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(19) **United States**

(12) **Patent Application Publication**

(10) **Pub. No.: US 2010/0079350 A1**

(43) **Pub. Date: Apr. 1, 2010**

Lai et al.

(54) **WWAN PRINTED CIRCUIT ANTENNA WITH THREE MONOPOLE ANTENNAS DISPOSED ON A SAME PLANE**

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(21) Appl. No.: **12/545,436**

(22) Filed: **Aug. 21, 2009**

(30) **Foreign Application Priority Data**

Sep. 26, 2008 (TW) 97137055

Publication Classification

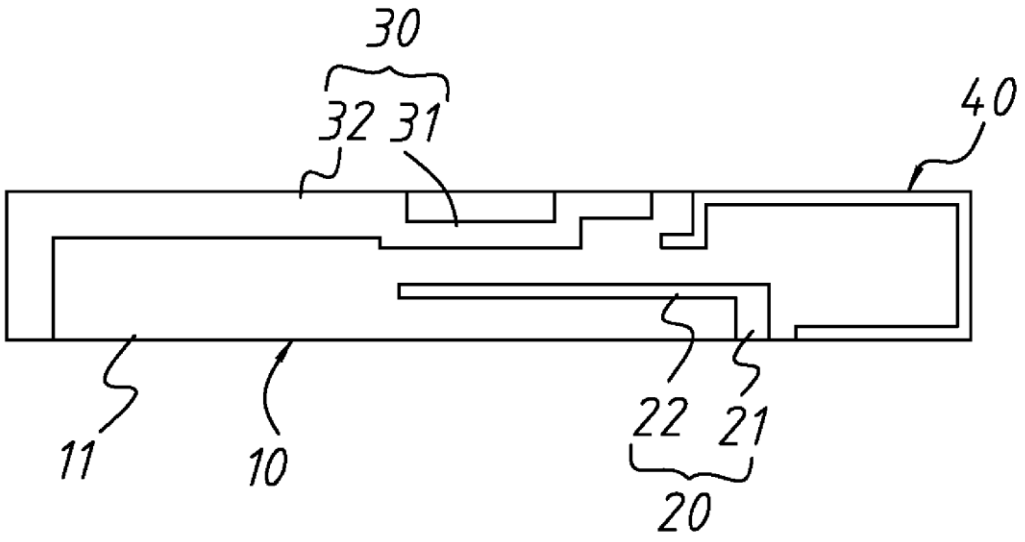
(51) **Int. Cl.**

H01Q 5/00	(2006.01)
H01Q 21/00	(2006.01)
H01Q 1/38	(2006.01)

(52) **U.S. Cl.** ..... **343/843**; 343/893; 343/700 MS

(57) **ABSTRACT**

A WWAN printed circuit antenna includes three monopole antennas in the printed circuit board. Signals are fed in from the feed monopole antenna. The first and second radiating monopole antennas are actuated by the feed monopole antenna in an electromagnetic coupling way. Therefore, a three-dimensional structure derived from the planar inverted-F antenna can be replaced, and the limitation of space usage can be overcome.



US 20100081489A1

(19) **United States**

(12) **Patent Application Publication**

OHBA et al.

(10) **Pub. No.: US 2010/0081489 A1**

(43) **Pub. Date: Apr. 1, 2010**

(54) **RADIO APPARATUS AND ANTENNA DEVICE FOR MOBILE RADIO SYSTEM**

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(21) Appl. No.: **12/471,611**

(22) Filed: **May 26, 2009**

(30) **Foreign Application Priority Data**

Sep. 26, 2008 (JP) 2008-248960

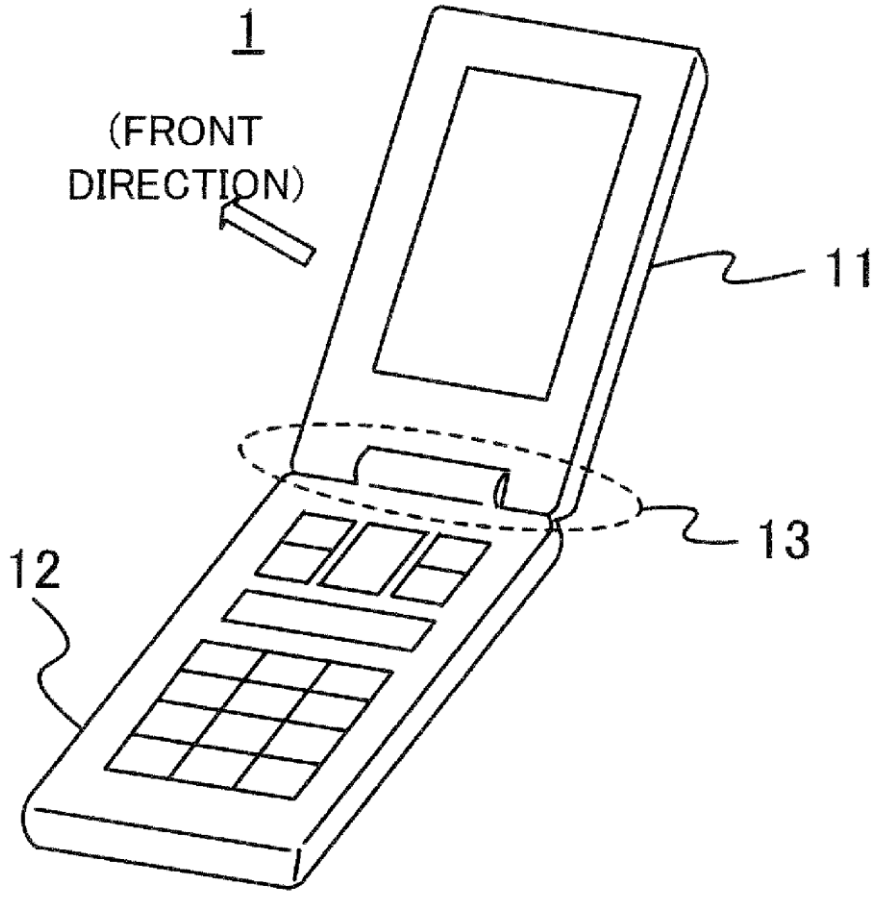
Publication Classification

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

(52) **U.S. Cl.** **455/575.3**; 455/575.1

(57) **ABSTRACT**

A radio apparatus including a first housing section, a second housing section and a hinge section is provided. The second housing section is rotatably connected to the first housing section. The second housing section includes an antenna feed circuit and a ground circuit. The hinge section is constituted by an axis member fixed to the second housing section and a bearing member fixed to the first housing section. The axis member is put through the bearing member for forming an axis of rotation of the second housing section with respect to the first housing section. The axis member has a conductive portion connected to the antenna feed circuit at a feed point.



US 20100081491A1

(19) **United States**

(12) **Patent Application Publication**

LEE

(10) **Pub. No.: US 2010/0081491 A1**

(43) **Pub. Date: Apr. 1, 2010**

(54) **MOBILE TERMINAL AND ANTENNA CONNECTION CABLE THEREOF**

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(21) Appl. No.: **12/563,965**

(22) Filed: **Sep. 21, 2009**

(30) **Foreign Application Priority Data**

Oct. 1, 2008 (KR) 10-2008-0096797

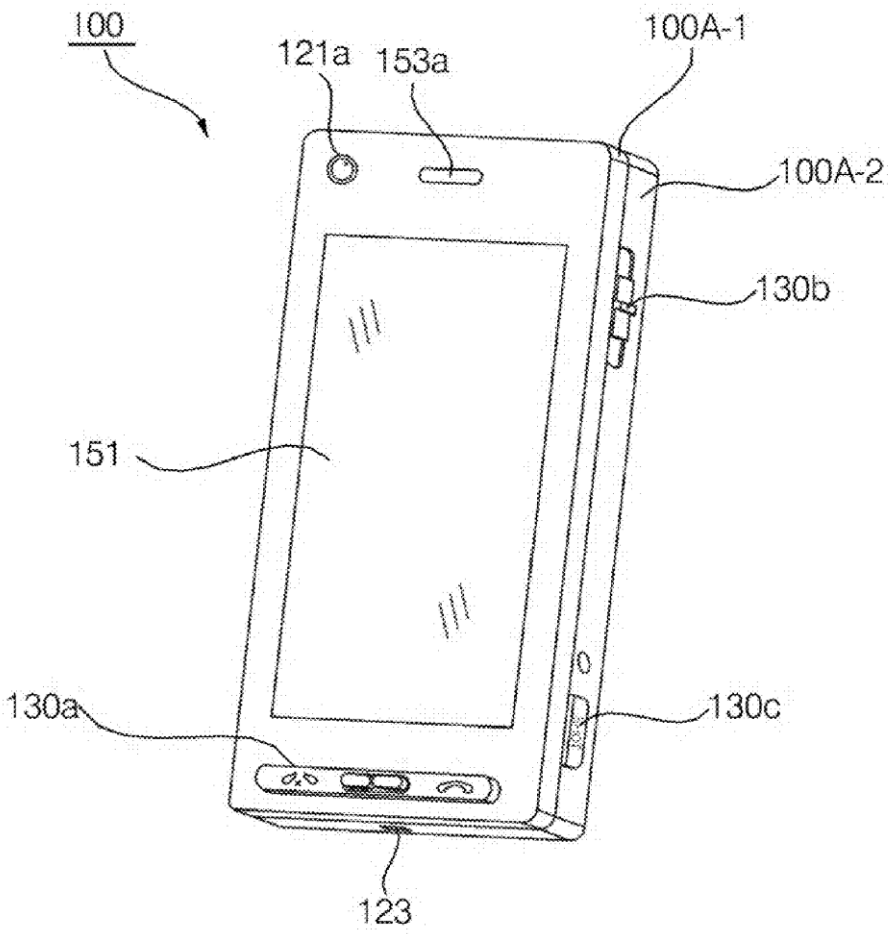
Publication Classification

(51) **Int. Cl.**
H04M 1/00 (2006.01)
H01Q 1/50 (2006.01)

(52) **U.S. Cl.** **455/575.7**; 343/906

(57) **ABSTRACT**

Provided are a mobile terminal and an antenna connection device of the mobile terminal which can reduce the number of connection paths between an antenna and a wireless communication unit and can thus minimize path loss. The mobile terminal may include a body including a first case in which an antenna is disposed and a second case in which a wireless communication unit is disposed; a mobile switch which is disposed in the second case and serves as a radio frequency (RF) input/output (I/O) port for the wireless communication unit; and an antenna connection cable which is formed in one body with the antenna and includes a connector formed at one end of the antenna connection cable, the antenna connection able being connected to the mobile switch via the connector.



US 20100085268A1

(19) **United States**

(12) **Patent Application Publication**

Yeh et al.

(10) **Pub. No.: US 2010/0085268 A1**

(43) **Pub. Date: Apr. 8, 2010**

(54) **ANTENNA**

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(21) Appl. No.: **12/575,453**

(22) Filed: **Oct. 7, 2009**

(30) **Foreign Application Priority Data**

Oct. 8, 2008 (TW) 97138711

Publication Classification

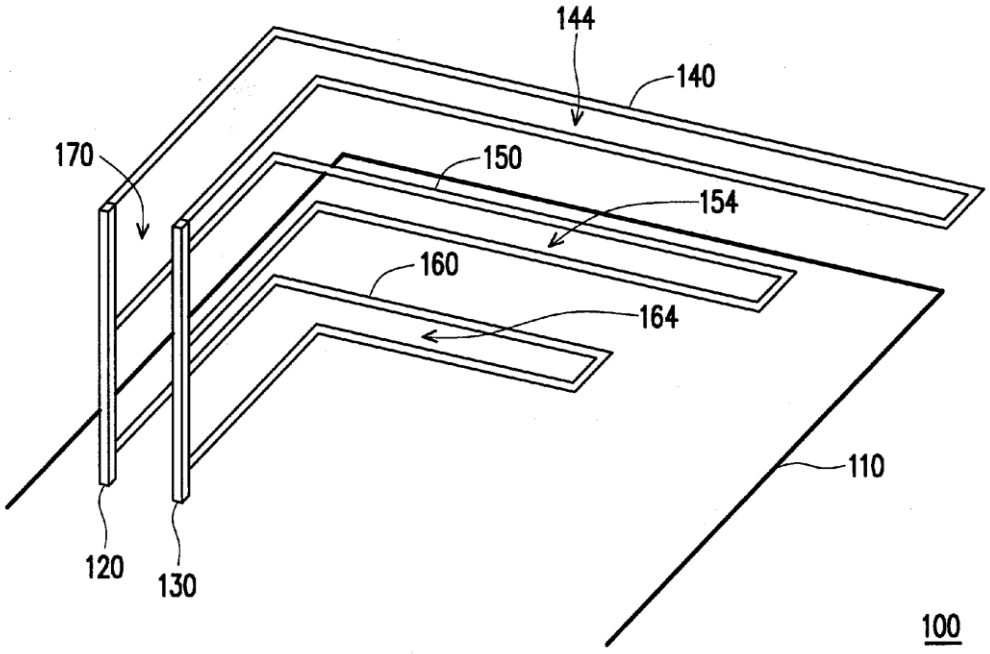
(51) **Int. Cl.**

H01Q 5/02	(2006.01)
H01Q 1/36	(2006.01)
H01Q 9/26	(2006.01)
H01Q 7/00	(2006.01)
H01Q 1/48	(2006.01)

(52) **U.S. Cl.** ..... **343/803**; 343/700 MS; 343/843; 343/866; 343/848

(57) **ABSTRACT**

An antenna having a number of operating frequencies includes a feed element, a ground element, and a number of conductive antenna tracks. The conductive antenna tracks extend outward from the feed element and return back to the ground element. When the conductive antenna tracks are located in a same plane, areas defined by the conductive antenna tracks are not overlapped with one another. When parts of the conductive antenna tracks are located in different planes, multiple frequency bands are formed respectively by multiple resonant frequencies corresponding to the conductive antenna tracks.



US 20100087235A1

(19) **United States**

(12) **Patent Application Publication**

Chiang

(10) **Pub. No.: US 2010/0087235 A1**

(43) **Pub. Date: Apr. 8, 2010**

(54) **LOOP ANTENNA FOR CELL PHONE HAVING A METALLIC OR NON-METALLIC CASING**

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(21) Appl. No.: **12/285,539**

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

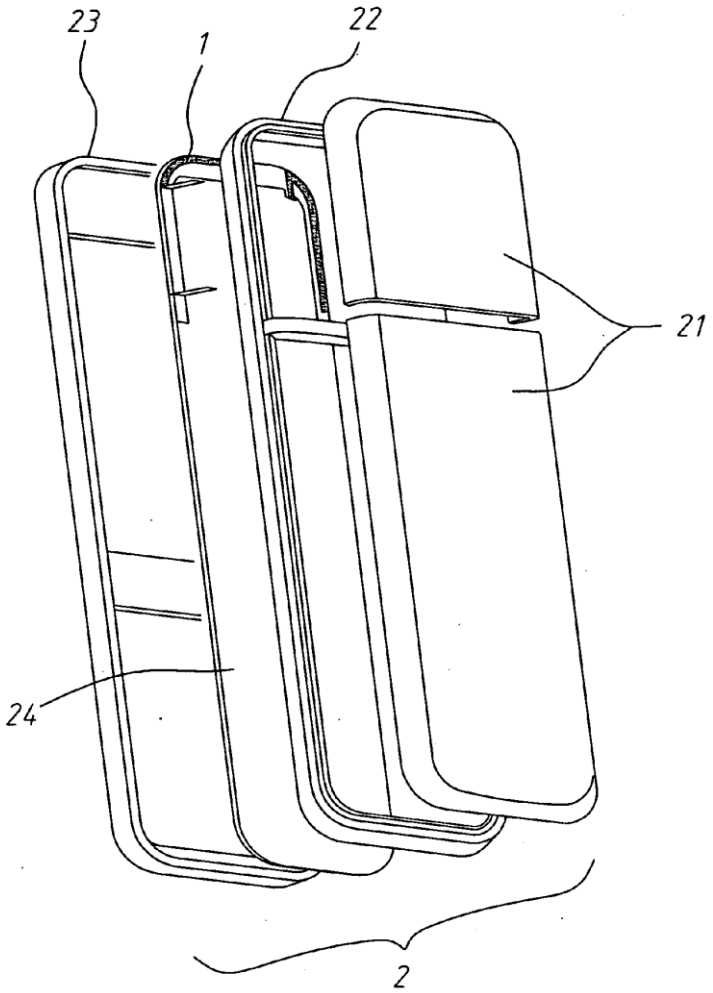
Publication Classification

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

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

(57) **ABSTRACT**

A loop antenna used in a cell phone having a circuit board and a casing housing the circuit board is disclosed to include a loop extending around the border of the circuit board, a ground end extending from one end of the loop and electrically connected to a ground plane of the circuit board, a feed end extending from the opposite end of the loop and electrically connected to the circuit board for signal input, and two cut-off ends formed in a middle part of the loop to cut off the loop. The two cut-off ends are electrically connected to the casing of the cell phone if the casing is a metallic casing, or short-circuited if the casing of the cell phone is a non-metallic casing.



US 20100090912A1

(19) **United States**

(12) **Patent Application Publication**

Lin et al.

(10) **Pub. No.: US 2010/0090912 A1**

(43) **Pub. Date: Apr. 15, 2010**

(54) **MULTI-FREQUENCY ANTENNA AND AN ELECTRONIC DEVICE HAVING THE MULTI-FREQUENCY ANTENNA THEREOF**

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(21) Appl. No.: **12/461,222**

(22) Filed: **Aug. 5, 2009**

(30) **Foreign Application Priority Data**

Oct. 15, 2008 (TW) 097139622

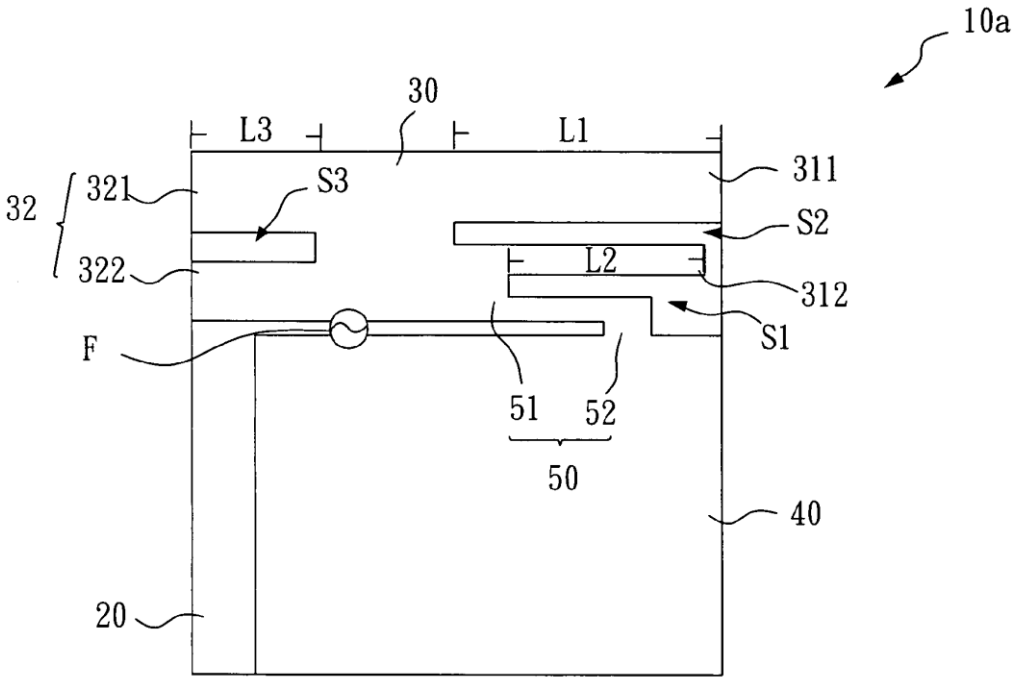
Publication Classification

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

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

(57) **ABSTRACT**

A multi-frequency antenna for wireless signal transmission of an electronic device is disclosed. The multi-frequency antenna comprises a base board, a radiating element, a grounding element, a shorting element, and a feeding point. The radiating element, the grounding element, and the shorting element are disposed on the base board. The shorting element comprises a first end and a second end; the first end is connected to the radiating element and the second end is connected to the grounding element; wherein, a first slot is disposed between the radiating element and the shorting element. The feeding point is used to feed a signal; wherein the feeding point is substantially disposed between one edge of the base board and the shorting element.



US 20100090913A1

(19) **United States**

(12) **Patent Application Publication**

(10) **Pub. No.: US 2010/0090913 A1**

(43) **Pub. Date: Apr. 15, 2010**

Liu

(54) **EMBEDDED UWB ANTENNA AND PORTABLE DEVICE HAVING THE SAME**

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(21) Appl. No.: **12/461,665**

(22) Filed: **Aug. 20, 2009**

(30) **Foreign Application Priority Data**

Oct. 9, 2008 (TW) 097139055

Publication Classification

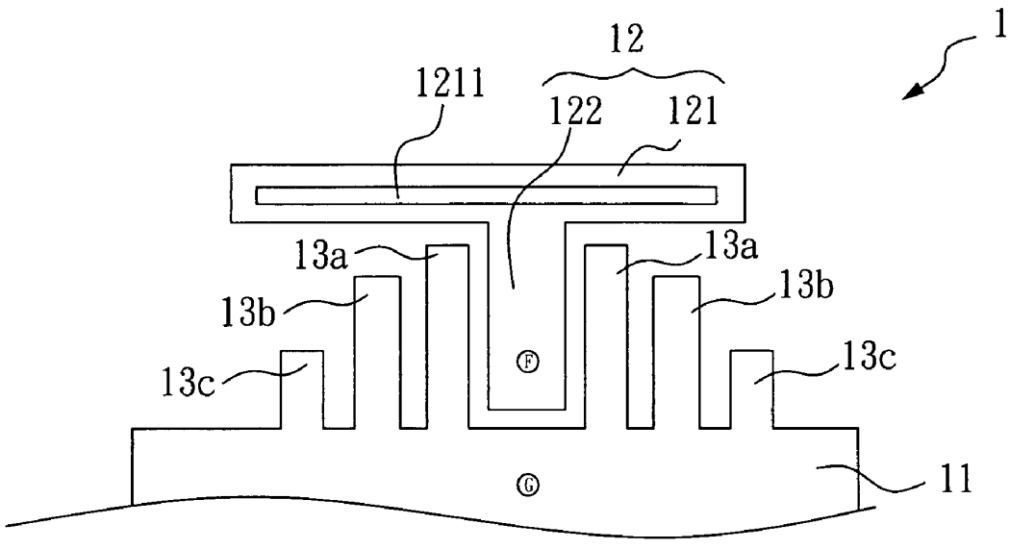
(51) **Int. Cl.**

H01Q 1/38	(2006.01)
H01Q 1/24	(2006.01)
H01Q 5/00	(2006.01)

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

(57) **ABSTRACT**

An embedded UWB antenna and a portable device having the same are disclosed. The embedded UWB antenna comprises a grounding element; a T-shaped radiating element having a horizontal portion comprising at least an opening for cutting off undesired frequency and a vertical portion comprising a feed point for feeding current to resonate frequency; and a plurality of sleeve elements extended from the grounding element along two sides of the vertical portion; wherein the plurality of sleeve elements and the vertical portion are substantially parallel to each other.



US 20100097191A1

(19) **United States**

(12) **Patent Application Publication**

(10) **Pub. No.: US 2010/0097191 A1**

(43) **Pub. Date: Apr. 22, 2010**

YAMAGAJO et al.

(54) **WIRELESS TAG AND METHOD FOR PRODUCING WIRELESS TAG**

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(21) Appl. No.: **12/648,675**

(22) Filed: **Dec. 29, 2009**

Related U.S. Application Data

(63) Continuation of application No. PCT/JP2007/064138, filed on Jul. 18, 2007.

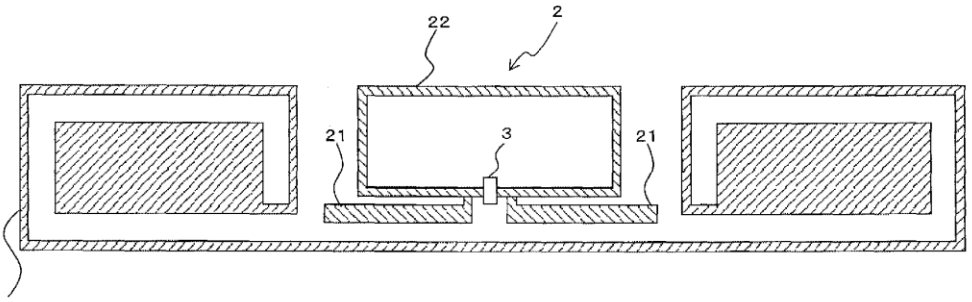
Publication Classification

(51) **Int. Cl.**
H04Q 5/22 (2006.01)

(52) **U.S. Cl.** **340/10.1**

(57) **ABSTRACT**

The wireless tag includes an antenna conductor; a first power-supply conductor which is electromagnetic-inductively coupled with the antenna conductor; and a second power-supply conductor which is loop-shaped and which is electrically coupled with the first power-supply conductor.



US 20100097271A1

(19) **United States**

(12) **Patent Application Publication**

(10) **Pub. No.: US 2010/0097271 A1**

(43) **Pub. Date: Apr. 22, 2010**

Chang

(54) **RADOME AND MICROSTRIP PATCH ANTENNA HAVING THE SAME**

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(21) Appl. No.: **12/382,885**

(22) Filed: **Mar. 26, 2009**

(30) **Foreign Application Priority Data**

Oct. 16, 2008 (TW) 097139726

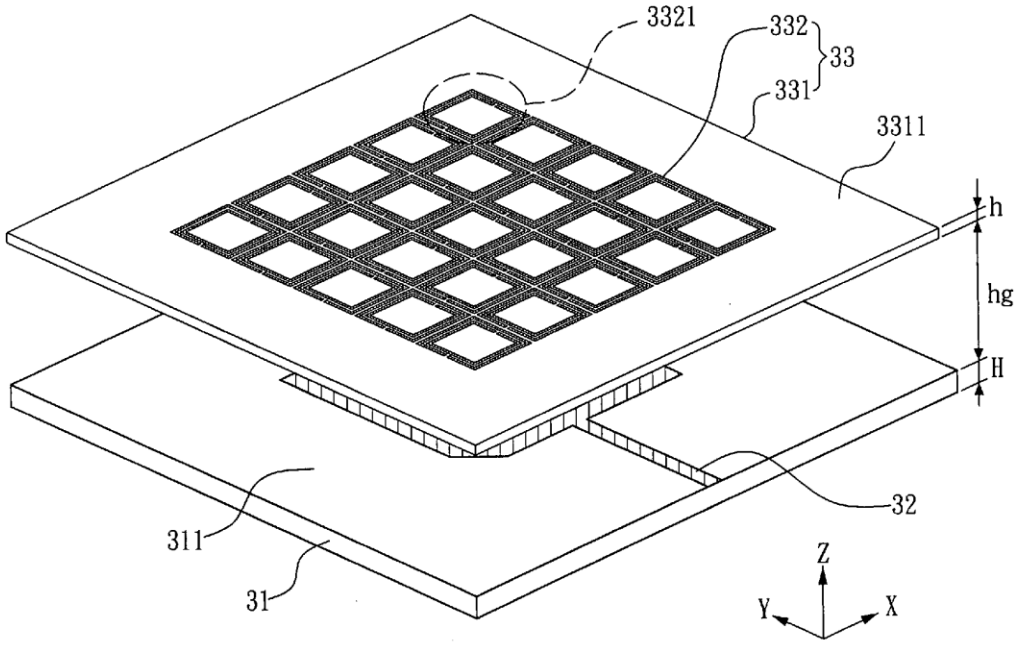
Publication Classification

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

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

(57) **ABSTRACT**

A radome and a microstrip patch antenna having the same are disclosed. The gain value of the microstrip patch antenna having the disclosed radome can be increased while the size thereof remains in a limited size. The disclosed radome comprises: a radome body, having an upper surface and a lower surface; a first gain-enhancing pattern, locating on the upper surface and including a plurality of first ring gain-enhancing units; and a second gain-enhancing pattern, locating on the lower surface and including a plurality of second ring gain-enhancing units. The first ring gain-enhancing unit includes a first conductive ring and a second conductive ring, and the second ring gain-enhancing unit includes a third conductive ring and a fourth conductive ring. Besides, the opening direction of the third conductive ring is perpendicular to the opening direction of the first conductive ring.



US 20100097272A1

(19) **United States**

(12) **Patent Application Publication**

Kim et al.

(10) **Pub. No.: US 2010/0097272 A1**

(43) **Pub. Date: Apr. 22, 2010**

(54) **INTERNAL ANTENNA WITH AIR GAP**

(75) Inventors: **Jongsoo Kim**, Gyeonggi-do (KR); **Inyoung Lee**, Gyeonggi-do (KR); **Ilhoon Cho**, Gyeonggi-do (KR); **Sanghyeok Cho**, Incheon (KR); **Jungmin Kim**, Incheon (KR); **Juhwan Sin**, Gyeonggi-do (KR)

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(21) Appl. No.: **12/528,325**

(22) PCT Filed: **Jan. 15, 2008**

(86) PCT No.: **PCT/KR08/00235**

§ 371 (c)(1),
(2), (4) Date: **Aug. 23, 2009**

(30) **Foreign Application Priority Data**

Feb. 22, 2007 (KR) 10-2007-017817
Nov. 15, 2007 (KR) 10-2007-0116501

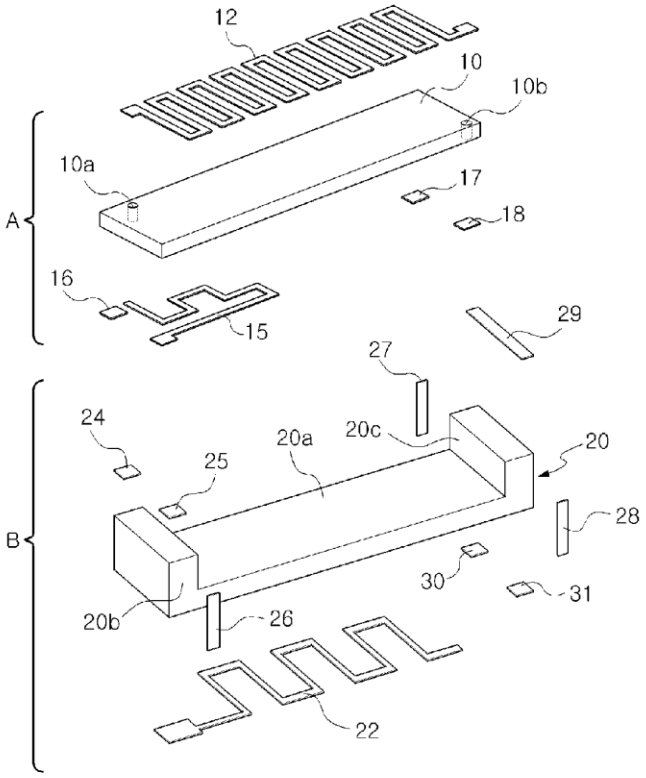
Publication Classification

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

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

(57) **ABSTRACT**

An air gap for minimizing a dielectric constant is formed between dielectric blocks having conductor patterns in order to minimize interference between conductor patterns, thereby providing a slim internal antenna that has a wide bandwidth in a low frequency band as well as in a high frequency band. According to the present invention, it is possible to obtain an antenna that simply and quickly obtains desired characteristics by easily adjusting the thickness of the air gap. Further, the internal antenna is formed by layering dielectric blocks that have conductor patterns. Accordingly, while maintaining the interconnection between the conductor patterns, the internal antenna can change resonant frequency thereof into low frequency as compared with an antenna having the same volume of a dielectric. That is, it is possible to effectively reduce the size of an antenna without significantly affecting the characteristics of the antenna.



US 20100097282A1

(19) **United States**

(12) **Patent Application Publication**

(10) **Pub. No.: US 2010/0097282 A1**

(43) **Pub. Date: Apr. 22, 2010**

Chirila

(54) **MULTI-BAND COMPACT ANTENNA SYSTEM FOR HANDHELD DEVICES**

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(73) Assignee: **PSION TEKLOGIX INC.**, Mississauga (CA)

(21) Appl. No.: **12/256,185**

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

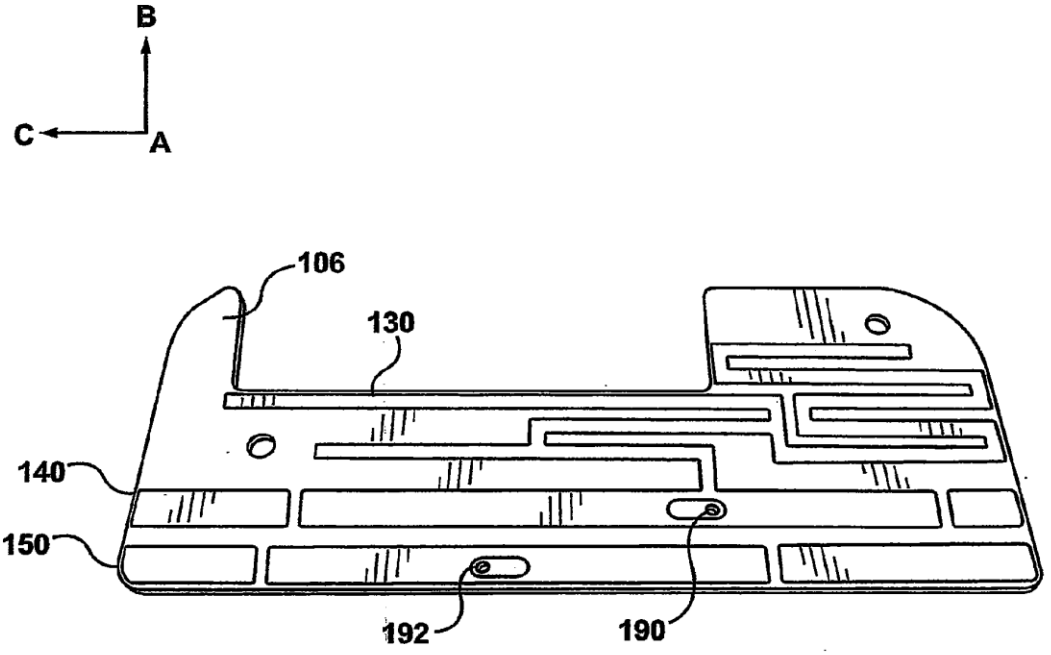
Publication Classification

(51) **Int. Cl.**
H01Q 13/00 (2006.01)
H01Q 1/38 (2006.01)

(52) **U.S. Cl.** ..... **343/770**; 343/700 MS

(57) **ABSTRACT**

A multi-band antenna and a handheld device with multi-band antenna are provided. The multi-band antenna includes a radiating layer having a first radiating antenna pattern for a plurality of first bands, a second radiating antenna pattern for a plurality of a second bands, and a third radiating antenna pattern for a third band; a ground layer; a dielectric layer sandwiched between the ground layer and the radiating layer. The handheld device includes a multi-band antenna board having a plurality of antenna patterns having a GPS radiating antenna pattern, a low bands radiating antenna pattern and a high bands radiating antenna pattern, the low bands radiating antenna pattern or the high bands radiating antenna pattern being formed between the other radiating antenna patterns.



US 20100097285A1

(19) **United States**

(12) **Patent Application Publication**

Hayashi et al.

(10) **Pub. No.: US 2010/0097285 A1**

(43) **Pub. Date: Apr. 22, 2010**

(54) **FOLDING DIPOLE ANTENNA**

(75) Inventors: **Toshiteru Hayashi**, Yokohama-shi (JP); **Yoshio Koyanagi**, Yokohama-shi (JP)

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(73) Assignee: **PANASONIC CORPORATION**, Kadoma-shi, Osaka (JP)

(21) Appl. No.: **12/529,075**

(22) PCT Filed: **Mar. 6, 2007**

(86) PCT No.: **PCT/JP2007/054299**

§ 371 (c)(1),
(2), (4) Date: **Aug. 28, 2009**

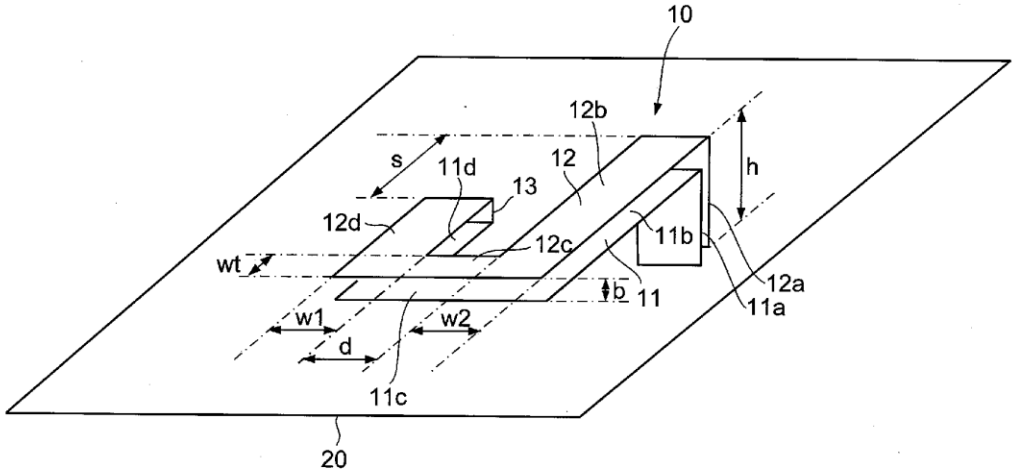
Publication Classification

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

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

(57) **ABSTRACT**

A folding dipole antenna having remarkably multi-band characteristics as compared with prior art. Element width at the short portions (**12***d*, **11***d*) of any one of an upper element (**12**) or a lower element (**11**) is set wider than that of the other element, and the element width at the long part of the upper element (**12**) or the lower element (**11**) on the feed side is set wider than that of the element on the non-feed side.



US 20100097286A1

(19) **United States**

(12) **Patent Application Publication**

Morrow et al.

(10) **Pub. No.: US 2010/0097286 A1**

(43) **Pub. Date: Apr. 22, 2010**

(54) **OMNIDIRECTIONAL MULTIPLE INPUT MULTIPLE OUTPUT (MIMO) ANTENNAS WITH POLARIZATION DIVERSITY**

(75) Inventors: **Jarrett D. Morrow**, Bow, NH (US); **Adam M. Alevy**, Carlisle, MA (US); **Shawn W. Johnson**, Allenstown, NH (US)

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(73) Assignee: **Laird Technologies, Inc.**, Chesterfield, MO (US)

(21) Appl. No.: **12/512,969**

(22) Filed: **Jul. 30, 2009**

Related U.S. Application Data

(60) Provisional application No. 61/196,837, filed on Oct. 21, 2008.

Publication Classification

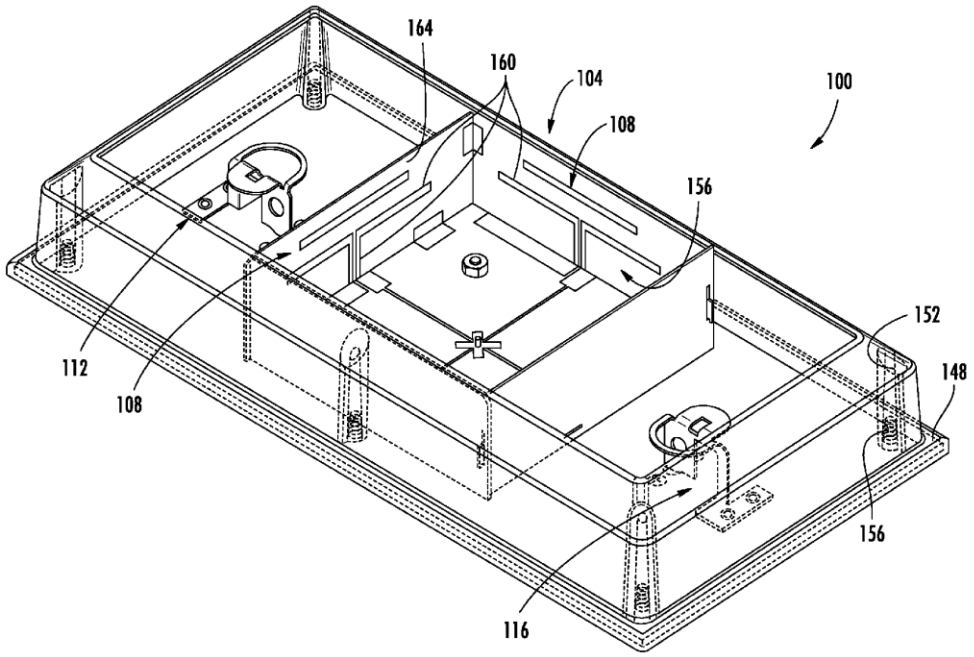
(51) **Int. Cl.**

H01Q 9/16	(2006.01)
H01Q 21/00	(2006.01)
H01Q 1/50	(2006.01)
H01Q 1/12	(2006.01)

(52) **U.S. Cl.** **343/810**; 343/906; 343/878

(57) **ABSTRACT**

Exemplary embodiments are provided of omnidirectional MIMO antennas with polarization diversity. In one exemplary embodiment, an omnidirectional MIMO antenna generally includes an array of radiating antenna elements having a linear horizontal polarization and radiating omnidirectionally in azimuth. The antenna also includes at least one radiating antenna element having a linear vertical polarization and radiating omnidirectionally in azimuth. The vertically polarized radiating antenna is spaced-apart from the array. The antenna is operable for producing omnidirectional, vertically polarized coverage for at least one port, as well as omnidirectional, horizontally polarized coverage for at least one other port.



US 20100103050A1

(19) **United States**

(12) **Patent Application Publication**

Shimizu

(10) **Pub. No.: US 2010/0103050 A1**

(43) **Pub. Date: Apr. 29, 2010**

(54) **DUAL-BAND ANTENNA**

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(73) Assignee: **NIPPON ANTENA KABUSHIKI KAISHA**, TOKYO (JP)

(21) Appl. No.: **12/452,149**

(22) PCT Filed: **Jan. 30, 2009**

(86) PCT No.: **PCT/JP2009/051536**

§ 371 (c)(1),
(2), (4) Date: **Dec. 17, 2009**

(30) **Foreign Application Priority Data**

May 22, 2008 (JP) 2008-133922

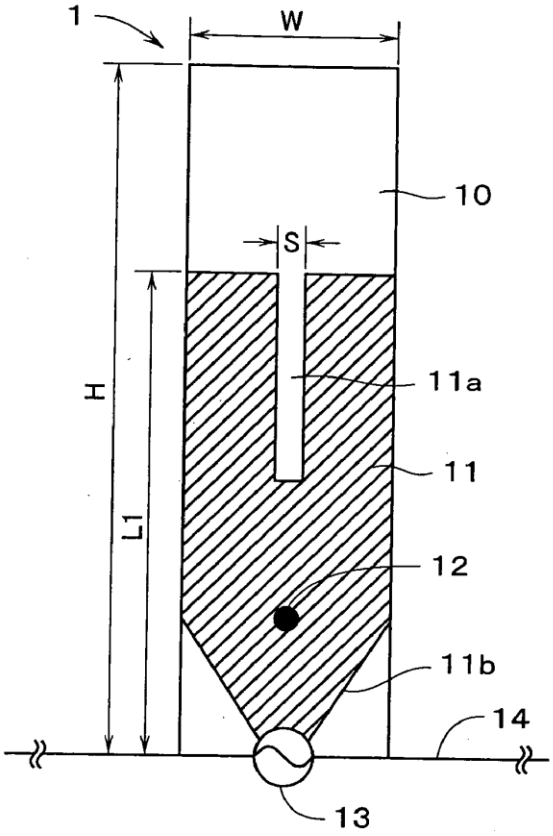
Publication Classification

(51) **Int. Cl.**
H01Q 1/38 (2006.01)
H01Q 5/00 (2006.01)

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

(57) **ABSTRACT**

The present invention provides a dual-band antenna that can be operated at two frequencies without providing the choke coil. A first element operated in a high-frequency-side band is formed in a surface of a print board using a print pattern. A second element operated in a low-frequency-side band is formed in an upper portion of a rear surface of the print board so as not to overlap the first element. A power is fed to the first element from a power feeding point located at a lower end of the print board, and the power is fed to the second element through a throughhole made in a middle of the first element. The power is fed to the second element from the throughhole through a long and thin power feeding line, and the power feeding line exhibits a high impedance to a high frequency. A slit is formed in the first element corresponding to the power feeding line.



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(19) **United States**

(12) **Patent Application Publication**

(10) **Pub. No.: US 2010/0103056 A1**

(43) **Pub. Date: Apr. 29, 2010**

WANG et al.

(54) **ANTENNA FOR RECEIVING ELECTRIC WAVES, A MANUFACTURING METHOD THEREOF, AND AN ELECTRONIC DEVICE WITH THE ANTENNA**

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(21) Appl. No.: **12/578,264**

(22) Filed: **Oct. 13, 2009**

(30) **Foreign Application Priority Data**

Oct. 28, 2008 (TW) 097141374

Publication Classification

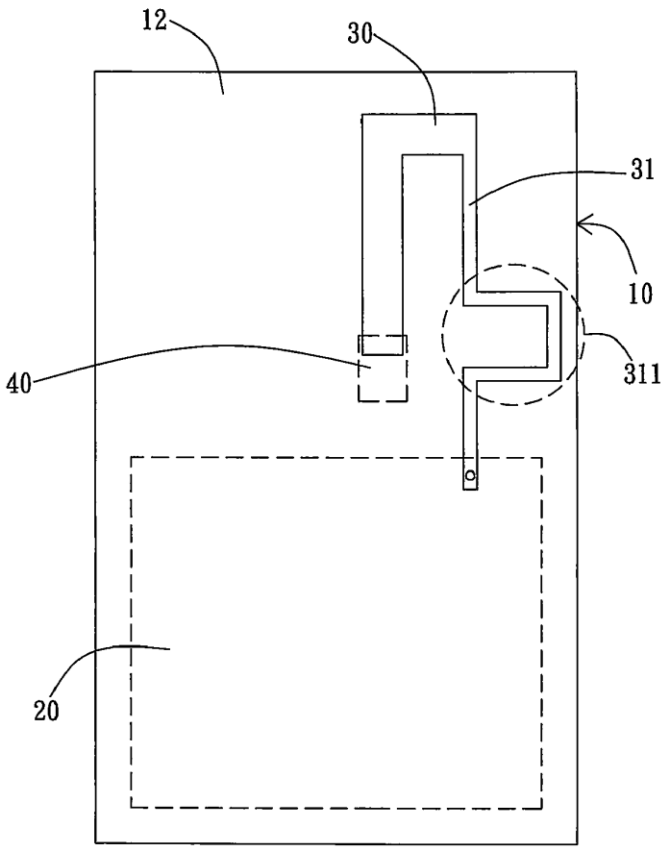
(51) **Int. Cl.**

H01Q 1/36	(2006.01)
H01Q 1/24	(2006.01)
H01P 11/00	(2006.01)
H01Q 9/00	(2006.01)

(52) **U.S. Cl.** ..... **343/702**; 29/600; 343/843; 343/700 MS

(57) **ABSTRACT**

An antenna for receiving electric waves, a manufacturing method thereof, and an electronic device with the antenna are provided. The antenna includes a substrate, a grounding unit, a radiator, a coupling unit, and a signal transmission line. The substrate has a first surface and a second surface which are opposite to each other. The grounding unit is disposed on the first surface of the substrate. The radiator is disposed on the second surface of the substrate and connected to the grounding unit. The coupling unit is disposed on the first surface of the substrate and partially overlaps the projection of the radiator. The signal transmission line includes a signal line and a ground line, the signal line being connected to the coupling unit while the ground line being connected to the grounding unit.



US 20100103057A1

(19) **United States**

(12) **Patent Application Publication**

HARIHARA et al.

(10) **Pub. No.: US 2010/0103057 A1**

(43) **Pub. Date: Apr. 29, 2010**

(54) **SURFACE-MOUNTED ANTENNA, ANTENNA DEVICE USING THE SAME, AND RADIO COMMUNICATION EQUIPMENT**

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(21) Appl. No.: **12/607,229**

(22) Filed: **Oct. 28, 2009**

(30) **Foreign Application Priority Data**

Oct. 28, 2008 (JP) 2008-276706

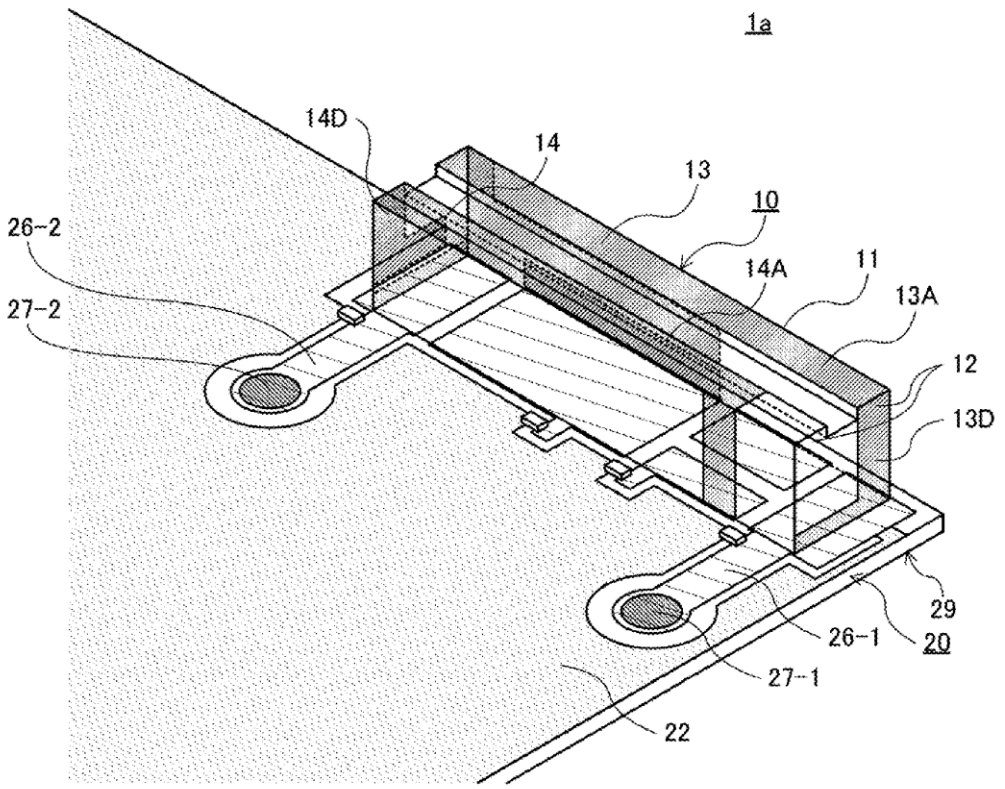
Publication Classification

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

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

(57) **ABSTRACT**

A surface-mounted antenna has a base having a substantially rectangular parallelepiped shape, an antenna element formed on the surface of the base and having a first radiation electrode subjected to direct power supply, and an antenna element formed on the surface of the base and having a radiation electrode subjected to capacitive coupling power supply. With this, the smaller surface-mounted antenna of a combo antenna type can be provided.



US 20100103061A1

(19) **United States**

(12) **Patent Application Publication**

YUNG et al.

(10) **Pub. No.: US 2010/0103061 A1**

(43) **Pub. Date: Apr. 29, 2010**

(54) **UNIDIRECTIONAL ANTENNA COMPRISING A DIPOLE AND A LOOP**

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(21) Appl. No.: **12/257,111**

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

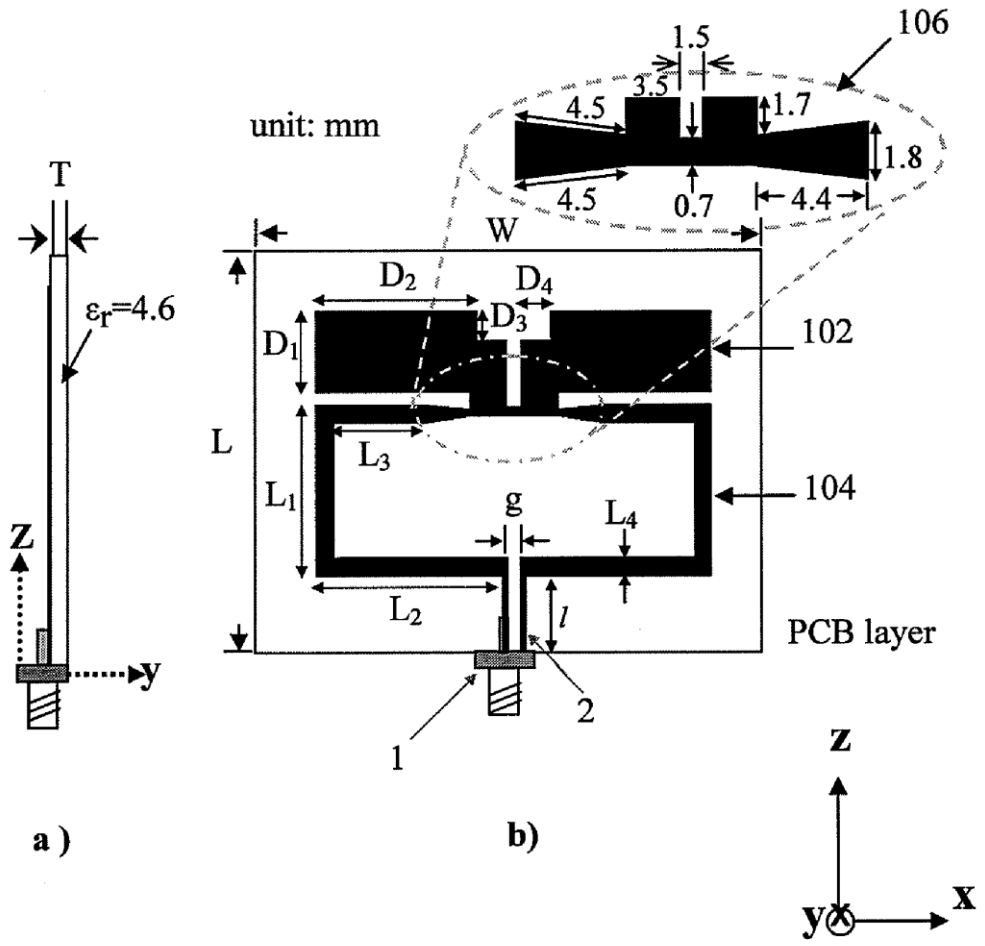
Publication Classification

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

(52) **U.S. Cl.** **343/730**

(57) **ABSTRACT**

A unidirectional wireless antenna with a front-to-back ratio of 20 dB comprises a loop antenna and a dipole antenna interconnected by a metallic element and printed on a printed circuit board. The antenna is small in size but provides good unidirectional transmission.



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(19) **United States**

(12) **Patent Application Publication**

(10) **Pub. No.: US 2010/0103062 A1**

(43) **Pub. Date: Apr. 29, 2010**

Chang et al.

(54) **SLOT ANTENNA**

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(21) Appl. No.: **12/548,441**

(22) Filed: **Aug. 27, 2009**

(30) **Foreign Application Priority Data**

Oct. 28, 2008 (TW) 097141335

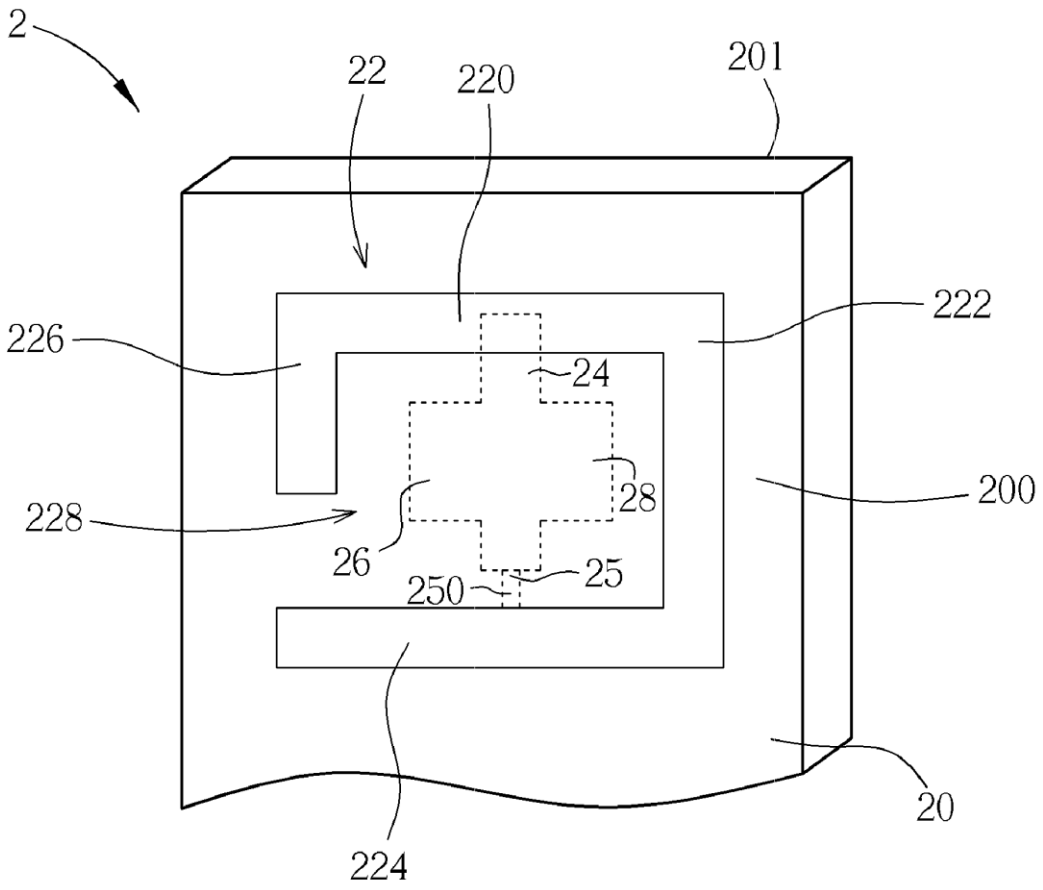
Publication Classification

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

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

(57) **ABSTRACT**

A slot antenna includes a substrate, a radiator, a signal-feeding segment, a signal-feeding end, a first extension section and a second extension section. The substrate includes a first plane and a second plane. The radiator is set on the first plane of the substrate, and includes a slot. The signal-feeding segment is set in a position on the second plane of the substrate corresponding to the slot. The signal-feeding end is electrically connected to the signal-feeding segment, and is utilized for transmitting signals. The first extension section is set on a first side of the signal-feeding segment on the second plane of the substrate, and is utilized for increasing a bandwidth of the slot antenna. The second extension section is set on a second side of the signal-feeding segment on the second plane of the substrate, and is utilized for increasing the bandwidth of the slot antenna.



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(19) **United States**

(12) **Patent Application Publication**

CHIANG

(10) **Pub. No.: US 2010/0103063 A1**

(43) **Pub. Date: Apr. 29, 2010**

(54) **ANTENNA**

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(21) Appl. No.: **12/649,140**

(22) Filed: **Dec. 29, 2009**

Related U.S. Application Data

(63) Continuation of application No. 12/172,879, filed on Jul. 14, 2008, now Pat. No. 7,667,662.

(30) **Foreign Application Priority Data**

Jan. 31, 2008 (TW) TW97202097

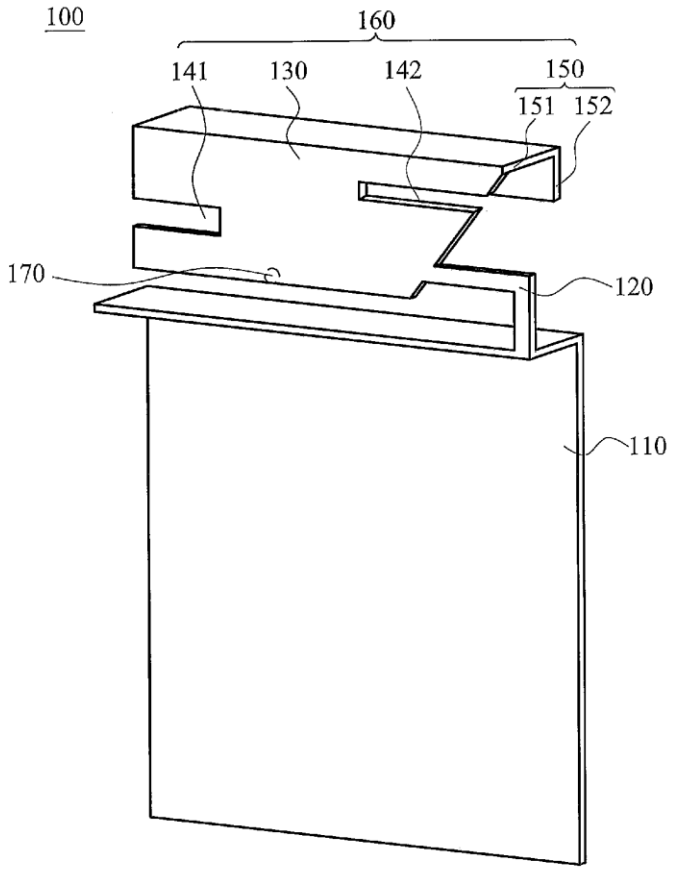
Publication Classification

(51) **Int. Cl.**
H01Q 13/10 (2006.01)
H01Q 1/36 (2006.01)

(52) **U.S. Cl.** ..... **343/770**; 343/700 MS; 343/767

(57) **ABSTRACT**

An antenna is provided. The antenna has a ground element, a radiator and a conductive element. The radiator has a body, wherein the body has a first edge, a second edge, a third edge and a fourth edge, and the first edge is parallel to the third edge, a length of the first edge is shorter than a length of the third edge, the first edge is close to the ground element, the second edge connects the first edge and the third edge, a fourth edge connects the first edge and the third edge, and a first slot is formed on the radiator. The second edge and the fourth edge extend separately from the first edge to the third edge. The conductive element connects the ground element and the radiator.



US 20100103064A1

(19) **United States**

(12) **Patent Application Publication**

Yang et al.

(10) **Pub. No.: US 2010/0103064 A1**

(43) **Pub. Date: Apr. 29, 2010**

(54) **PARASITIC DIPOLE ASSISTED WLAN ANTENNA**

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(21) Appl. No.: **12/256,627**

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

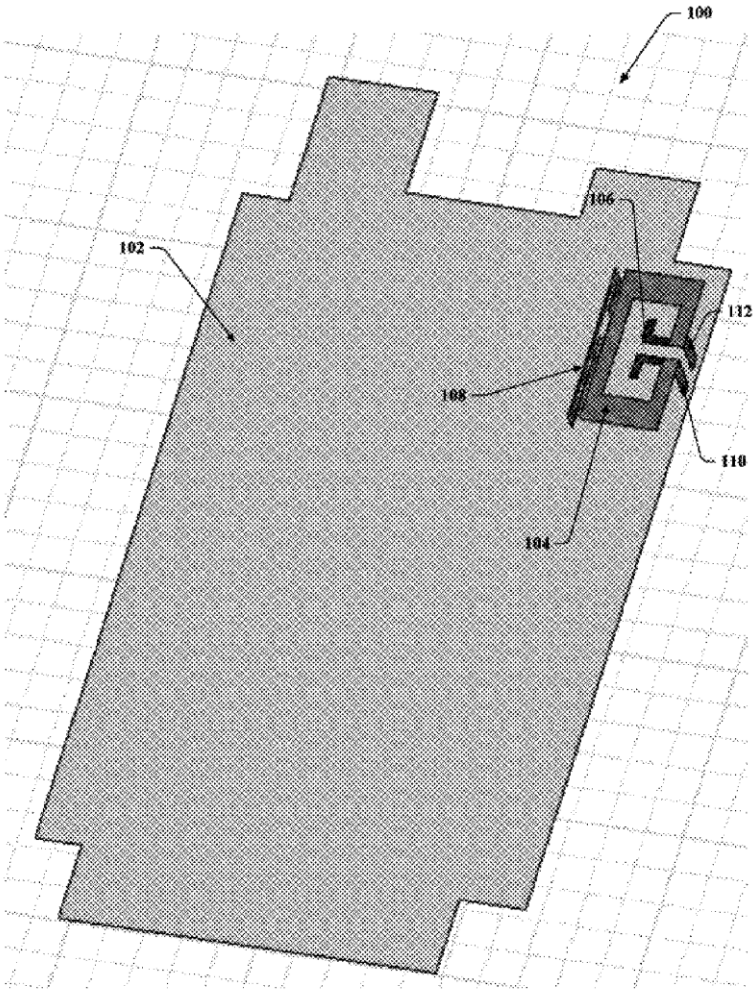
Publication Classification

(51) **Int. Cl.**
H01Q 9/16 (2006.01)

(52) **U.S. Cl.** **343/793**; 29/600

(57) **ABSTRACT**

A parasitic dipole assisted WLAN antenna for creating a second resonance in the A band and providing greater bandwidth usage to a mobile computing or communication device. A secondary B/G band monopole antenna is connected to the A band antenna at the point of maximum impedance of the A band providing minimal interference between the two bands. The dipole structure antennas are connected at the A band loop antenna feed pin and ground pin.



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(19) **United States**

(12) **Patent Application Publication**

Zhang

(10) **Pub. No.: US 2010/0103067 A1**

(43) **Pub. Date: Apr. 29, 2010**

(54) **ANTENNA DEVICE**

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(21) Appl. No.: **12/588,224**

(22) Filed: **Oct. 8, 2009**

Related U.S. Application Data

(62) Division of application No. 12/010,156, filed on Jan. 22, 2008, now Pat. No. 7,642,965, which is a division of application No. 11/131,186, filed on May 18, 2005, now Pat. No. 7,443,345.

Publication Classification

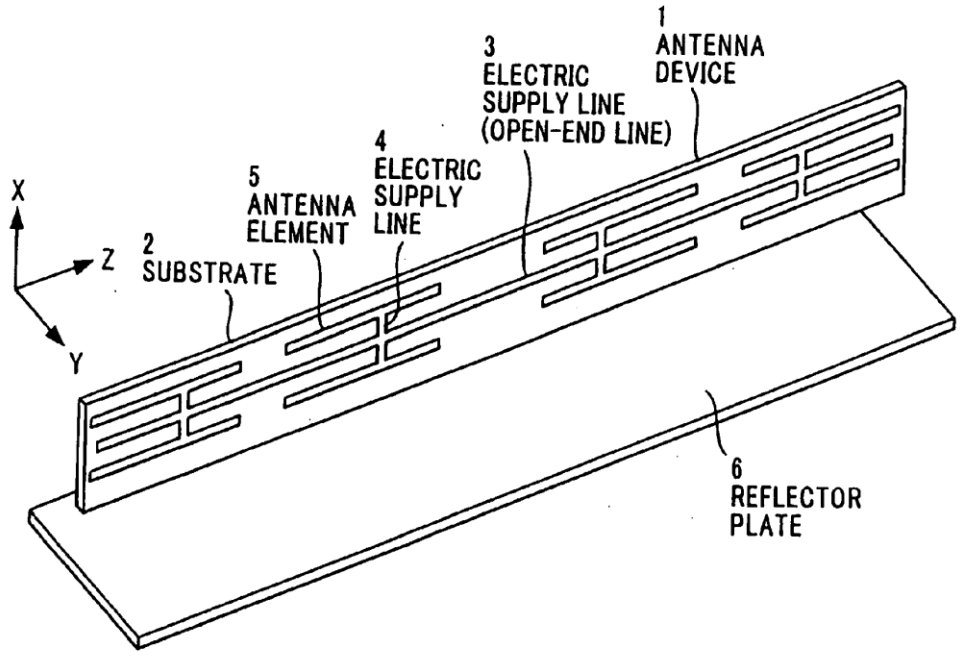
(51) **Int. Cl.**

H01Q 19/10	(2006.01)
H01Q 1/38	(2006.01)
H01Q 21/00	(2006.01)

(52) **U.S. Cl.** ..... **343/835**; 343/700 MS; 343/839

(57) **ABSTRACT**

An antenna device includes a dielectric substrate, an electric supply line that includes a microstrip line and is formed on the dielectric substrate, an antenna element that includes a microstrip line and is formed on the dielectric substrate, and a reflector plate disposed on the dielectric substrate at a predetermined angle of inclination. The reflector plate is allowed to move relative to the dielectric substrate while keeping the predetermined angle of inclination.



US 20100103068A1

(19) **United States**

(12) **Patent Application Publication**

(10) **Pub. No.: US 2010/0103068 A1**

(43) **Pub. Date: Apr. 29, 2010**

Chen et al.

(54) **ANTENNA STRUCTURE FOR A MOBILE PHONE**

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(21) Appl. No.: **12/289,486**

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

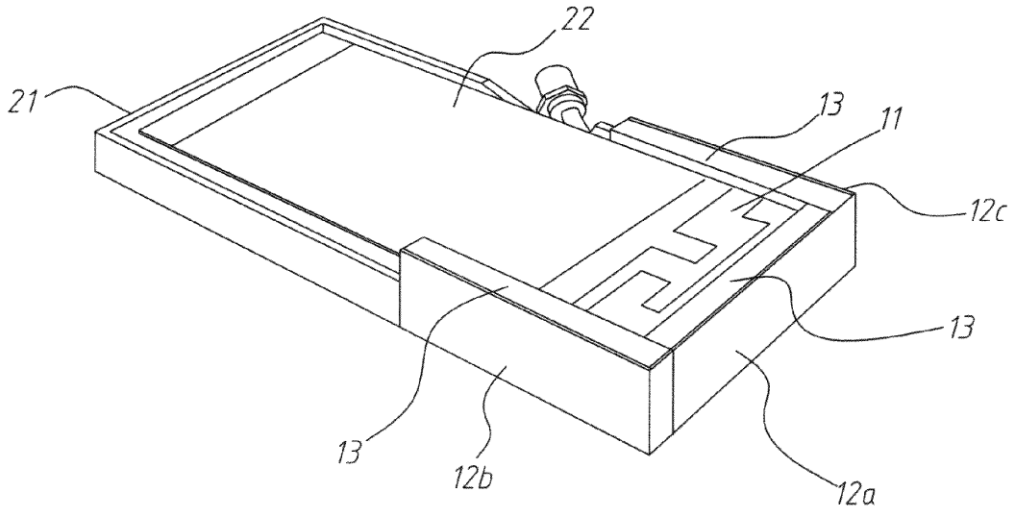
Publication Classification

(51) **Int. Cl.**
H01Q 1/52 (2006.01)

(52) **U.S. Cl.** **343/841**

(57) **ABSTRACT**

An antenna structure for a mobile phone to improve its hearing aid compatibility (HAC) character by metal obscuring, the antenna structure mainly is composed of an antenna base board and a copper foil; the antenna base board is provided in a housing of the mobile phone near a sound outputting hole, and a metallic thin layer is made in the housing of the mobile phone in corresponding by position with the antenna base board, the ground surface between the metallic thin layer and a circuit board in the housing of the mobile phone will form an electrically conductive connection. With this structure, distribution of the strength of the electric field of the antenna structure will be improved; thereby the test results for HAC near the sound outputting hole can be evidently improved.



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(19) **United States**

(12) **Patent Application Publication**

(10) **Pub. No.: US 2010/0103069 A1**

(43) **Pub. Date: Apr. 29, 2010**

WANG et al.

(54) **WIDE-BAND PLANAR ANTENNA**

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(21) Appl. No.: **12/567,417**

(22) Filed: **Sep. 25, 2009**

(30) **Foreign Application Priority Data**

Oct. 28, 2008 (TW) 097141365

Publication Classification

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

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

(57) **ABSTRACT**

The invention relates to a wide-band planar antenna. The wide-band planar antenna includes a substrate, a first radiator, a second radiator, a third radiator, a ground, and a signal source. The first radiator, the second radiator, and the third radiator are designed in a manner that the antenna of the invention can be applied to WiMAX communication devices. Besides, the wide-band planar antenna of the invention is more efficient than a general wide-band antenna and saves a significant amount of electrical power, and therefore, the antenna is particularly suitable for portable communicational devices.