



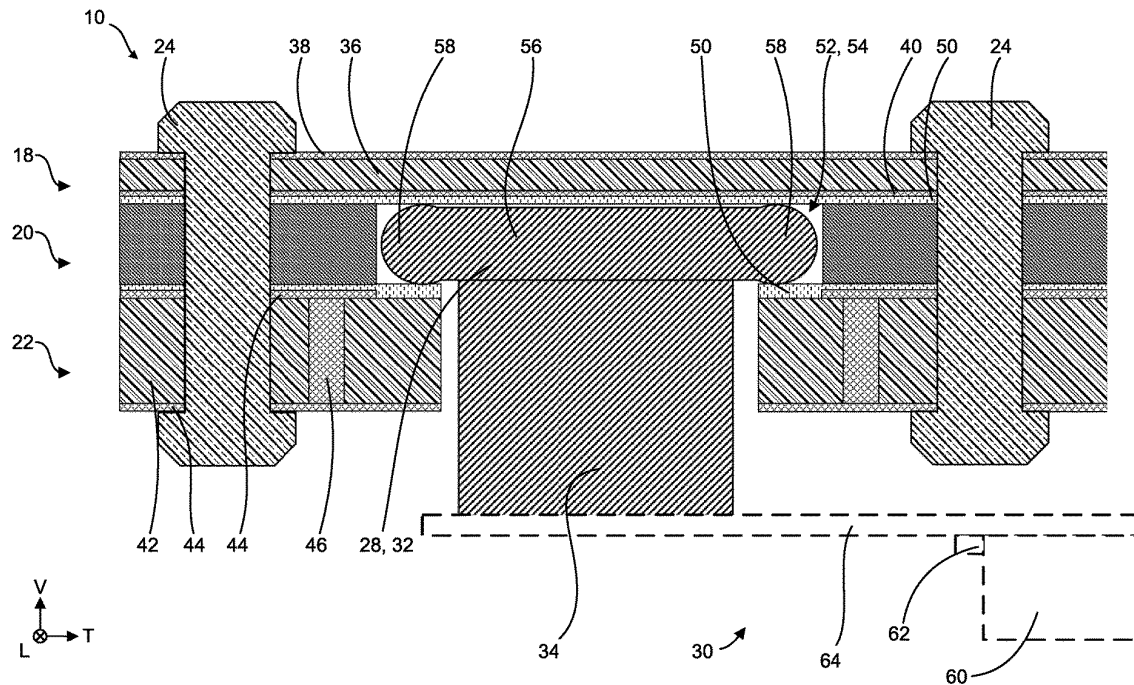
US 20260081352A1

(19) **United States**(12) **Patent Application Publication**
Grävendieck et al.(10) **Pub. No.: US 2026/0081352 A1**(43) **Pub. Date: Mar. 19, 2026**(54) **ANTENNA**(71) Applicant: **Telefonaktiebolaget LM Ericsson**
(publ), Stockholm (SE)(72) Inventors: **Jan Grävendieck**, Rosenheim (DE);
Susanne Küschner, Rosenheim (DE);
Hubert Polster, Kirchheim b. München
(DE); **Peter Feistl**, Aschau (DE)(21) Appl. No.: **19/110,085**(22) PCT Filed: **Oct. 25, 2022**(86) PCT No.: **PCT/EP2022/079813**

§ 371 (c)(1),

(2) Date: **Mar. 9, 2025****Publication Classification**(51) **Int. Cl.**
H01Q 3/32 (2006.01)
H01Q 1/24 (2006.01)**H01Q 1/52** (2006.01)**H01Q 19/10** (2006.01)(52) **U.S. Cl.**CPC **H01Q 3/32** (2013.01); **H01Q 1/246**
(2013.01); **H01Q 1/526** (2013.01); **H01Q**
19/10 (2013.01)(57) **ABSTRACT**

An antenna, in particular for a mobile communication cell site, has radiators, a reflector, a first layer, a second layer, a third layer, and at least one phase shifter with at least one delay line and a shifting device. The radiators are mounted at the front side of the first layer, and the reflector for the radiators is provided by one of the layers. The second layer comprises a cutout extending vertically through the second layer, the cutout being closed to the front by the first layer and to the rear by the third layer forming a cavity. The delay line is arranged within a vertical projection of the cavity, and the shifting device comprises a shifting portion arranged in the cavity covering the delay line at least partly.





(12) **Patent Application Publication**
ROH

(10) **Pub. No.:** US 2026/0088486 A1
(43) **Pub. Date:** Mar. 26, 2026

(52) U.S. Cl.
CPC *H01Q 1/2283* (2013.01); *H01Q 1/243*
(2013.01); *H01Q 7/00* (2013.01)

(57) **ABSTRACT**

Antenna apparatus and electronic device including the same are provided. The antenna apparatus includes a first and second conductive structures adjacent to one another, and a PCB coupled to the first and second conductive structures, on which a matching circuit and an NFC chip are disposed. The PCB includes first and second ground points reactively coupled to respective feeding ends of the matching circuit. The NFC chip includes a first connection terminal and a second connection terminal, which are configured to provide a differential excitation current, the first and second connection terminals are connected to the feeding ends of the matching circuit, and a current corresponding to an NFC frequency is formed along a loop that includes first and second electrical contacts of the first and second conductive structures, respectively.

(21) Appl. No.: 19/054,378

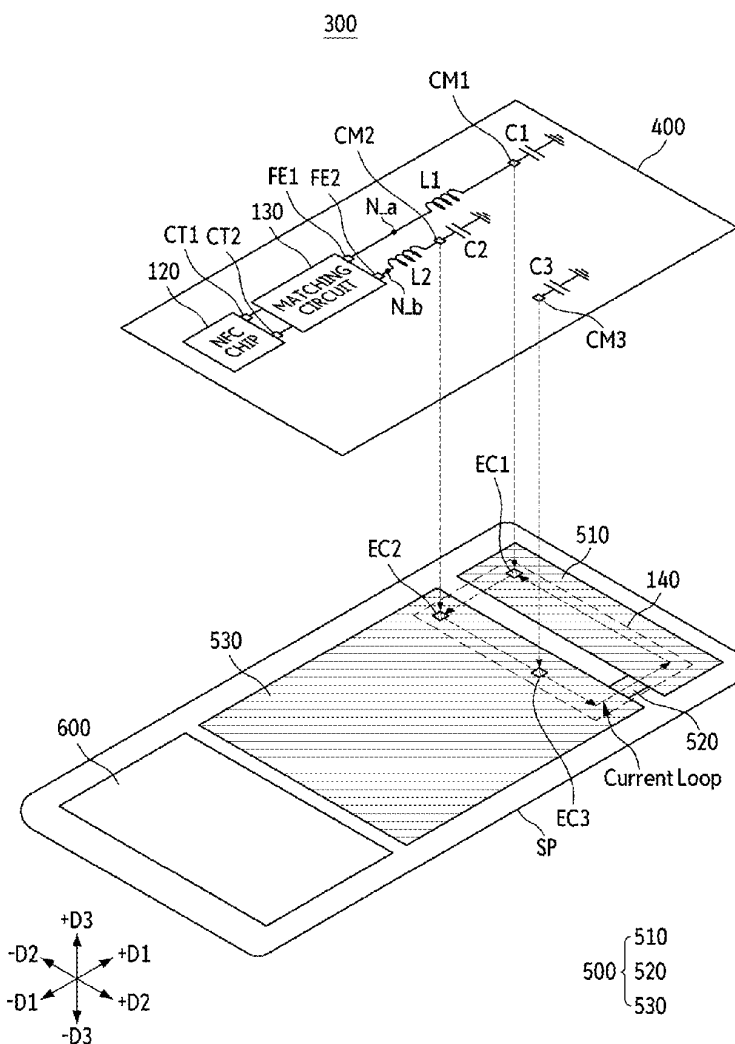
(22) Filed: **Feb. 14, 2025**

(30) **Foreign Application Priority Data**

Sep. 24, 2024 (KR) 10-2024-0129038

Publication Classification

(51) **Int. Cl.**
H01Q 1/22 (2006.01)
H01Q 1/24 (2006.01)
H01Q 7/00 (2006.01)





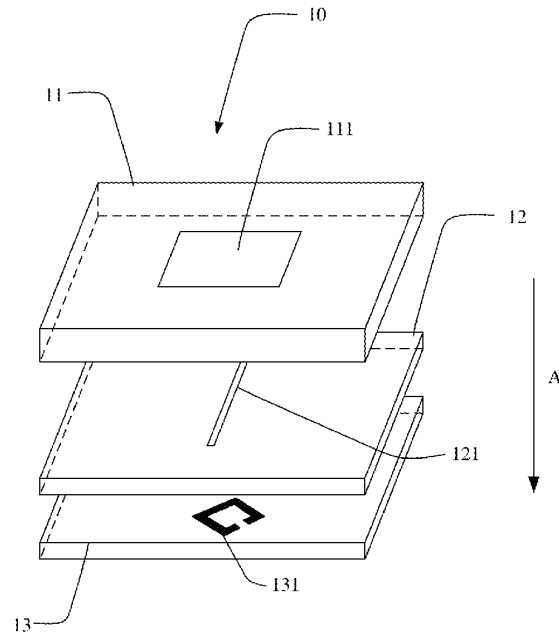
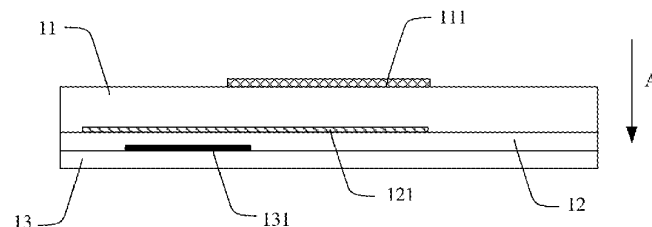
US 20260088502A1

(19) **United States**(12) **Patent Application Publication**
Peng et al.(10) **Pub. No.: US 2026/0088502 A1**(43) **Pub. Date: Mar. 26, 2026**(54) **ANTENNA, ANTENNA MODULE, AND
ELECTRONIC DEVICE**(52) **U.S. Cl.**CPC **H01Q 5/25** (2015.01); **H01Q 1/422**
(2013.01); **H01Q 9/0407** (2013.01)(71) Applicant: **HUAWEI TECHNOLOGIES CO.,
LTD.**, Shenzhen (CN)(72) Inventors: **Jie Peng**, Shanghai (CN); **Huailin
Yuan**, Xi'an (CN); **Wenqi Ding**,
Shenzhen (CN); **Qian Zhou**, Shanghai
(CN); **Laijun Li**, Shenzhen (CN);
Wentao Cao, Xi'an (CN)

(57)

ABSTRACT

An antenna, antenna module, and electronic device. An antenna includes a first dielectric layer, a second dielectric layer, and a third dielectric layer. The second dielectric layer and the third dielectric layer are disposed on a same side of the first dielectric layer. The second dielectric layer and the third dielectric layer are disposed at different layers. A first radiating element is disposed at the first dielectric layer. A feed line is disposed at the second dielectric layer which feeds the first radiating element. A split resonance unit is disposed at the third dielectric layer, and in signal connection with the feed line. The split resonance unit is disposed on an input port of the antenna. In response to the split resonance unit operating on a resonant frequency thereof, the split resonance unit generates a transmission zero near the resonant frequency of the split resonance unit.

(21) Appl. No.: **19/404,484**(22) Filed: **Dec. 1, 2025****Related U.S. Application Data**(63) Continuation of application No. PCT/CN2023/
097949, filed on Jun. 2, 2023.**Publication Classification**(51) **Int. Cl.****H01Q 5/25** (2015.01)**H01Q 1/42** (2006.01)**H01Q 9/04** (2006.01)**FIG. 1**



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(19) **United States**

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

(10) **Pub. No.: US 2026/0088510 A1**

(43) **Pub. Date: Mar. 26, 2026**

(54) **DUAL-BAND ANTENNA**

(71) Applicant: **QUALCOMM Incorporated**, San Diego, CA (US)

(72) Inventors: **Marios PATRIOTIS**, San Diego, CA (US); **Jorge FABREGA SANCHEZ**, San Diego, CA (US)

(21) Appl. No.: **18/893,452**

(22) Filed: **Sep. 23, 2024**

Publication Classification

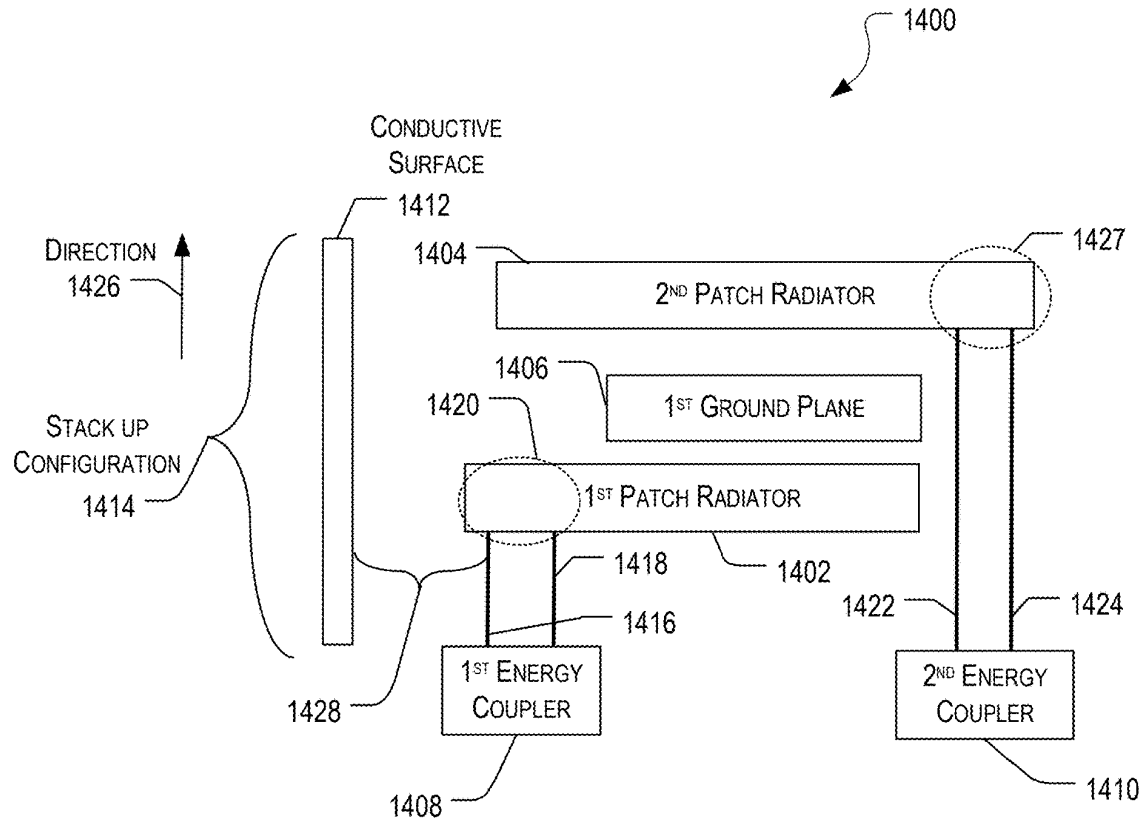
(51) **Int. Cl.**
H01Q 9/04 (2006.01)
H01Q 1/48 (2006.01)
H01Q 5/20 (2015.01)

(52) **U.S. Cl.**

CPC **H01Q 9/0414** (2013.01); **H01Q 1/48** (2013.01); **H01Q 5/20** (2015.01)

(57) **ABSTRACT**

A dual-band antenna includes: first and second overlaying patch radiators configured to operate at first and second frequency bands and first and second polarizations that are orthogonal, wherein the first frequency band is lower than the second frequency band; a first ground plane between the patch radiators; a first energy coupler having a first signal path and a second signal path electrically coupled to a first coupling portion of the first patch radiator; a second energy coupler having a third signal path and a fourth signal path electrically coupled to a second coupling portion of the second patch radiator; and a conductive wall in electrical proximity to the first patch radiator, the first signal path, and the second signal path.





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(19) **United States**

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

(10) **Pub. No.: US 2026/0088512 A1**

(43) **Pub. Date: Mar. 26, 2026**

(54) **ANTENNA APPARATUS AND ANTENNA SYSTEM**

Publication Classification

(71) Applicant: **HUAWEI TECHNOLOGIES CO., LTD.**, Shenzhen (CN)

(51) **Int. Cl.**
H01Q 9/04 (2006.01)
H01Q 1/52 (2006.01)
H01Q 15/24 (2006.01)

(72) Inventors: **Mingchun Tang**, Chongqing (CN); **Kejin Chen**, Shenzhen (CN); **Mei Li**, Chongqing (CN); **Lin Pu**, Chongqing (CN); **Jianing Yang**, Chongqing (CN); **Yi Tan**, Chongqing (CN); **Hai Xin**, Chongqing (CN); **Zhi Yang**, Chongqing (CN)

(52) **U.S. Cl.**
CPC **H01Q 9/0421** (2013.01); **H01Q 1/523** (2013.01); **H01Q 15/24** (2013.01)

(73) Assignee: **HUAWEI TECHNOLOGIES CO., LTD.**, Shenzhen (CN)

(21) Appl. No.: **19/409,669**

(22) Filed: **Dec. 4, 2025**

Related U.S. Application Data

(63) Continuation of application No. PCT/CN2024/092975, filed on May 14, 2024.

Foreign Application Priority Data

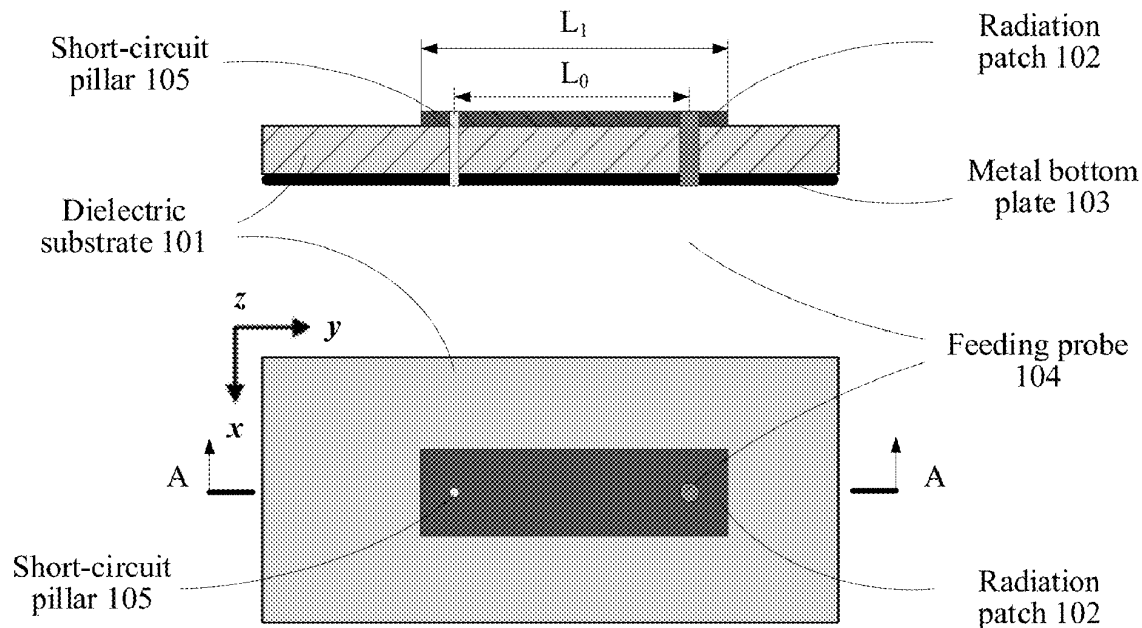
Jul. 12, 2023 (CN) 202310862249.2

(57) **ABSTRACT**

The disclosure provides an apparatus and system with an antenna array. The antenna array includes a plurality of microstrip antenna elements. Each microstrip antenna element includes a dielectric substrate, a radiation patch, a metal bottom plate, a feeding probe, and a short-circuit pillar. The radiation patch is located on an upper surface of the dielectric substrate, the metal bottom plate is located on a lower surface of the dielectric substrate, the feeding probe penetrates the dielectric substrate and connects one end of the radiation patch to the metal bottom plate, and the short-circuit pillar penetrates the dielectric substrate and connects the other end of the radiation patch to the metal bottom plate. The short-circuit pillar is disposed on the radiation patch, and a first-order mode and a second-order mode are simultaneously excited.

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A-A





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

(10) **Pub. No.:** US 2026/0088514 A1
(43) **Pub. Date:** Mar. 26, 2026

Sep. 26, 2024 (CN) 202411358660.7

Publication Classification

(51) **Int. Cl.**
H01Q 15/00 (2006.01)
H01Q 3/30 (2006.01)
H01Q 5/307 (2015.01)

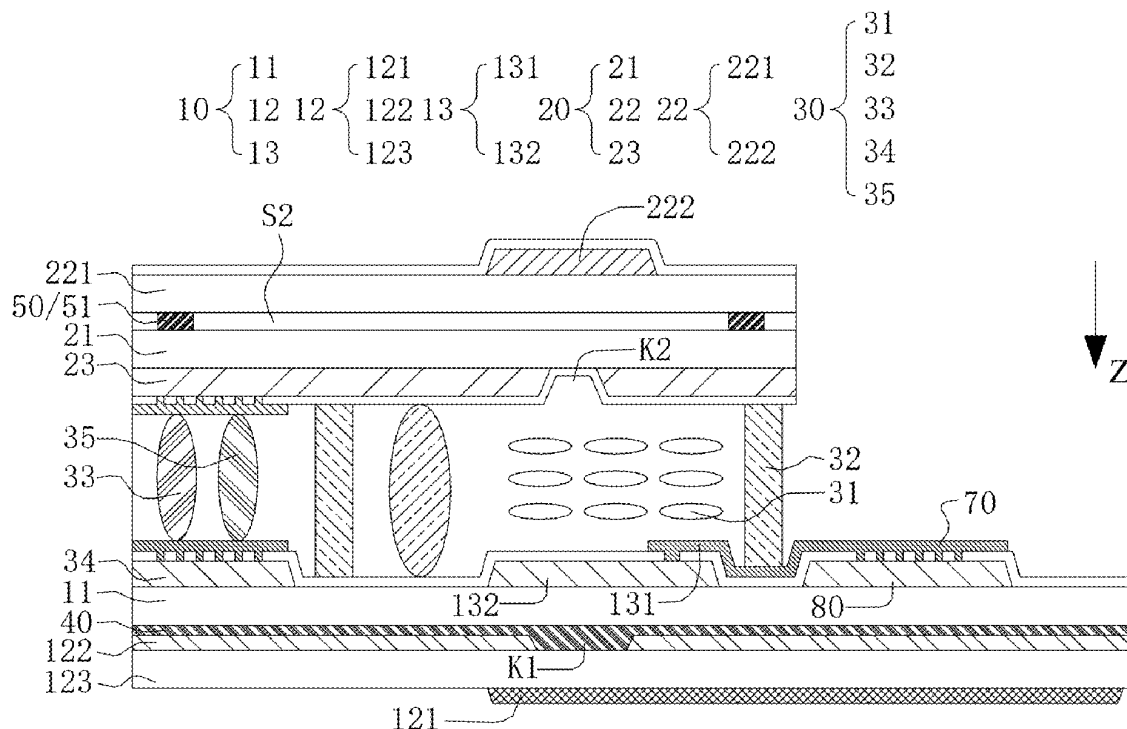
(52) **U.S. Cl.**
CPC *H01Q 15/0086* (2013.01); *H01Q 3/30*
(2013.01); *H01Q 5/307* (2015.01)

(57) **ABSTRACT**

The present application relates to an antenna unit, an antenna apparatus and an electronic device. The antenna unit includes a first substrate, a second substrate and a liquid crystal layer. The first substrate includes a first base, a feeding unit and a first electrode. The feeding unit and the first electrode are disposed at two opposite sides of the first base, and along a direction perpendicular to a plane where the first substrate is located, the feeding unit at least partially overlaps the first electrode. The second substrate includes a second base, a radiation unit and a second electrode, the second electrode is located at a side of the second base facing the first substrate, the second electrode is electrically connected to a ground signal end, the radiation unit is disposed on the second base, and the radiation unit is insulated from the second electrode.

(21) Appl. No.: 19/014,266

(22) Filed: **Jan. 9, 2025**





US 20260088517 A1

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

(10) **Pub. No.:** **US 2026/0088517 A1**
(43) **Pub. Date:** **Mar. 26, 2026**

(54) **ANTENNA DEVICE WITH ADJACENT RADIATING PORTIONS FORMED ON A CONDUCTIVE LAYER**

(71) Applicant: **MEDIATEK INC.**, Hsinchu City (TW)

(72) Inventor: **Chung-Hsin Chiang**, Hsinchu City (TW)

(73) Assignee: **MEDIATEK INC.**, Hsinchu City (TW)

(21) Appl. No.: **19/324,176**

(22) Filed: **Sep. 10, 2025**

Related U.S. Application Data

(60) Provisional application No. 63/698,094, filed on Sep. 24, 2024.

Publication Classification

(51) **Int. Cl.**

H01Q 21/06 (2006.01)

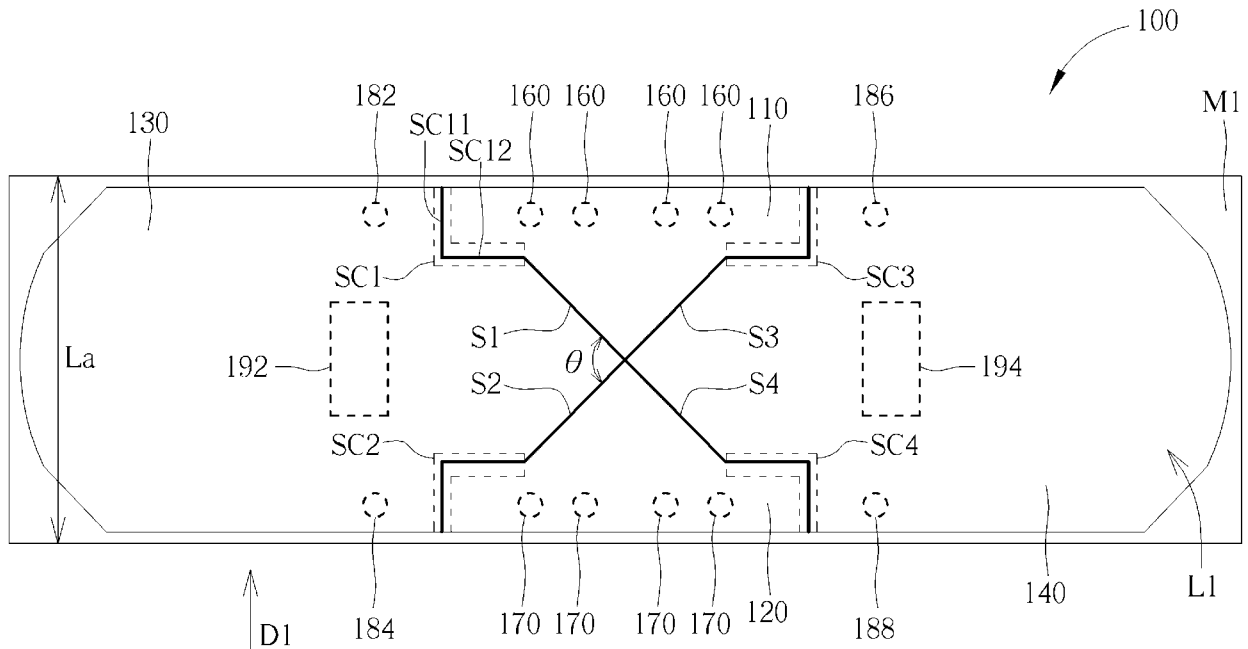
(52) **U.S. Cl.**

CPC **H01Q 21/064** (2013.01)

(57)

ABSTRACT

An antenna device may include a first conductive portion, a second conductive portion, a first radiating portion, and a second radiating portion. The first conductive portion is formed at an upper region of a first conductive layer. The second conductive portion is formed at a lower region of the first conductive layer. The first radiating portion is formed at a left region of the first conductive layer. The second radiating portion is formed at a right region of the first conductive layer. The first conductive layer has a first slot formed between the first conductive portion and the first radiating portion, and a second slot formed between the second conductive portion and the first radiating portion.





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(19) **United States**

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

(10) **Pub. No.: US 2026/0094762 A1**

(43) **Pub. Date: Apr. 2, 2026**

(54) **MAGNETIC DATA INTERFACE**

H02J 50/10 (2016.01)

H02J 50/80 (2016.01)

(71) Applicant: **Apple Inc.**, Cupertino, CA (US)

(52) **U.S. Cl.**

CPC **H01F 38/14** (2013.01); **G06F 1/1698**
(2013.01); **H02J 50/10** (2016.02); **H02J 50/80**
(2016.02); **H01F 2038/143** (2013.01)

(72) Inventors: **Grant S. Haug**, Mountain View, CA (US); **Jorge L. Rivera Espinoza**, Los Gatos, CA (US); **Xiaofang Mu**, San Jose, CA (US); **Behzad Tavassoli Hozouri**, Sunnvale, CA (US); **Xiaojie Fu**, San Jose, CA (US)

(57)

ABSTRACT

(73) Assignee: **Apple Inc.**, Cupertino, CA (US)

(21) Appl. No.: **19/340,434**

(22) Filed: **Sep. 25, 2025**

Related U.S. Application Data

(60) Provisional application No. 63/700,135, filed on Sep. 27, 2024.

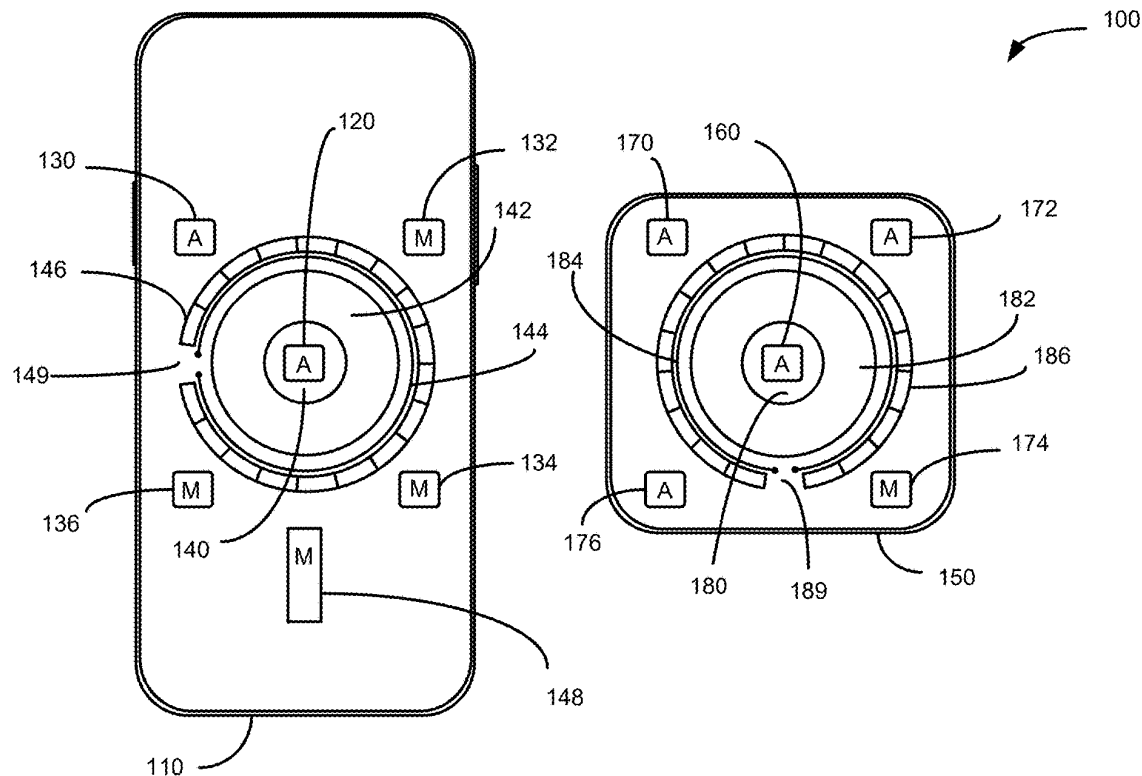
Publication Classification

(51) **Int. Cl.**

H01F 38/14 (2006.01)

G06F 1/16 (2006.01)

Circuits, methods, and apparatus for interfaces for electronic devices that can support wireless communications. One example can provide electronic devices and corresponding charging devices having interfaces that include one or more antennas. These interfaces can further include one or more magnets. The antennas in the electronic devices and charging devices can be aligned with each other when the one or more magnets in the electronic device are attracted to and aligned with the corresponding one or more magnets in the charging device. These interfaces can further include charging coils for transferring power from a charging device to an electronic device.





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(19) **United States**(12) **Patent Application Publication**
YAO et al.(10) **Pub. No.: US 2026/0094961 A1**(43) **Pub. Date: Apr. 2, 2026**(54) **ANTENNA ARRANGEMENT****Publication Classification**(71) Applicant: **WNC Corporation**, Hsinchu (TW)(51) **Int. Cl.****H01Q 1/22** (2006.01)**H01Q 7/00** (2006.01)**H01Q 9/04** (2006.01)(72) Inventors: **De Shao YAO**, Hsinchu (TW);
Chung-Che LIEN, Hsinchu (TW);
Chia-Hao CHANG, Hsinchu (TW);
Chih Feng TAI, Hsinchu (TW)(52) **U.S. Cl.**CPC **H01Q 1/2266** (2013.01); **H01Q 7/00**
(2013.01); **H01Q 9/0421** (2013.01)(21) Appl. No.: **19/339,393**

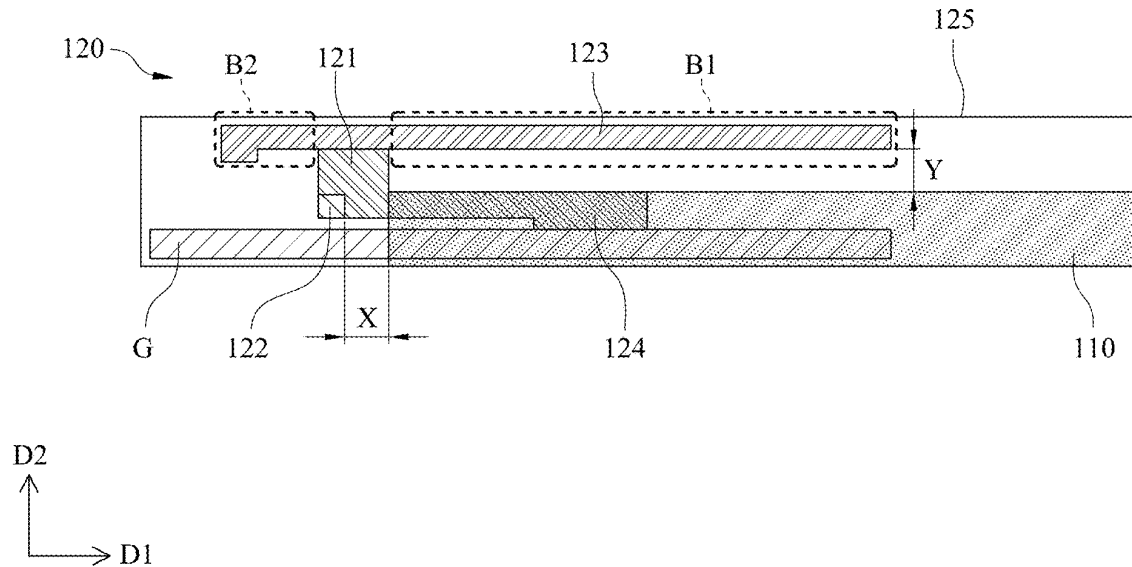
(57)

ABSTRACT(22) Filed: **Sep. 25, 2025**

An antenna arrangement includes an image sensing module and an antenna module. An orthogonal projection of the antenna module partially overlaps the image sensing module. The antenna module includes a first radiating part and a feeding part. The feeding part is disposed on the first radiating part, with a first distance between the feeding part and the image sensing module.

(30) **Foreign Application Priority Data**

Sep. 27, 2024 (TW) 113137051





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

(10) **Pub. No.: US 2026/0094965 A1**
(43) **Pub. Date: Apr. 2, 2026**

Publication Classification

(51) **Int. Cl.**
H01Q 5/20 (2015.01)
H01Q 1/24 (2006.01)

(52) U.S. Cl.
CPC *H01Q 5/20* (2015.01); *H01Q 1/243*
(2013.01)

(57) **ABSTRACT**

An electronic device includes: a housing including a conductive portion including at least one opening; an antenna module including a substrate including a first substrate surface, and a plurality of antenna elements on the substrate to form a beam pattern, wherein the first substrate surface of the substrate faces the conductive portion so that a portion of the beam pattern formed by the plurality of antenna elements extends in a direction that passes through the at least one opening; a first wireless communication circuit to transmit or receive a wireless signal in at least one first frequency band through the antenna module; and a second wireless communication circuit to transmit or receive a wireless signal in at least one second frequency band through the conductive portion, wherein the first substrate surface of the substrate and an inner surface of the conductive portion are not parallel to each other.

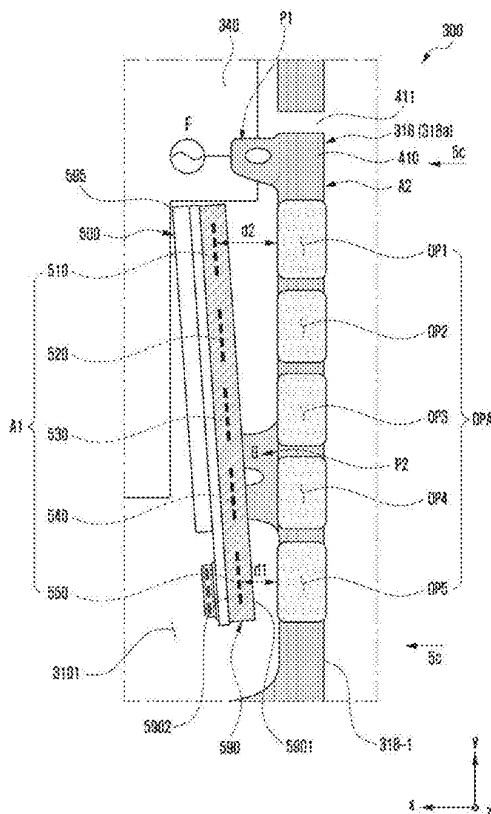
(22) Filed: **Oct. 21, 2025**

Related U.S. Application Data

(63) Continuation of application No. PCT/KR2025/015459, filed on Sep. 30, 2025.

(30) **Foreign Application Priority Data**

Sep. 30, 2024 (KR) 10-2024-0132714
Nov. 14, 2024 (KR) 10-2024-0161838





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(19) **United States**

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

(10) **Pub. No.: US 2026/0106367 A1**

(43) **Pub. Date: Apr. 16, 2026**

(54) **MULTI-FOLDABLE ELECTRONIC DEVICE INCLUDING ANTENNA**

Publication Classification

(71) Applicant: **Samsung Electronics Co., Ltd.**,
Suwon-si (KR)

(51) **Int. Cl.**
H01Q 1/24 (2006.01)
H01Q 1/38 (2006.01)
H04M 1/02 (2006.01)

(72) Inventors: **Kyungil SEO**, Suwon-si (KR);
Kyoungmok KIM, Suwon-si (KR);
Jiho KIM, Suwon-si (KR); **Haecheon KIM**, Suwon-si (KR); **Hojung NAM**, Suwon-si (KR); **Kyungmoon SEOL**, Suwon-si (KR); **Kyihyun JANG**, Suwon-si (KR); **Huiwon CHO**, Suwon-si (KR); **Soonho HWANG**, Suwon-si (KR)

(52) **U.S. Cl.**
CPC **H01Q 1/243** (2013.01); **H01Q 1/38** (2013.01); **H04M 1/0216** (2013.01)

(57) **ABSTRACT**

An electronic device is provided. The electronic device includes a foldable housing including a first housing part, a second housing part, and a third housing part, wherein the first housing part includes a first conductive portion configured to operate as an antenna radiator of the electronic device, and a second conductive portion spaced apart from the first conductive portion, wherein the second housing part includes a third conductive portion, and a fourth conductive portion spaced apart from the third conductive portion, wherein in a state in which a foldable housing is folded, the first conductive portion of the first housing part at least partially faces the third conductive portion of the second housing part, wherein the electronic device includes switching circuitry electrically connected to the third conductive portion and the fourth conductive portion of the second housing part, wherein, while the first conductive portion of the first housing part operates as the antenna radiator in the folded state, the switching circuitry is configured to filter a signal having a frequency corresponding to an operating frequency of the antenna radiator.

(21) Appl. No.: **19/283,860**

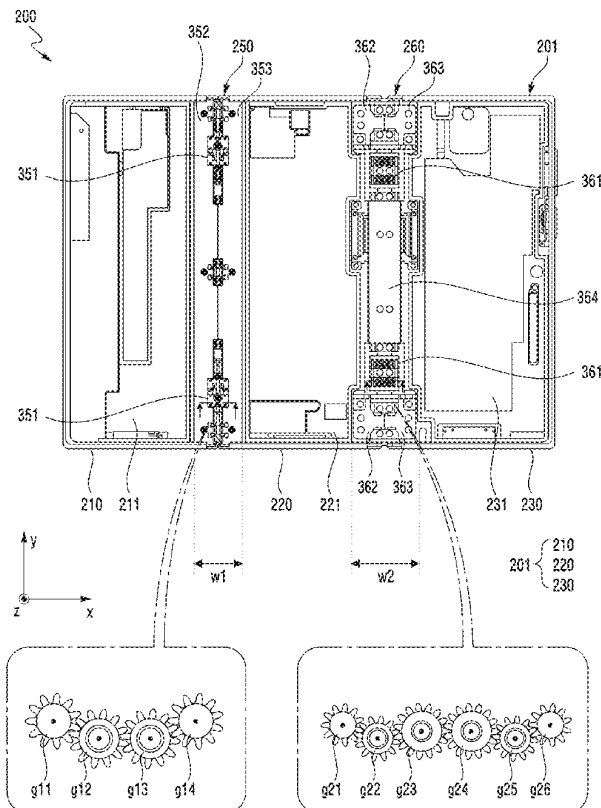
(22) Filed: **Jul. 29, 2025**

Related U.S. Application Data

(63) Continuation of application No. PCT/KR2025/009906, filed on Jul. 8, 2025.

(30) **Foreign Application Priority Data**

Oct. 15, 2024 (KR) 10-2024-0140774
Mar. 24, 2025 (KR) 10-2025-0037587





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(19) **United States**

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

(10) **Pub. No.: US 2026/0106369 A1**

(43) **Pub. Date: Apr. 16, 2026**

(54) **ANTENNA DEVICE AND ELECTRONIC
DEVICE INCLUDING THE SAME**

(52) **U.S. Cl.**
CPC **H01Q 1/523** (2013.01); **H01Q 1/526**
(2013.01); **H01Q 5/30** (2015.01)

(71) Applicant: **Samsung Electronics Co., Ltd.**,
Suwon-si (KR)

(72) Inventors: **Doo Hyun YANG**, Suwon-si (KR);
Woncheol LEE, Suwon-si (KR);
Youngki LEE, Suwon-si (KR); **Hyung
Sun LIM**, Suwon-si (KR)

(73) Assignee: **Samsung Electronics Co., Ltd.**,
Suwon-si (KR)

(21) Appl. No.: **19/284,131**

(22) Filed: **Jul. 29, 2025**

(30) **Foreign Application Priority Data**

Oct. 14, 2024 (KR) 10-2024-0139269

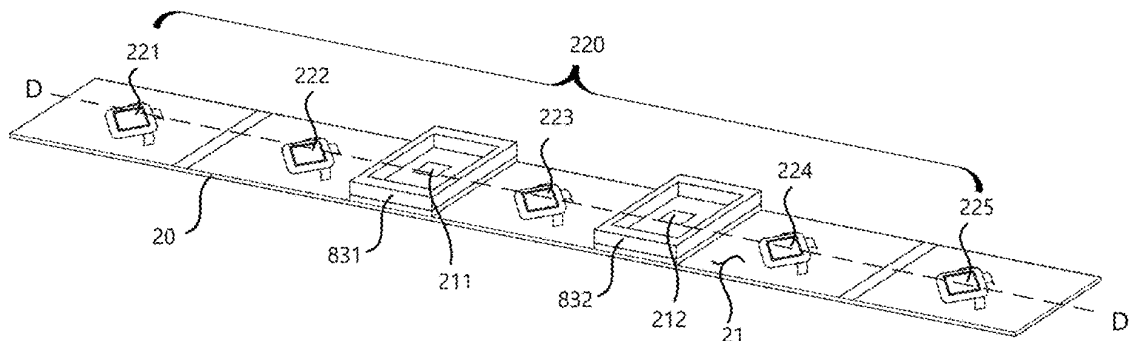
Publication Classification

(51) **Int. Cl.**
H01Q 1/52 (2006.01)
H01Q 5/30 (2015.01)

(57) **ABSTRACT**

Disclosed are an antenna device and an electronic device including the same. The antenna device includes a printed circuit board, a first antenna on a first surface of the printed circuit board, the first antenna including a first sensing antenna and a second sensing antenna, a second antenna on the first surface, the second antenna including a plurality of antenna elements, a first sensing shield structure forming a first groove, the first sensing antenna being within the first groove, and processing circuitry electrically connected to the first antenna and the second antenna, the processing circuitry being configured to transmit a first signal of a first frequency band by supplying power to the first sensing antenna and the second sensing antenna, and transmit a second signal of a second frequency band by supplying power to the plurality of antenna elements, the second frequency band being different from the first frequency band.

100C





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(19) **United States**

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

(10) **Pub. No.: US 2026/0106375 A1**

(43) **Pub. Date: Apr. 16, 2026**

(54) **ELECTRONIC DEVICE INCLUDING ANTENNA**

Publication Classification

(71) Applicant: **Samsung Electronics Co., Ltd.**,
Suwon-si (KR)

(51) **Int. Cl.**
H01Q 5/321 (2015.01)
H01Q 1/24 (2006.01)
H01Q 5/20 (2015.01)

(72) Inventors: **Jaehyung KIM**, Suwon-si (KR);
Cheolhong Son, Suwon-si (KR);
Taegyu Kim, Suwon-si (KR);
Kwangseo Kim, Suwon-si (KR);
Himchan Yun, Suwon-si (KR); **Jesun Moon**, Suwon-si (KR); **Minseok Park**, Suwon-si (KR); **Jungkyu Lee**, Suwon-si (KR)

(52) **U.S. Cl.**
CPC **H01Q 5/321** (2015.01); **H01Q 1/241** (2013.01); **H01Q 5/20** (2015.01)

(73) Assignee: **Samsung Electronics Co., Ltd.**,
Suwon-si (KR)

(21) Appl. No.: **19/400,262**

(22) Filed: **Nov. 25, 2025**

Related U.S. Application Data

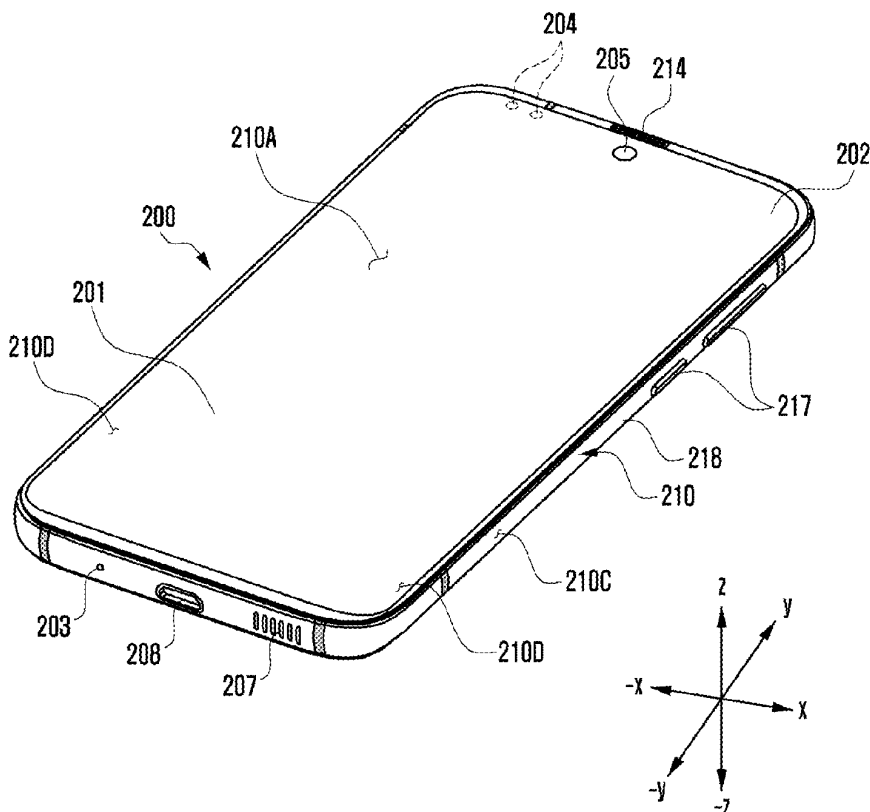
(63) Continuation of application No. PCT/KR2025/015194, filed on Sep. 26, 2025.

Foreign Application Priority Data

Oct. 10, 2024 (KR) 10-2024-0137353
Nov. 12, 2024 (KR) 10-2024-0159973

(57) **ABSTRACT**

An electronic device includes: a substrate including wireless communication circuitry and a ground; and an antenna structure that at least partially overlaps the substrate. The antenna structure includes: a first radiator connected to the wireless communication circuitry through a first point of the substrate; and a second radiator connected to the ground through a second point of the substrate. The first radiator and the second radiator at least partially form a first coupling area. The substrate includes: a first conductive pad connected to the first point; and a second conductive pad connected to the second point. The first conductive pad and the second conductive pad at least partially form a second coupling area. The first coupling area and the second coupling area at least partially overlap. The wireless communication circuitry transmits or receives wireless signals in a plurality of frequency bands through the first radiator and the second radiator.





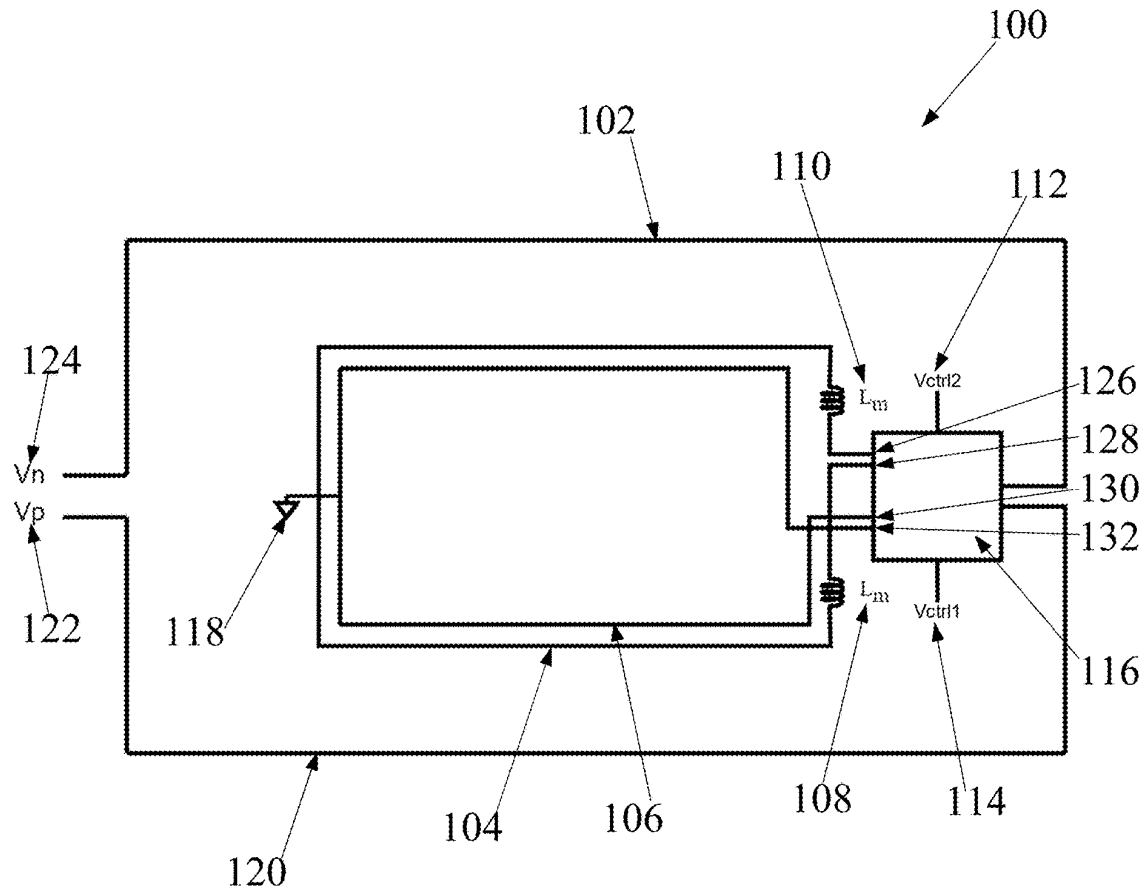
US 20260106376A1

(19) **United States**(12) **Patent Application Publication**
Haslinger et al.(10) **Pub. No.: US 2026/0106376 A1**(43) **Pub. Date: Apr. 16, 2026**(54) **COMMUNICATION ANTENNA**(71) Applicant: **NXP B.V.**, Eindhoven (NL)(72) Inventors: **Dorian Haslinger**, Feldkirchen b. G.
(AT); **Kyriakos Neophytou**, Strovolos
(CY); **Gregor Liebisch**, Graz (AT)(21) Appl. No.: **19/332,157**(22) Filed: **Sep. 18, 2025**(30) **Foreign Application Priority Data**

Oct. 15, 2024 (EP) 24206773.4

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(2016.02)(57) **ABSTRACT**

A communication antenna comprising an inner antenna loop extending within a plane, configured to allow a current to flow along a first inner wire and a second inner wire. The communication antenna also comprises, an outer antenna loop extending around the inner antenna loop within the plane, configured to allow a current to flow along an outer wire. The communication antenna further comprises, a plurality of transistors configured to be controlled by a first control voltage and a second control voltage selectively to switch between, a first state which produces current flow in the first inner wire that is in phase with the current in the outer wire; and a second state which produces current flow in the second inner wire that is out of phase with the current in the outer wire. The plurality of transistors is coupled between the outer antenna loop and the inner antenna loop.





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(54) **COMBINED ANTENNA AND IN-THE-CANAL HEARING AID**

(71) Applicant: **Yeasound (Xiamen) Hearing Technology Co., Ltd.**, Xiamen (CN)

(72) Inventors: **Jianhang Shen**, Xiamen (CN); **Jiaxiang Liao**, Xiamen (CN); **Kaiwen Huang**, Xiamen (CN); **Huahu Wang**, Xiamen (CN)

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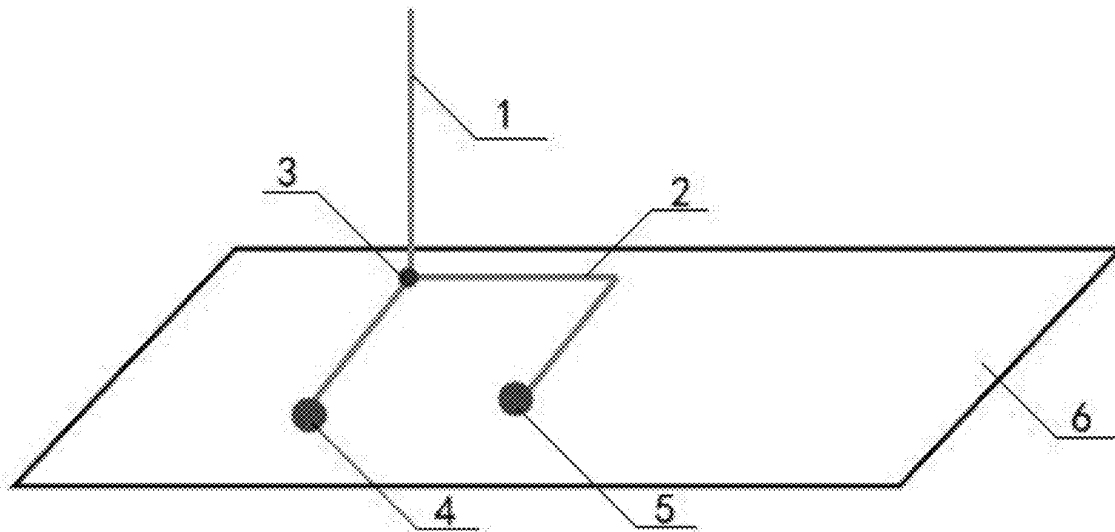
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(57) **ABSTRACT**

A combined antenna and an in-the-canal hearing aid are provided. The combined antenna includes an antenna body and an antenna motherboard, where a signal connection is established between at least one end of the antenna body and the antenna motherboard; the antenna body includes a first antenna and a second antenna; a signal connection is established between the first antenna and the antenna motherboard; and a signal connection is established between the second antenna and the first antenna. The first antenna of the combined antenna is disposed inside a hearing aid body of the in-the-canal hearing aid, and the second antenna of the combined antenna is disposed outside the hearing aid body of the in-the-canal hearing aid, which can improve communication performance of the in-the-canal hearing aid through the combined antenna.





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(54) **ELECTRONIC DEVICE COMPRISING
PLURALITY OF ANTENNA ELEMENTS AND
CONTROL METHOD THEREFOR**

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(71) Applicant: **Samsung Electronics Co., Ltd.**,
Suwon-si (KR)

(72) Inventor: **Seunggil JEON**, Suwon-si (KR)

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(57) **ABSTRACT**

An electronic device is provided. The electronic device includes a substrate including a first surface facing a first direction and a second surface facing a second direction that is opposite to the first direction, and a plurality of antenna elements connected to the substrate, wherein the plurality of antenna elements includes a first antenna element disposed on the first surface of the substrate, a second antenna element spaced apart from the first antenna element by a first separation distance based on a third direction, which is a direction orthogonal to the first direction, and disposed on the first surface of the substrate, and a third antenna element spaced apart from the first antenna element by a second separation distance that is greater than the first separation distance based on the third direction, and electrically separated from the second antenna element.

