US 20080297418A1

(19) United States

(12) Patent Application Publication

(10) Pub. No.: US 2008/0297418 A1

(43) Pub. Date: Dec. 4, 2008

Hu et al.

(54) **FEED POINT ADJUSTABLE PLANAR ANTENNA**

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(21) Appl. No.: **11/757,366**

(22) Filed: **Jun. 2, 2007**

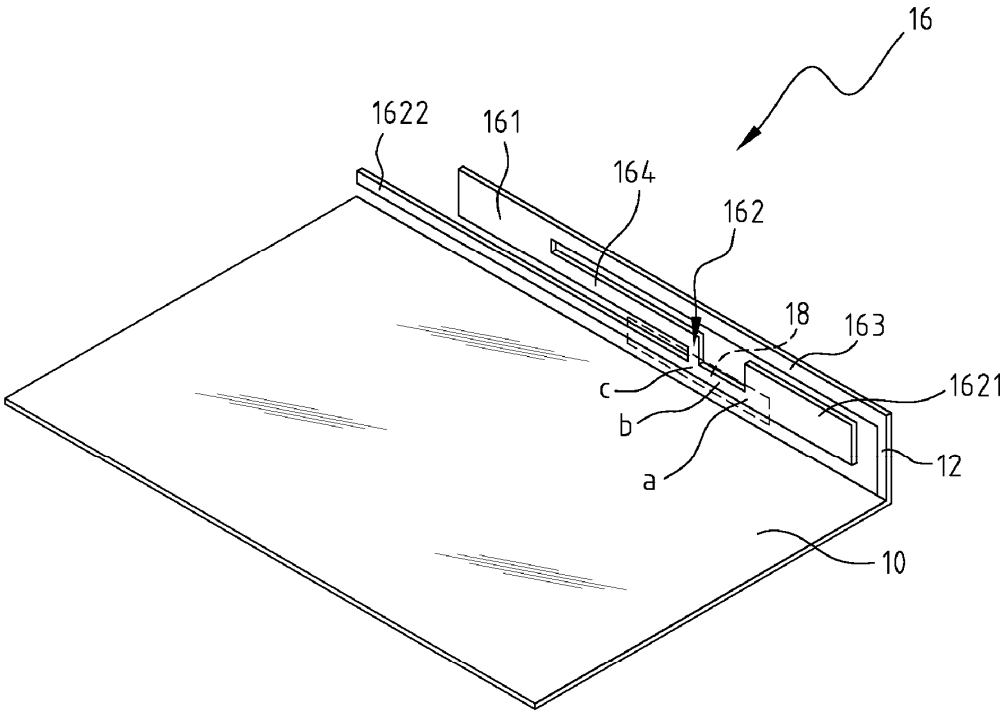
Publication Classification

(51) **Int. Cl.**
H01Q 1/38 (2006.01)
H01Q 1/48 (2006.01)

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

(57) **ABSTRACT**

The feed point adjustable planar antenna includes a ground component, a main radiation plane, a branch line extended from the main radiation plane, and a ground pin electrically connecting the radiation component with the ground component. If it needs to fine tune the frequency band interval after the design of the antenna is completed, the feed position of the coaxial cable to the branch line can be changed to achieve the fine tuning without cutting the antenna. The ground pin extends from a side edge of the ground component and the branch line is adjacent to the ground component. The branch line and the ground component form a larger coupling range than the conventional planar antenna does. In the mean time, the coaxial cable also has a larger feed range than the conventional planar antenna does.



US 20080297424A1

(19) **United States**

(12) **Patent Application Publication**

(10) **Pub. No.: US 2008/0297424 A1**

(43) **Pub. Date: Dec. 4, 2008**

Yekeh Yazdandoost et al.

(54) **ULTRA WIDEBAND LOOP ANTENNA**

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(21) Appl. No.: **11/568,338**

(22) PCT Filed: **Dec. 28, 2004**

(86) PCT No.: **PCT/JP2004/019594**

§ 371 (c)(1),
(2), (4) Date: **Jun. 14, 2008**

(30) **Foreign Application Priority Data**

Apr. 28, 2004 (JP) 2004-133759

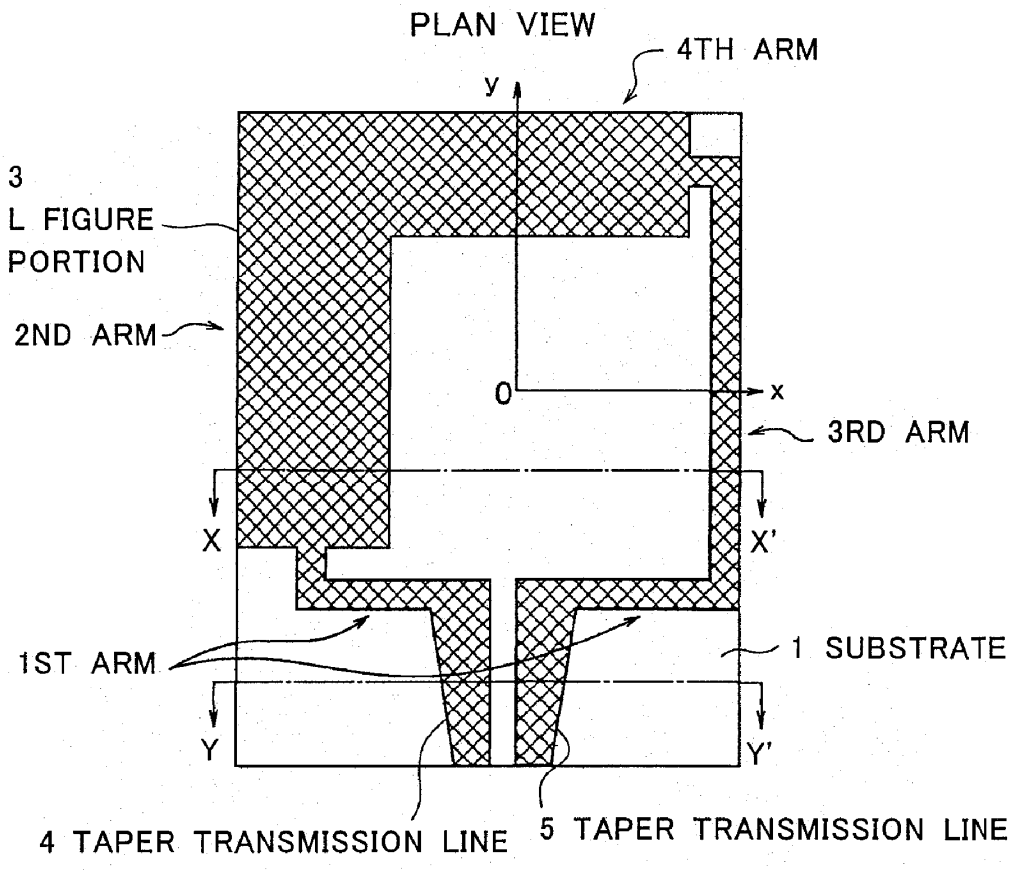
Publication Classification

(51) **Int. Cl.**
H01Q 11/12 (2006.01)

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

(57) **ABSTRACT**

The wideband L-loop antenna is presented in this invention. It has excellent performance for lower band of UWB system and has the attractive features of small size, inexpensive, and easy to design. The antenna composed of a single metallic layer is printed on the top of a substrate and a coupled tapered transmission line is printed on the top of the same substrate. A L shape portion is formed by widening partially or wholly the width of a part of antenna elements in comparison with the other part.



US 20080297428A1

(19) **United States**

(12) **Patent Application Publication**

(10) **Pub. No.: US 2008/0297428 A1**

(43) **Pub. Date: Dec. 4, 2008**

Wu

(54) **HIGH-POWER DUAL-FREQUENCY COAXIAL FEEDHORN ANTENNA**

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(21) Appl. No.: **11/361,350**

(22) Filed: **Feb. 24, 2006**

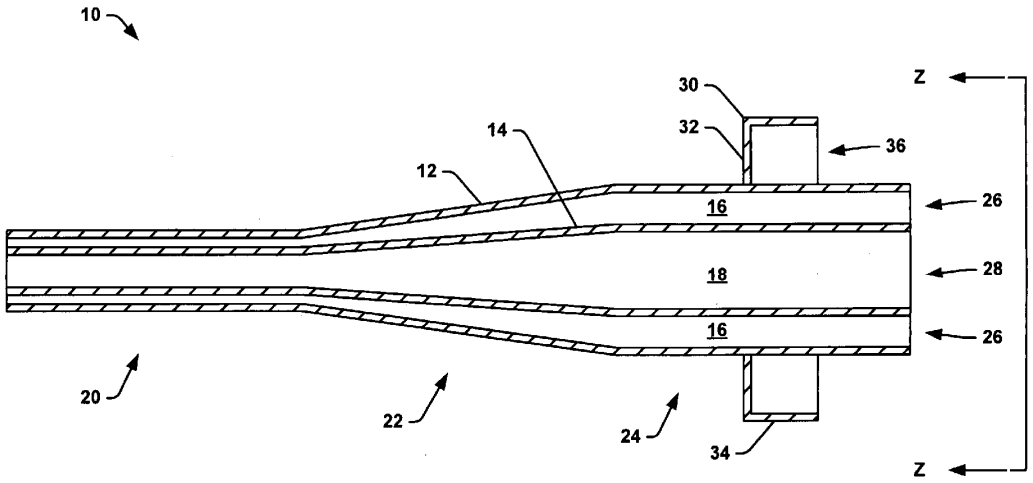
Publication Classification

(51) **Int. Cl.**
H01Q 13/00 (2006.01)

(52) **U.S. Cl.** **343/786**

(57) **ABSTRACT**

Systems are disclosed for providing substantially equal E-plane and H-plane radiation patterns in a high power and dual band coaxial feedhorn antenna for a satellite communication system. One embodiment may include a coaxial feedhorn antenna comprising an outer coaxial horn portion for propagation of first signals and an inner horn portion for propagation of second signals. The coaxial feedhorn antenna may also comprise a conductive choke-ring coupled to the outer conductive wall, the conductive choke-ring being coaxial with the outer coaxial horn portion and the inner horn portion. The conductive choke-ring provides substantially equal E-plane and H-plane radiation patterns of the first signals and substantially reduced back-lobes.



US 20080297430A1

(19) **United States**

(12) **Patent Application Publication**

Schano

(10) **Pub. No.: US 2008/0297430 A1**

(43) **Pub. Date: Dec. 4, 2008**

(54) **PLANAR BROADBAND ANTENNA**

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(21) Appl. No.: **11/667,428**

(22) PCT Filed: **Sep. 9, 2005**

(86) PCT No.: **PCT/EP05/54492**

§ 371 (c)(1),
(2), (4) Date: **Feb. 28, 2008**

(30) **Foreign Application Priority Data**

Nov. 9, 2004 (DE) 102004054015.2

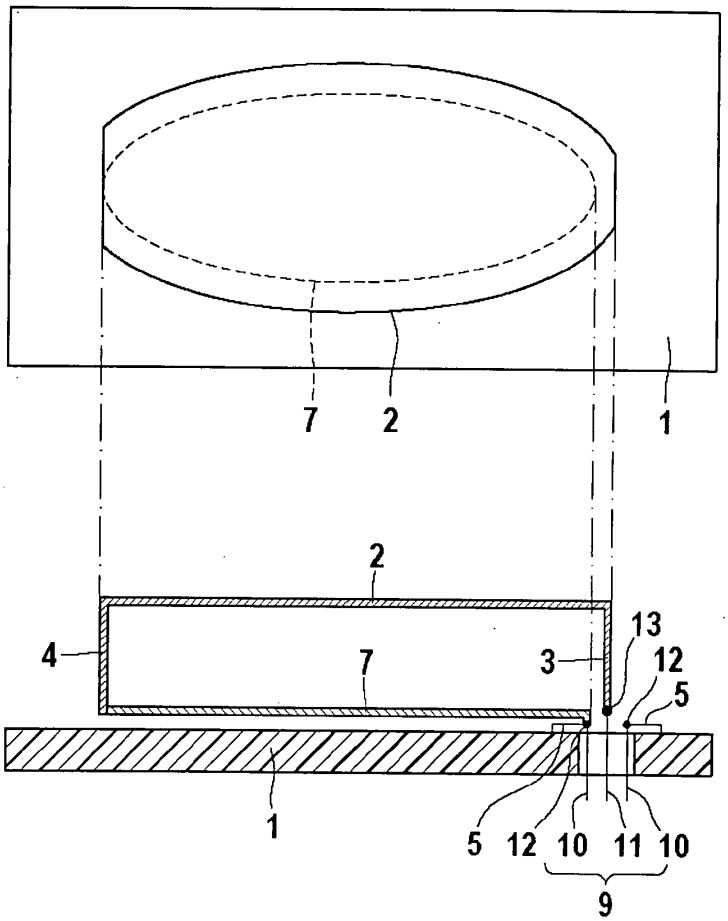
Publication Classification

(51) **Int. Cl.**
H01Q 1/50 (2006.01)
H01Q 9/04 (2006.01)

(52) **U.S. Cl.** ..... **343/860**; 343/700 MS

(57) **ABSTRACT**

A planar broadband antenna includes a flat elliptical antenna device. The elliptical antenna device includes a central antenna element, a first angular antenna element and a second angular antenna element. The central antenna element is disposed parallel to a support. The angular antenna elements are formed by two opposite segments of the elliptical antenna device and point toward the support. The first angular antenna element is provided with a base point through which a signal is capable of being fed in. An impedance device connects the second angular antenna element to a ground point located near the base point.



US 20080303729A1

(19) **United States**

(12) **Patent Application Publication**

(10) **Pub. No.: US 2008/0303729 A1**

(43) **Pub. Date: Dec. 11, 2008**

Milosavljevic et al.

(54) **MULTIBAND ANTENNA SYSTEM AND METHODS**

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(21) Appl. No.: **12/080,741**

(22) Filed: **Apr. 3, 2008**

(30) **Foreign Application Priority Data**

Oct. 3, 2005 (FI) 20055527
Oct. 14, 2005 (FI) 20055554
Sep. 20, 2006 (FI) PCT/FI2006/050402

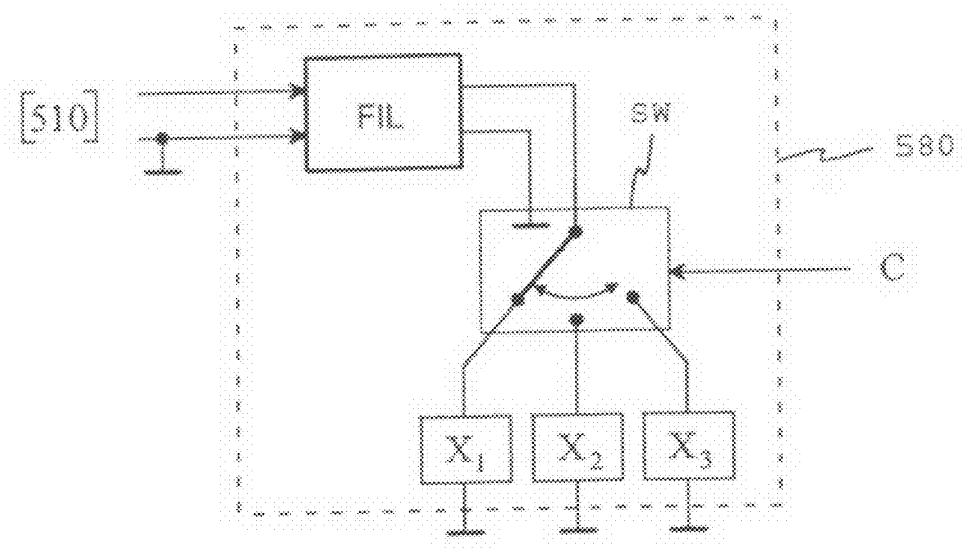
Publication Classification

(51) **Int. Cl.**
H01Q 3/24 (2006.01)
H01Q 1/00 (2006.01)

(52) **U.S. Cl.** **343/722**; 343/876

(57) **ABSTRACT**

An antenna system internal to a radio device, the system comprising separate antennas and having separate operating bands. The system is implemented as decentralized in a way that each antenna is typically based on a small-sized chip component (**310**; **320**; **330**; **340**; **350**; **360**; **610**), which are located at suitable places on the circuit board (PCB) and possibly on also another internal surface in the device. The chip component comprises a ceramic substrate and at least one radiating element. The operating band of an individual antenna covers e.g. the frequency range used by a radio system or only the transmitting or receiving band in that range. At least one antenna is connected to an adjusting circuit with a switch, by which the antenna's operating band can be displaced in a desired way. In this case the operating band covers at a time a part of the frequency range used by one or two radio systems. The antennas can be made small-sized, because a relatively small bandwidth is sufficient for an individual antenna, when there is a plurality of antennas. When the bandwidth is small, a material with higher permittivity can be chosen for the antenna than for an antenna having a wider band, in which case the antenna dimensions can be made correspondingly smaller. In addition, a good matching of the antenna is achieved on the whole width of each radio system, because the matching of a separate antenna having a relatively narrow band is easier to arrange than that of a combined multiband antenna.



US 20080303731A1

(19) **United States**

(12) **Patent Application Publication**

Wu et al.

(10) **Pub. No.: US 2008/0303731 A1**

(43) **Pub. Date: Dec. 11, 2008**

(54) **MULTI-BAND ANTENNA**

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(21) Appl. No.: **11/808,142**

(22) Filed: **Jun. 7, 2007**

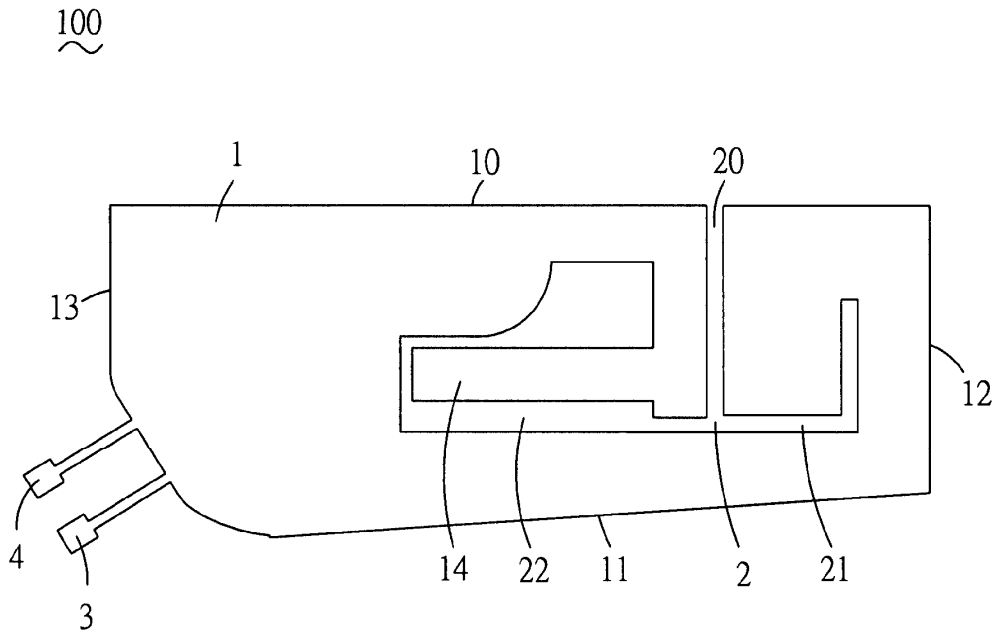
Publication Classification

(51) **Int. Cl.**
H01Q 13/10 (2006.01)
H01Q 1/38 (2006.01)

(52) **U.S. Cl.** ..... **343/767**; 343/700 MS

(57) **ABSTRACT**

A multi-band antenna has a radiating conductor, a feeding conductor and a short conductor. The feeding conductor and the short conductor connect to one side of the radiating conductor, which are arranged close to each other. The radiating conductor has a slot containing an opening portion, a first extension portion and a second extension portion communicating with each other. The opening portion opening at the other side of the radiating conductor and the first and second extension portions extend to different directions. The second extension portion defines a short portion on the radiating conductor. The multi-band antenna is divided by the slot to form an inverted-F portion being similar to an inverted-F antenna to resonate at a first frequency band, and a loop portion being similar to a loop antenna to resonate at a second frequency band.



US 20080303733A1

(19) **United States**

(12) **Patent Application Publication**

(10) **Pub. No.: US 2008/0303733 A1**

(43) **Pub. Date: Dec. 11, 2008**

Chiu et al.

(54) **MULTIPLE-INPUT-MULTIPLE-OUTPUT WIRELESS COMMUNICATIONS CUBE ANTENNAS**

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(73) Assignee: **The Hong Kong University of Science and Technology**, Hong Kong (CN)

(21) Appl. No.: **12/129,025**

(22) Filed: **May 29, 2008**

Related U.S. Application Data

(60) Provisional application No. 60/942,591, filed on Jun. 7, 2007.

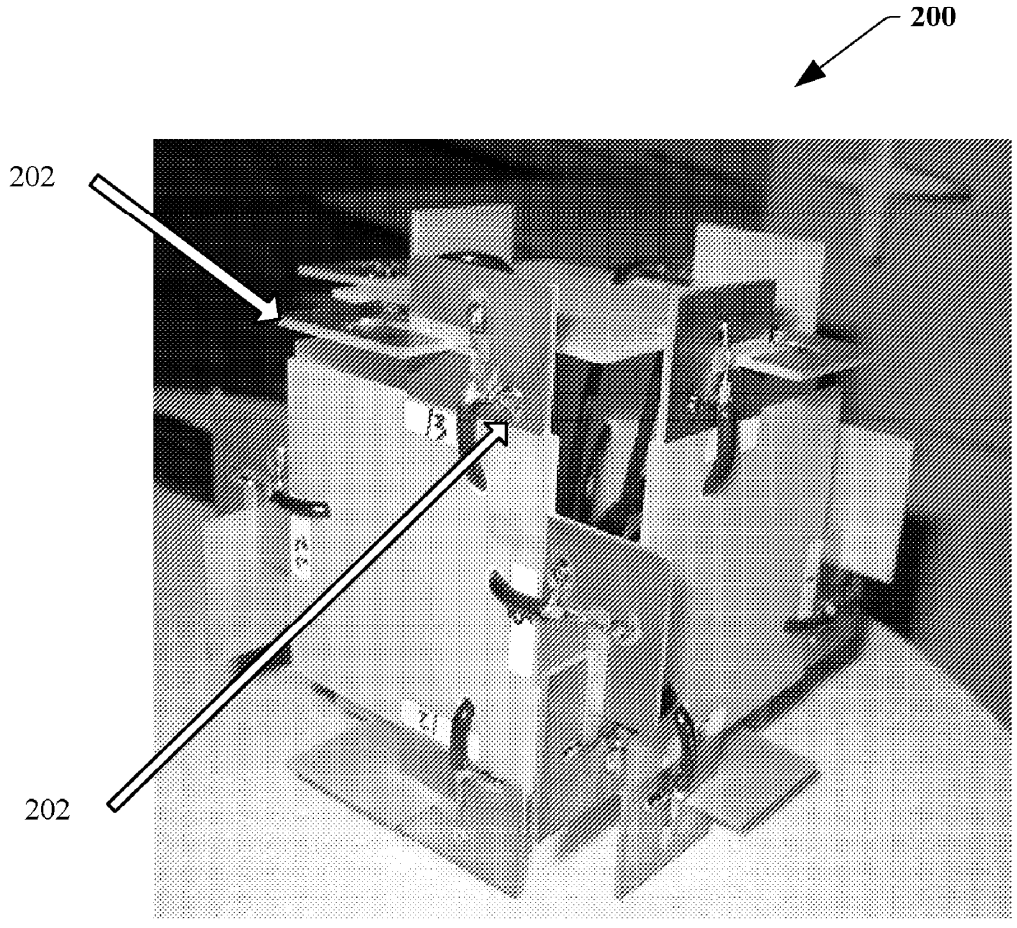
Publication Classification

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

(52) **U.S. Cl.** **343/770**

(57) **ABSTRACT**

Compact 24-port and 36-port multiple-input-multiple-output (MIMO) antenna designs and methods of construction based on a cube-like structure are provided. The antennas can be implemented with slot antennas distributed on the edges and faces of cubes. According to various embodiments of the disclosed subject matter, both spatial and polarization diversity can be achieved and average mutual couplings among the ports better than −20 dB can be achieved providing good channel capacity in MIMO applications. The disclosed details enable various refinements and modifications according to antenna and system design considerations.



US 20080303734A1

(19) **United States**

(12) **Patent Application Publication**

Teshirogi et al.

(10) **Pub. No.: US 2008/0303734 A1**

(43) **Pub. Date: Dec. 11, 2008**

(54) **DIELECTRIC LEAKY WAVE ANTENNA**

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(21) Appl. No.: **11/631,426**

(22) PCT Filed: **Jul. 20, 2006**

(86) PCT No.: **PCT/JP06/14421**

§ 371 (c)(1),
(2), (4) Date: **Jan. 3, 2007**

(30) **Foreign Application Priority Data**

Jul. 25, 2005 (JP) 2005-214214

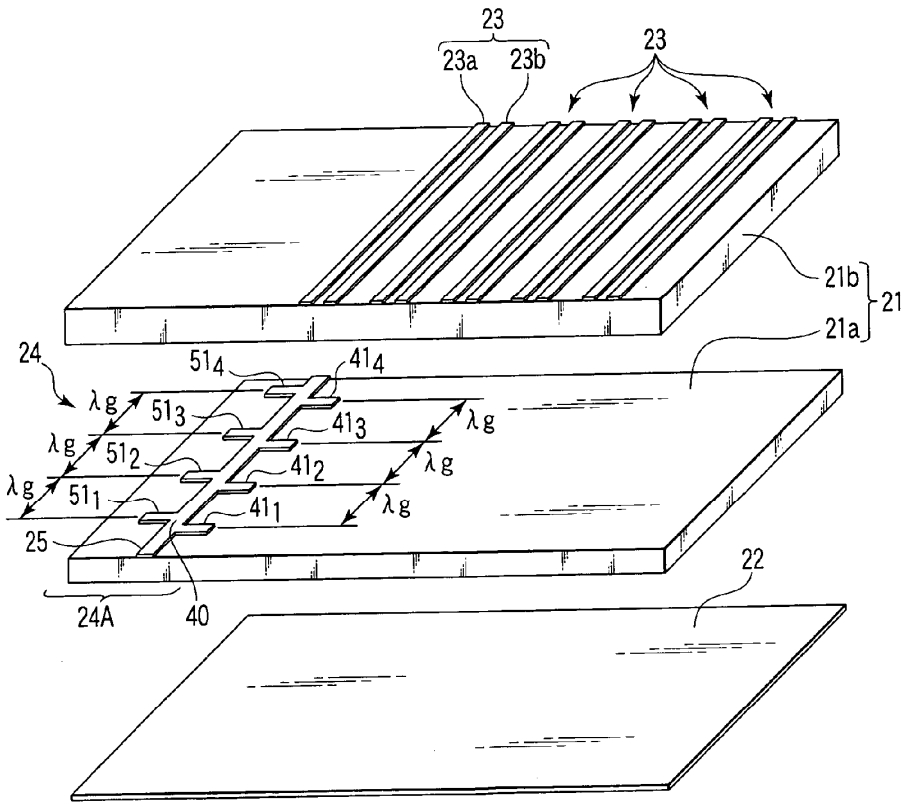
Publication Classification

(51) **Int. Cl.**
H01Q 13/28 (2006.01)
H01Q 13/26 (2006.01)

(52) **U.S. Cl.** **343/785**

(57) **ABSTRACT**

A dielectric leakage wave antenna in which both transmission characteristics of a dielectric image line for a radiating section and those of a microstrip line for an exciting section are satisfied while enhancing efficiency by such an arrangement as a dielectric substrate has a lower layer portion and an upper layer portion bonded onto the lower layer portion. A ground plate conductor forming the dielectric image line for making an electromagnetic wave propagate through the dielectric substrate direction in a direction intersecting its thickness direction perpendicularly is formed, as one surface side of the dielectric substrate, on the lower surface of the lower layer. A plurality of leakage metal strips provided in parallel at a predetermined interval on the opposite side of the dielectric substrate are formed on the upper surface of the upper layer of the dielectric substrate. A line metal strip forming the microstrip line with the ground plate conductor constituting the exciting section, and a branching means for branching an electromagnetic wave propagating on the microstrip line to a direction intersecting the plurality of leakage metal strips in the dielectric substrate are formed between the upper and lower layers of the dielectric substrate.



US 20080303738A1

(19) **United States**

(12) **Patent Application Publication**

Christ

(10) **Pub. No.: US 2008/0303738 A1**

(43) **Pub. Date: Dec. 11, 2008**

(54) **CLADDING FOR A MICROWAVE ANTENNA**

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(21) Appl. No.: **11/572,478**

(22) PCT Filed: **Jul. 21, 2005**

(86) PCT No.: **PCT/EP05/53545**

§ 371 (c)(1),
(2), (4) Date: **Dec. 12, 2007**

(30) **Foreign Application Priority Data**

Jul. 22, 2004 (DE) 102004035614.9

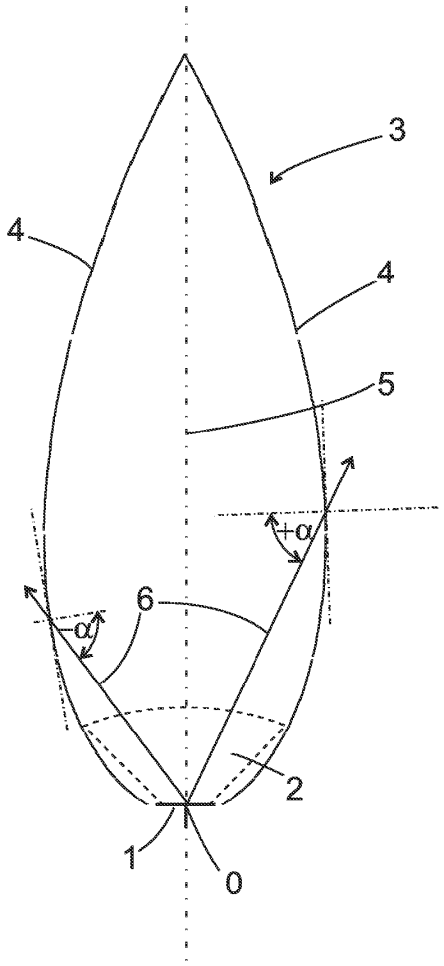
Publication Classification

(51) **Int. Cl.**
H01Q 1/40 (2006.01)

(52) **U.S. Cl.** **343/873**

(57) **ABSTRACT**

A cladding (**3**; **3'**; **3"**) for a microwave antenna (**1**; **1***h*; **1***v*) comprises at least one cladding plate (**4**) having at least one portion which has a cross-section in the shape of a piece of logarithmic spiral in a first section plane, the section angle α between the radius and the normal of the spiral fulfilling the condition $\tan \alpha = \sqrt{\epsilon R}$, wherein ϵR is the dielectric constant of the material of the cladding plate (**4**).



US 20080303743A1

(19) United States

(12) Patent Application Publication

(10) Pub. No.: US 2008/0303743 A1

(43) Pub. Date: Dec. 11, 2008

Park et al.

(54) BENT MONOPOLE ANTENNA

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(21) Appl. No.: **12/072,789**

(22) Filed: **Feb. 27, 2008**

(30) **Foreign Application Priority Data**

Jun. 11, 2007 (KR) 10-2007-0056923

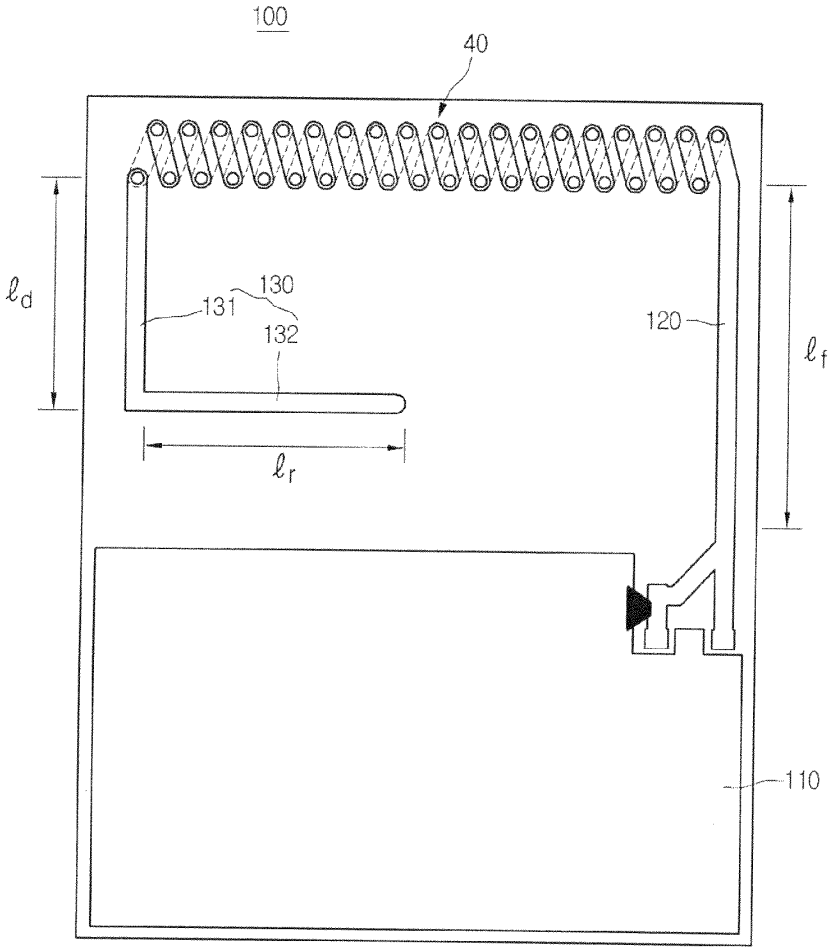
Publication Classification

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

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

(57) **ABSTRACT**

Provided is a bent monopole antenna. The bent monopole antenna includes a printed circuit board, an RF module, a feed line, and a main radiation pattern part and a sub-radiation pattern part. The RF module is installed the printed circuit board to generate an electrical signal. The feed line is connected to the RF module to deliver the electrical signal. The main radiation patter part and the sub-radiation pattern part serve as a radiation pattern part connected to the feed line to generate an electromagnetic field (electromagnetic waves) using electrical signals applied thereto. The main radiation pattern part has a spiral (helical) pattern passing through the printed circuit board through a via.



US 20080309558A1

(19) **United States**

(12) **Patent Application Publication**

(10) **Pub. No.: US 2008/0309558 A1**

(43) **Pub. Date: Dec. 18, 2008**

YU

(54) **MICRO ANTENNA STRUCTURE**

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(21) Appl. No.: **11/763,321**

(22) Filed: **Jun. 14, 2007**

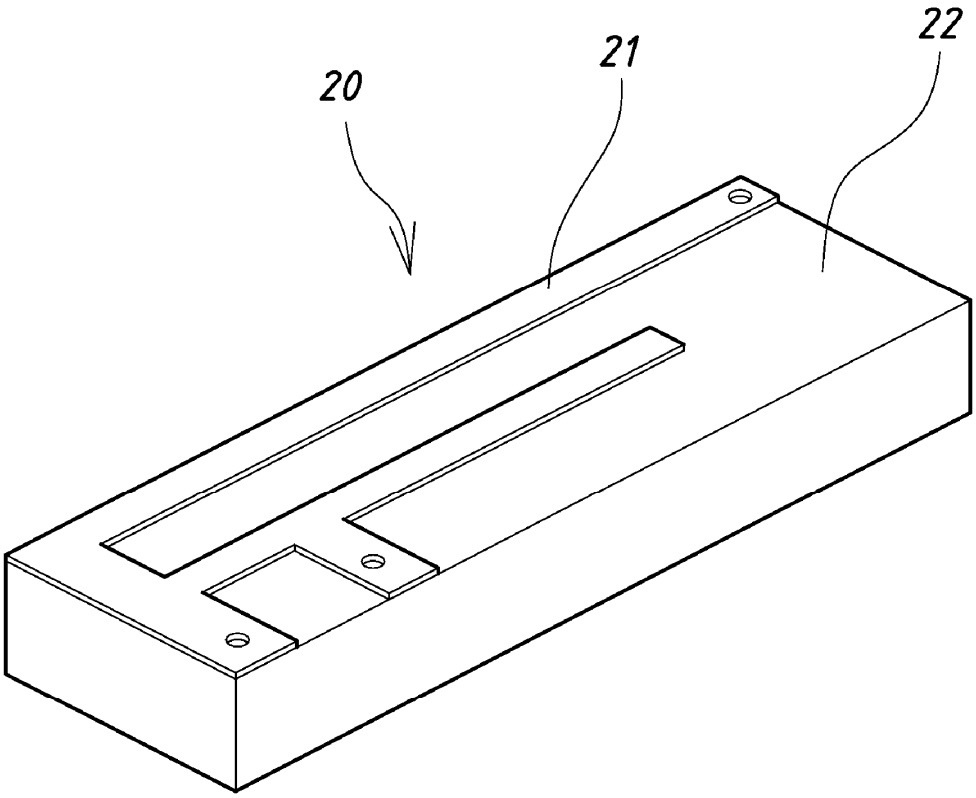
Publication Classification

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

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

(57) **ABSTRACT**

A micro antenna structure composed of a base plate and an antenna structure, a grounding surface and a clear space are formed on the base plate. The antenna structure is provided in the clear space and includes a radiation element and a fixing plate; the fixing plate is made of material for making a printed circuit board, while the radiation element is made from copper foils and is laid out linearly on the fixing plate. With this structure, the problem of having complicated procedure of processing and high cost of a conventional micro chip antenna can be eliminated here, and a good effect can be attained by using minimum space; thereby the weight and volume of a mobile communication product can be reduced but a good effect can be attained.



US 20080309559A1

(19) **United States**

(12) **Patent Application Publication**

(10) **Pub. No.: US 2008/0309559 A1**

(43) **Pub. Date: Dec. 18, 2008**

Chen

(54) **BROADBAND INVERTED-F ANTENNA**

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(73) Assignee: **Alpha Networks Inc.**, Hsinchu (TW)

(21) Appl. No.: **11/812,285**

(22) Filed: **Jun. 18, 2007**

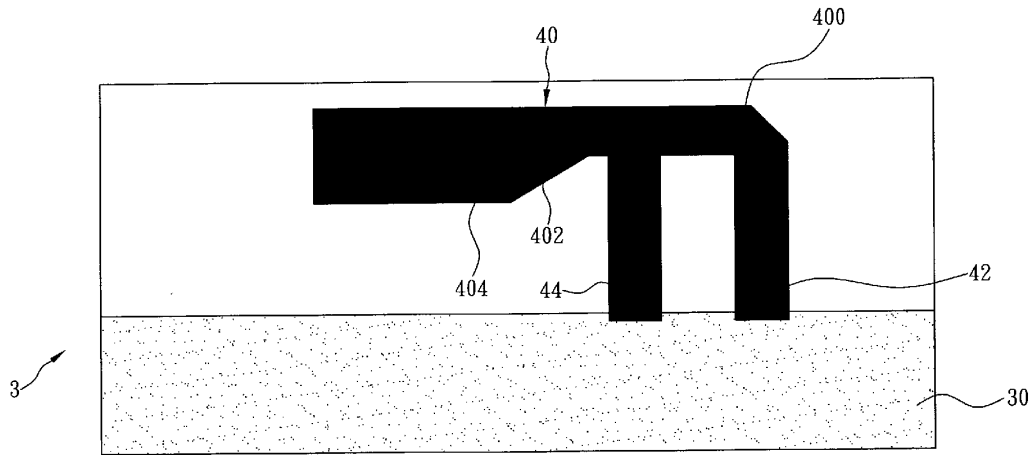
Publication Classification

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

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

(57) **ABSTRACT**

An antenna body of a broadband inverted-F antenna is printed on a circuit board, wherein an interval is maintained between the antenna body and a grounding plane disposed at a position proximate to an edge of the circuit board. The antenna body is divided into a first, a second and a third portions. An end of the first portion is extended towards the grounding plane to form the short circuit line, and another end of the first portion is extended towards the grounding plane to form the feed line. A first end of the second portion is connected to another end of the first portion, a second end of the second portion is connected to an end of the third portion, and the first portion has a wire width smaller than the third portion, so that no metal is existing between the second and third portions and the grounding plane.



US 20080309562A1

(19) **United States**

(12) **Patent Application Publication**

(10) **Pub. No.: US 2008/0309562 A1**

(43) **Pub. Date: Dec. 18, 2008**

TSUTSUMI et al.

(54) **CIRCULARLY POLARIZED ANTENNA DEVICE**

(75) Inventors: **Yukako TSUTSUMI**, Yokohama-Shi (JP); **Masaki Nishio**, Tokyo (JP); **Shuichi Sekine**, Yokohama-Shi (JP)

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(21) Appl. No.: **12/189,271**

(22) Filed: **Aug. 11, 2008**

Related U.S. Application Data

(63) Continuation of application No. 11/739,408, filed on Apr. 24, 2007, now Pat. No. 7,420,513.

(30) **Foreign Application Priority Data**

Jun. 12, 2006 (JP) 2006-162619

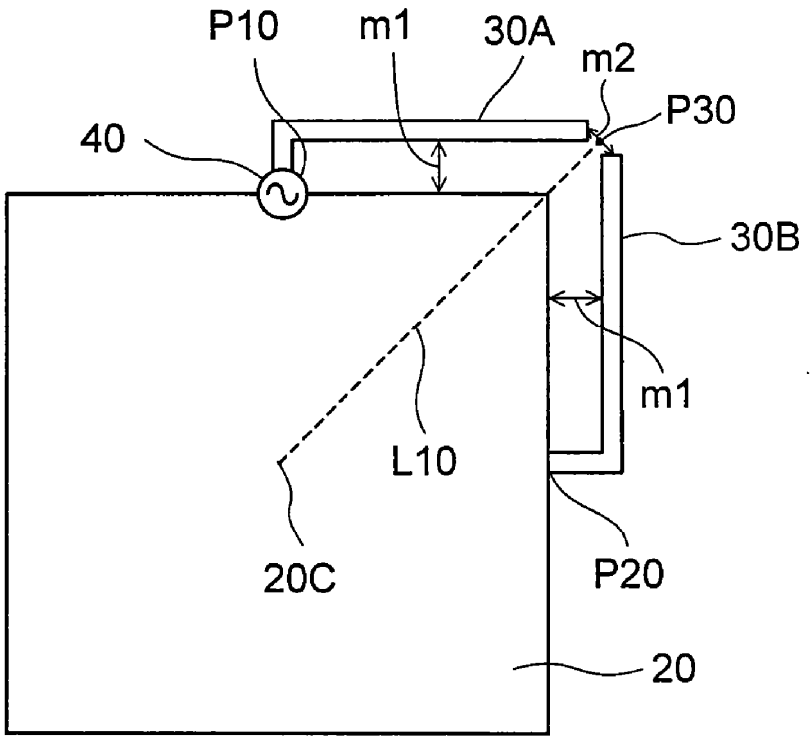
Publication Classification

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

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

(57) **ABSTRACT**

First and second monopole conductive elements are disposed so as to be approximately mutually perpendicular and so that respective open ends are adjacent, and with respect to a straight line that passes between open ends of the first and second monopole conductive elements and through a center of a conductive ground plane, a first conductive ground plane portion formed on a first monopole conductive element-side of the straight line among the conductive ground plane and the first monopole conductive element are formed so as to be approximately symmetrical to a second conductive ground plane portion formed on a second monopole conductive element-side of the straight line among the conductive ground plane and the second monopole conductive element.



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US 20080309563A1

(19) **United States**

(12) **Patent Application Publication**

Wang et al.

(10) **Pub. No.: US 2008/0309563 A1**

(43) **Pub. Date: Dec. 18, 2008**

(54) **TRIPLE-BAND ANTENNA AND ELECTRONIC DEVICE THEREOF**

(75) Inventors: **Chih-Ming Wang**, Taipei Hsien (TW); **Yi-Ling Chiu**, Taipei Hsien (TW)

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(73) Assignee: **WISTRON NEWEB CORP.**, Taipei Hsien (TW)

(21) Appl. No.: **11/979,318**

(22) Filed: **Nov. 1, 2007**

(30) **Foreign Application Priority Data**

Jun. 14, 2007 (TW) 096121598

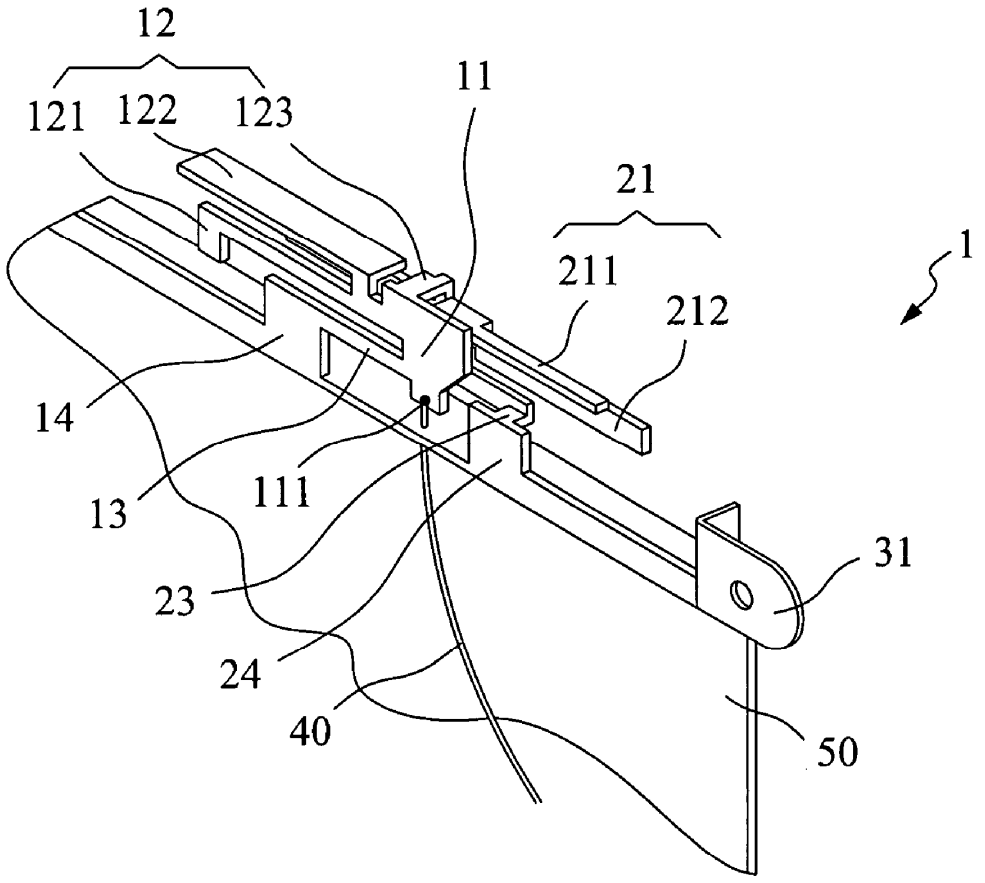
Publication Classification

(51) **Int. Cl.**
H01Q 9/04 (2006.01)
H01Q 1/24 (2006.01)
H01Q 1/50 (2006.01)

(52) **U.S. Cl.** ..... **343/702**; 343/700 MS; 343/859

(57) **ABSTRACT**

A triple-band antenna for an electronic device with a communication capability comprises a first radiating body, a second radiating body, a metal base and a signal feed source. A dual-band antenna for low frequency and high frequency bands may be formed by the first radiating body. A middle-frequency band antenna and a balun may be formed by the combination of the first radiating body and the second radiating body, and the balun may be used to increase the bandwidth of operating frequencies of the intermediate frequency band antenna.



US 20080309564A1

(19) **United States**

(12) **Patent Application Publication**

Booth et al.

(10) **Pub. No.: US 2008/0309564 A1**

(43) **Pub. Date: Dec. 18, 2008**

(54) **ANTENNA MOUNTING METHOD**

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(21) Appl. No.: **12/128,814**

(22) Filed: **May 29, 2008**

Related U.S. Application Data

(60) Provisional application No. 60/932,204, filed on May 29, 2007.

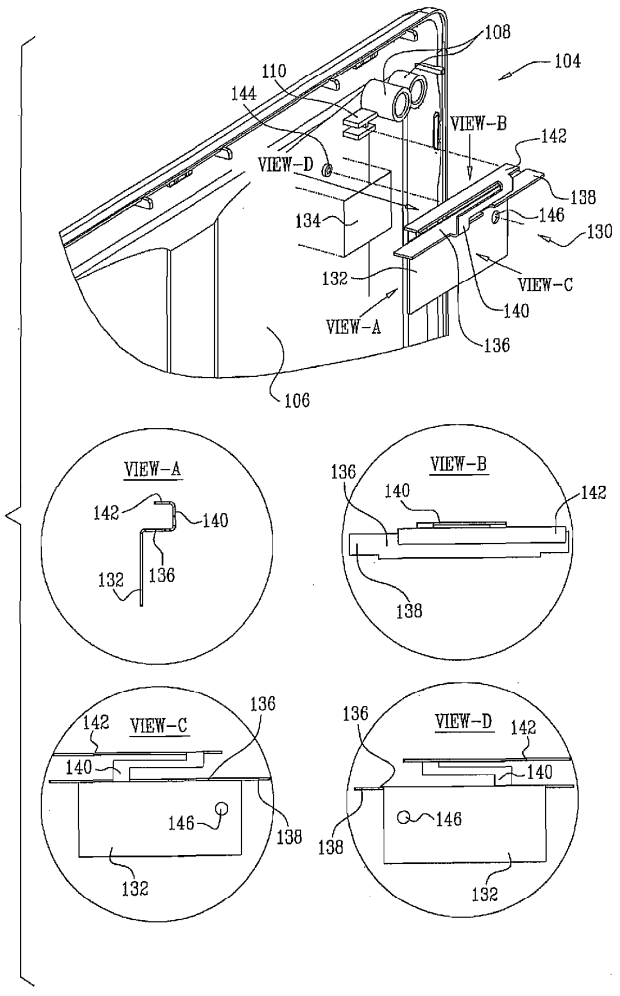
Publication Classification

(51) **Int. Cl.**
H01Q 1/12 (2006.01)
H01Q 1/24 (2006.01)

(52) **U.S. Cl.** **343/702**; 343/892

(57) **ABSTRACT**

A method of mounting an antenna assembly into computer apparatus including forming a mounting bracket on an interior surface of a housing of the computer apparatus, the mounting bracket including at least two upstanding surfaces defining a gap therebetween, and inserting a first portion of the antenna assembly into engagement with the mounting bracket and adhering a second portion of the antenna assembly to the interior surface.



US 20080309576A1

(19) **United States**

(12) **Patent Application Publication**

(10) **Pub. No.: US 2008/0309576 A1**

(43) **Pub. Date: Dec. 18, 2008**

Tao

(54) **SINGLE BAND ANTENNA**

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(73) Assignee: **Arcadyan Technology Corporation**

(21) Appl. No.: **11/808,671**

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

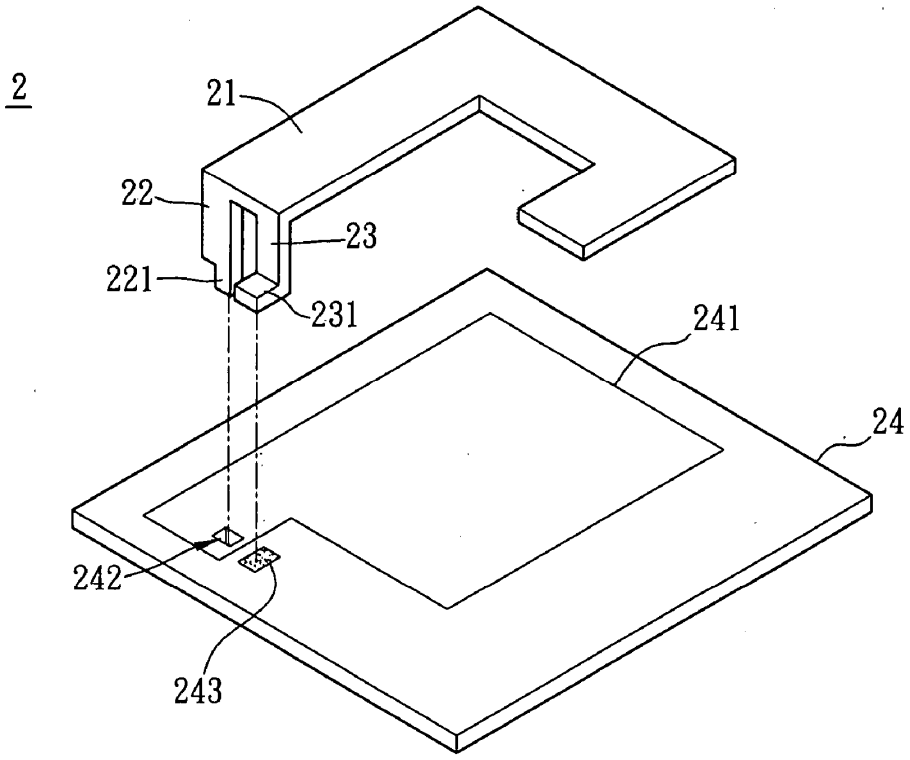
Publication Classification

(51) **Int. Cl.**
H01Q 9/06 (2006.01)

(52) **U.S. Cl.** **343/845**; 343/893

(57) **ABSTRACT**

A single band antenna includes a radiating unit, a grounding unit, a feeding unit and a conductive unit. The radiating unit has a bent portion. The grounding unit and the feeding unit protrude from one end of the radiating unit with an interval therebetween. The conductive unit has a conductive body and a grounding body. The conductive body is electrically connected with the feeding unit, and the grounding body is electrically connected with the grounding unit.



US 20080309578A1

(19) **United States**

(12) **Patent Application Publication**

Son et al.

(10) **Pub. No.: US 2008/0309578 A1**

(43) **Pub. Date: Dec. 18, 2008**

(54) **ANTENNA USING PROXIMITY-COUPLING BETWEEN RADIATION PATCH AND SHORT-ENDED FEED LINE, RFID TAG EMPLOYING THE SAME, AND ANTENNA IMPEDANCE MATCHING METHOD THEREOF**

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(21) Appl. No.: **12/162,069**

(22) PCT Filed: **Feb. 1, 2007**

(86) PCT No.: **PCT/KR2007/000552**

§ 371 (c)(1),
(2), (4) Date: **Jul. 24, 2008**

(30) **Foreign Application Priority Data**

Feb. 1, 2006 (KR) 10-2006-0009707
Dec. 19, 2006 (KR) 10-2006-0129962

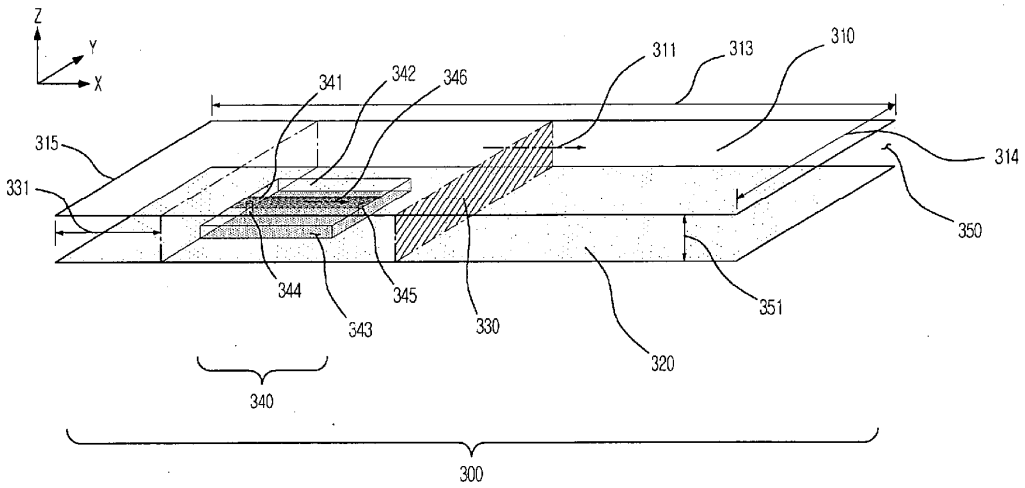
Publication Classification

(51) **Int. Cl.**
H01Q 1/38 (2006.01)
H01Q 1/50 (2006.01)
G08B 13/14 (2006.01)

(52) **U.S. Cl.** ..... **343/860**; 343/700 MS; 340/572.7

(57) **ABSTRACT**

Provided is an antenna based on proximity coupling between a short-ended microstrip feed line and a radiation patch, an RFID tag including the planar antenna, and an antenna impedance matching method thereof. The antenna includes a radiation patch configured to determine a resonant frequency of the antenna; a ground plate disposed in parallel to the radiation patch; and a feeding part disposed between the radiation patch and the ground plate and configured to provide radio frequency signals to a device connected to the antenna. The feeding part includes a feed line that is formed in a resonance length direction of the radiation patch and proximity-coupled with the radiation patch and one end of the feed line is shorted. The antenna freely controls the resistance and reactance of the antenna impedance independently and efficiently matched to a device connected to the antenna which has a predetermined impedance in wide bands.



US 20080316020A1

(19) **United States**

(12) **Patent Application Publication**

ROBERTSON et al.

(10) **Pub. No.: US 2008/0316020 A1**

(43) **Pub. Date: Dec. 25, 2008**

(54) **RFID ANTENNA FOR IN-BODY DEVICE**

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(21) Appl. No.: **12/126,798**

(22) Filed: **May 23, 2008**

Related U.S. Application Data

(60) Provisional application No. 60/940,063, filed on May 24, 2007.

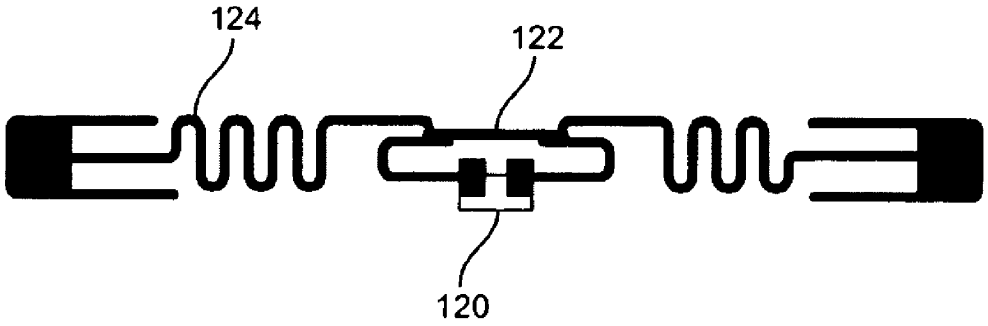
Publication Classification

(51) **Int. Cl.**
H04Q 7/00 (2006.01)

(52) **U.S. Cl.** **340/539.12**

(57) **ABSTRACT**

RFID antennas for ingestible devices, such as ingestible event markers, are provided. Aspects of the ingestible devices of the invention include RFID signal transmission antennas with a battery that is activated upon being exposed to fluid in the body. Embodiments of the RFID antennas are configured to emit a detectable signal upon contact with a target physiological site. Also provided are methods of making and using the devices of the invention.



US 20080316107A1

(19) **United States**

(12) **Patent Application Publication**

Tsai et al.

(10) **Pub. No.: US 2008/0316107 A1**

(43) **Pub. Date: Dec. 25, 2008**

(54) **ULTRA-WIDE BANDWIDTH ANTENNA**

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(21) Appl. No.: **11/946,662**

(22) Filed: **Nov. 28, 2007**

(30) **Foreign Application Priority Data**

Jun. 21, 2007 (TW) 096122265

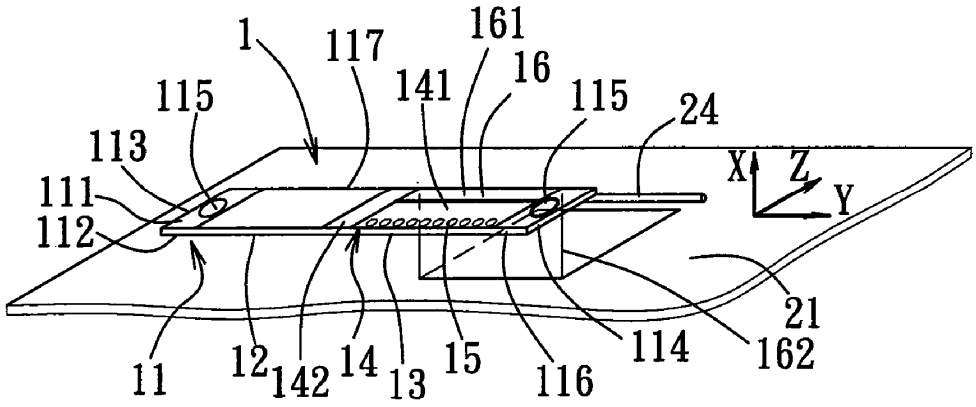
Publication Classification

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

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

(57) **ABSTRACT**

An ultra-wide bandwidth antenna includes a dielectric substrate, first and second conductive elements, and a third conductive element. The dielectric substrate has opposite first and second surfaces. The first conductive element is formed on the second surface of the dielectric substrate and has a feeding point. The second conductive element is formed on the second surface of the dielectric substrate, is spaced apart from the first conductive element, and has a grounding point. The third conductive element is formed on the first surface of the dielectric substrate, partially overlaps the first conductive element, and is coupled electrically to the second conductive element.



US 20080316108A1

(19) **United States**

(12) **Patent Application Publication**

Chen et al.

(10) **Pub. No.: US 2008/0316108 A1**

(43) **Pub. Date: Dec. 25, 2008**

(54) **COMPACT ANTENNAS FOR ULTRA-WIDEBAND APPLICATIONS**

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(21) Appl. No.: **12/063,992**

(22) PCT Filed: **Aug. 17, 2005**

(86) PCT No.: **PCT/SG2005/000282**

§ 371 (c)(1),
(2), (4) Date: **Jun. 11, 2008**

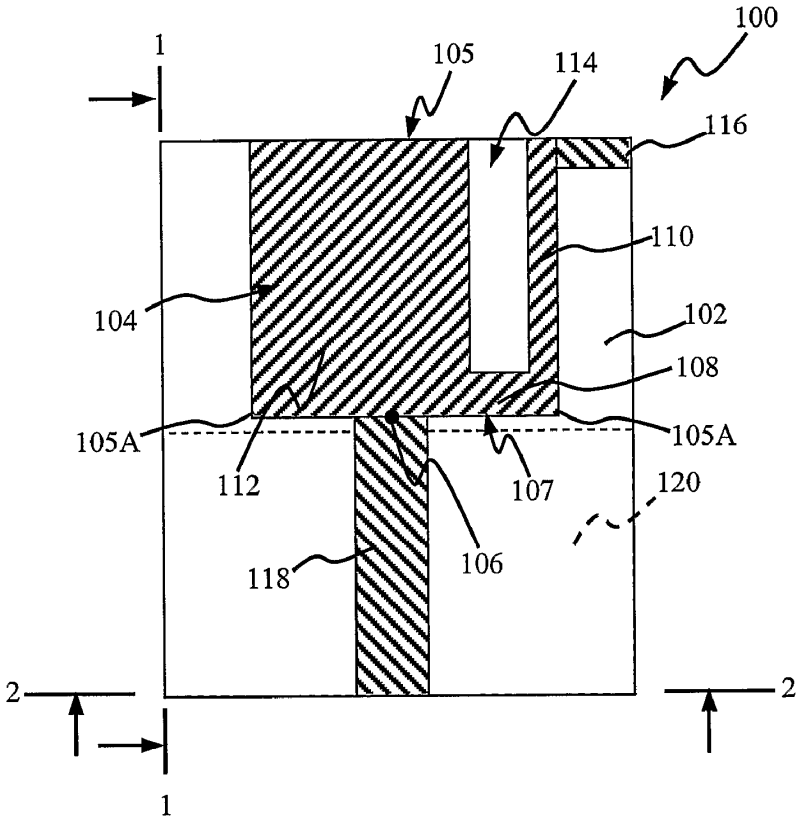
Publication Classification

(51) **Int. Cl.**
H01Q 9/04 (2006.01)

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

(57) **ABSTRACT**

The antenna (**100**) has a radiating element (**104**) for transmitting and receiving signals. The radiating element (**104**) comprises a first portion (**110**), a second portion (**112**) and a notch (**114**). The notch (**114**) extends from a portion o the periphery of the radiating element into the radiating element and is for substantially segregating the radiating element into the first portion (**110**) and the second portion (**112**). The radiating element (**104**) also has an interconnecting portion (**108**) for structurally interconnecting the first portion and the second portion. The interconnecting portion is formed substantially distal to the portion of the periphery of the radiating element. In addition, the antenna (**100**) has a first arm (**116**) that extends from the first portion of the radiating element for modifying the operating frequency range of the antenna.



US 20080316109A1

(19) **United States**

(12) **Patent Application Publication**

Savolainen

(10) **Pub. No.: US 2008/0316109 A1**

(43) **Pub. Date: Dec. 25, 2008**

(54) **ANTENNA ARRANGEMENT**

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(21) Appl. No.: **12/090,650**

(22) PCT Filed: **Oct. 18, 2006**

(86) PCT No.: **PCT/FI2006/050448**

§ 371 (c)(1),
(2), (4) Date: **May 31, 2008**

(30) **Foreign Application Priority Data**

Oct. 19, 2005 (EP) 05109729.3

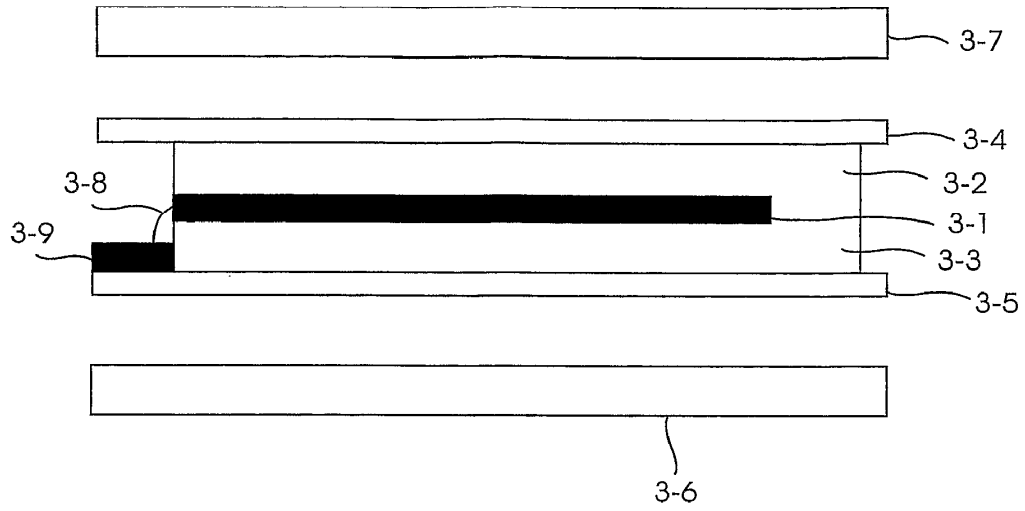
Publication Classification

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

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

(57) **ABSTRACT**

An antenna (**2-20**) for use in a mobile device (**1-1**) includes elements for receiving (**2-5**, **3-1**, **4-1**, **5-1**, **6-5**) a signal from a satellite positioning system; a first layer of dielectric material (**2-4***a*, **2-4***b*, **3-2**, **3-3**, **5-2**, **4-3**, **5-2**, **5-3**, **6-4**, **6-15**) and a second layer of dielectric material (**2-4***a*, **2-4***b*, **3-2**, **3-3**, **5-2**, **4-3**, **5-2**, **5-3**, **6-4**, **6-15**), wherein the elements for receiving (**2-5**, **3-1**, **4-1**, **5-1**, **6-5**, **7-6**) the signal is at least partly between the first dielectric layer (**2-4***a*, **2-4***b*, **3-2**, **3-3**, **5-2**, **4-3**, **5-2**, **5-3**, **6-4**, **6-15**) and the second dielectric layer (**2-4***a*, **2-4***b*, **3-2**, **3-3**, **5-2**, **4-3**, **5-2**, **5-3**, **6-4**, **6-15**).



US 20080316110A1

(19) United States

(12) Patent Application Publication

(10) Pub. No.: US 2008/0316110 A1

(43) Pub. Date: Dec. 25, 2008

KANEMURA et al.

(54) PATCH ANTENNA AND RFID INLET

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(73) Assignee: **SUNCALL CORPORATION**, Kyoto-shi (JP)

(21) Appl. No.: **12/142,633**

(22) Filed: **Jun. 19, 2008**

(30) **Foreign Application Priority Data**

Jun. 22, 2007 (JP) 2007-165454

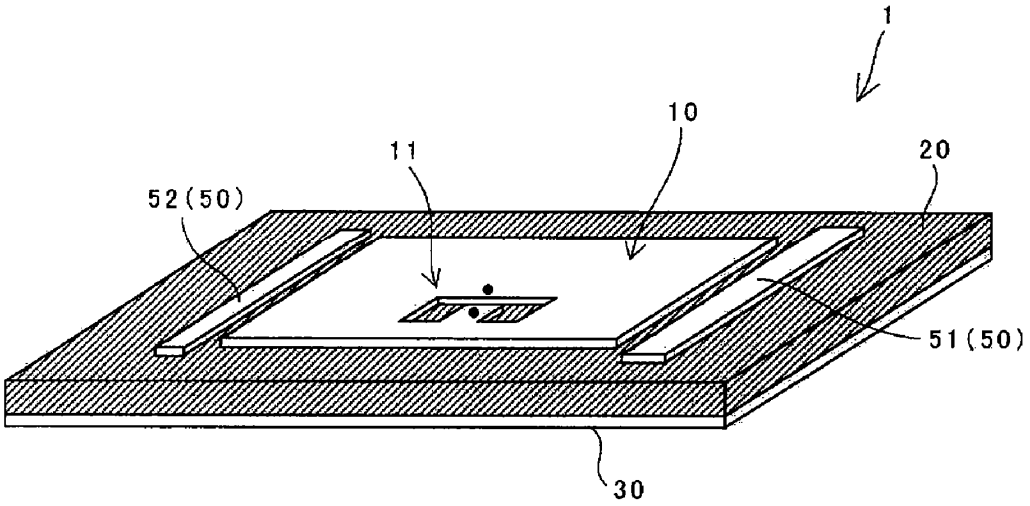
Publication Classification

(51) **Int. Cl.**
H01Q 9/04 (2006.01)

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

(57) **ABSTRACT**

The present invention provides a patch antenna including a dielectric member, and a conductive first radiation element and a conductive ground electrode respectively provided on one and the other surfaces of the dielectric member, the patch antenna further including a conductive second radiation element which has a length different from that of the first radiation element in the direction of resonance, the second radiation element being provided on the one surface of the dielectric member in a state of being insulated from the first radiation element with respect to the direct electric current while being electromagnetically coupled to the first radiation element.



US 20080316111A1

(19) **United States**

(12) **Patent Application Publication**

Aoyama et al.

(10) **Pub. No.: US 2008/0316111 A1**

(43) **Pub. Date: Dec. 25, 2008**

(54) **ANTENNA, ANTENNA APPARATUS, AND COMMUNICATION DEVICE**

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(73) Assignee: **HITACHI METALS, LTD.**, TOKYO (JP)

(21) Appl. No.: **12/153,884**

(22) Filed: **May 27, 2008**

(30) **Foreign Application Priority Data**

May 28, 2007 (JP) 2007-140599
Aug. 27, 2007 (JP) 2007-219343
Jan. 11, 2008 (JP) 2008-004504
Mar. 21, 2008 (JP) 2008-074692

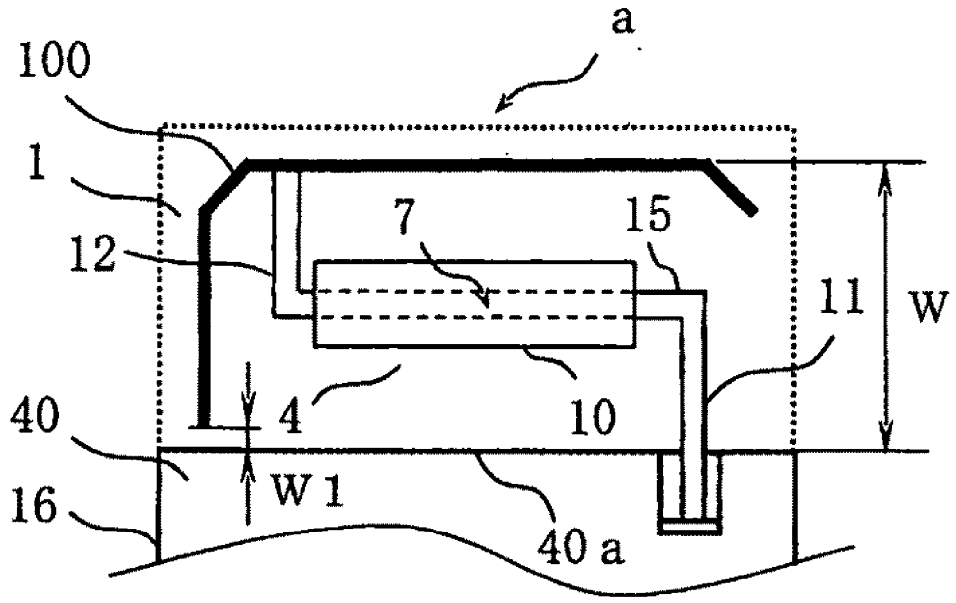
Publication Classification

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

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

(57) **ABSTRACT**

An antenna is provided which includes a first antenna element having at least one base and a conductor penetrating through the base and a second antenna element having a conductor portion having a shape of a plate or a line and a connecting conductor, wherein a first end of the conductor of the first antenna element is connected to the connecting conductor of the second antenna element, and the connecting conductor of the second antenna element is connected to a partway on the conductor portion of the second antenna element.



US 20080316112A1

(19) **United States**

(12) **Patent Application Publication**

Zhang

(10) **Pub. No.: US 2008/0316112 A1**

(43) **Pub. Date: Dec. 25, 2008**

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(76) Inventor: **Yue Ping Zhang**, Singapore (SG)

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(21) Appl. No.: **12/161,137**

(22) PCT Filed: **Dec. 20, 2006**

(86) PCT No.: **PCT/SG2006/000398**

§ 371 (c)(1),
(2), (4) Date: **Jul. 16, 2008**

Related U.S. Application Data

(60) Provisional application No. 60/759,023, filed on Jan. 17, 2006.

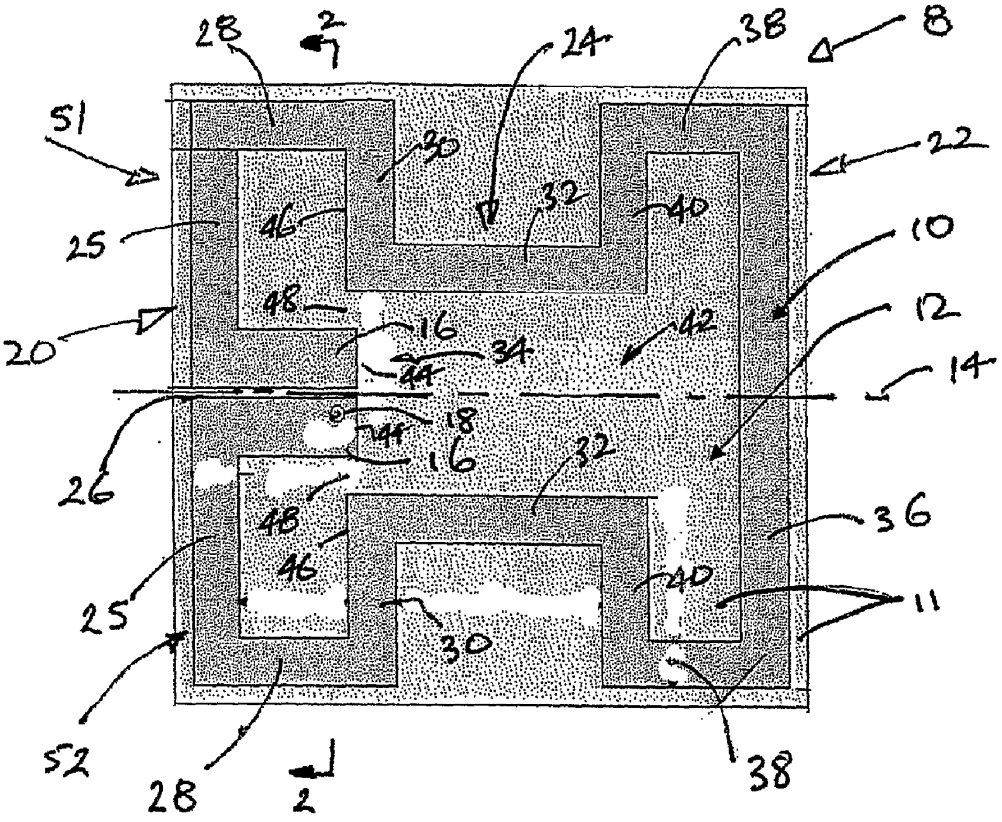
Publication Classification

(51) **Int. Cl.**
H01Q 9/04 (2006.01)

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

(57) **ABSTRACT**

An antenna on a substrate, the antenna being symmetrical about a central longitudinal axis of symmetry, the antenna comprising a first portion that is substantially rectangular, a second portion that is substantially rectangular, the first portion and the second portion being spaced from each other and being operatively connected by an intermediate portion.



US 20080316115A1

(19) **United States**

(12) **Patent Application Publication**

Hill et al.

(10) **Pub. No.: US 2008/0316115 A1**

(43) **Pub. Date: Dec. 25, 2008**

(54) **ANTENNAS FOR HANDHELD ELECTRONIC DEVICES WITH CONDUCTIVE BEZELS**

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(21) Appl. No.: **11/821,192**

(22) Filed: **Jun. 21, 2007**

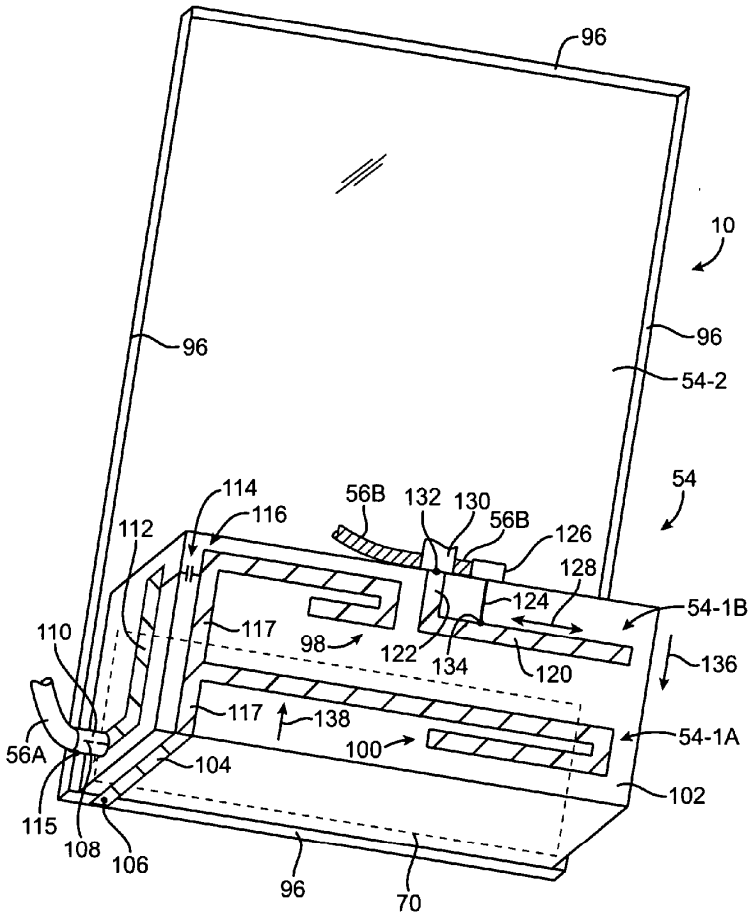
Publication Classification

(51) **Int. Cl.**
H01Q 1/22 (2006.01)
H01Q 1/38 (2006.01)

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

(57) **ABSTRACT**

A handheld electronic device may be provided that contains wireless communications circuitry. The handheld electronic device may have a housing and a display. The display may be attached to the housing a conductive bezel. The handheld electronic device may have one or more antennas for supporting wireless communications. A ground plane in the handheld electronic device may serve as ground for one or more of the antennas. The ground plane and bezel may define a opening. A rectangular slot antenna or other suitable slot antenna may be formed from or within the opening. One or more antenna resonating elements may be formed above the slot. An electrical switch that bridges the slot may be used to modify the perimeter of the slot so as to tune the communications bands of the handheld electronic device.



US 20080316118A1

(19) **United States**

(12) **Patent Application Publication**

Puente Baliarda et al.

(10) **Pub. No.: US 2008/0316118 A1**

(43) **Pub. Date: Dec. 25, 2008**

(54) **SLOTTED GROUND-PLANE USED AS A SLOT ANTENNA OR USED FOR A PIFA ANTENNA**

(75) Inventors: **Carles Puente Baliarda**, Barcelona (ES); **Jaime Anguera Pros**, Castellon (ES)

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(21) Appl. No.: **11/884,991**

(22) PCT Filed: **Mar. 15, 2006**

(86) PCT No.: **PCT/EP06/60766**

§ 371 (c)(1),
(2), (4) Date: **Sep. 20, 2007**

(30) **Foreign Application Priority Data**

Mar. 15, 2005 (EP) 05005540.9

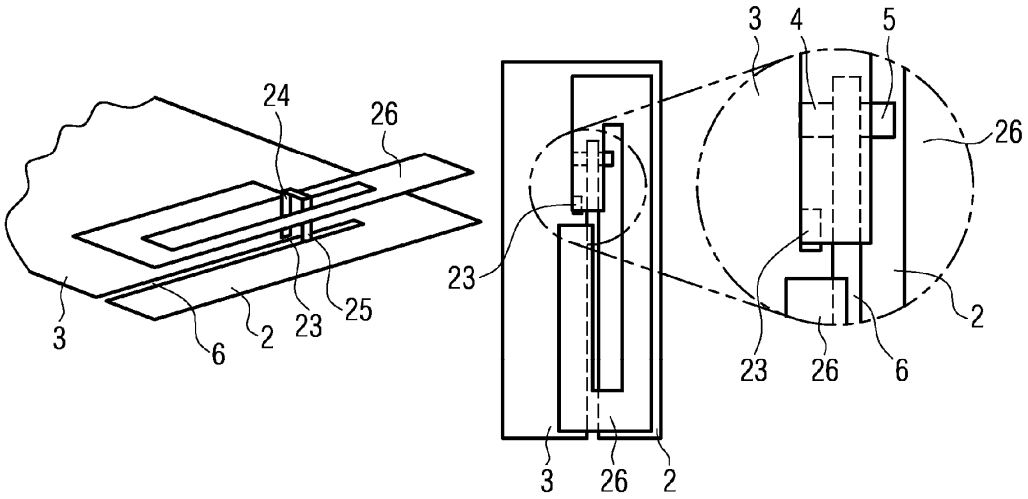
Publication Classification

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

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

(57) **ABSTRACT**

The invention refers to a member (**1**) for a wireless device, wherein that member (**1**) is or comprises a ground-plane (**2**, **3**) with at least two portions (**2**, **3**), wherein on each of said portions (**2**, **3**) at least one connecting means such as a pad (**4**, **5**) is provided, wherein the two connecting means (**4**, **5**) can be connected with an electric component (**10**) for connecting said two portions (**2**, **3**) of said ground plane. The invention further refers to a wireless device with such a member and to a wireless device including a ground plane (**2**, **3**) with at least two portions (**2**, **3**) wherein said two portions (**2**, **3**) are connected by an electric component (**10**), wherein the connection is preferably made between two portions of the ground-plane which are separated by a gap or a slot in the conducting surface of said ground-plane.



US 20080316141A1

(19) **United States**

(12) **Patent Application Publication**

(10) **Pub. No.: US 2008/0316141 A1**

(43) **Pub. Date: Dec. 25, 2008**

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(54) **EMBEDDED ANTENNA**

(75) Inventor: **Wen-Szu Tao**, Hsinchu City (TW)

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(73) Assignee: **Arcadyan Technology Corporation**

(21) Appl. No.: **11/970,566**

(22) Filed: **Jan. 8, 2008**

(30) **Foreign Application Priority Data**

Jun. 21, 2007 (TW) 096122371

Publication Classification

(51) **Int. Cl.**
H01Q 1/40 (2006.01)
H01Q 9/04 (2006.01)

(52) **U.S. Cl.** ..... **343/873**; 343/700 MS

(57) **ABSTRACT**

The present invention provides an embedded antenna. It is to form meanders on a radiating element of the embedded antenna for dividing the resonant length of the radiating element into several short resonant length to extend the bandwidth of the radiating element. It is also to form meanders on the radiating element to extend the resonant length. This design can minimize the size of the embedded antenna and achieve the same as performance of a larger size antenna.