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(19) **United States**

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Chen

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(43) **Pub. Date: Jul. 2, 2009**

(54) **SOFT PLATE ANTENNA**

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(21) Appl. No.: **12/005,980**

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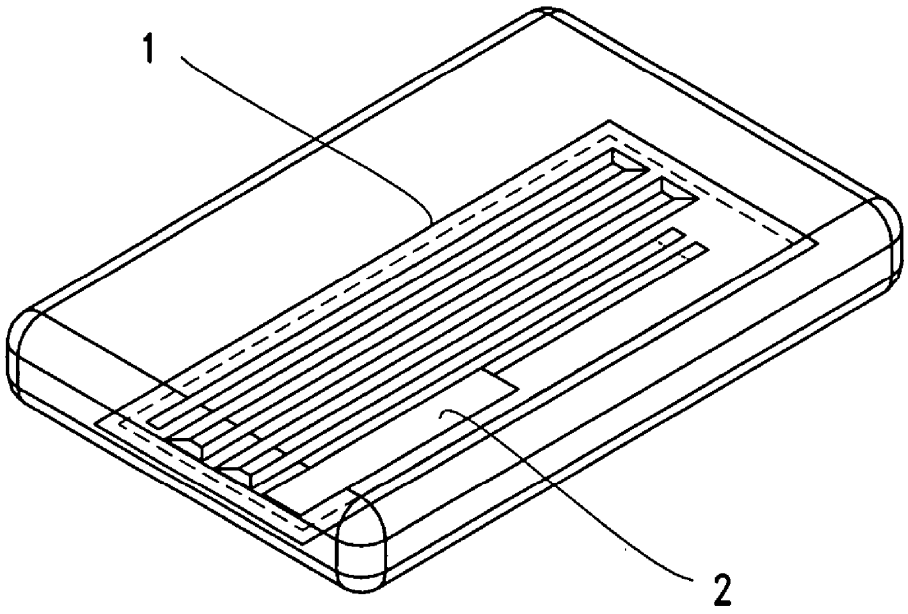
Publication Classification

(51) **Int. Cl.**
H01Q 9/04 (2006.01)
H01Q 1/38 (2006.01)

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

(57) **ABSTRACT**

A soft plate antenna, wherein the soft plate is provided with a conductive line: one end of the conductive line is electrode contact, the other end being the signal transceiving end. With a specially combined structure, the soft plate and soft circuit can be installed by means of twisted and affixed to the interior shell of a wide variety of electronic products and the plate surface can be provided with double-sided adhesive tapes to affix the plate firmly.



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(19) **United States**

(12) **Patent Application Publication**

(10) **Pub. No.: US 2009/0167609 A1**

(43) **Pub. Date: Jul. 2, 2009**

LEE et al.

(54) **ANTENNA FOR WWAN**

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(21) Appl. No.: **12/099,806**

(22) Filed: **Apr. 9, 2008**

(30) **Foreign Application Priority Data**

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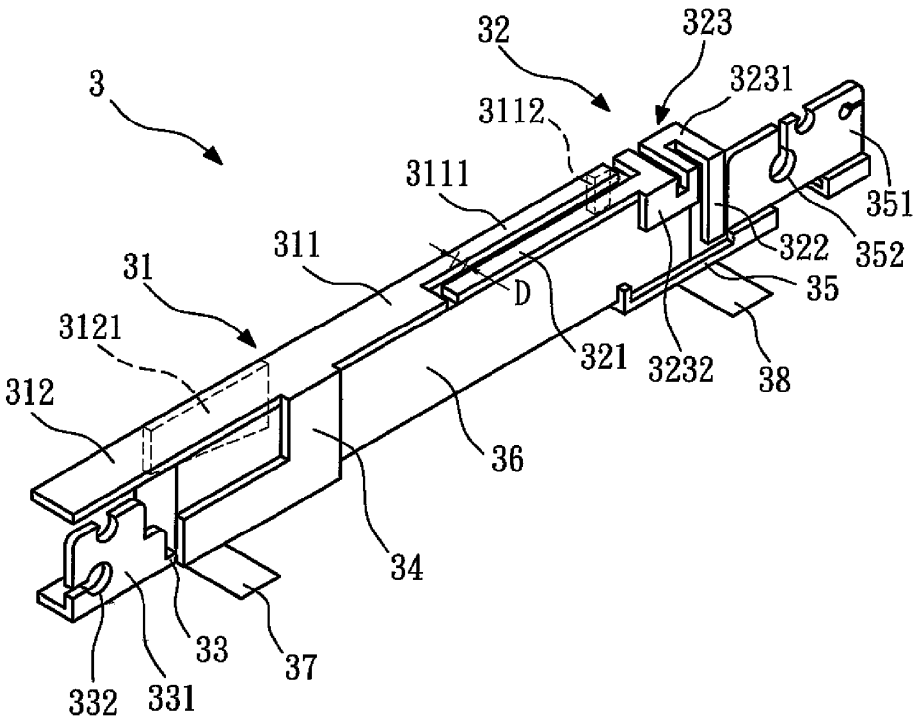
Publication Classification

(51) **Int. Cl.**
H01Q 9/04 (2006.01)
H01Q 1/38 (2006.01)

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

(57) **ABSTRACT**

An antenna for WWAN is disclosed, which includes a first radiating metal strip, a second radiating metal strip, a first ground strip, a connecting metal strip and a second ground strip. The first radiating metal strip has a first portion and a second portion. The second radiating metal strip is independent. The first portion is coupled with the second radiating metal strip to induce a first resonance. The second portion cooperates with the second radiating metal strip to induce a second resonance. The connecting metal strip connects the first radiating metal strip to the first ground strip. The second ground strip is independent. The ground strips are used for grounding effect and can be selectively connected to a ground end of a wireless electronic device. Therefore, the antenna can be mounted in any place of the wireless electronic device, and has stable electrical characteristic.



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(19) **United States**

(12) **Patent Application Publication**

Yanagisawa et al.

(10) **Pub. No.: US 2009/0167622 A1**

(43) **Pub. Date: Jul. 2, 2009**

(54) **WIDE BAND ANTENNA**

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(21) Appl. No.: **11/913,396**

(22) PCT Filed: **Apr. 27, 2006**

(86) PCT No.: **PCT/JP2006/309206**

§ 371 (c)(1),
(2), (4) Date: **Jan. 26, 2009**

(30) **Foreign Application Priority Data**

May 2, 2005 (JP) 2005-133910

Publication Classification

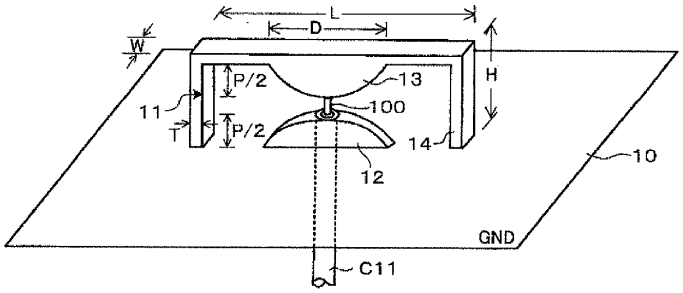
(51) **Int. Cl.**
H01Q 13/00 (2006.01)

(52) **U.S. Cl.** **343/772**

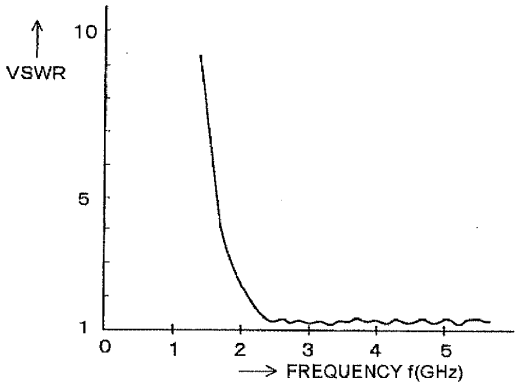
(57) **ABSTRACT**

There is provided a low-cost wide band antenna having an ultra-wide band and high performance. The wide band antenna includes an antenna element to form a shape of a ridge waveguide open cross-section structure together with GND (**10**) when it is spread. The antenna element has a ridge element portion (**13**) corresponding to the ridge portion of the ridge waveguide and a radiation element portion (**14**) corresponding to the wall of the ridge waveguide and extending from the ridge element portion (**13**) for electromagnetic wave radiation. Moreover, the antenna element has an opposing auxiliary element (**12**) having the same shape and structure as the ridge element portion (**13**). The radiation element portion (**14**) has an end arranged on the GND (**10**). The ridge element portion (**13**) has a tip end connected to a power supply terminal (**100**).

(a)



(b)



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(19) **United States**

(12) **Patent Application Publication**

Uejima et al.

(10) **Pub. No.: US 2009/0170570 A1**

(43) **Pub. Date: Jul. 2, 2009**

(54) **PORTABLE WIRELESS DEVICE**

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(21) Appl. No.: **11/570,974**

(22) PCT Filed: **Jun. 29, 2006**

(86) PCT No.: **PCT/JP2006/312961**

§ 371 (c)(1),
(2), (4) Date: **Dec. 20, 2006**

(30) **Foreign Application Priority Data**

Jun. 30, 2005 (JP) 2005-191435

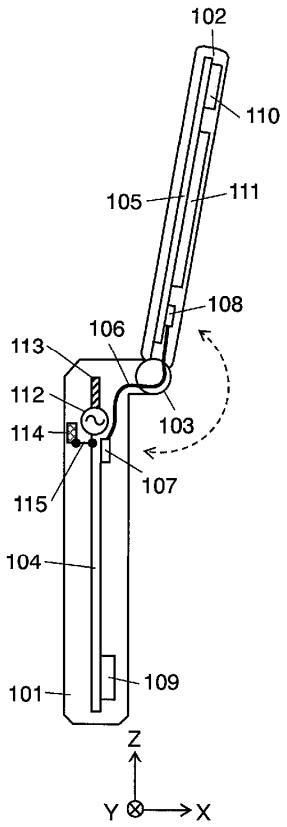
Publication Classification

(51) **Int. Cl.**
H04M 1/00 (2006.01)

(52) **U.S. Cl.** **455/575.3**; 455/575.7

(57) **ABSTRACT**

A portable wireless device is formed of a lower housing and an upper housing coupled together by a hinged section, which makes the device foldable. A lower circuit board is coupled to an upper circuit board by a flexible cable, which is placed away from a power feeder of an antenna element with a given space and near the hinged section along the width direction of this foldable device. An end of conductive element is shorted to the lower circuit board with a shorting conductor near a connector which couples the flexible cable to the lower circuit board. The foregoing structure allows the portable and foldable wireless device to reduce an amount of energy supposed to be absorbed into a temporal region of a human body while the electric power of the transmitted radio wave is maintained during a phone conversation.



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(19) **United States**

(12) **Patent Application Publication**

Keskitalo et al.

(10) **Pub. No.: US 2009/0174604 A1**

(43) **Pub. Date: Jul. 9, 2009**

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

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(21) Appl. No.: **11/922,976**

(22) PCT Filed: **Nov. 15, 2005**

(86) PCT No.: **PCT/FI2005/050414**

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(2), (4) Date: **Jan. 26, 2009**

(30) **Foreign Application Priority Data**

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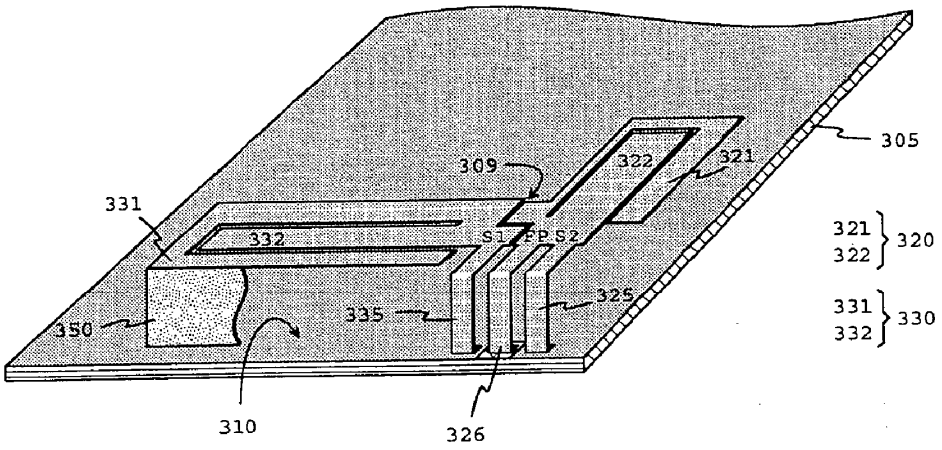
Publication Classification

(51) **Int. Cl.**
H01Q 5/01 (2006.01)
H01Q 1/36 (2006.01)
H01Q 1/48 (2006.01)

(52) **U.S. Cl.** ..... **343/700 MS**; 343/833; 343/848

(57) **ABSTRACT**

A multiband antenna intended for small-sized radio devices, internal to the device. The antenna comprises a main element (**320**) connected to the antenna feed conductor (**326**) and a short-circuited parasitic element (**330**). The feed point (FP) is beside the short-circuit point (S**1**) of the parasitic element. The elements are typically elongated, and at least their parts, which correspond a certain operating band, are substantially perpendicular to each other. Two resonances, the frequencies of which fall on two different operating bands of the antenna, are excited also in the parasitic element. In order to implement the resonances of the parasitic element, the coupling between the elements takes place through a very narrow slot (**309**) near the feed point and the short-circuit point of the parasitic element. The coupling is then sufficiently strong in spite of the positions of the main and the parasitic element. Even the lower operating band of the antenna can be made so wide that it covers the frequency ranges of two different systems.



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(19) **United States**

(12) **Patent Application Publication**

(10) **Pub. No.: US 2009/0174605 A1**

(43) **Pub. Date: Jul. 9, 2009**

CHANG

(54) **MODULAR ULTRA-WIDEBAND ANTENNA STRUCTURE**

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(21) Appl. No.: **11/969,615**

(22) Filed: **Jan. 4, 2008**

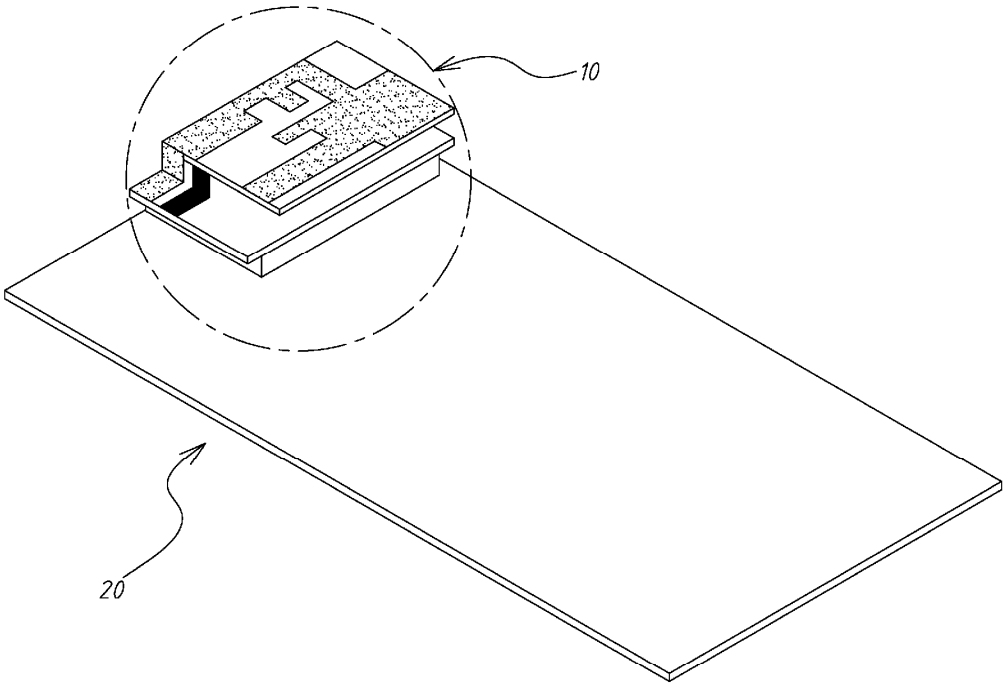
Publication Classification

(51) **Int. Cl.**
H01Q 1/38 (2006.01)
H01Q 9/04 (2006.01)

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

(57) **ABSTRACT**

An ultra-wideband (UWB) modular antenna structure, it mainly has a radio-frequency module and an antenna unit combined to be suitable of assembling in a system of electronic equipment. The radio-frequency module is installed on a printed circuit board of the electronic equipment, and has at least a radio-frequency module circuit board; the antenna unit is installed above the radio-frequency module circuit board, and has a dual-face printed circuit board on the top of which a radiation member of an operation range of frequency band for ultra-wideband communication is formed with a feed-in portion extended out of it, the bottom face has a grounding portion extended out of it, the feed-in portion and the grounding portion are connected respectively to the radio-frequency module circuit board. Thereby, functions of mass production and volume reducing can be obtained, so that no instability issue may happen during installation and changing.



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(19) United States

(12) Patent Application Publication

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(43) Pub. Date: Jul. 9, 2009

Yan et al.

(54) **ANTENNA**

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(21) Appl. No.: **12/317,475**

(22) Filed: **Dec. 23, 2008**

(30) **Foreign Application Priority Data**

Dec. 24, 2007 (CN) 200710304075.9

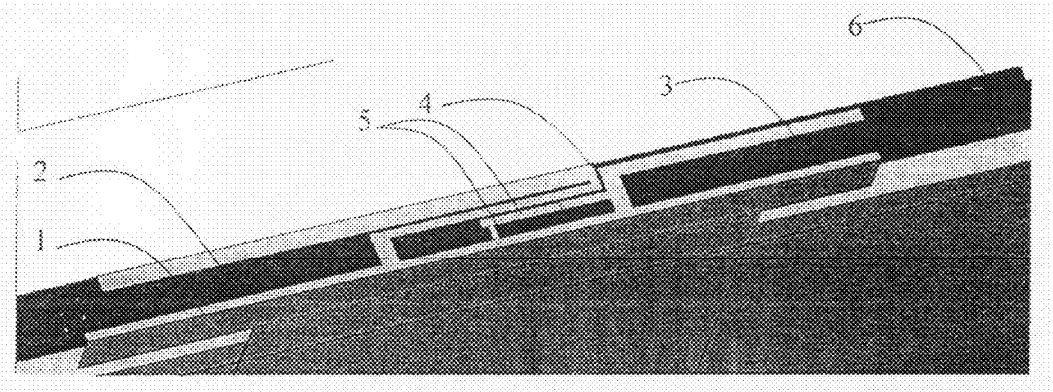
Publication Classification

(51) **Int. Cl.**
H01Q 9/26 (2006.01)
H01Q 1/48 (2006.01)
H01Q 1/36 (2006.01)

(52) **U.S. Cl.** ..... **343/700 MS**; 343/846

(57) **ABSTRACT**

The invention discloses an antenna, which comprises a reference ground, a first radiation branch and a second radiation branch. The reference ground comprises a first grounding point and a second grounding point; the first radiation branch is connected to the reference ground via the first grounding point; the second radiation branch is connected to the reference ground via the second grounding point; wherein a slot is formed between the first radiation branch and the second radiation branch, and a distributed capacitance for coupling a signal is formed by coupling the first radiation branch and the second radiation branch via the slot; a connecting point is a feeding point via which one end of the second radiation branch for coupling the signal is connected to a radio frequency (RF) feed line, the feeding point arranged between the first grounding point and the second grounding point. The antenna of the present invention has advantages as follows: since a coplanar wave-guide coupling structure is used between the antenna resonant branches, which is equivalent to a capacitance loading, and a field loaded by the distributed capacitance is mainly concentrated in the air, thus a power loss caused by a resistor in a device after a lumped parameter capacitor is loaded is avoided. Therefore, the resonant frequency of the antenna and the size of the antenna are reduced.



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(19) **United States**

(12) **Patent Application Publication**

PARK et al.

(10) **Pub. No.: US 2009/0174608 A1**

(43) **Pub. Date: Jul. 9, 2009**

(54) **NON-DISPERSIVE UWB ANTENNA APPARATUS USING MULTI-RESONANCE, AND METHOD FOR MANUFACTURING THE SAME**

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(21) Appl. No.: **12/324,284**

(22) Filed: **Nov. 26, 2008**

(30) **Foreign Application Priority Data**

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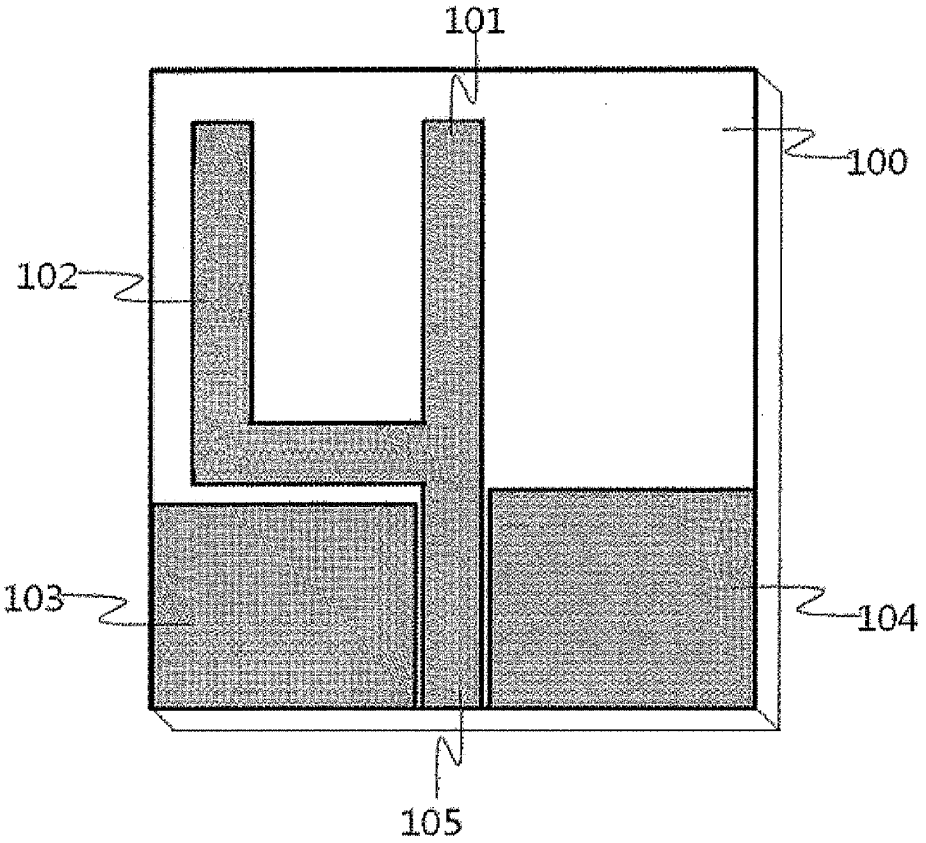
Publication Classification

(51) **Int. Cl.**
H01Q 1/38 (2006.01)
H01P 11/00 (2006.01)

(52) **U.S. Cl.** ..... **343/700 MS**; 29/600

(57) **ABSTRACT**

Provided is a non-dispersive UWB antenna using multi-resonance, which can obtain a UWB characteristic by combining a monopole radiation patch and stepped open stubs, and can obtain an improved non-dispersion characteristic by using a symmetrical structure of the monopole radiation patch and the stepped open stubs. The non-dispersive UWB antenna includes a dielectric substrate, a monopole radiation patch disposed in the center of the top surface of the dielectric substrate, stepped open stubs connected to the monopole radiation patch to induce multi-resonance, a CPW ground plane, and a CPW feed line connected to the monopole radiation patch. By using the monopole radiation patch, the stepped open stubs, and the CPW feed line, the non-dispersive UWB antenna can obtain the omni-directional radiation pattern in the frequency range (3.1-4.9 GHz) required by the system.



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(19) **United States**

(12) **Patent Application Publication**

(10) **Pub. No.: US 2009/0174612 A1**

(43) **Pub. Date: Jul. 9, 2009**

Ayala et al.

(54) **ANTENNAS AND ANTENNA CARRIER STRUCTURES FOR ELECTRONIC DEVICES**

(76) Inventors: **Enrique Ayala**, Watsonville, CA (US); **Gregory Allen Springer**, Sunnyvale, CA (US); **Douglas B. Kough**, San Jose, CA (US); **Matthew Ian McDonald**, San Jose, CA (US)

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(21) Appl. No.: **12/142,744**

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

Related U.S. Application Data

(60) Provisional application No. 61/019,218, filed on Jan. 4, 2008.

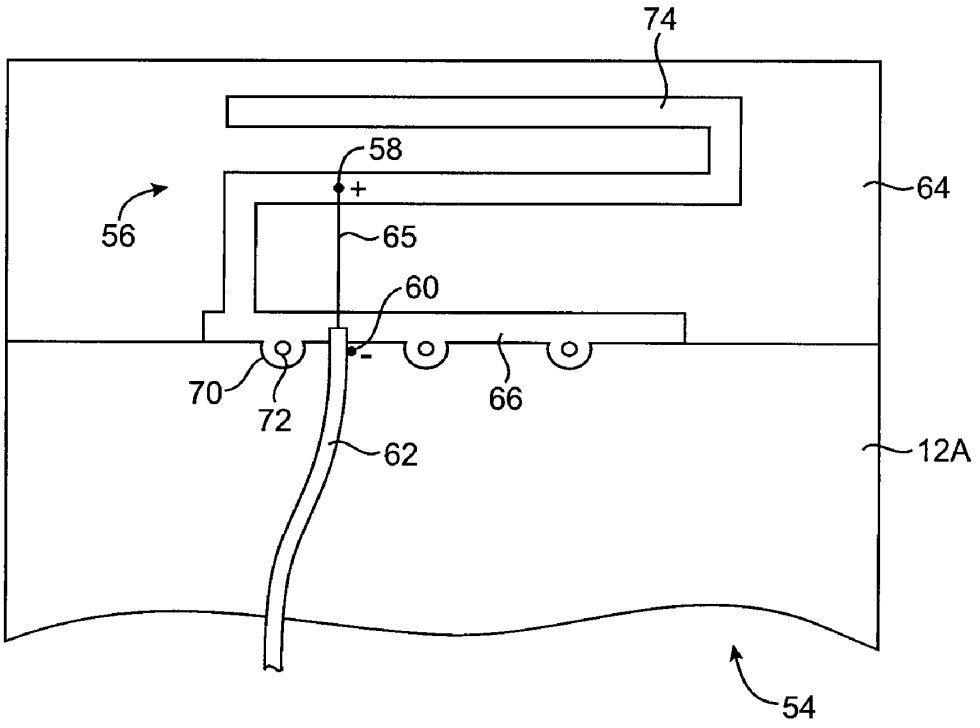
Publication Classification

(51) **Int. Cl.**
H01Q 1/24 (2006.01)
H01Q 9/04 (2006.01)
H01Q 1/40 (2006.01)

(52) **U.S. Cl.** ..... **343/702**; 343/873; 343/700 MS

(57) **ABSTRACT**

Antenna support structures and antennas are provided for wireless electronic devices such as portable electronic devices. Antenna resonating elements may be formed from conductive coatings on two-shot molded interconnect device dielectric antenna support structures. The conductive coatings may be formed from wet-plated copper or other conductive materials. The antenna support structure may have tabs that electrically connect antenna resonating elements to the case of a wireless electronic device that serves as an antenna ground plane. The antenna support structure may be curved about its longitudinal axis so that the antenna resonating elements on the support structure protrude upwards to enhance antenna performance. In a portable electronic device such as a portable computer, the antenna support structure may be mounted within a dielectric portion of the computer housing that is located between the display portion of the housing and the base of the housing.



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(19) **United States**

(12) **Patent Application Publication**

(10) **Pub. No.: US 2009/0174617 A1**

(43) **Pub. Date: Jul. 9, 2009**

CHEN

(54) **HYBRID DUAL DIPOLE SINGLE SLOT ANTENNA FOR MIMO COMMUNICATION SYSTEMS**

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(21) Appl. No.: **11/969,243**

(22) Filed: **Jan. 4, 2008**

Publication Classification

(51) **Int. Cl.**

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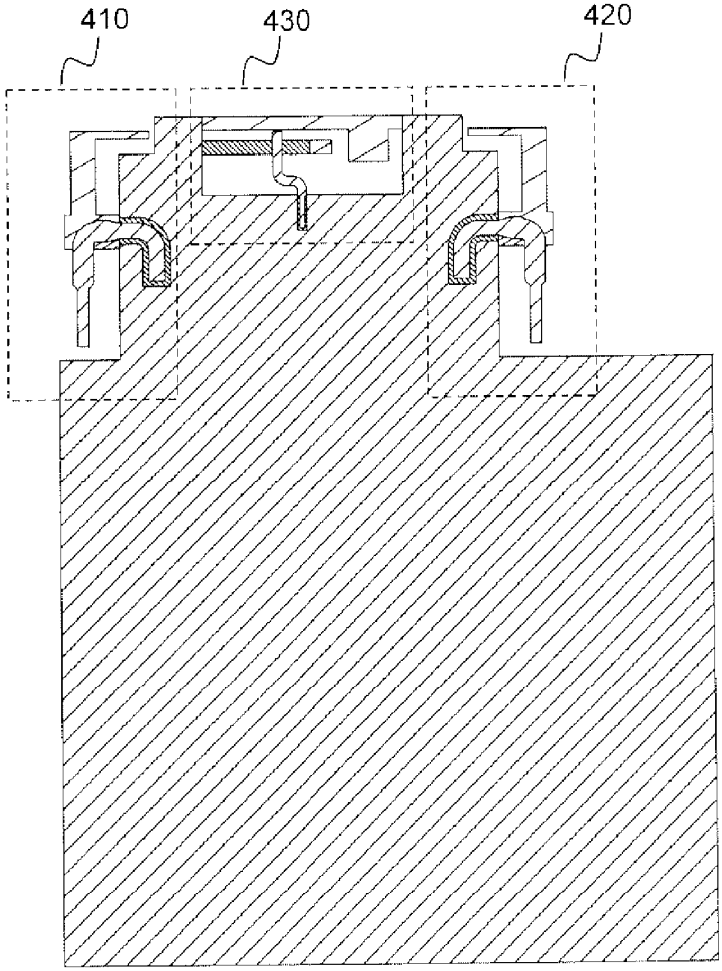
H01Q 9/16	(2006.01)
H01Q 13/10	(2006.01)

(52) **U.S. Cl.** **343/727**; 343/767

(57) **ABSTRACT**

An antenna arrangement implemented within a printed circuit board (PCB) having three metal co planar layers, for use in multiple input multiple output (MIMO) communication systems. The antenna arrangement comprises a first dipole antenna and second dipole antenna, substantially symmetrical to the first dipole antenna a slot antenna positioned substantially between the first and the second dipole antennas. The antenna arrangement is implemented in three coplanar metal layers. The antennas are used for MIMO communication systems, specifically complying with IEEE 802.11n and are shaped such that their combined radiation pattern exhibits a substantially omni directional radiation pattern.



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(43) **Pub. Date: Jul. 16, 2009**

Chiu

(54) **ANTENNA STRUCTURE**

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(21) Appl. No.: **12/099,787**

(22) Filed: **Apr. 9, 2008**

(30) **Foreign Application Priority Data**

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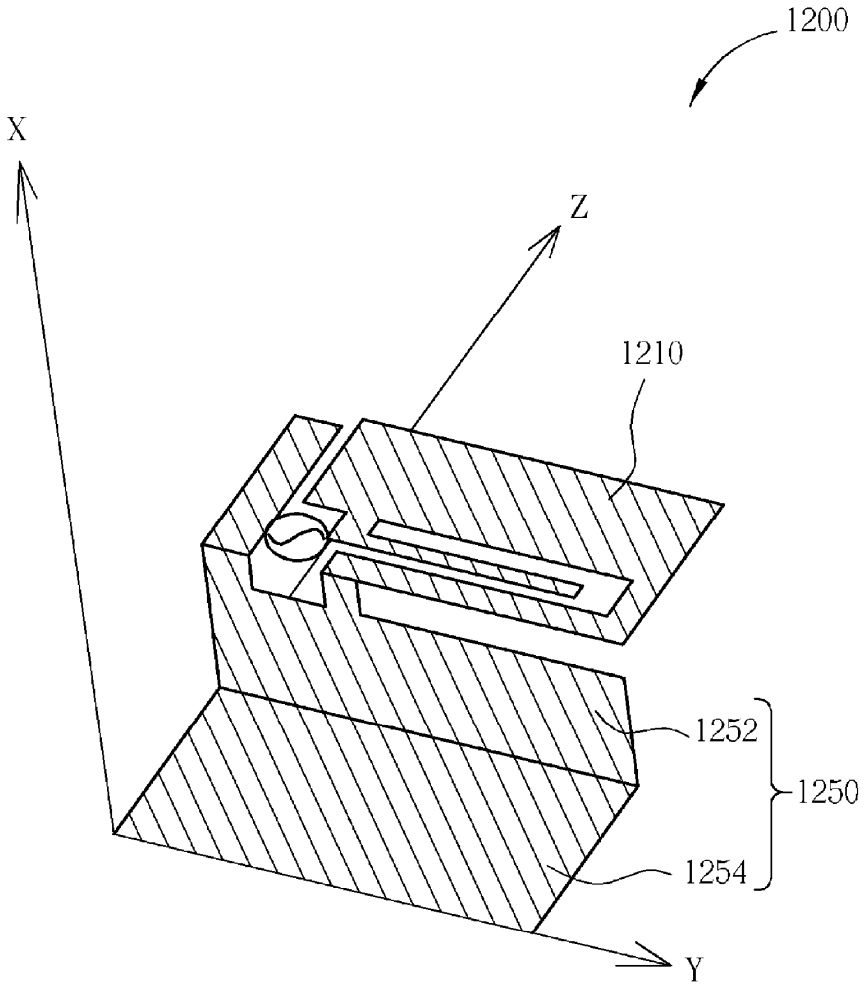
Publication Classification

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

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

(57) **ABSTRACT**

An antenna structure includes a radiation element, a grounding element, a short point, and a feeding point. The radiation element includes a first radiator and a second radiator. The second radiator partially surrounds the first radiator and there is a predetermined distance included between the first radiator and the second radiator for matching impedance. The short point is coupled between the second radiator and the grounding element. The feeding point is coupled between a joint point of the first radiator and the second radiator and the grounding element.



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(19) **United States**

(12) **Patent Application Publication**

Tsai et al.

(10) **Pub. No.: US 2009/0179801 A1**

(43) **Pub. Date: Jul. 16, 2009**

(54) **DUAL-BAND ANTENNA**

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(73) Assignee: **Quanta Computer Inc.**, Tao Yuan Shien (TW)

(21) Appl. No.: **12/220,174**

(22) Filed: **Jul. 21, 2008**

(30) **Foreign Application Priority Data**

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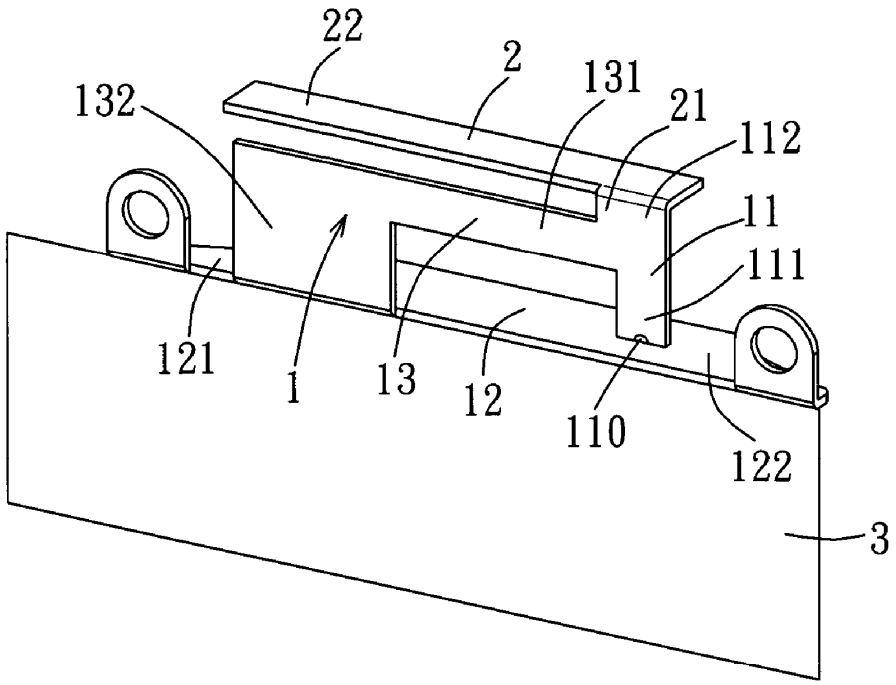
Publication Classification

(51) **Int. Cl.**
H01Q 9/04 (2006.01)
H01Q 11/12 (2006.01)

(52) **U.S. Cl.** ..... **343/700 MS**; 343/741

(57) **ABSTRACT**

An antenna includes a loop unit and an arm unit. The loop unit includes a grounding element that extends along a first plane, a feeding element that extends along a second plane, and a radiating element that interconnects the feeding element and the grounding element. The arm unit extends from the feeding element of the loop unit.



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(19) **United States**

(12) **Patent Application Publication**

Tsai et al.

(10) **Pub. No.: US 2009/0179802 A1**

(43) **Pub. Date: Jul. 16, 2009**

(54) **CAPACITIVELY LOADED ANTENNA**

(75) Inventors: **Tiao-Hsing Tsai**, Tao Yuan Shien (TW); **Chieh-Ping Chiu**, Tao Yuan Shien (TW); **Peng-Jen Weng**, Tao Yuan Shien (TW)

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(73) Assignee: **Quanta Computer Inc.**, Kuei Shan Hsiang (TW)

(21) Appl. No.: **12/231,625**

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

(30) **Foreign Application Priority Data**

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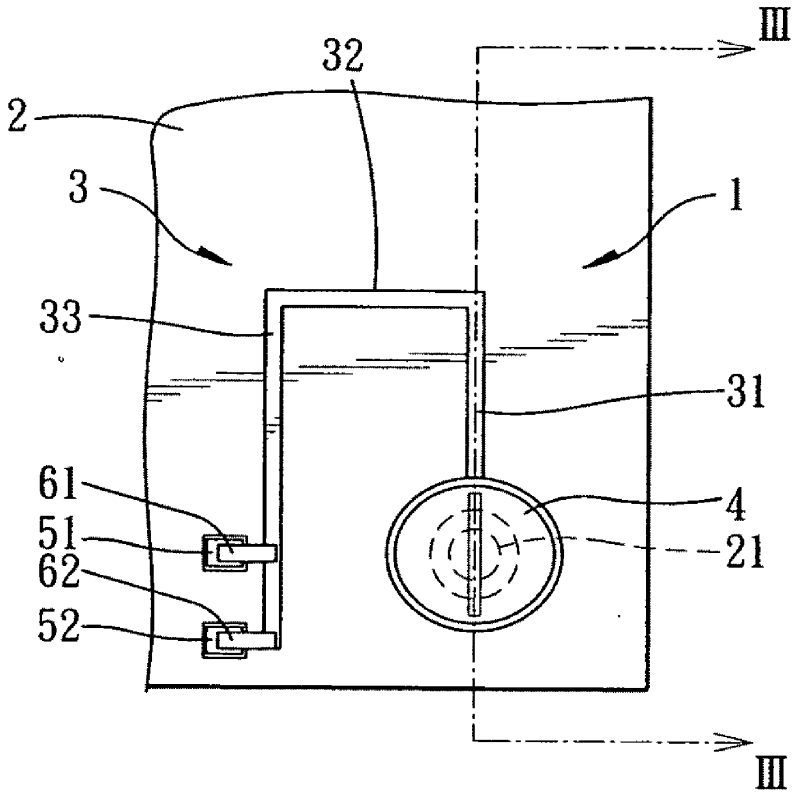
Publication Classification

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

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

(57) **ABSTRACT**

An antenna includes a dielectric substrate, a radiating element, feeding and grounding elements, and a screw. The radiating element is formed on the dielectric substrate. Each of the feeding and grounding elements is formed on the dielectric substrate and is connected electrically to the radiating element. The screw extends through the dielectric substrate and is connected electrically to the radiating element.



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(19) **United States**

(12) **Patent Application Publication**

Tsai et al.

(10) **Pub. No.: US 2009/0179803 A1**

(43) **Pub. Date: Jul. 16, 2009**

(54) **DUAL-BAND ANTENNA**

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(21) Appl. No.: **12/283,019**

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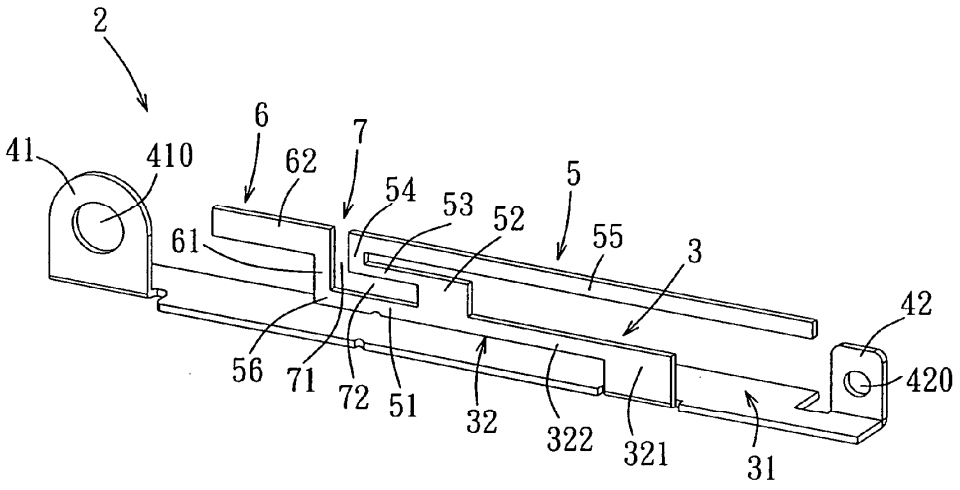
Publication Classification

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

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

(57) **ABSTRACT**

An antenna includes first and second radiating elements and a grounding element. The first radiating element is operable in a first frequency range and has a feeding end. The second radiating element is operable in a second frequency range, is connected to the feeding end of the first radiating element, and cooperates with the first radiating element so as to define a slot therebetween such that the second radiating element is coupled to the first radiating element. The grounding element extends from the first radiating element.



US 20090179804A1

(19) **United States**

(12) **Patent Application Publication**

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(43) **Pub. Date: Jul. 16, 2009**

Liu

(54) **ANTENNA MODULE**

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(21) Appl. No.: **12/285,590**

(22) Filed: **Oct. 9, 2008**

(30) **Foreign Application Priority Data**

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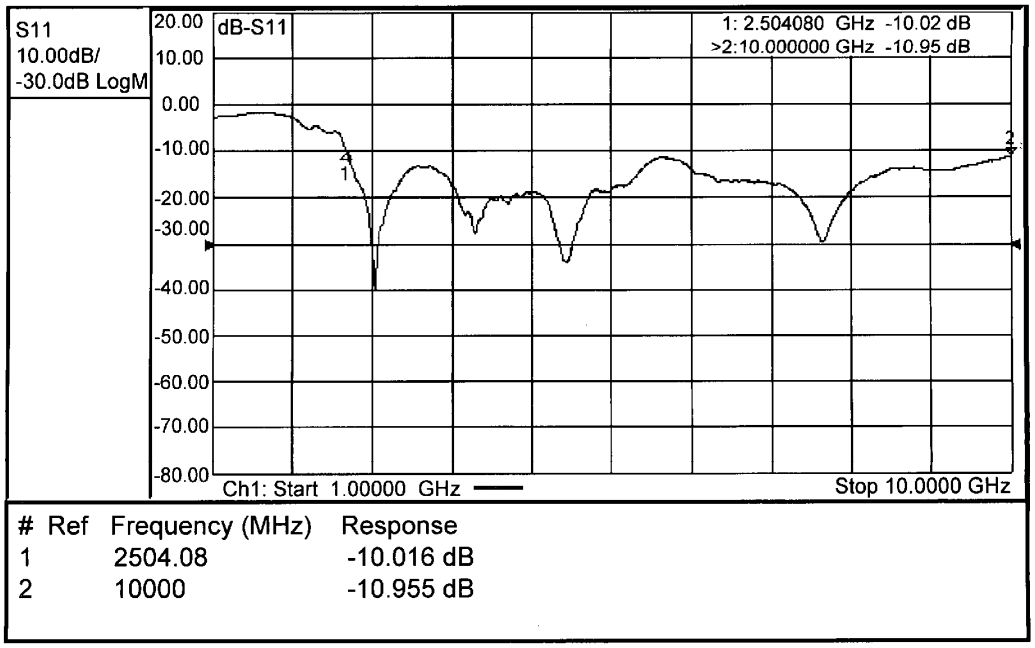
Publication Classification

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

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

(57) **ABSTRACT**

An antenna module includes a dielectric substrate, a grounding element, a transmission element and a radiating element. The dielectric substrate has a first surface and a second surface. The grounding element is disposed on the first surface. The transmission element and the radiating element are disposed on the second surface. The radiating element includes a first sub-radiating element having a first side and a second side. The first sub-radiation element is connected to the transmission element at the first side, and the width of the first sub-radiating element gradually becomes larger from the first side toward the second side.



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(19) United States

(12) Patent Application Publication

(10) Pub. No.: US 2009/0179808 A1

(43) Pub. Date: Jul. 16, 2009

Tsai et al.

(54) **ANTENNA HAVING WIDE IMPEDANCE BANDWIDTHS BOTH AT LOW AND HIGH FREQUENCIES**

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(21) Appl. No.: **12/188,321**

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

(30) **Foreign Application Priority Data**

Jan. 16, 2008 (TW) 097101651

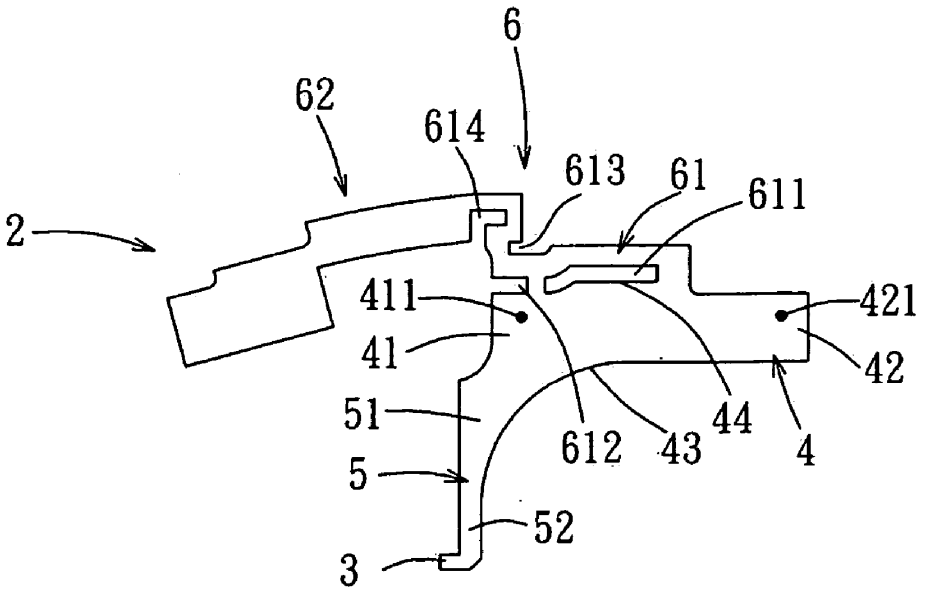
Publication Classification

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

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

(57) **ABSTRACT**

An antenna includes a base element, grounding and feeding points, and first and second radiating elements. Each of the grounding and feeding points is provided on the base element. The first radiating element is operable in a first frequency band, and extends from the base element. The second radiating element is operable in a second frequency band lower than the first frequency band, extends from the base element, and is formed with a slot.



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(19) **United States**

(12) **Patent Application Publication**

Park et al.

(10) **Pub. No.: US 2009/0179814 A1**

(43) **Pub. Date: Jul. 16, 2009**

(54) **DUAL POLARIZATION BROADBAND ANTENNA HAVING WITH SINGLE PATTERN**

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(21) Appl. No.: **12/296,105**

(22) PCT Filed: **Apr. 2, 2007**

(86) PCT No.: **PCT/KR07/01597**

§ 371 (c)(1),
(2), (4) Date: **Oct. 3, 2008**

(30) **Foreign Application Priority Data**

Apr. 3, 2006 (KR) 10-2006-0030232
Mar. 14, 2007 (KR) 10-2007-0025085

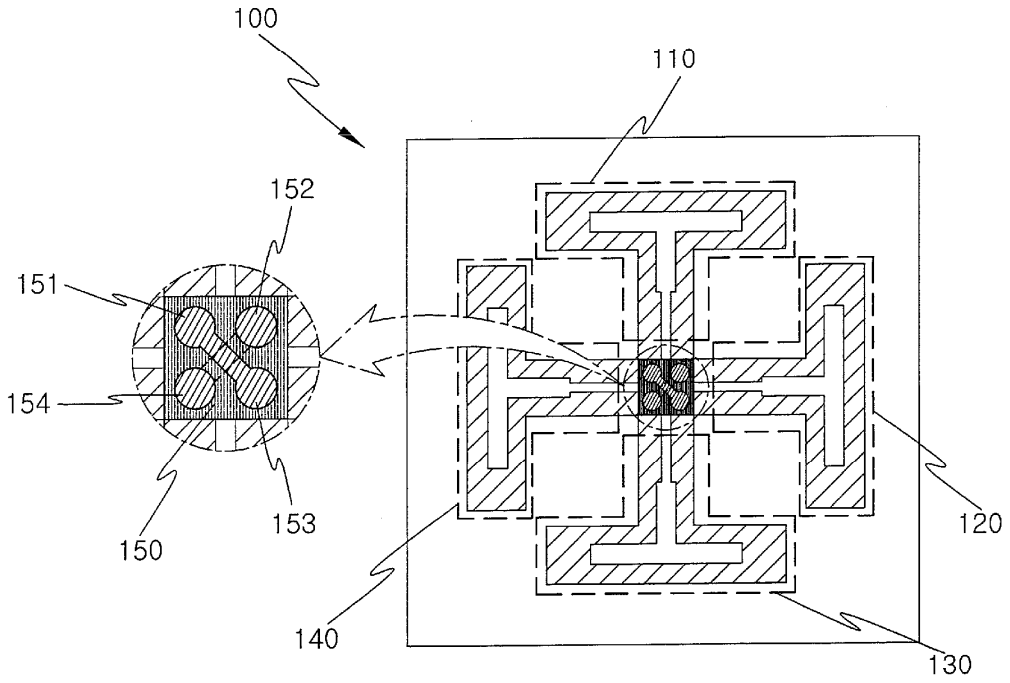
Publication Classification

(51) **Int. Cl.**
H01Q 9/26 (2006.01)
H01Q 1/38 (2006.01)
H01Q 21/08 (2006.01)

(52) **U.S. Cl.** **343/803**; 343/810

(57) **ABSTRACT**

The present invention relates to a dual polarization broadband antenna having a single pattern, which is provide with a radiation device having a square structure, in which a plurality of folded dipole elements are formed in a single continuously-connected pattern, and a feeding portion for feeding signals to the plurality of folded dipole elements is formed on the radiation device. Accordingly, the plurality of folded dipole elements formed on the radiation device are connected in a single square and rectangular pattern, so that the structure thereof is simplified, with the result that the cost can be reduced. Furthermore, the feeding portion, that dually feeds signals, and the plurality of folded dipole elements, connected in a single pattern, are coupled, so that the dual polarization characteristic can be easily acquired. Furthermore, currents input to the feeding points of the feeding portion are induced only to the folded dipole elements without having to flow into other feeding points, so that excellent isolation can be achieved.



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(19) **United States**

(12) **Patent Application Publication**

Sotoma et al.

(10) **Pub. No.: US 2009/0179815 A1**

(43) **Pub. Date: Jul. 16, 2009**

(54) **SURFACE MOUNT ANTENNA AND ANTENNA MODULE**

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(21) Appl. No.: **12/318,415**

(22) Filed: **Dec. 29, 2008**

(30) **Foreign Application Priority Data**

Jan. 15, 2008 (JP) 2008-005516

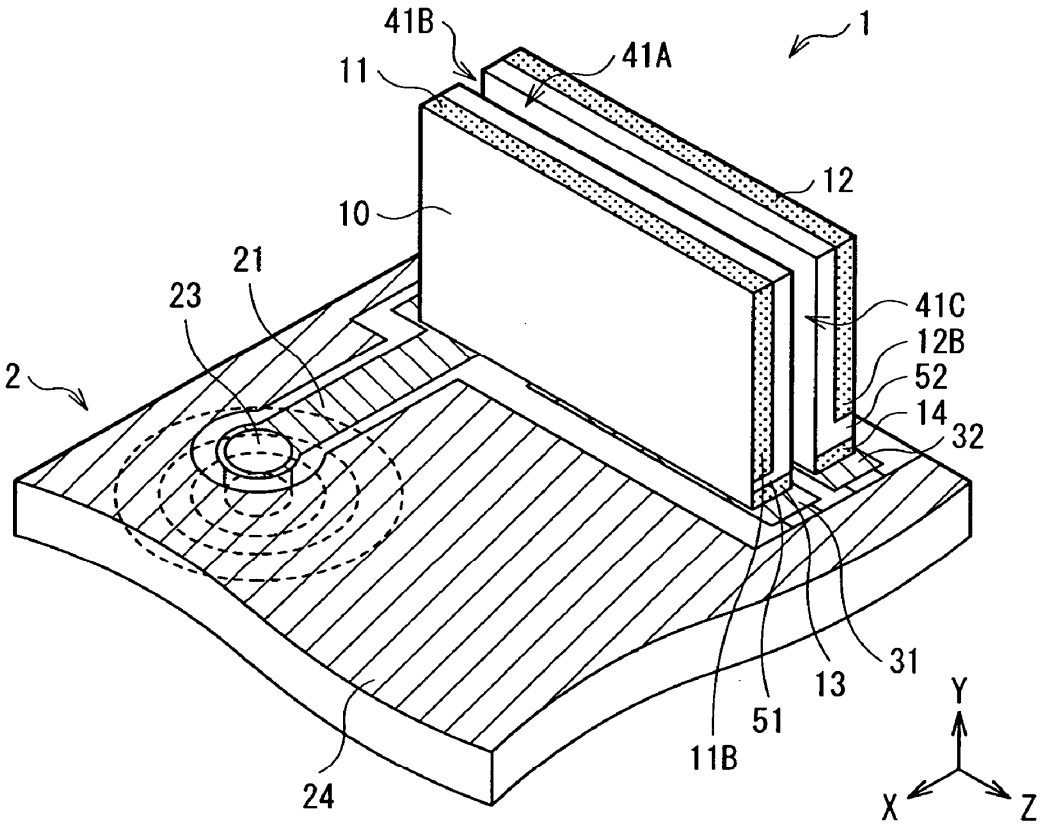
Publication Classification

(51) **Int. Cl.**
H01Q 19/00 (2006.01)
H01Q 1/38 (2006.01)

(52) **U.S. Cl.** **343/833**; 343/787

(57) **ABSTRACT**

A surface mount antenna with small size and broadband is provided. The surface mount antenna includes: a substrate including a dielectric material or a magnetic material as a main material; a feed radiation conductor formed on the substrate, one end of the feed radiation conductor being a first feed end to be supplied with power, and the other end being a first open end; and a parasitic radiation conductor formed on the substrate at a distance from the feed radiation conductor, one end of the parasitic radiation conductor being a second feed end to be supplied with power from the feed radiation conductor through electromagnetic coupling, and the other end being a second open end. A region having a dielectric constant or a magnetic permeability lower than that of the main material of the substrate is provided between the feed radiation conductor and the parasitic radiation conductor.



US 20090184874A1

(19) **United States**

(12) **Patent Application Publication**

CHI et al.

(10) **Pub. No.: US 2009/0184874 A1**

(43) **Pub. Date: Jul. 23, 2009**

(54) **MULTI-BAND ANTENNA**

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(21) Appl. No.: **12/017,019**

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

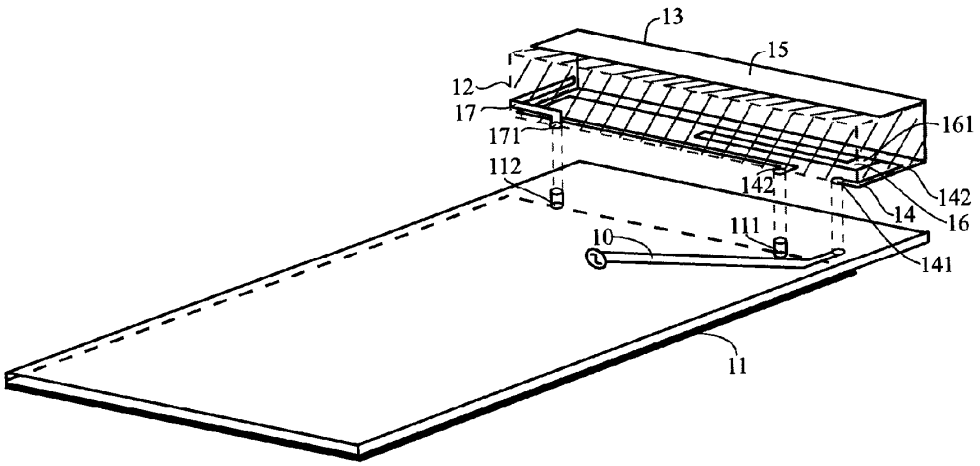
Publication Classification

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

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

(57) **ABSTRACT**

A multi-band antenna, it comprises: a grounding surface, a supporting base and a radiative metallic portion; the grounding surface has a first shorting point and a second shorting point; the radiative metallic portion is attached to a bottom surface of the supporting base, and includes: a first radiative metallic wire, a radiative metallic sheet, a second radiative metallic wire and a parasitic radiative metallic arm. One end point of the first radiative metallic wire is a feeding end for the antenna, while the other end point is electrically connected to the first shorting point of the grounding surface; the radiative metallic sheet is electrically connected to a section of the first radiative metallic wire; the second radiative metallic wire is surrounded by the first radiative metallic wire, of which one end point is electrically connected to the first radiative metallic wire; one end point of the parasitic radiative metallic arm is electrically connected to the second shorting point of the grounding surface.



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(19) **United States**

(12) **Patent Application Publication**

(10) **Pub. No.: US 2009/0184876 A1**

(43) **Pub. Date: Jul. 23, 2009**

LIU

(54) **TRIPLE BAND ANTENNA**

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(21) Appl. No.: **12/212,056**

(22) Filed: **Sep. 17, 2008**

(30) **Foreign Application Priority Data**

Jan. 22, 2008 (TW) TW97102350

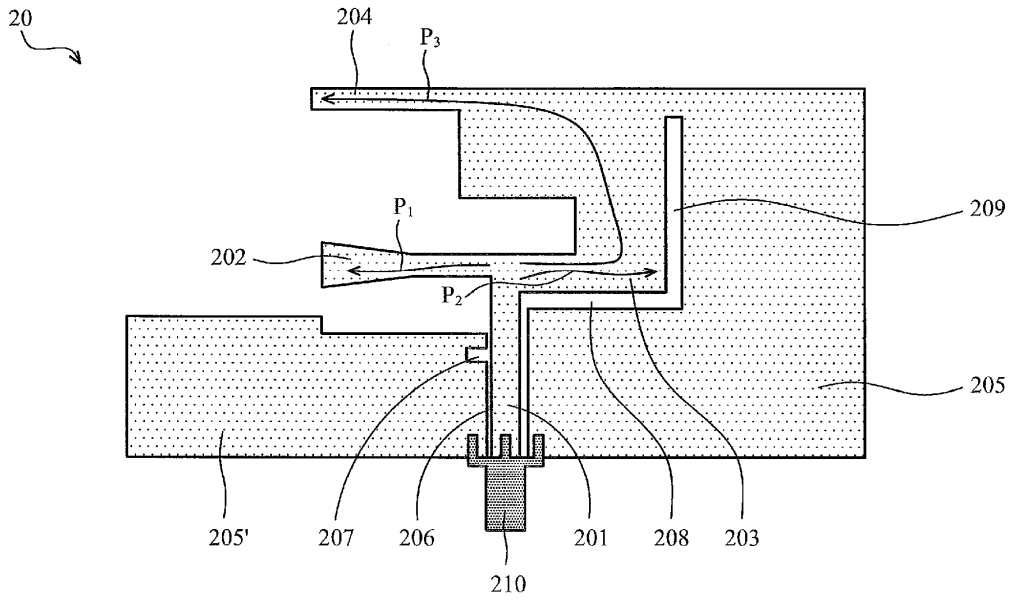
Publication Classification

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

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

(57) **ABSTRACT**

A triple band antenna includes a feed-in portion, a first radiating portion, a second radiating portion, a third radiating portion and a grounding portion. The first radiating portion is connected to a first side of a first end of the feed-in portion. A second end of the second radiating portion is connected to a second side of the first end of the feed-in portion. The third radiating portion is connected to a third end of the second radiating portion. The grounding portion is located at two sides of the feed-in portion.



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(19) **United States**

(12) **Patent Application Publication**

(10) **Pub. No.: US 2009/0184878 A1**

(43) **Pub. Date: Jul. 23, 2009**

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(54) **BROADBAND ANTENNA**

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(21) Appl. No.: **12/155,355**

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

(30) **Foreign Application Priority Data**

Jan. 18, 2008 (TW) 097102100

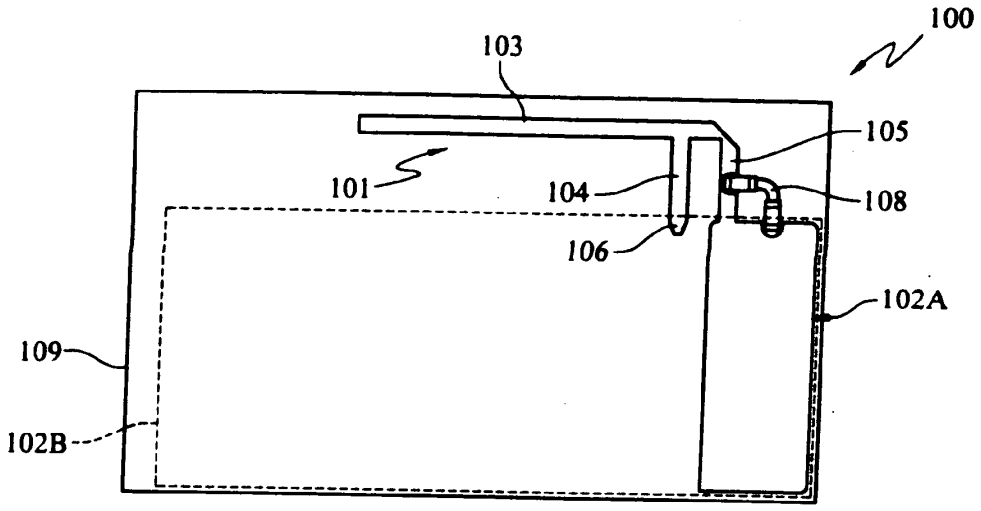
Publication Classification

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

(52) **U.S. Cl.** ..... **343/845**; 343/700 MS

(57) **ABSTRACT**

A broadband antenna including an antenna body, a ground plane, and a bandwidth adjustment portion is described. The bandwidth adjustment portion, formed by at least one capacitor, is connected between the antenna body and the ground plane. The bandwidth adjustment portion is formed by more than one capacitor connected in series. Also, in another situation, the bandwidth adjustment portion can be formed by more than one capacitor connected in parallel.



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(19) **United States**

(12) **Patent Application Publication**

(10) **Pub. No.: US 2009/0184880 A1**

(43) **Pub. Date: Jul. 23, 2009**

Marklein et al.

(54) **ULTRA WIDEBAND LOOP ANTENNA**

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(21) Appl. No.: **12/015,701**

(22) Filed: **Jan. 17, 2008**

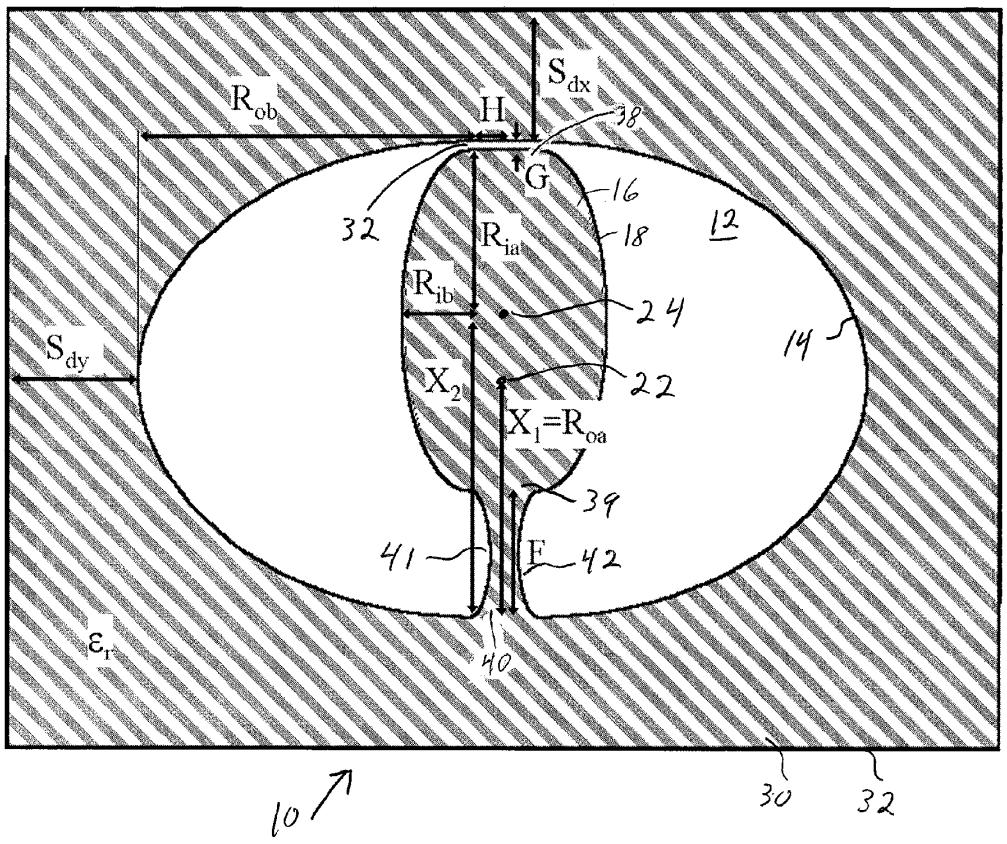
Publication Classification

(51) **Int. Cl.**
H01Q 7/00 (2006.01)
H01Q 9/04 (2006.01)

(52) **U.S. Cl.** ..... **343/866**; 343/700 MS

(57) **ABSTRACT**

An ultra wideband loop antenna having a planar antenna element defining an at least semi-elliptical perimeter having a major axis, a minor axis and a center. There is also an elongated, contiguous discontinuity in the antenna element that is symmetric about the antenna element minor axis, entirely located within the antenna element, and defining a discontinuity feed end located on the minor axis and spaced from one side of the antenna element perimeter by an element feed width, and further defining an opposed discontinuity ground end located on the minor axis and spaced from the opposing side of the antenna element perimeter by an element ground width, to define an antenna element ground portion, wherein the feed width is greater than the ground width. The antenna also has a feed region connecting the feed end of the discontinuity to the perimeter, to define antenna element feed ends that are adjacent to the feed region.



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(19) **United States**

(12) **Patent Application Publication**

Hotta et al.

(10) **Pub. No.: US 2009/0189815 A1**

(43) **Pub. Date: Jul. 30, 2009**

(54) **ANTENNA DEVICE AND RADIO APPARATUS OPERABLE IN MULTIPLE FREQUENCY BANDS**

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(21) Appl. No.: **12/142,050**

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

(30) **Foreign Application Priority Data**

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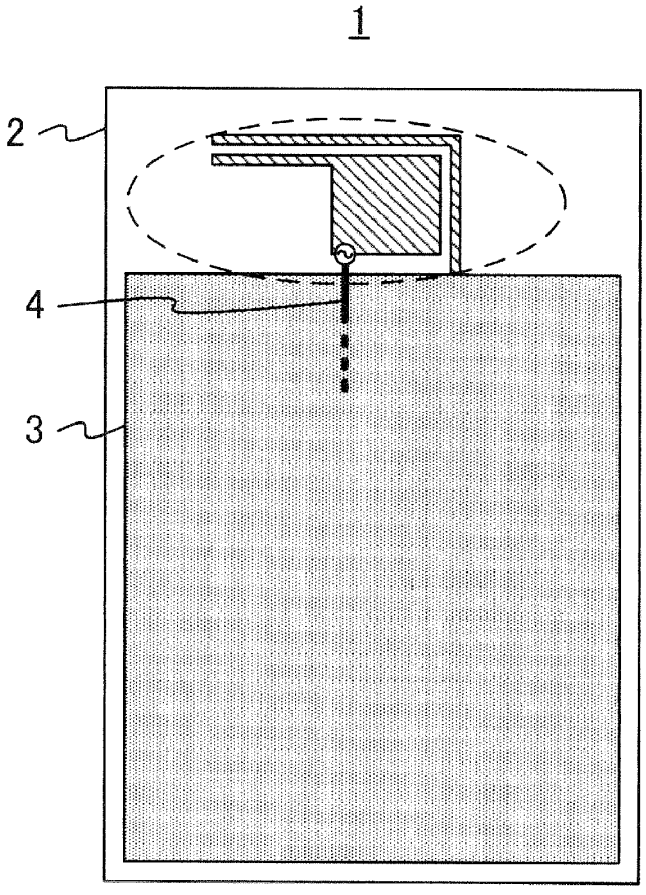
Publication Classification

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

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

(57) **ABSTRACT**

An antenna device usable in a radio apparatus including a printed board includes a ground conductor of the printed board, a first partial element, a second partial element and a parasitic element. The first partial element is shaped into an area having a first side facing a side of the ground conductor and a second side directed to cross the side of the ground conductor, and is provided with a feed portion around a first end of the first side being closer to the second side. The second partial element branches off from the first partial element around one of two ends of the second side being farther from the feed portion, and is directed almost against a direction from the feed portion to a second end of the first side being farther from the second side. The parasitic element has an end grounded around the second end.



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(19) **United States**

(12) **Patent Application Publication**

Kojima

(10) **Pub. No.: US 2009/0190322 A1**

(43) **Pub. Date: Jul. 30, 2009**

(54) **PORTABLE WIRELESS DEVICE**

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(21) Appl. No.: **12/064,432**

(22) PCT Filed: **Aug. 23, 2006**

(86) PCT No.: **PCT/JP2006/316524**

§ 371 (c)(1),
(2), (4) Date: **Feb. 21, 2008**

(30) **Foreign Application Priority Data**

Aug. 24, 2005 (JP) 2005-242622
Jun. 23, 2006 (JP) 2006-174389

Publication Classification

(51) **Int. Cl.**
H02B 1/20 (2006.01)

(52) **U.S. Cl.** **361/827**

(57) **ABSTRACT**

A portable wireless device such as a foldable portable telephone is provided.

A feeder line **7** is arranged between an upper printed board **4** and a lower printed board **5** to feed power, the upper printed board **4** and the lower printed board **5** constitute radiating elements, respectively, to allow a portable wireless device main body to operate as a dipole antenna, and an upper-to-lower circuit connecting unit **6** connecting the upper printed board **4** to the lower printed board **5** is configured to include a feeder line **7** and signal lines **10** connecting a circuit unit of the upper printed board **4** to a circuit unit of the lower printed board **5** to cause a receiver, a display **8**, a microphone, an external interface and the like to operate. It is thereby possible to prevent the feeder line **7** and the signal lines **10** from rubbing against each other to damage the signal lines **10** when the foldable portable wireless device is open or closed, and to realize downsizing of the foldable portable wireless device.