**H01Q 9/04** (2006.01)(52) **U.S. Cl.** **343/700 MS**

Correspondence Address:

**MCGINN INTELLECTUAL PROPERTY LAW
GROUP, PLLC****8321 OLD COURTHOUSE ROAD
SUITE 200****VIENNA, VA 22182-3817 (US)**

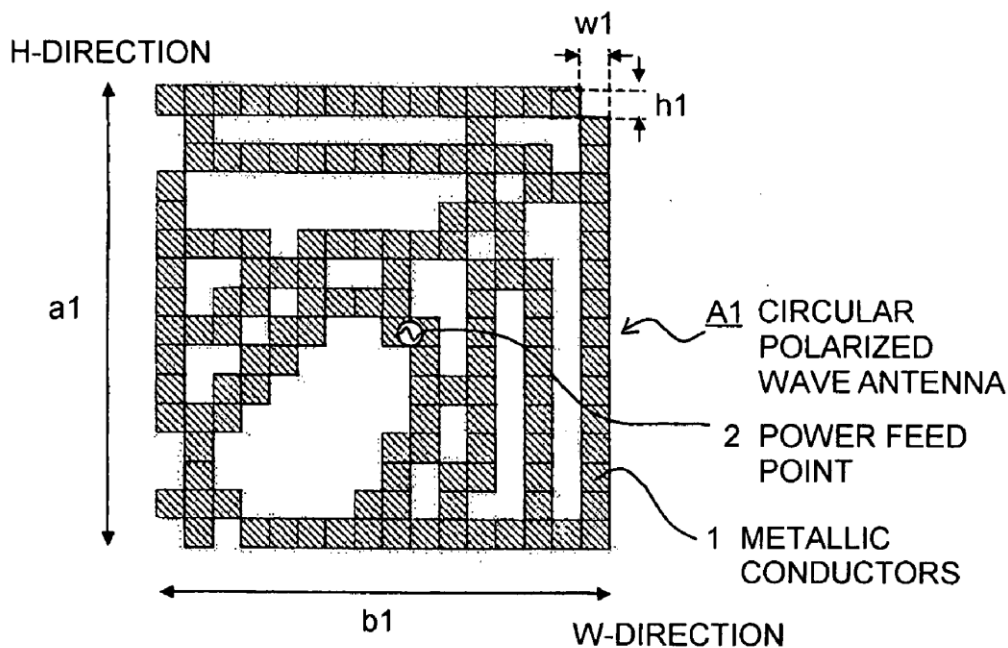
(57)

ABSTRACT

A group of metallic conductors 1 are prepared and a power feed point 2 is formed at one of the metallic conductors to provide a circular polarized wave antenna. The circular polarized wave antenna is designed such that an absolute value of a sum of projections of an electric current induced on the metallic conductors in x-axis and an absolute value of a sum of projection of the electric current in y-axis that is spatially orthogonal to the x-axis are approximately equal to each other, and an absolute value of a difference between an argument of the sum of the projections in the x-axis and an argument of the sum of the projection in the y-axis is approximately 90°.

(73) Assignee: **HITACHI CABLE, LTD.**, Tokyo (JP)(21) Appl. No.: **11/806,664**(22) Filed: **Jun. 1, 2007**(30) **Foreign Application Priority Data**

Jul. 11, 2006 (JP) 2006-190135



Acrobat 文件



US 20080012773A1

(19) **United States**

(12) **Patent Application Publication**
Andrenko et al.

(10) **Pub. No.: US 2008/0012773 A1**

(43) **Pub. Date: Jan. 17, 2008**

(54) **ANTENNA AND RFID TAG**

Related U.S. Application Data

(76) Inventors: **Andrey Andrenko**, Kawasaki (JP);
Toru Maniwa, Kawasaki (JP)

(63) Continuation of application No. PCT/JP2005/
004549, filed on Mar. 15, 2005.

Publication Classification

Correspondence Address:
BINGHAM MCCUTCHEN LLP
2020 K Street, N.W.
Intellectual Property Department
WASHINGTON, DC 20006 (US)

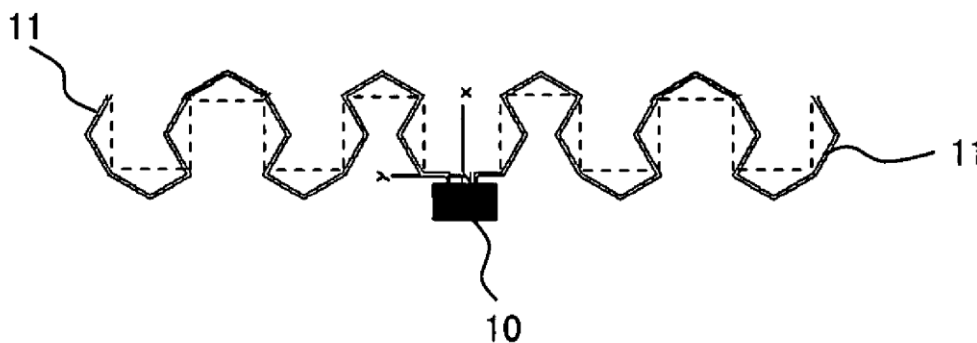
(51) **Int. Cl.**
H01Q 1/36 (2006.01)
G08B 13/14 (2006.01)
(52) **U.S. Cl.** **343/700 R; 340/572.7**

(57) **ABSTRACT**

(21) Appl. No.: **11/898,425**

(22) Filed: **Sep. 12, 2007**

An antenna line is configured with a conductor line that meanders in a shape where a plurality of lines of the same shape, which are bent only at an obtuse angle, are provided in sequence.



Acrobat 文件



US 20080012774A1

(19) **United States**

(12) **Patent Application Publication**
Wang

(10) **Pub. No.: US 2008/0012774 A1**

(43) **Pub. Date: Jan. 17, 2008**

(54) **ANTENNA SYSTEM**

(22) Filed: **Jul. 12, 2006**

(75) Inventor: **Shu-Li Wang**, Santa Clara, CA
(US)

Publication Classification

(51) **Int. Cl.**
H01Q 1/24 (2006.01)

(52) **U.S. Cl.** **343/702; 343/741**

Correspondence Address:

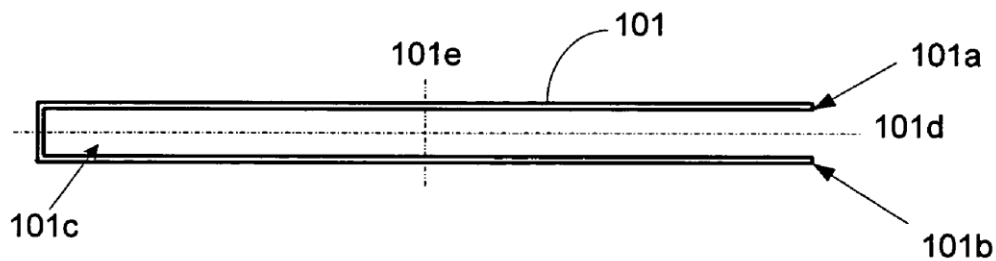
G. VICTOR TREYZ
870 MARKET STREET, FLOOD BUILDING,
SUITE 984
SAN FRANCISCO, CA 94102

(57) **ABSTRACT**

An antenna system includes a dielectrically-loaded loop element electromagnetically coupled to a planar element. The antenna system exhibits uniform, broadband radiation and reception patterns.

(73) Assignee: **Apple Computer, Inc.**

(21) Appl. No.: **11/486,223**



Acrobat 文件



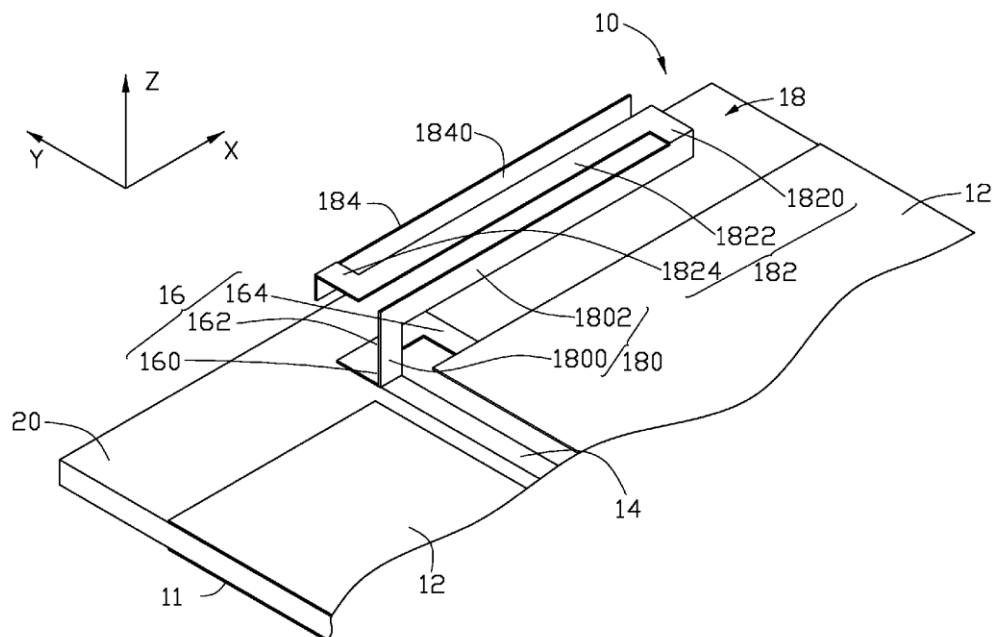
US 20080012775A1

(19) **United States**(12) **Patent Application Publication**
SHIH(10) **Pub. No.: US 2008/0012775 A1**(43) **Pub. Date: Jan. 17, 2008**(54) **ANTENNA DEVICE****Publication Classification**(75) Inventor: **YEN-YI SHIH**, Tu-Cheng (TW)(51) **Int. Cl.**
H01Q 1/24 (2006.01)
H01Q 1/38 (2006.01)Correspondence Address:
PCE INDUSTRY, INC.
ATT. CHENG-JU CHIANG JEFFREY T. KNAPP
458 E. LAMBERT ROAD
FULLERTON, CA 92835(52) **U.S. Cl.** **343/702; 343/700 MS**(57) **ABSTRACT**

An antenna device disposed on a substrate includes a feed part, a body part, at least one ground plane, and a matching part. The feed part is for feeding electromagnetic signals. The body part for radiating and receiving the electromagnetic signals is electronically connected to the feed part. The body part includes a first radiation part located on a first plane, a second radiation part located on a second plane, and a third radiation part located on a third plane. The second radiation part is electronically connected between the first radiation part and the third radiation part. The ground plane for grounding is disposed on one surface of the substrate. The matching part for impedance matching includes one end electronically connected to one end of the body part and one end of the feed part, and another end electronically connected to the ground plane.

(73) Assignee: **HON HAI PRECISION**
INDUSTRY CO., LTD., Tu-Cheng
(TW)(21) Appl. No.: **11/615,948**(22) Filed: **Dec. 23, 2006**(30) **Foreign Application Priority Data**

Jul. 14, 2006 (TW) 95125813



Acrobat 文件



US 20080012777A1

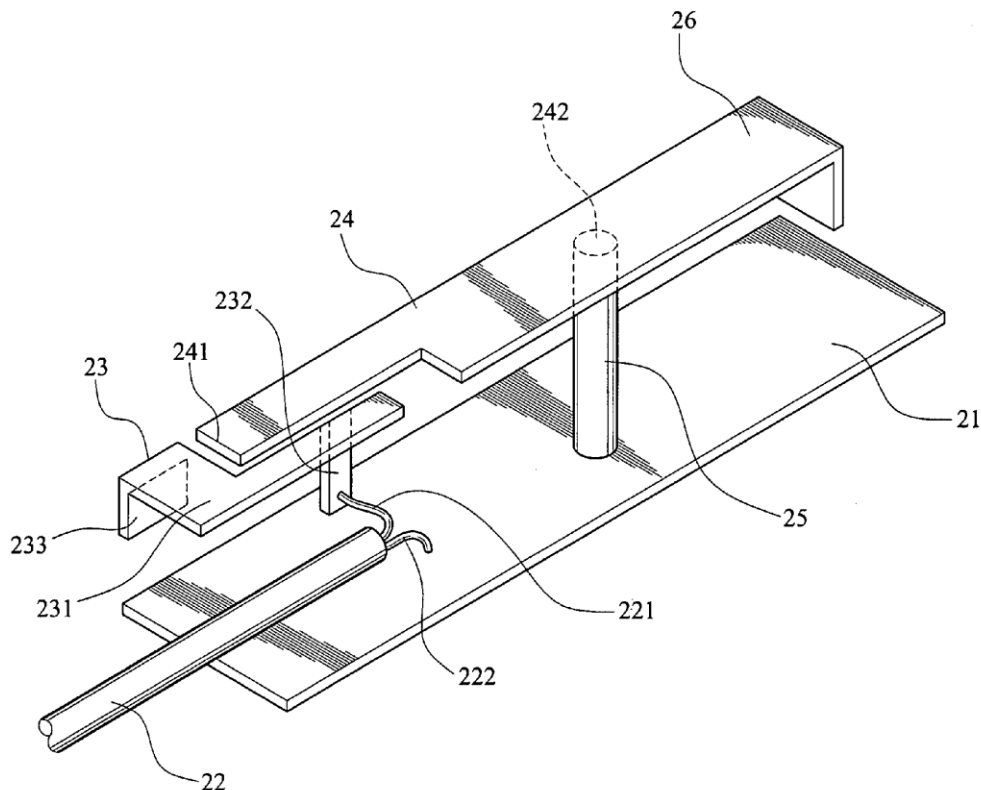
(19) **United States**(12) **Patent Application Publication**
Lin et al.(10) **Pub. No.: US 2008/0012777 A1**(43) **Pub. Date: Jan. 17, 2008**(54) **INTEGRATED BROADBAND ANTENNA
DEVICE WITH WIDE BAND FUNCTION****Publication Classification**(51) **Int. Cl.**
H01Q 1/00 (2006.01)(52) **U.S. Cl.** **343/729**(57) **ABSTRACT**(75) **Inventors:** **Yu-Ching Lin**, Taipei (TW);
Tsung-Wen Chiu, Taipei (TW);
Fu-Ren Hsiao, Taipei (TW);
Chun-Ching Lan, Taipei (TW);
Yun-Fan Bai, Taipei (TW)

Correspondence Address:

BRUCE H. TROXELL
SUITE 1404, 5205 LEESBURG PIKE
FALLS CHURCH, VA 22041(73) **Assignee:** **Advanced Connectek Inc.**(21) **Appl. No.:** **11/652,137**(22) **Filed:** **Jan. 11, 2007**(30) **Foreign Application Priority Data**

Jul. 14, 2006 (TW) 095125855

An integrated broadband antenna device with wide band function is disclosed. The antenna device comprises a ground plate, a feeding wire, a first metal radiator, a second metal radiator, a ground metal radiator and a parasitic metal radiator. The first metal radiator is connected with the positive ends of signals of the feeding wire for transmitting electric signals and producing a high frequency mode. The first metal radiator is coupled to and energizes the second metal radiator and the parasitic metal radiator, and then the two metal radiator producing a low frequency mode and a second high frequency mode along with the ground metal radiator obtains a wider bandwidth. The broadband antenna device integrating various kinds of antennas is able to have a enough bandwidth to meet the requirements of AMPS (824~894 MHz), GSM (880~960 MHz), GPS (1575 MHz), DCS (1710~1880 MHz), PCS (1850~1990 MHz), UMTS (1920~2170 MHz) and Wi-Fi (2400~2500 MHz).



Acrobat 文件



(12) **Patent Application Publication**
Yang

(43) **Pub. Date:** **Jan. 17, 2008**

(57) **ABSTRACT**

Correspondence Address:
YANG, HSIU-LING
20525 Via Talavera
Yorba Linda, CA 92887

(22) Filed: **Jul. 14, 2006**

Publication Classification

(52) U.S. Cl. 343/895

The present invention provides a structure of flexible antenna comprising a flexible metal tube, and an insulating tube. The flexible metal tube can sustain to an external force without damaging to form a corresponding curve shape, wherein one end of the flexible metal tube can be connected to a predetermined electronic device via a signal connector. The insulating tube covers an external surface of the flexible metal tube in order to insulate electrical connection between the flexible metal tube and an external conductors. The property of the flexible antenna of the present invention can sustain to external pressure or force and be deformed into a desired shape. This flexible antenna can be deformed into various designed shapes in accordance with different environmental conditions in order to fit the various space restrictions.



Acrobat 文件



US 20080012787A1

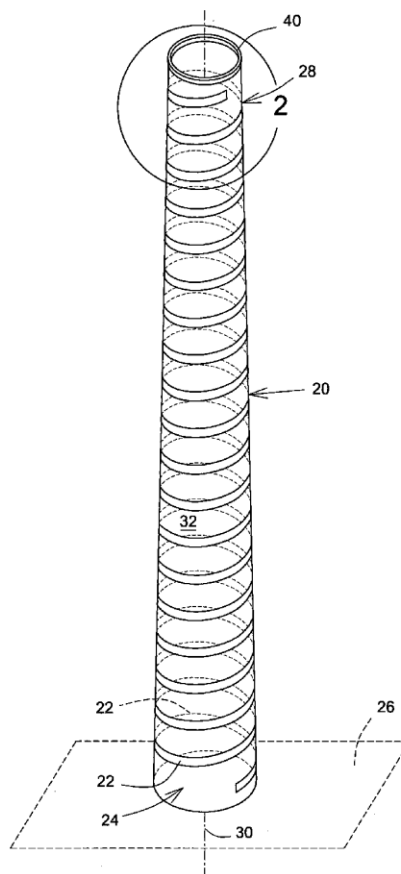
(19) **United States**(12) **Patent Application Publication**
Lamoureux et al.(10) **Pub. No.: US 2008/0012787 A1**(43) **Pub. Date: Jan. 17, 2008**(54) **PARASITIC ELEMENT FOR HELICAL ANTENNA****Related U.S. Application Data**

(60) Provisional application No. 60/816,891, filed on Jun. 28, 2006.

(76) Inventors: **Stephane Lamoureux**, Mirabel (CA);
David McLaren, Beaconsfield (CA);
Yves Gaudette, St-Lazare (CA); **Steve Larouche**, St-Lazare (CA); **Jean Dallaire**, Laval (CA)**Publication Classification**(51) **Int. Cl.**
H01Q 1/36 (2006.01)
(52) **U.S. Cl.** **343/895**(57) **ABSTRACT**

A parasitic element for a helical antenna having at least one helix conductor extending from a secured first longitudinal end of the antenna to an opposite free second longitudinal end thereof around an antenna major-axis. The parasitic element includes an electrically conductive ring located adjacent and spaced apart from the second end in a direction leading away from the first end with the ring axis being parallel to and substantially collinear with the antenna major-axis. The ring has an outer diameter substantially equal to the diameter of the helix conductor at the second end.

Correspondence Address:

Franz BONSANG**c/o EQUINOX PROTECTION****410 - 1500, Du College****St-Laurent, QC H4L 5G6 (CA)**(21) Appl. No.: **11/819,337**(22) Filed: **Jun. 27, 2007**

Acrobat 文件



US 20080012994A1

(19) **United States**

(12) **Patent Application Publication**
Onomatsu

(10) **Pub. No.: US 2008/0012994 A1**

(43) **Pub. Date: Jan. 17, 2008**

(54) **TELEVISION BROADCAST SIGNAL
RECEPTION APPARATUS AND ANTENNA
APPARATUS**

(30) **Foreign Application Priority Data**

Apr. 5, 2006 (JP) 2006-103943

(75) Inventor: **Takehiro Onomatsu**, Daito-shi (JP)

Publication Classification

Correspondence Address:
CROWELL & MORING LLP
INTELLECTUAL PROPERTY GROUP
P.O. BOX 14300
WASHINGTON, DC 20044-4300 (US)

(51) **Int. Cl.**

H04N 5/44 (2006.01)

H01Q 21/30 (2006.01)

(52) **U.S. Cl.** **348/725**; 343/876; 348/E05

(57)

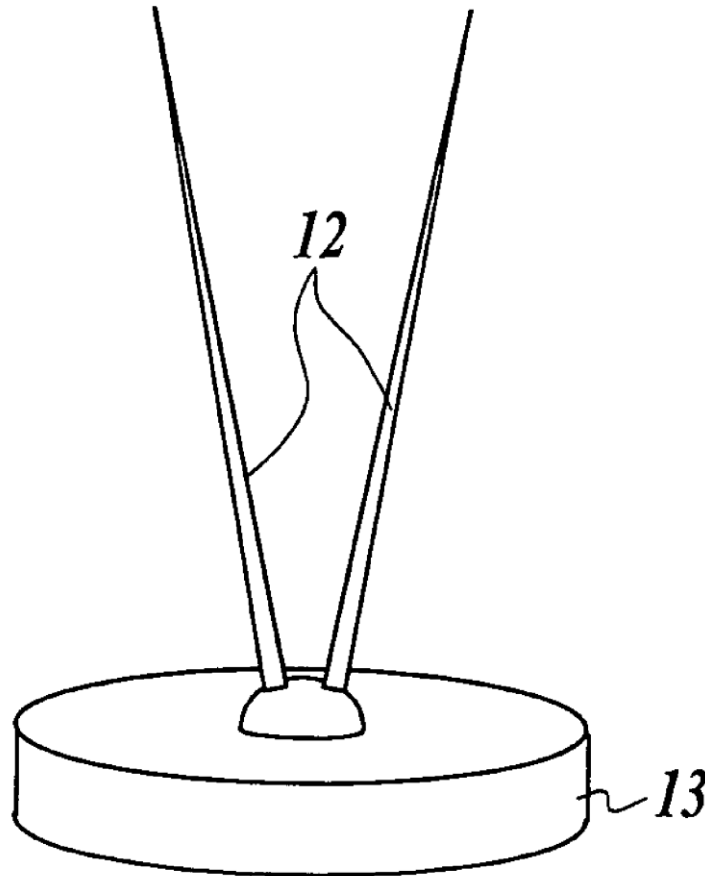
ABSTRACT

To the broadcast signal of the first frequency band, the control unit, makes the selection unit select the first antenna and makes the channel setting unit set the channel and the reception direction of the broadcast signal, and, to the broadcast signal of the second frequency band, makes the selection unit select the second antenna and makes the channel setting unit set the channel of the broadcast, to simplify the channel auto scan.

(73) Assignee: **Funai Electric Co., Ltd.**, Daito-shi (JP)

(21) Appl. No.: **11/730,861**

(22) Filed: **Apr. 4, 2007**



Acrobat 文件



US 20080018537A1

(19) **United States**

(12) **Patent Application Publication**
Tseng et al.

(10) **Pub. No.: US 2008/0018537 A1**

(43) **Pub. Date: Jan. 24, 2008**

(54) **FLAT MINIATURIZED ANTENNA OF A WIRELESS COMMUNICATION DEVICE**

Publication Classification

(76) Inventors: **Kuan-Hsueh Tseng**, Taipei Hsien (TW); **Chih-Lung Chen**, Taipei Hsien (TW)

(51) **Int. Cl.**
H01Q 1/38 (2006.01)
H01Q 1/36 (2006.01)

(52) **U.S. Cl.** **343/700 MS; 343/702; 343/895**

Correspondence Address:
**NORTH AMERICA INTELLECTUAL PROP-
ERTY CORPORATION**
P.O. BOX 506
MERRIFIELD, VA 22116

(57) **ABSTRACT**

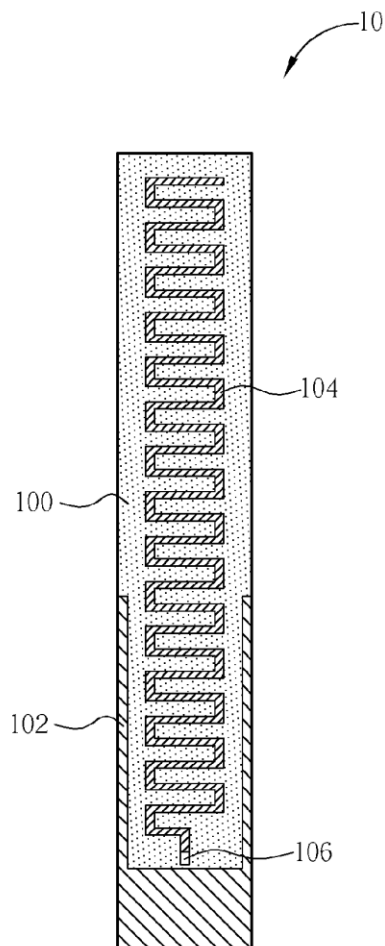
A flat miniaturized antenna of a wireless communication device includes a baseboard, a sleeve conductor formed on the baseboard and coupled to system ground, a meander-shaped conductor formed inside the sleeve conductor and isolated from the sleeve conductor, having a wide end and a narrow end, a feed-in end formed on the wide end of meander-shaped conductor, for transmitting wireless signals to the wireless communication device, and a branch conductor coupled to the meander-shaped conductor.

(21) Appl. No.: **11/464,208**

(22) Filed: **Aug. 14, 2006**

(30) **Foreign Application Priority Data**

Jul. 20, 2006 (TW) 095126493



Acrobat 文件



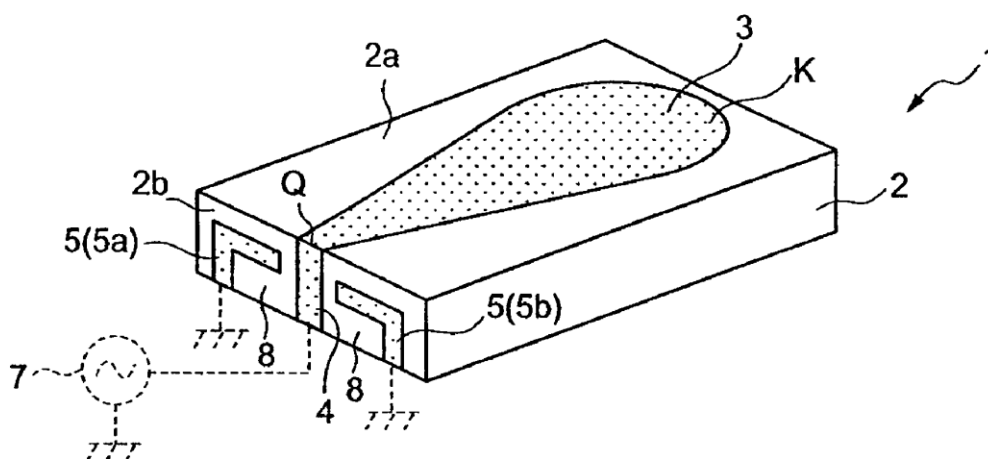
US 20080018538A1

(19) **United States**(12) **Patent Application Publication**
Kushihi(10) **Pub. No.: US 2008/0018538 A1**(43) **Pub. Date: Jan. 24, 2008**(54) **SURFACE-MOUNT ANTENNA AND RADIO
COMMUNICATION APPARATUS
INCLUDING THE SAME****Publication Classification**(51) **Int. Cl.**
H01Q 9/04 (2006.01)(52) **U.S. Cl.** **343/700 MS**(75) **Inventor: Yuichi Kushihi, Kanazawawa-shi (JP)****Correspondence Address:**
OSTROLENK FABER GERB & SOFFEN
1180 AVENUE OF THE AMERICAS
NEW YORK, NY 100368403(57) **ABSTRACT**

A surface-mount antenna, in which a radiation electrode to be connected to a radio-communication high-frequency circuit to operate as an antenna is formed on a base member 2. One end of the radiation electrode serves as a feeding portion for being connected to the radio-communication high-frequency circuit, and the other end of the radiation electrode is an open end. The radiation electrode includes a portion whose width is increased as it goes from the feeding portion toward the open end. The base member includes a band-like feeding electrode connected to the feeding portion of the radiation electrode to serve to connect the feeding portion to the high frequency circuit, and a ground electrode disposed on one side or both sides of the feeding electrode with a defined spacing between the feeding electrode and the ground electrode. The spacing between the ground electrode and the feeding electrode is set to be smaller than the width of the feeding electrode.

(73) **Assignee: MURATA MANUFACTURING CO.,
LTD., Koyota-fu (JP)**(21) **Appl. No.: 11/575,012**(22) **PCT Filed: Sep. 9, 2005**(86) **PCT No.: PCT/JP05/16620**§ 371(c)(1),
(2), (4) **Date: Mar. 9, 2007**(30) **Foreign Application Priority Data**

Sep. 10, 2004 (JP) 2004-264174



Acrobat 文件



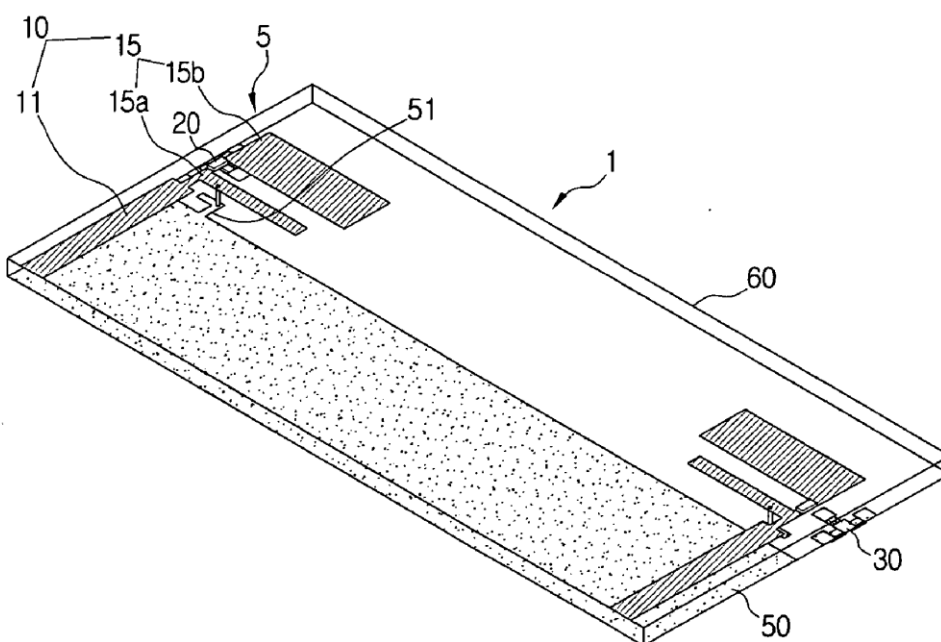
US 20080018539A1

(19) **United States**(12) **Patent Application Publication****Jung et al.**(10) **Pub. No.: US 2008/0018539 A1**(43) **Pub. Date: Jan. 24, 2008**(54) **MIMO ANTENNA OPERABLE IN MULTIBAND**(75) Inventors: **Chang-won Jung**, Yongin-si (KR);
Byung-tae Yoon, Yongin-si (KR);
Young-eil Kim, Yongin-si (KR);
Se-hyun Park, Yongin-si (KR)Correspondence Address:
SUGHRUE MION, PLLC
2100 PENNSYLVANIA AVENUE, N.W., SUITE
800
WASHINGTON, DC 20037(73) Assignee: **SAMSUNG ELECTRONICS CO., LTD.**, Suwon-si (KR)(21) Appl. No.: **11/637,663**(22) Filed: **Dec. 13, 2006**(30) **Foreign Application Priority Data**

Jul. 20, 2006 (KR) 10-2006-0068208

Publication Classification(51) **Int. Cl.**
H01Q 1/38 (2006.01)(52) **U.S. Cl.** **343/700 MS; 343/702**(57) **ABSTRACT**

A multiple-input multiple-output (MIMO) antenna operable in a multiband includes a plurality of antenna elements each including a radiator radiating electromagnetic waves, a ground connected to the radiator, at least one switching element mounted in an area of lengthwise direction of the radiator and short-circuiting or opening the area of the radiator.



Acrobat 文件

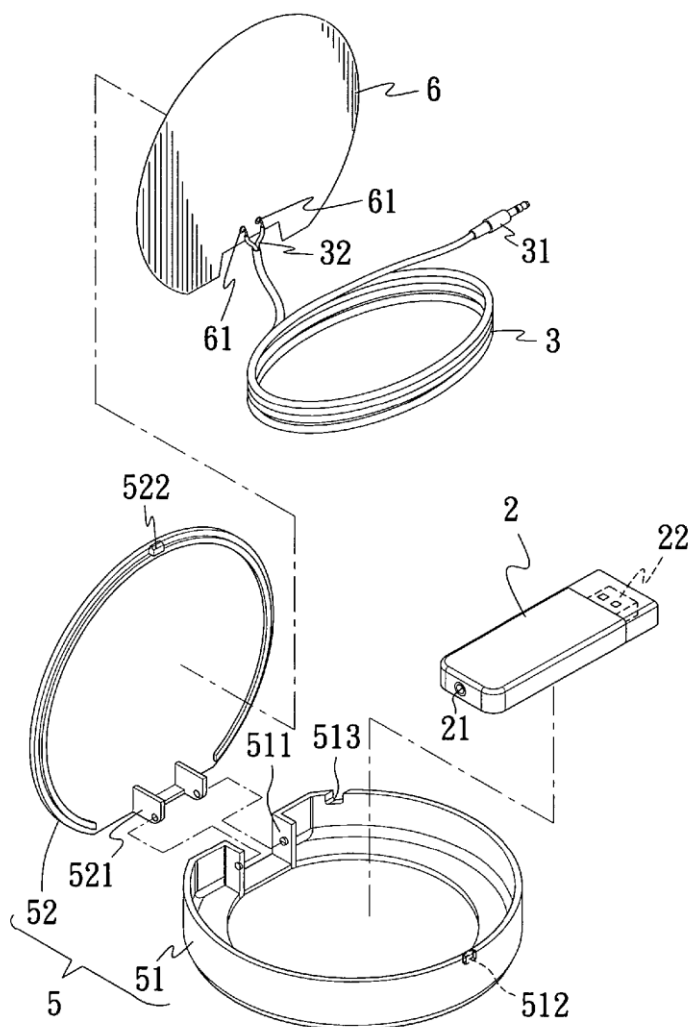


US 20080018540A1

(19) **United States**(12) **Patent Application Publication**
Hsueh(10) **Pub. No.: US 2008/0018540 A1**(43) **Pub. Date: Jan. 24, 2008**(54) **PORTABLE ANTENNA DEVICE**(52) **U.S. CL. 343/702**(76) **Inventor: Chih-Yuan Hsueh, Taoyuan Hsien**
(TW)(57) **ABSTRACT**

Correspondence Address:
Hsueh, Chih-Yuan
20525 Via Talavera
Yorba Linda, CA 92887

The present invention provides a portable antenna device comprising of an antenna, a digital box, a signal wire and a storage container. The antenna receives an analog signal and the digital box transfers the analog signal received from the antenna into a digital signal and transmits the digital signal to an electronic device. The signal wire transmits the analog signal received from the antenna to the digital box; and the storage container stores the digital box and the signal wire, wherein the antenna is located firmly within the storing container. The portable antenna device of the present invention can easily be carried around and be stored easily in a storage case with a modern designed appearance.

(21) **Appl. No.: 11/491,509**(22) **Filed: Jul. 24, 2006****Publication Classification**(51) **Int. Cl.**
H01Q 1/24 (2006.01)

Acrobat 文件



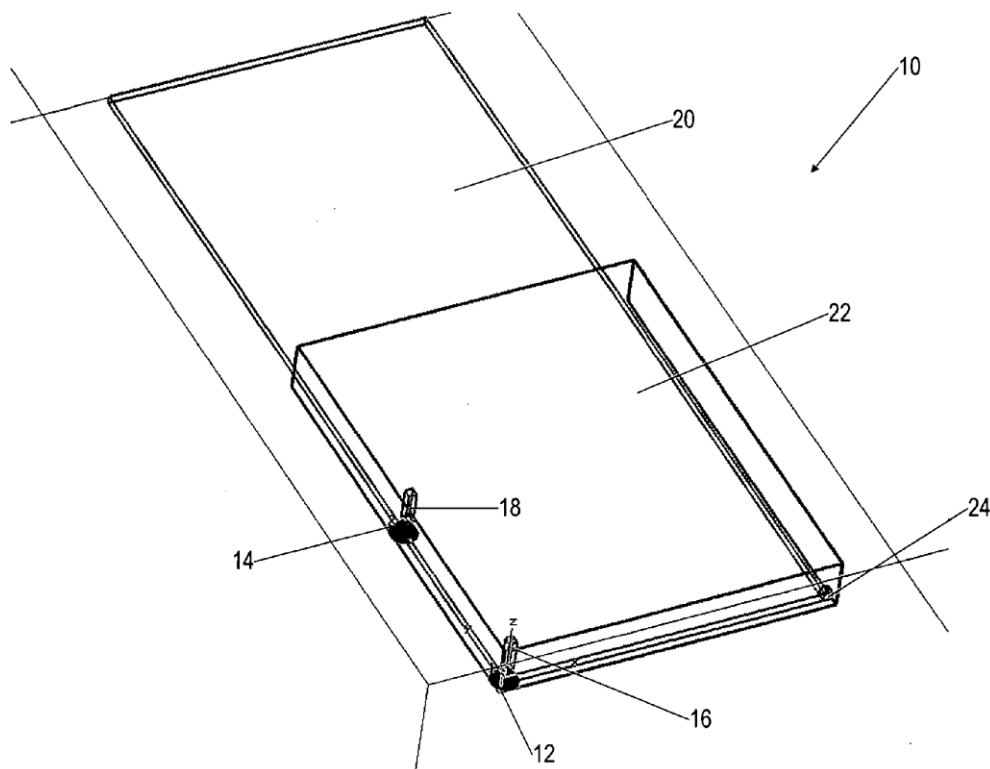
US 20080018541A1

(19) **United States**(12) **Patent Application Publication****Pang et al.**(10) **Pub. No.: US 2008/0018541 A1**(43) **Pub. Date: Jan. 24, 2008**(54) **COVER ANTENNAS****Publication Classification**(75) Inventors: **Hawk Yin Pang**, Tokyo (JP); **Jani Ollikainen**, Helsinki (FI); **Marko Leinonen**, Haukipudas (FI)(51) **Int. Cl.**
H01Q 1/24 (2006.01)(52) **U.S. Cl.** **343/702; 343/860**

Correspondence Address:

WARE FRESSOLA VAN DER SLUYS & ADOLPHSON, LLP
BRADFORD GREEN, BUILDING 5, 755 MAIN STREET, P O BOX 224
MONROE, CT 06468(57) **ABSTRACT**

The specification and drawings present a new apparatus, method and software product for using a cover antenna (e.g., conductive, metallic, etc.) in an electronic device, with multiple coupled feeds (e.g., dual feed) to the antenna and with one or more switches and a matching circuit. Then it is possible to use a metal plate as a metal cover, e.g., for mobile devices, which will act as an antenna with multiple feedings for cellular and non-cellular radios.

(73) Assignee: **Nokia Corporation**(21) Appl. No.: **11/492,677**(22) Filed: **Jul. 24, 2006**

Acrobat 文件



US 20080018546A1

(19) **United States**(12) **Patent Application Publication**

Nakanishi et al.

(10) **Pub. No.: US 2008/0018546 A1**(43) **Pub. Date: Jan. 24, 2008**(54) **ANTENNA APPARATUS**(30) **Foreign Application Priority Data**

Nov. 30, 2004 (JP) 2004-345379

(75) Inventors: **Tomoya Nakanishi**, Osaka (JP);
Hiroyuki Uno, Ishikawa (JP); **Yutaka Saito**, Ishikawa (JP)**Publication Classification**(51) **Int. Cl.**
H01Q 11/06 (2006.01)(52) **U.S. Cl.** **343/733**

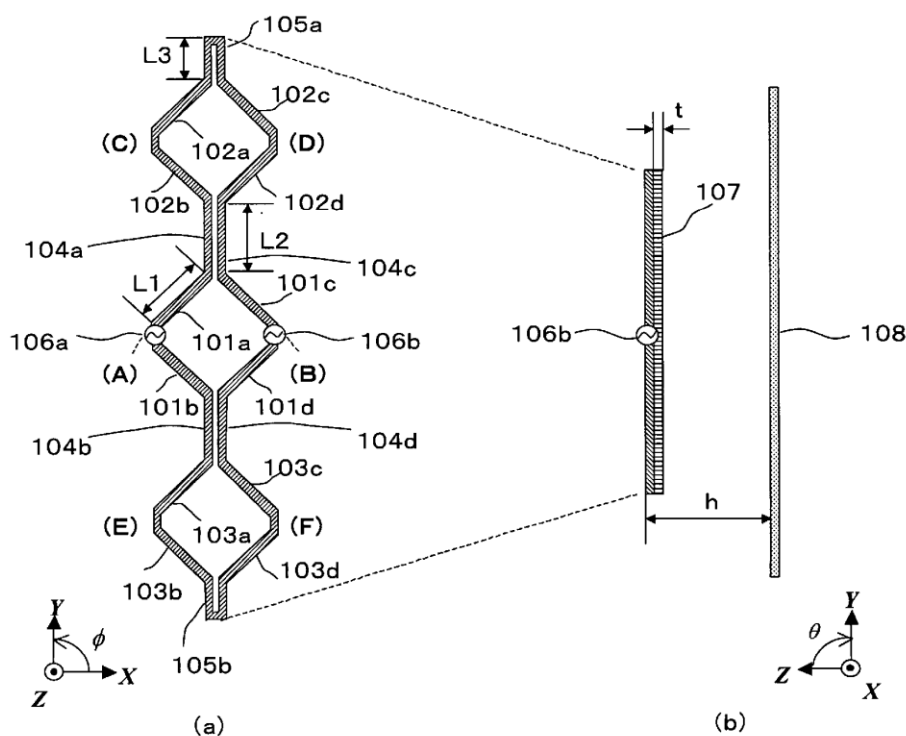
Correspondence Address:

STEVENS, DAVIS, MILLER & MOSHER, LLP
1615 L. STREET N.W.
SUITE 850
WASHINGTON, DC 20036 (US)(57) **ABSTRACT**

An antenna apparatus capable of main beam direction switching is provided that achieves high gain with a small, planar configuration. Rhombic antenna sections composed of linear elements **101a** through **101d**, **102a** through **102d**, and **103a** through **103d** are arranged in the same plane, and the rhombic antenna sections are connected by linear linking elements **104a** through **104d**. Linear detour elements **105a** and **105b** are connected to the pair of vertices of the rhombic antenna sections arranged at each end. Feed points **106a** and **106b** are provided at the other opposite two pairs of vertices of any of the rhombic antenna sections, and the opposite vertices of the other rhombic antenna sections are connected by linear elements. A plate reflector is arranged at a distance h from, and parallel to, the surface on which the rhombic antenna elements are arranged.

(73) Assignee: **Matsushita Electric Industrial Co., Ltd.**, Osaka (JP)(21) Appl. No.: **11/630,379**(22) PCT Filed: **Nov. 28, 2005**(86) PCT No.: **PCT/JP05/21802**

§ 371(c)(1),

(2), (4) Date: **Dec. 22, 2006**

Acrobat 文件



US 20080018547A1

(19) **United States**(12) **Patent Application Publication**
Iwasaki(10) **Pub. No.: US 2008/0018547 A1**(43) **Pub. Date: Jan. 24, 2008**(54) **CIRCULARLY POLARIZED LOOP ANTENNA****Publication Classification**(75) Inventor: **Tatsuhiko Iwasaki**, Nishinomiya-city
(JP)(51) **Int. Cl.**
H01Q 11/12 (2006.01)(52) **U.S. Cl.** **343/743; 343/870**

Correspondence Address:

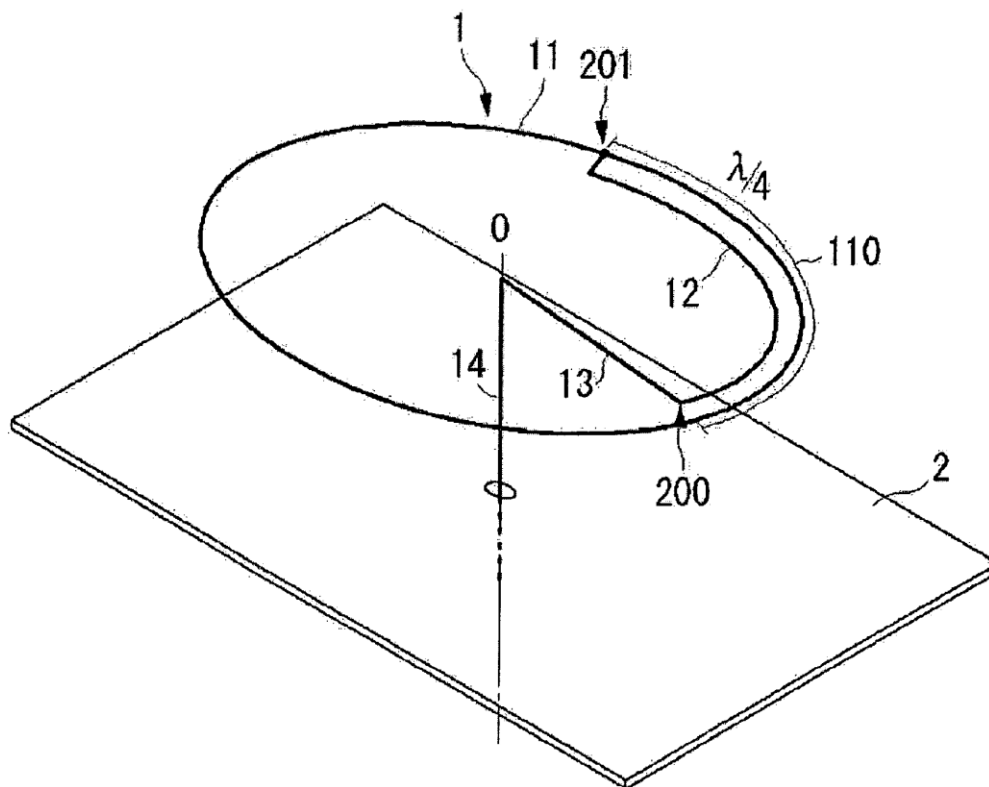
**EDWARDS ANGELL PALMER & DODGE
LLP****P.O. BOX 55874
BOSTON, MA 02205 (US)**(57) **ABSTRACT**(73) Assignee: **Furuno Electric Company, Ltd.**, Nishi-
nomiya-city (JP)(21) Appl. No.: **11/630,843**(22) PCT Filed: **Jun. 9, 2005**(86) PCT No.: **PCT/JP05/10619**

§ 371(c)(1),

(2), (4) Date: **Dec. 21, 2006**(30) **Foreign Application Priority Data**

Jun. 24, 2004 (JP) JP2004-186812

An easy-to-fabricate and relatively strong circularly polarized loop antenna of a simple construction is built. A circularly polarized loop antenna 1 has a loop section 11, which is made up of a loop-shaped conductor whose length is equal to 1 wavelength (λ) of the transmitted and received signals, and a coupling section 12, made up of a conductor, is connected thereto at a prescribed point. The coupling section 12 is shaped such that it is connected to the loop section 11 at a connection point 201 at one end and extends along the loop section 11 throughout a length equal to $\lambda/4$. A reflective plate 2 is placed in a predetermined position in the vertical direction from the circumferential plane of the loop section 11, in parallel to the circumferential plane. In addition, the other end of the loop section 11 is connected to external circuitry carrying out the processing of signals transmitted and received via a first feed conductor 13 and a second feed conductor 14 and operates as a feed point, 200.



Acrobat 文件



US 20080018548A1

(19) **United States**(12) **Patent Application Publication**
Maeda(10) **Pub. No.: US 2008/0018548 A1**(43) **Pub. Date: Jan. 24, 2008**(54) **ANTENNA DEVICE AND RADIO
COMMUNICATION APPARATUS****Publication Classification**(75) Inventor: **Takeshi Maeda**, Tokyo (JP)(51) **Int. Cl.****H01Q 9/26** (2006.01)(52) **U.S. Cl.** **343/795**

Correspondence Address:

**LERNER, DAVID, LITTENBERG,
KRUMHOLZ & MENTLIK
600 SOUTH AVENUE WEST
WESTFIELD, NJ 07090 (US)**(57) **ABSTRACT**(73) Assignee: **Sony Corporation**, Tokyo (JP)(21) Appl. No.: **11/628,919**(22) PCT Filed: **Apr. 15, 2005**(86) PCT No.: **PCT/JP05/07344**

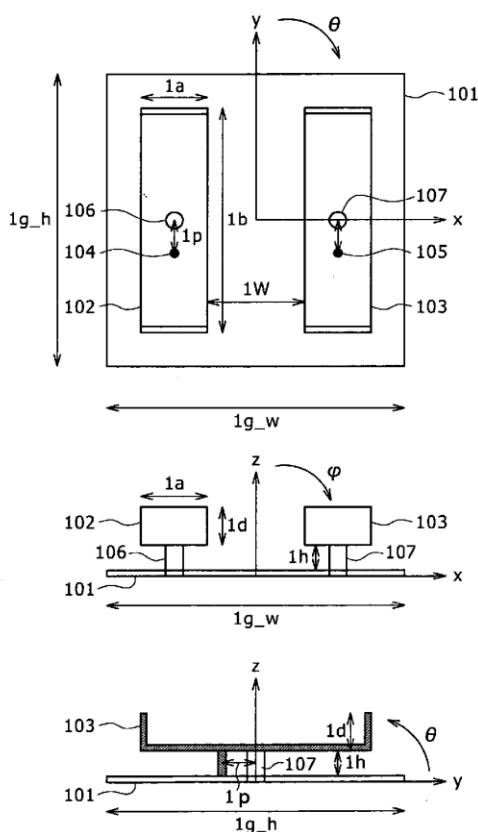
§ 371(c)(1),

(2), (4) Date: **Dec. 6, 2006**(30) **Foreign Application Priority Data**

Jun. 25, 2004 (JP) 2004-187408

Jul. 6, 2004 (JP) 2004-199883

An antenna device has a plane ground conductor plate, and two radiating conductors disposed on the upper side of the plane ground conductor plate in parallel to and adjacently to each other so as to be symmetrical with each other with reference to the center of the plane ground plate. The radiating plates are individually provided with respective feeder ports, and are operated independently from each other. End portions of the radiating conductors may be bent to be substantially perpendicular to the plane ground plate in a direction of achieving a maximum gain, whereby isolation between the feeder ports can be enhanced. With this antenna device, antenna directivity can be secured, a high antenna gain can be obtained, and the going-round of a current from a transmitting unit to a receiving unit can be suppressed favorably.



Acrobat 文件



US 20080018549A1

(19) **United States**(12) **Patent Application Publication****Suzuki et al.**(10) **Pub. No.: US 2008/0018549 A1**(43) **Pub. Date: Jan. 24, 2008**(54) **ANTENNA DEVICE**(30) **Foreign Application Priority Data**

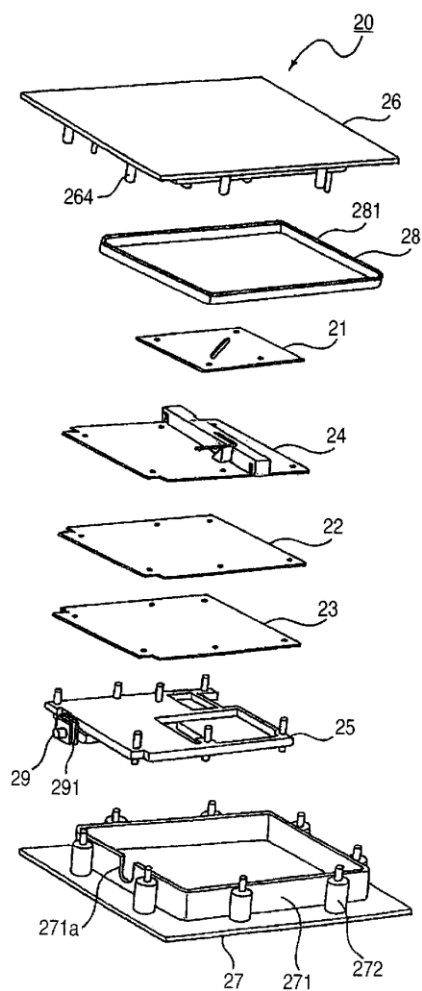
Jan. 31, 2006 (JP) P2006-23387

(76) Inventors: **Takumi Suzuki**, Akita (JP); **Shozo Miyamoto**, Akita (JP)**Publication Classification**

Correspondence Address:

**WHITHAM, CURTIS & CHRISTOFFERSON
& COOK, P.C.****11491 SUNSET HILLS ROAD
SUITE 340****RESTON, VA 20190 (US)**(51) **Int. Cl.**
H01Q 1/52 (2006.01)(52) **U.S. Cl.** **343/841**(57) **ABSTRACT**

A circuit board has a first face and a second face opposite to the first face. An electronic component is mounted on the second face. An insulative sheet is disposed between the first face of the circuit board and an antenna and having an electromagnetic shielding property.

(21) Appl. No.: **11/616,495**(22) Filed: **Dec. 27, 2006**

Acrobat 文件

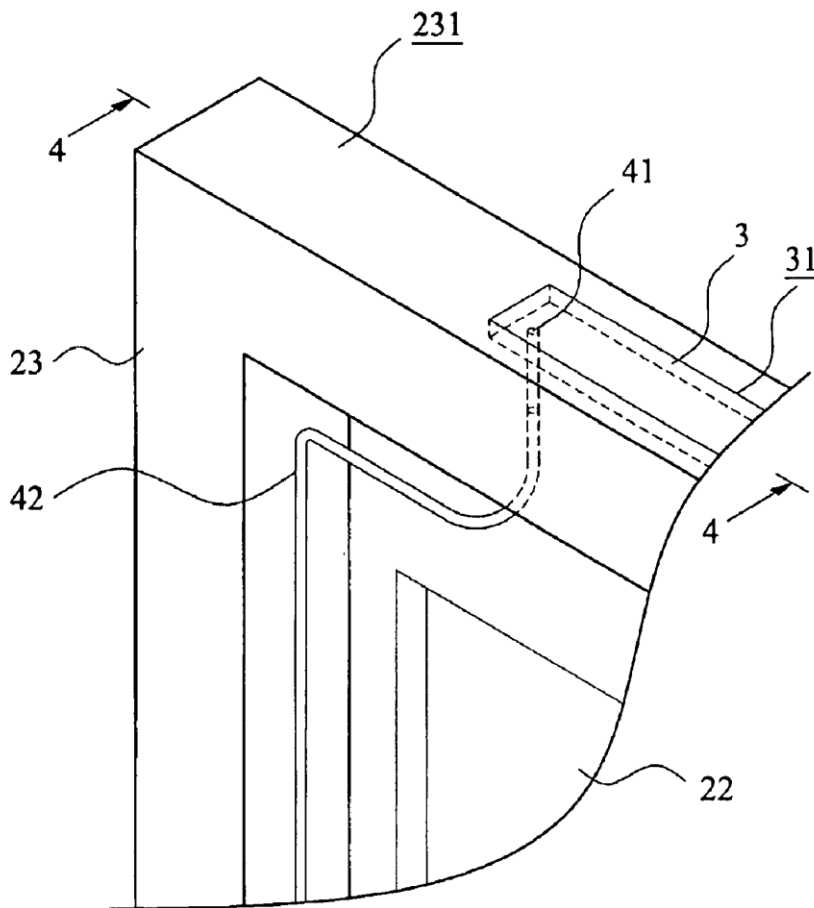


US 20080018551A1

(19) **United States**(12) **Patent Application Publication****Cheng et al.**(10) **Pub. No.: US 2008/0018551 A1**(43) **Pub. Date: Jan. 24, 2008**(54) **ANTENNA DEVICE WITH INSERT-MOLDED ANTENNA PATTERN****Publication Classification**(76) Inventors: **Yu-Chiang Cheng**, Taipei City (TW);
Ping-Cheng Chang, Chaozhou Town (TW); **Cheng-Zing Chou**, Xinying City (TW)(51) **Int. Cl.**
H01Q 1/40 (2006.01)
(52) **U.S. Cl.** **343/873**Correspondence Address:
ROSENBERG, KLEIN & LEE
3458 ELLICOTT CENTER DRIVE-SUITE 101
ELLICOTT CITY, MD 21043 (US)(57) **ABSTRACT**(21) Appl. No.: **11/878,667**(22) Filed: **Jul. 26, 2007****Related U.S. Application Data**

(63) Continuation-in-part of application No. 11/404,814, filed on Apr. 17, 2006.

Disclosed is an antenna device for transceiving a wireless signal with an insert-molded antenna pattern embedded inside a casing of an electronic device. The insert-molded antenna pattern is connected to an antenna module of a motherboard of the electronic device in order to feed the wireless signal transceived by the insert-molded antenna pattern through an antenna signal feeding line connected to the insert-molded antenna pattern and the antenna module, or by an antenna coupling element coupled with the insert-molded antenna pattern.



Acrobat 文件



US 20080024241A1

(19) **United States**(12) **Patent Application Publication****Hata et al.**(10) **Pub. No.: US 2008/0024241 A1**(43) **Pub. Date: Jan. 31, 2008**(54) **HIGH-FREQUENCY COUPLER, RF GUIDE,
AND ANTENNA****Publication Classification**(76) Inventors: **Hiroshi Hata**, Nagano (JP); **Takahisa
Karakama**, Nagano (JP)(51) **Int. Cl.**
H01F 27/28 (2006.01)(52) **U.S. Cl.** 333/26Correspondence Address:
FLYNN THIEL BOUTELL & TANIS, P.C.
2026 RAMBLING ROAD
KALAMAZOO, MI 49008-1631 (US)(57) **ABSTRACT**

A high frequency coupler (2) comprising first and second coupler patterns (11, 12) each having an annular shape broken at one location and formed, facing each other, on the front and rear surfaces of a circuit board (10) consisting of a dielectric and being t thick. The terminals (11a, 11b) of the first coupler pattern (11) serve as unbalanced terminals, and the terminals (12a, 12b) of the second coupler pattern (12) serve as unbalanced terminals from which coplanar lines (41, 42) are led out along the rear surface and connected with a balanced antenna (5). Since the first and second coupler patterns (11, 12) are kept in an electrostatic capacity coupling state as well as in a magnetic induction coupling state, the coupler high in transmission efficiency in a broad band can be realized.

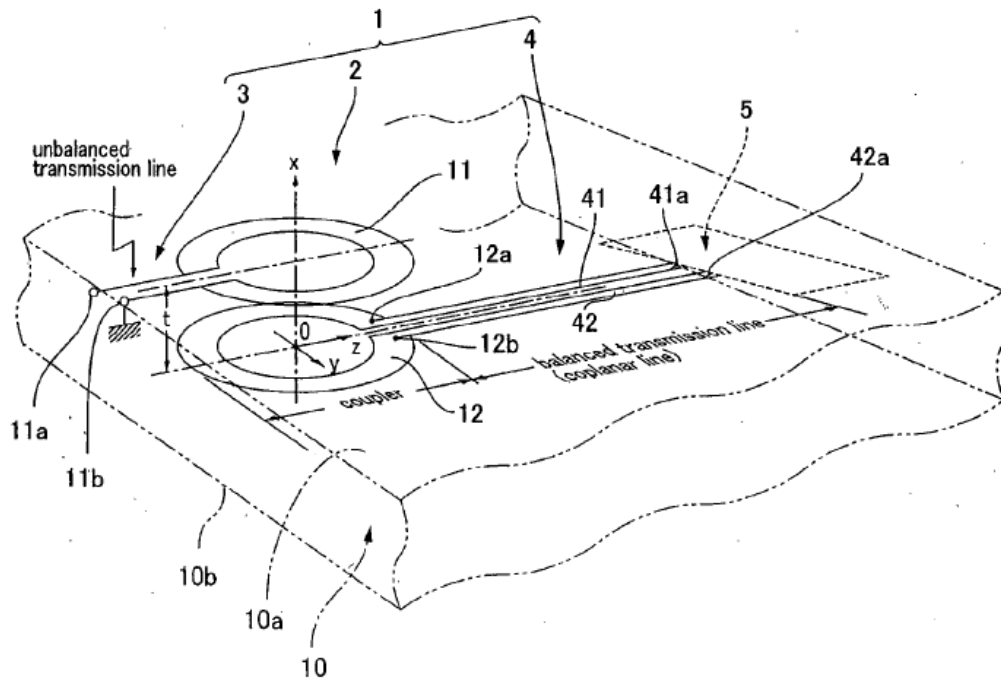
(21) Appl. No.: 11/661,488

(22) PCT Filed: Apr. 7, 2005

(86) PCT No.: PCT/JP05/06842

§ 371(c)(1),
(2), (4) Date: Feb. 27, 2007(30) **Foreign Application Priority Data**

Aug. 27, 2004 (JP) 2004-247822



Acrobat 文件



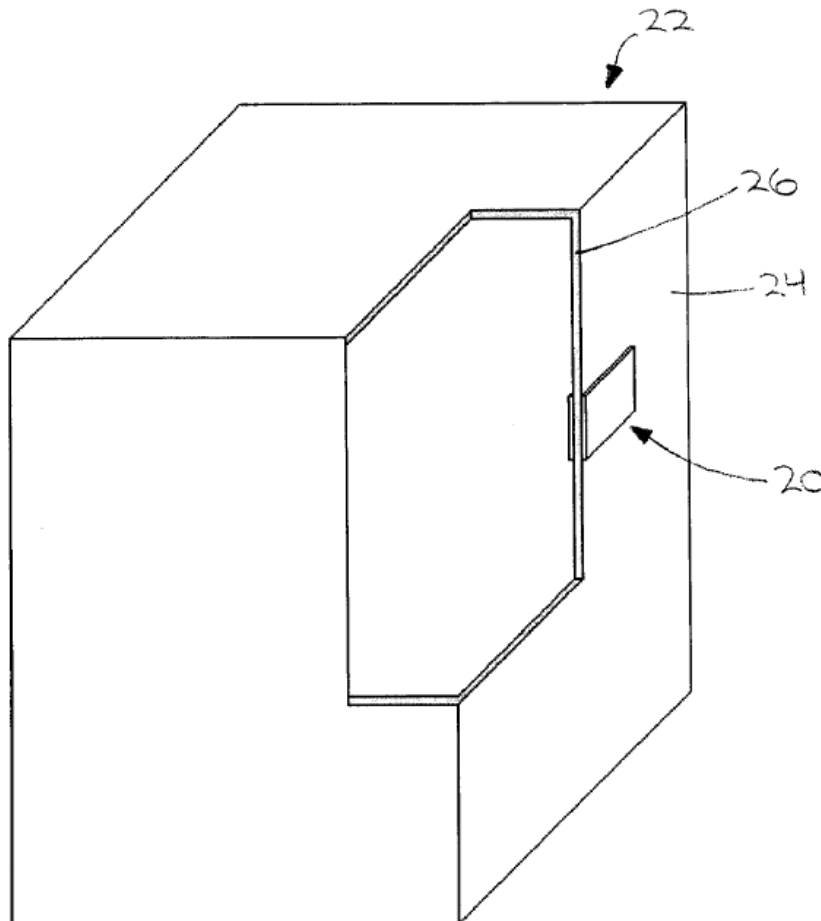
US 20080024305A1

(19) **United States**(12) **Patent Application Publication**
DEAVOURS(10) **Pub. No.: US 2008/0024305 A1**(43) **Pub. Date: Jan. 31, 2008**(54) **PLANAR MICROSTRIP ANTENNA
INTEGRATED INTO CONTAINER****Publication Classification**(51) **Int. Cl.**
G08B 13/14 (2006.01)(52) **U.S. Cl.** **340/572.7; 340/572.8**(57) **ABSTRACT**(76) **Inventor:** **Daniel D. DEAVOURS**, Lawrence,
KS (US)

Correspondence Address:
SPENCER, FANE, BRITT & BROWNE
1000 WALNUT STREET, SUITE 1400
KANSAS CITY, MO 64106-2140

(21) **Appl. No.:** **11/684,406**(22) **Filed:** **Mar. 9, 2007****Related U.S. Application Data**(60) **Provisional application No. 60/820,744, filed on Jul.**
28, 2006.

An RFID tag (20) associated with a container (22) having a container wall (24) constructed of a container material (26). The RFID tag (20) includes a microstrip antenna (32) associated with an exterior surface of the wall (24) of the container (22) and a ground plane (30) associated with an interior surface of the wall (24) of the container (22). The container material (26) is interposed between the microstrip antenna (32) and the ground plane (30) and acts as a dielectric substrate. The microstrip antenna (32) may be embedded below, substantially flush with, or affixed to the exterior surface. Similarly, the ground plane (30) may be embedded below, substantially flush with, or affixed to the interior surface. Use of the microstrip antenna (32) reduces or eliminates detuning, while locating the components below or flush with the surfaces of the container (22) protects them from damage.



Acrobat 文件



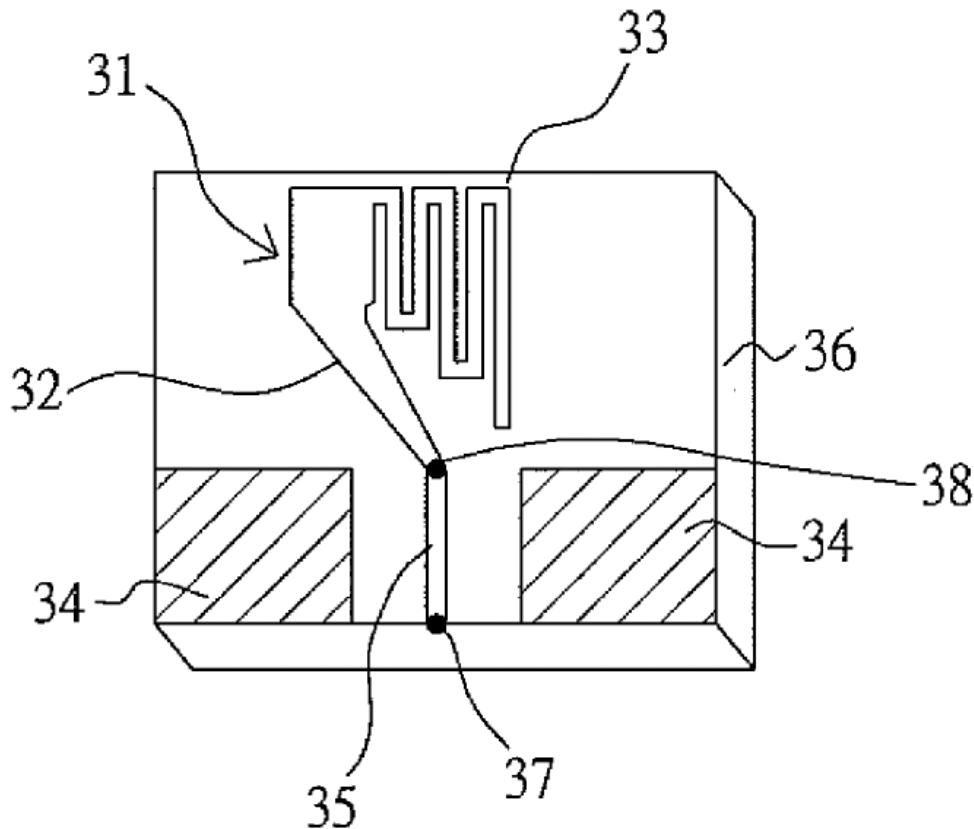
US 20080024366A1

(19) **United States**(12) **Patent Application Publication**
Cheng(10) **Pub. No.: US 2008/0024366 A1**(43) **Pub. Date: Jan. 31, 2008**(54) **DUAL BAND FLAT ANTENNA****Publication Classification**(75) **Inventor:** **Shih-Chieh Cheng**, Yongkang City
(TW)(51) **Int. Cl.**
H01Q 1/38 (2006.01)(52) **U.S. Cl.** **343/700 MS**

Correspondence Address:

KUSNER & JAFFE
HIGHLAND PLACE SUITE 310
6151 WILSON MILLS ROAD
HIGHLAND HEIGHTS, OH 44143(57) **ABSTRACT**

The present invention provides a dual band and dual mode flat antenna. The antenna structure comprises a substrate; a ground member configured on the substrate; an interdigital shape radiator having a first portion radiator and a second portion radiator configured on the substrate, wherein the second portion radiator being connected to a first end of said first portion radiator; and a feed line connected to the second end of the first portion radiator of the interdigital shape radiator.

(73) **Assignee:** **Arcadyan Technology Corporation**(21) **Appl. No.:** **11/459,653**(22) **Filed:** **Jul. 25, 2006**

Acrobat 文件



US 20080024367A1

(19) **United States**(12) **Patent Application Publication**
Wong et al.(10) **Pub. No.: US 2008/0024367 A1**(43) **Pub. Date: Jan. 31, 2008**(54) **COMPACT DTV RECEIVING ANTENNA****Publication Classification**(76) Inventors: **Kin-Lu Wong**, Kao-Hsiung City
(TW); **Wei-Yu Li**, I-Lan City
(TW); **Saou-Wen Su**, Taipei City
(TW)(51) **Int. Cl.**
H01Q 9/04 (2006.01)
H01Q 9/28 (2006.01)(52) **U.S. Cl.** **343/700 MS; 343/881; 343/795**

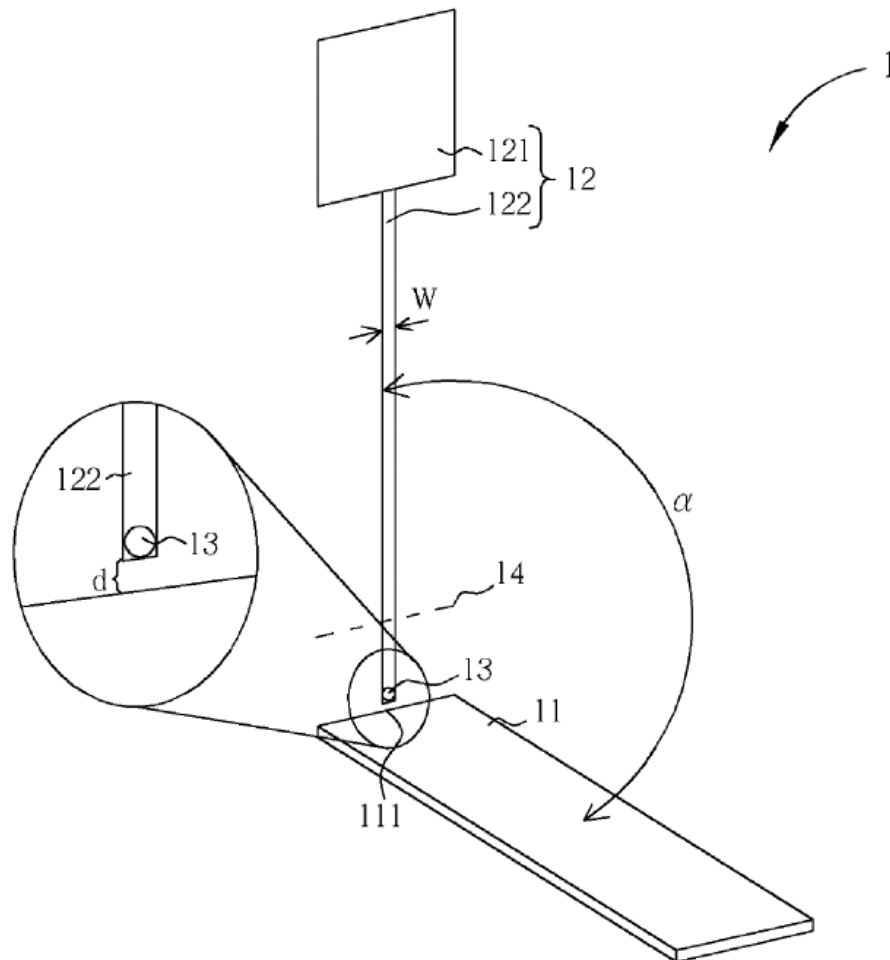
Correspondence Address:

**NORTH AMERICA INTELLECTUAL PROP-
ERTY CORPORATION**
P.O. BOX 506
MERRIFIELD, VA 22116(21) Appl. No.: **11/560,821**(22) Filed: **Nov. 16, 2006**(30) **Foreign Application Priority Data**

Jul. 28, 2006 (TW) 095127839

(57) **ABSTRACT**

A digital television receiving antenna includes a first radiating element and a second radiating element electrically connected to the first radiating element. The second radiating element is foldable, and includes a wide radiating metal plate, and a narrow radiating metal strip, wherein one end of the narrow radiating metal strip is a feeding point insulated from the first radiating element with a predefined distance, and the other end of the narrow radiating metal strip is electrically connected to the wide radiating metal plate.



Acrobat 文件



US 20080024369A1

(19) **United States**(12) **Patent Application Publication**
Shinkai(10) **Pub. No.: US 2008/0024369 A1**(43) **Pub. Date: Jan. 31, 2008**(54) **CHIP ANTENNA****Publication Classification**(75) Inventor: **Tetsuo Shinkai, Kyoto (JP)**

Correspondence Address:

OSHA LIANG L.L.P.**1221 MCKINNEY STREET****SUITE 2800****HOUSTON, TX 77010 (US)**(51) **Int. Cl.****H01Q 1/38** (2006.01)**H01Q 5/01** (2006.01)**H01Q 9/04** (2006.01)(52) **U.S. Cl. 343/700 MS**

(57)

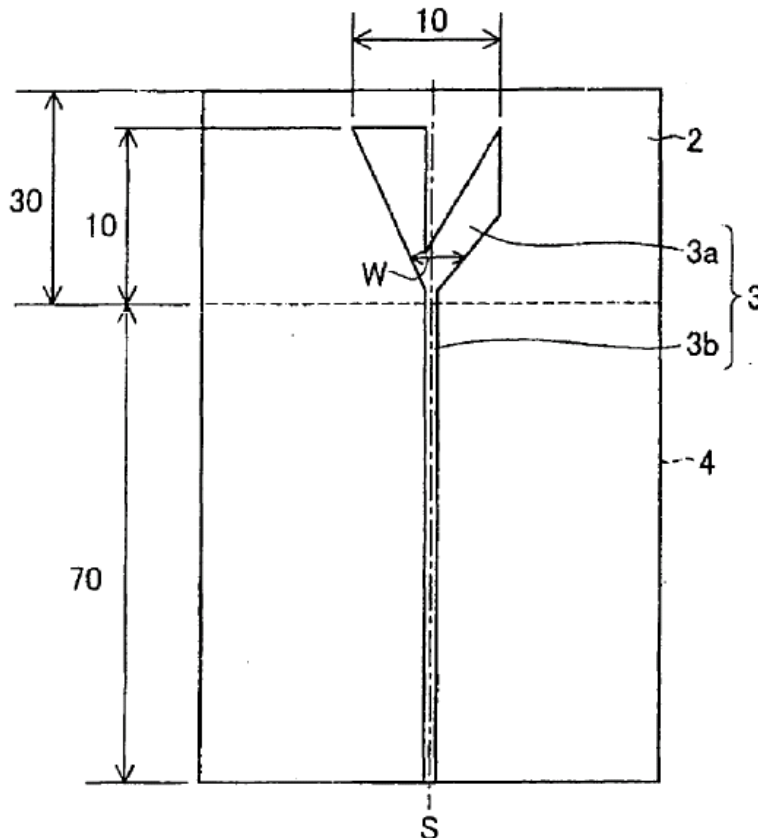
ABSTRACT(73) Assignee: **OMRON Corporation, Kyoto (JP)**(21) Appl. No.: **11/661,339**(22) PCT Filed: **Aug. 24, 2005**(86) PCT No.: **PCT/JP05/15333**

§ 371(c)(1),

(2), (4) Date: **Sep. 17, 2007**(30) **Foreign Application Priority Data**

Aug. 26, 2004 (JP) 2004-247471

A chip antenna according to the present invention includes a dielectric board, a power supplying conductor having a terminal part having a power supplying terminal and a conductor part that conducts to the terminal part, and a grounding electrode provided apart from the power supplying conductor, and the conductor part is inclined so that a width thereof becomes larger as it goes away from the terminal part, and distances from ends of the conductor part to the grounding electrode are asymmetric with respect to a center axis (S) of the conductor part. According to this, the chip antenna that is easy to manufacture, has a favorable antenna characteristic, and is applicable to a wide band can be provided.



Acrobat 文件



US 20080024371A1

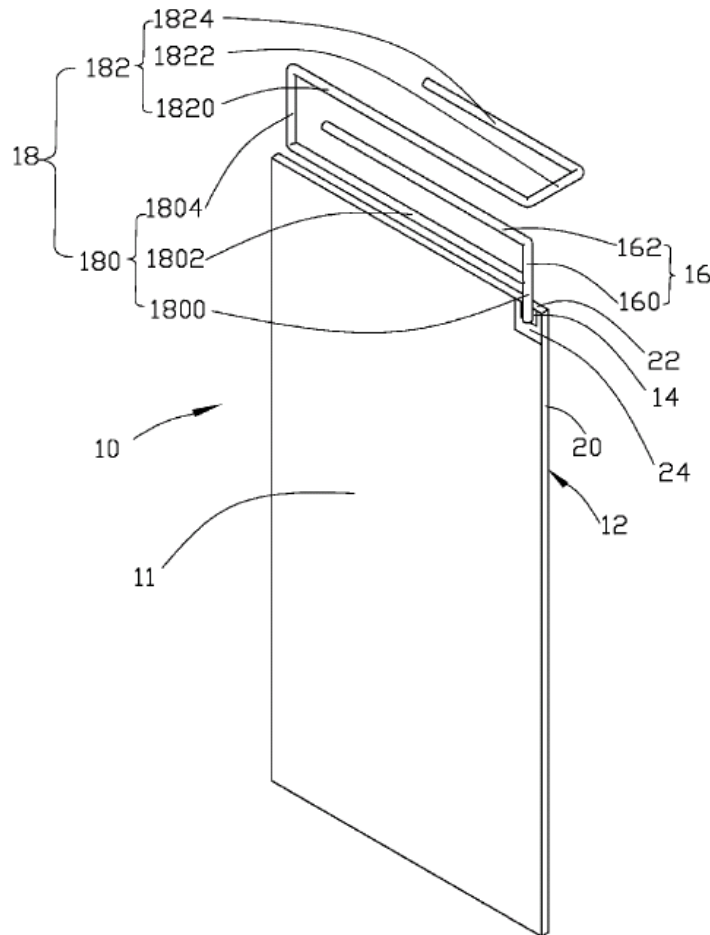
(19) **United States**(12) **Patent Application Publication**
SHIH(10) **Pub. No.: US 2008/0024371 A1**(43) **Pub. Date: Jan. 31, 2008**(54) **MONOPOLE ANTENNA****Publication Classification**(75) Inventor: **YEN-YI SHIH**, Taipei Hsien (TW)(51) **Int. Cl.**
H01Q 1/24 (2006.01)

Correspondence Address:

PCE INDUSTRY, INC.**ATT. CHENG-JU CHIANG JEFFREY T. KNAPP****458 E. LAMBERT ROAD****FULLERTON, CA 92835**(52) **U.S. Cl.** **343/702; 343/700 MS**(73) Assignee: **HON HAI PRECISION**
INDUSTRY CO., LTD., Taipei
Hsien (TW)(57) **ABSTRACT**(21) Appl. No.: **11/615,010**(22) Filed: **Dec. 22, 2006**(30) **Foreign Application Priority Data**

Jul. 28, 2006 (TW) 95127769

A monopole antenna (10) includes a feed wire (14), a radiation part (18), and a matching part (16). The feed wire is formed on a clear portion of a substrate for feeding electromagnetic signals. The radiation part is connected to the feed wire for radiating and receiving electromagnetic signals, and includes a first radiation part (180) and a second radiation part (182). The second radiation part is connected to the first radiation part, the first radiation part is formed on a first plane, and the second radiation part is formed on a second plane intersecting the first plane. The matching part is connected to the radiation part for impedance matching.



Acrobat 文件



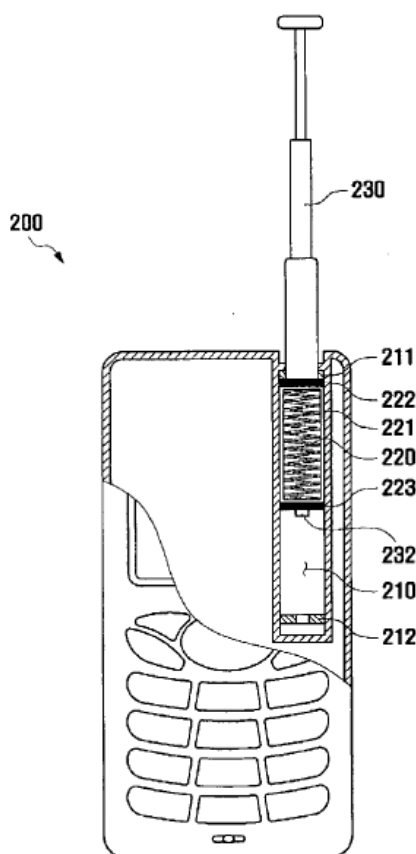
US 20080024372A1

(19) **United States**(12) **Patent Application Publication****Yoon et al.**(10) **Pub. No.: US 2008/0024372 A1**(43) **Pub. Date: Jan. 31, 2008**(54) **DUAL BAND ANTENNA UNIT FOR MOBILE DEVICE****Publication Classification**(75) Inventors: **Il Bae Yoon**, Suwon-si (KR); **Kee Dug Kim**, Seoul (KR); **Seong Wook Lee**, Suwon-si (KR)(51) **Int. Cl.**
H01Q 1/24 (2006.01)(52) **U.S. Cl.** **343/702**Correspondence Address:
THE FARRELL LAW FIRM, P.C.
333 EARLE OVINGTON BOULEVARD
SUITE 701
UNIONDALE, NY 11553 (US)(57) **ABSTRACT**

A dual band antenna unit for a mobile device may include an antenna receiving part, a first antenna part having a first contact point and a second contact point, a second antenna part, a first feed point and a second feed point. The second antenna part may be formed integrally with the first antenna part and may extend from the first antenna part. The second antenna part may be extractably and retractably mounted in the mobile device. The first antenna part and the second antenna part may have resonant frequencies of different frequency bands. When the second antenna part is extracted, the first contact point may contact the first feed point. When the second antenna part is retracted, the second contact point may contact the second feed point. The mobile device may operate in different frequency bands using a single antenna unit, thereby allowing freedom of internal design and meeting the demand for miniaturization.

(73) Assignee: **SAMSUNG ELECTRONICS CO., LTD.**, Suwon-si (KR)(21) Appl. No.: **11/647,022**(22) Filed: **Dec. 28, 2006**(30) **Foreign Application Priority Data**

Jul. 28, 2006 (KR) 2006-0071218



Acrobat 文件



US 20080024375A1

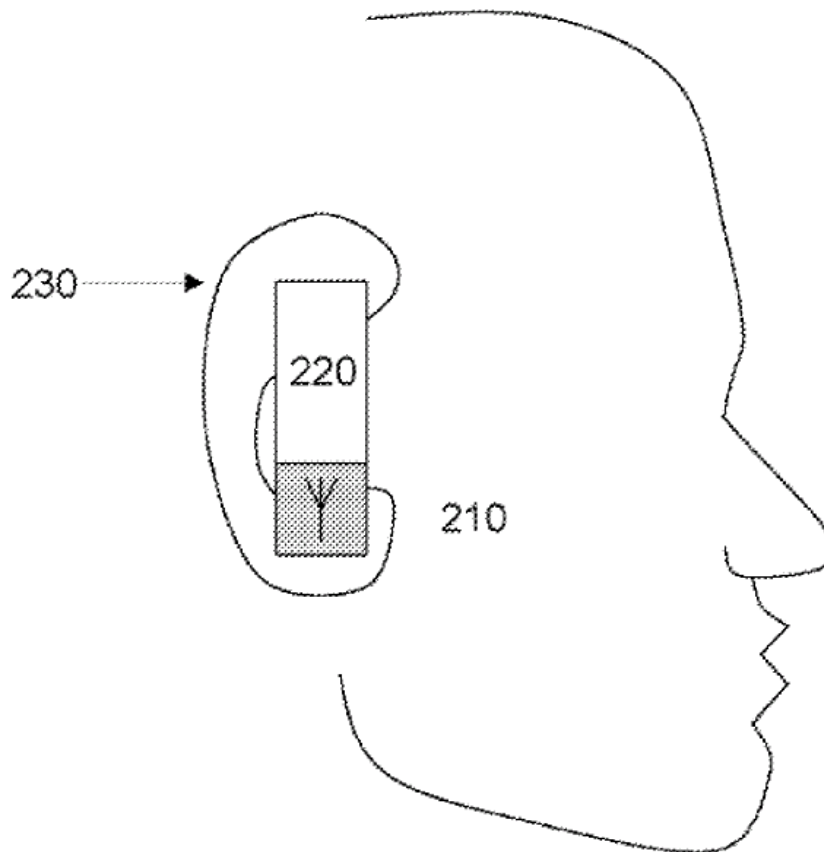
(19) **United States**(12) **Patent Application Publication**
MARTIN et al.(10) **Pub. No.: US 2008/0024375 A1**(43) **Pub. Date: Jan. 31, 2008**(54) **VIRTUAL FM ANTENNA**(76) Inventors: **Francis Rajesh MARTIN**, Santa Clara, CA (US); **Patrick Clement**, Belmont (CH); **Sameer Bidichandani**, Los Gatos, CA (US); **Frederic Castella**, Lausanne (CH)Correspondence Address:
KENYON & KENYON LLP
333 W. SAN CARLOS STREET, SUITE 600
SAN JOSE, CA 95110-2731(21) Appl. No.: **11/773,928**(22) Filed: **Jul. 5, 2007****Related U.S. Application Data**

(60) Provisional application No. 60/868,233, filed on Dec. 1, 2006, provisional application No. 60/825,359, filed

on Sep. 12, 2006, provisional application No. 60/826,571, filed on Sep. 22, 2006, provisional application No. 60/820,711, filed on Jul. 28, 2006.

Publication Classification(51) **Int. Cl.**
H01Q 1/12 (2006.01)(52) **U.S. Cl.** **343/718**(57) **ABSTRACT**

An apparatus and method for receiving wireless signals couples an antenna input of a receiver to a human body and receives a signal conducting from said body. Impedance matching circuitry lessens signal power loss at the antenna input. Parameters of the impedance matching circuitry can be adjusted based on a detected impedance, a detected signal strength, or the frequency of the signal.



Acrobat 文件



US 20080024378A1

(19) **United States**(12) **Patent Application Publication**
Kanno et al.(10) **Pub. No.: US 2008/0024378 A1**(43) **Pub. Date: Jan. 31, 2008**(54) **DIFFERENTIAL-FEED SLOT ANTENNA**(30) **Foreign Application Priority Data**(75) Inventors: **Hiroshi Kanno**, Osaka (JP); **Ushio Sangawa**, Nara (JP)

Apr. 3, 2006 (JP) 2006-101741

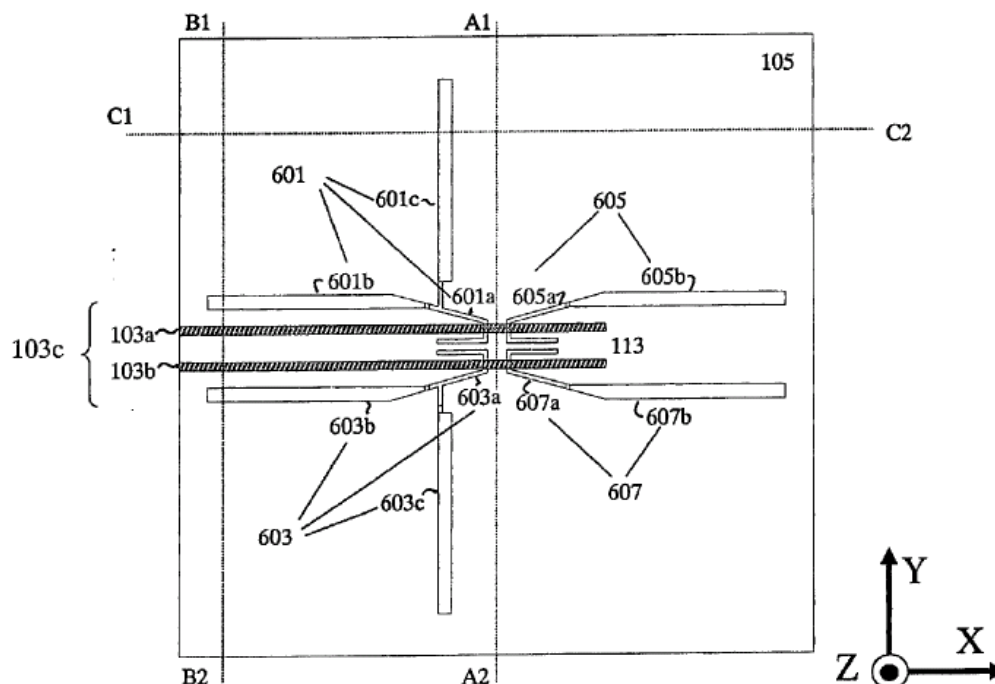
Publication Classification

Correspondence Address:

MCDERMOTT WILL & EMERY LLP
600 13TH STREET, NW
WASHINGTON, DC 20005-3096 (US)(51) **Int. Cl.**
H01Q 13/10 (2006.01)(52) **U.S. Cl.** 343/770; 343/767(73) Assignee: **MATSUSHITA ELECTRIC INDUSTRIAL CO., LTD.**, Osaka (JP)(57) **ABSTRACT**(21) Appl. No.: **11/905,001**(22) Filed: **Sep. 27, 2007****Related U.S. Application Data**

(63) Continuation-in-part of application No. PCT/JP07/56215, filed on Mar. 26, 2007.

With a differential feed line 103c, slot resonators 601, 603, 605, and 607 are allowed to operate in pair, a slot length of each resonator corresponding to a $\frac{1}{2}$ effective wavelength during operation. Slot resonators which are excited out-of-phase with an equal amplitude are allowed to exist within the circuitry. Thus, positioning condition of selective radiation portions 601b, 601c, 603b, 603c, 605b, and 607b in the slot resonators is switched.



Acrobat 文件



US 20080024381A1

(19) **United States**(12) **Patent Application Publication****Vendik et al.**(10) **Pub. No.: US 2008/0024381 A1**(43) **Pub. Date: Jan. 31, 2008**(54) **ANTENNA AND MOBILE TERMINAL**(22) Filed: **May 10, 2007****Related U.S. Application Data**

(75) Inventors: **O. G. Vendik**, St. Petersburg (RU);
I.A. Pakhomov, St. Petersburg (RU); **An Sun Hyun**, Seoul (KR);
Kang Jae Jung, Seoul (KR);
Dong Ho Lee, Seoul (KR)

(60) Provisional application No. 60/820,476, filed on Jul. 26, 2006.

(30) **Foreign Application Priority Data**

Dec. 28, 2006 (KR) 10-2006-0135938

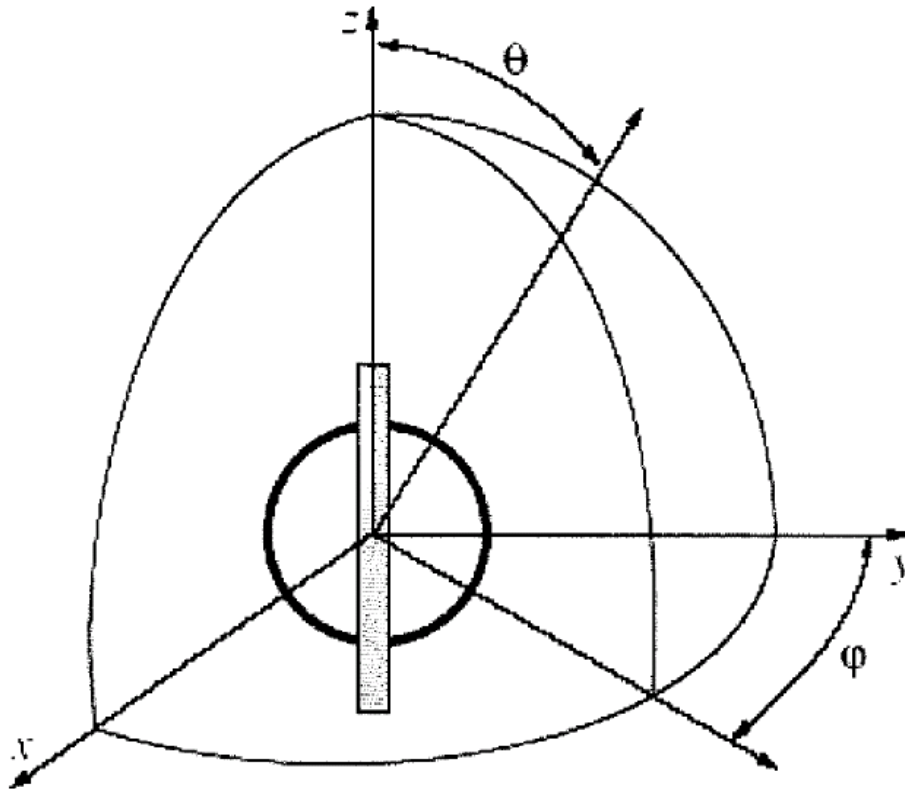
Publication Classification

(51) Int. Cl.
H01Q 1/50 (2006.01)
H01Q 9/16 (2006.01)

(52) U.S. Cl. **343/822; 343/793**(57) **ABSTRACT**

Disclosed are an antenna and a mobile terminal comprising the antenna with the combination of a dipole and a loop.

Correspondence Address:
LEE, HONG, DEGERMAN, KANG & SCHMADEKA
660 S. FIGUEROA STREET, Suite 2300
LOS ANGELES, CA 90017

(73) Assignee: **LG ELECTRONICS INC.**(21) Appl. No.: **11/747,100**

Acrobat 文件



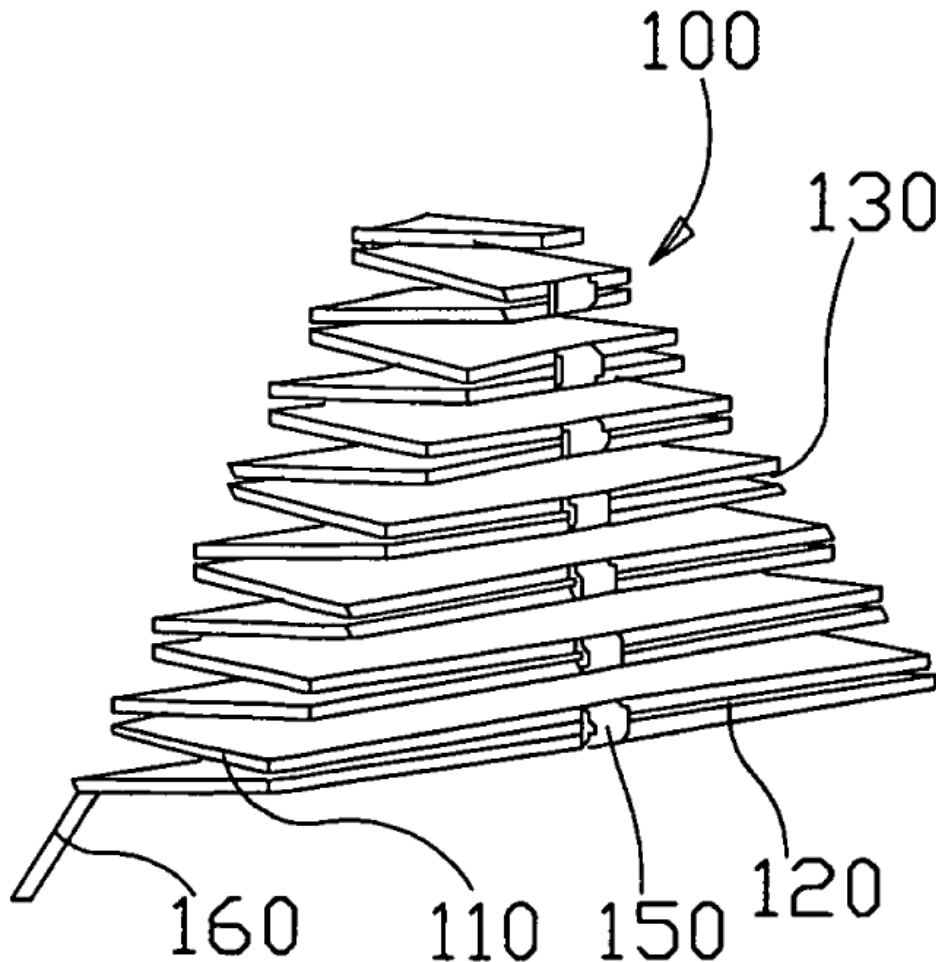
US 20080024383A1

(19) **United States**(12) **Patent Application Publication**
Chiang(10) **Pub. No.: US 2008/0024383 A1**(43) **Pub. Date: Jan. 31, 2008**(54) **STACKED MONOPOLE ANTENNA FOR
BROADBAND COMMUNICATION
EQUIPMENT**(75) Inventor: **Chi-Ming Chiang, Tao-Yuan
Hsien (TW)**

Correspondence Address:

BRUCE H. TROXELL**SUITE 1404, 5205 LEESBURG PIKE
FALLS CHURCH, VA 22041**(73) Assignee: **Auden Techno Corp.**(21) Appl. No.: **11/495,686**(22) Filed: **Jul. 31, 2006****Publication Classification**(51) **Int. Cl.****H01Q 1/36** (2006.01)**H01Q 1/38** (2006.01)(52) **U.S. Cl.** **343/895; 343/700 MS**(57) **ABSTRACT**

A stacked monopole antenna for broadband communication equipment, the antenna is provided with a plurality of component sheets arranged from bottom to top, a gap for adjusting impedance matching is provided between every two component sheets, and the component sheets form centrally thereof an integral connecting neck, a feed-in line is provided on the bottom of the antenna; the component sheets get its desired broad bandwidth by adjusting the height stacked by said component sheets.



Acrobat 文件



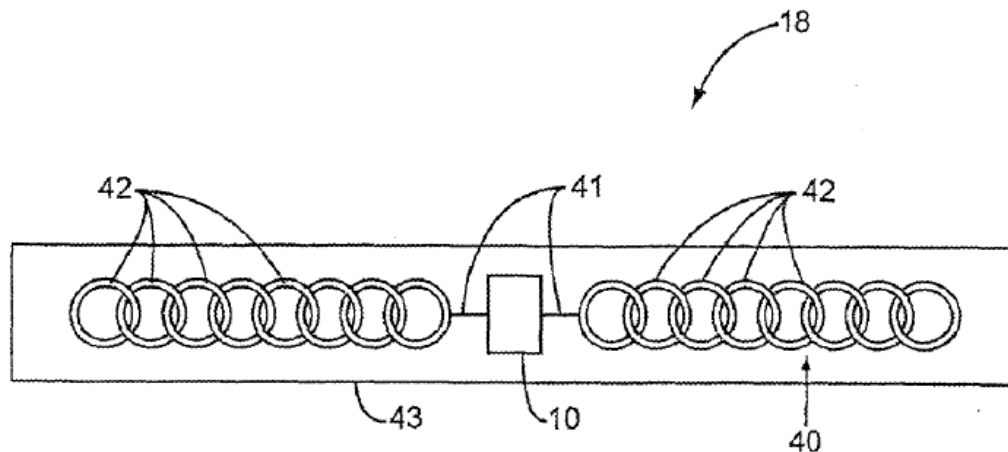
US 20080024384A1

(19) **United States**(12) **Patent Application Publication**
Forster(10) **Pub. No.: US 2008/0024384 A1**(43) **Pub. Date: Jan. 31, 2008**(54) **WIRELESS COMMUNICATION DEVICE
HAVING CONDUCTIVE ELEMENTS
ANTENNA**

(60) Provisional application No. 60/375,248, filed on Apr. 24, 2002.

(75) Inventor: **Ian J. Forster**, Chelmsford (GB)Correspondence Address:
**CHRISTENSEN, O'CONNOR, JOHNSON,
KINDNESS, PLLC
1420 FIFTH AVENUE
SUITE 2800
SEATTLE, WA 98101-2347 (US)****Publication Classification**(51) **Int. Cl.**
H01Q 1/36 (2006.01)
(52) **U.S. Cl.** **343/896**(57) **ABSTRACT**(73) Assignee: **Mineral Lassen LLC**, Las Vegas, NV
(US)(21) Appl. No.: **11/838,147**(22) Filed: **Aug. 13, 2007****Related U.S. Application Data**(63) Continuation of application No. 11/515,482, filed on
Aug. 31, 2006.
Continuation of application No. 10/422,637, filed on
Apr. 24, 2003, now Pat. No. 7,239,287.

An antenna coupled to a wireless communication device that is comprised of a series of conductive elements that form a conductor when placed under a force. The conductor is coupled to a wireless communication device to provide an antenna so that the wireless communication device is capable of communicating at an operating frequency defined by the length and construction of the conductor. The wireless communication device, through its communication using the conductor as an antenna, acts as an indicator of force to an interrogation reader when the wireless communication device is capable of communicating to the interrogation reader using the conductor as an antenna.



Acrobat 文件



US 20080026705A1

(19) **United States**(12) **Patent Application Publication** (10) **Pub. No.: US 2008/0026705 A1**
Asami (43) **Pub. Date: Jan. 31, 2008**(54) **DIGITAL BROADCAST RECEIVING
ANTENNA APPARATUS AND MOVABLE
BODY INCORPORATING THE SAME**(30) **Foreign Application Priority Data**

Jul. 15, 2004 (JP) 2004-209108

(75) Inventor: **Ken Asami**, Saitama-ken (JP)**Publication Classification**

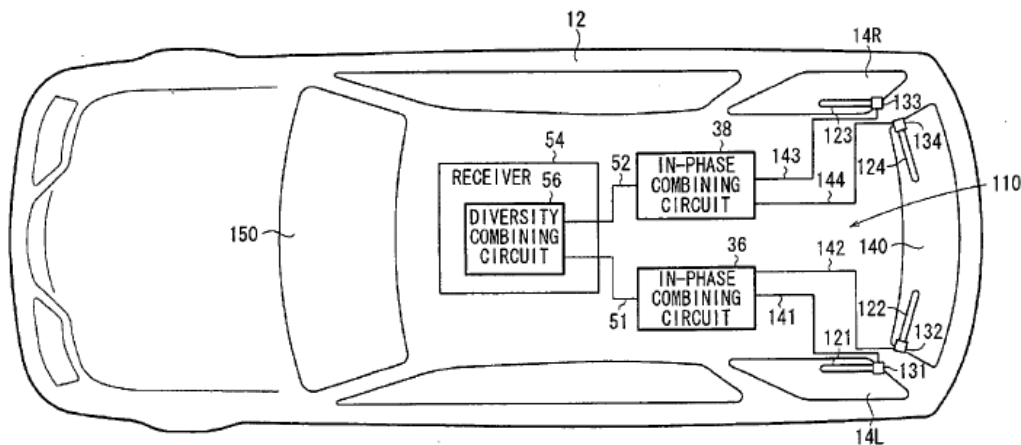
Correspondence Address:

**CARRIER BLACKMAN AND ASSOCIATES
24101 NOVI ROAD
SUITE 100
NOVI, MI 48375**(51) **Int. Cl.**
H04B 1/034 (2006.01)(52) **U.S. Cl.** **455/99**(57) **ABSTRACT**

A digital broadcast receiving antenna apparatus that, even when applied to a movable body, such as automobile or the like, can exhibit a high level of receiving characteristic. For this purpose, digital broadcast wave signals, which are received by four antennas, for example, disposed in rear quarter glasses and so tuned as to have nondirectivity, are in-phase combined by two in-phase combining circuits. The in-phase combined signals are then diversity combined by a diversity combining circuit constituting a receiver. In this way, a high level of receiving characteristic of digital broadcast waves can be obtained.

(73) Assignee: **Honda Motor Co., Ltd.**, Minato-ku (JP)(21) Appl. No.: **11/631,739**(22) PCT Filed: **Jul. 12, 2005**(86) PCT No.: **PCT/JP05/12802**

§ 371(c)(1),

(2), (4) Date: **Jan. 5, 2007**

Acrobat 文件