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(19) **United States**

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

(10) **Pub. No.: US 2026/0171662 A1**

(43) **Pub. Date: Jun. 18, 2026**

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

Publication Classification

(51) **Int. Cl.**
H01Q 1/48 (2006.01)
H04M 1/02 (2006.01)
(52) **U.S. Cl.**
CPC *H01Q 1/48* (2013.01); *H04M 1/0237*
(2013.01)

(71) Applicant: **SAMSUNG ELECTRONICS CO.,
LTD.**, Suwon-si (KR)

(72) Inventors: **Hyunsuk KIM**, Suwon-si (KR);
Jooyoung KANG, Suwon-si (KR);
Youngchul KIM, Suwon-si (KR);
Hongbum PARK, Suwon-si (KR);
Inkuk YUN, Suwon-si (KR); **Soyoung
LEE**, Suwon-si (KR); **Wonho LEE**,
Suwon-si (KR); **Seokmin JANG**,
Suwon-si (KR)

(57) **ABSTRACT**

This electronic device may include: a first housing including a first antenna and a first side surface; a second housing including a second antenna and a second side surface facing the first side surface and configured to move between a retracted position and an extended position with respect to the first housing portion; and a linear guide including a first guide portion coupled to the first side surface, a second guide portion movably coupled to the first guide portion, the second guide portion being coupled to the second side surface, and a conductive contact portion protruding from the second guide portion, wherein the first side surface includes an inclined region inclined with respect to a movement direction of the second housing, and the conductive contact portion is configured to be electrically connected to the inclined region when the second housing is positioned in a retracted position or an extended position.

(21) Appl. No.: **19/536,687**

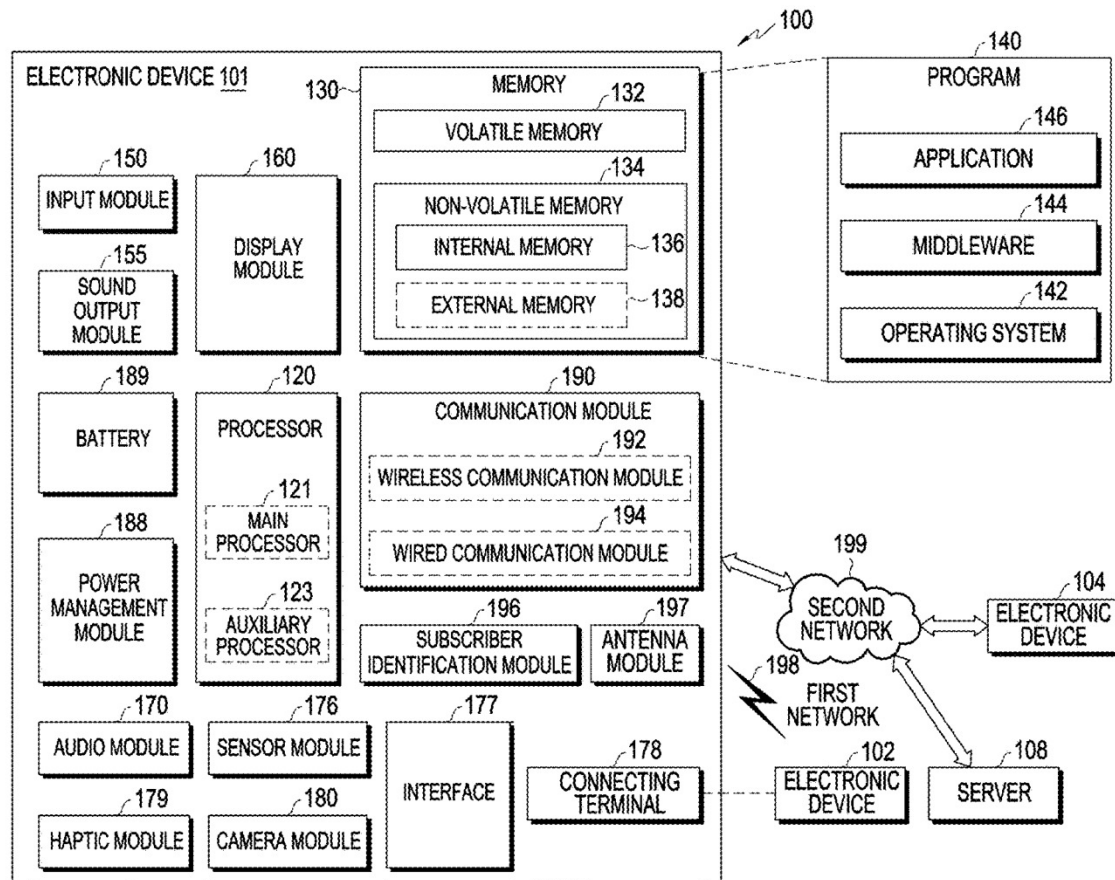
(22) Filed: **Feb. 11, 2026**

Related U.S. Application Data

(63) Continuation of application No. PCT/KR2024/
011674, filed on Aug. 7, 2024.

(30) **Foreign Application Priority Data**

Aug. 21, 2023 (KR) 10-2023-0108977
Aug. 31, 2023 (KR) 10-2023-0115553





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(19) **United States**

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

(10) **Pub. No.: US 2026/0180154 A1**

(43) **Pub. Date: Jun. 25, 2026**

(54) **TERMINAL ANTENNA AND ELECTRONIC
DEVICE**

Publication Classification

(71) Applicant: **HONOR DEVICE CO., LTD.**,
Shenzhen (CN)

(51) **Int. Cl.**
H01Q 1/22 (2006.01)
H01Q 5/30 (2015.01)

(72) Inventors: **Shaofei Xue**, Shenzhen (CN); **Hui Yu**,
Shenzhen (CN); **Yong Wang**, Shenzhen
(CN); **Zengfan Chen**, Shenzhen (CN)

(52) **U.S. Cl.**
CPC **H01Q 1/22** (2013.01); **H01Q 5/30**
(2015.01)

(21) Appl. No.: **19/542,018**

(22) Filed: **Feb. 17, 2026**

Related U.S. Application Data

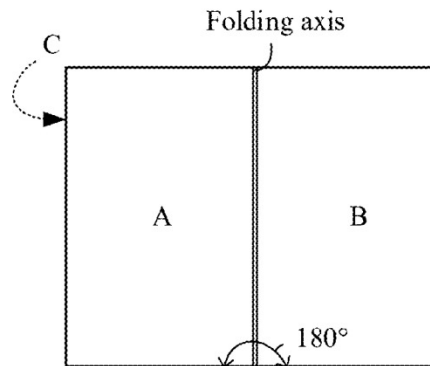
(63) Continuation of application No. PCT/CN2024/
081507, filed on Mar. 13, 2024.

Foreign Application Priority Data

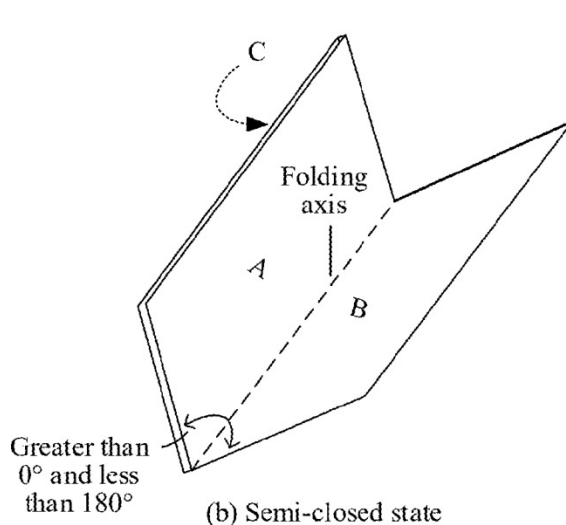
(30) Aug. 30, 2023 (CN) 202311104950.4

(57) **ABSTRACT**

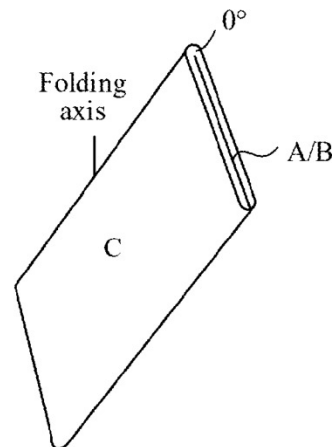
Embodiments of this application disclose a terminal antenna and an electronic device, and relate to the field of antenna technologies. The solution includes: a first radiation part and a second radiation part. An operating frequency band of the first radiation part includes a first frequency band and a second frequency band. The second radiation part includes at least one of the following: at least one first radiation unit and at least one second radiation unit, where a ground point is disposed on the first radiation unit; a length of the first radiation unit is less than a quarter of a wavelength of the second frequency band; the second radiation unit is a suspended radiator; and a length of the second radiation unit is less than a half of the wavelength of the second frequency band.



(a) Unfolded state



(b) Semi-closed state



(c) Closed state



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(19) **United States**

(12) **Patent Application Publication**
BIAN

(10) **Pub. No.: US 2026/0180181 A1**

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(54) **ANTENNA APPARATUS AND ELECTRONIC
DEVICE**

(71) Applicant: **VIVO MOBILE COMMUNICATION
CO., LTD.**, Dongguan (CN)

(72) Inventor: **Jifa BIAN**, Dongguan (CN)

(73) Assignee: **VIVO MOBILE COMMUNICATION
CO., LTD.**, Dongguan (CN)

(21) Appl. No.: **19/537,506**

(22) Filed: **Feb. 12, 2026**

Related U.S. Application Data

(63) Continuation of application No. PCT/CN2024/
112980, filed on Aug. 19, 2024.

(30) **Foreign Application Priority Data**

Aug. 23, 2023 (CN) 202311073527.2

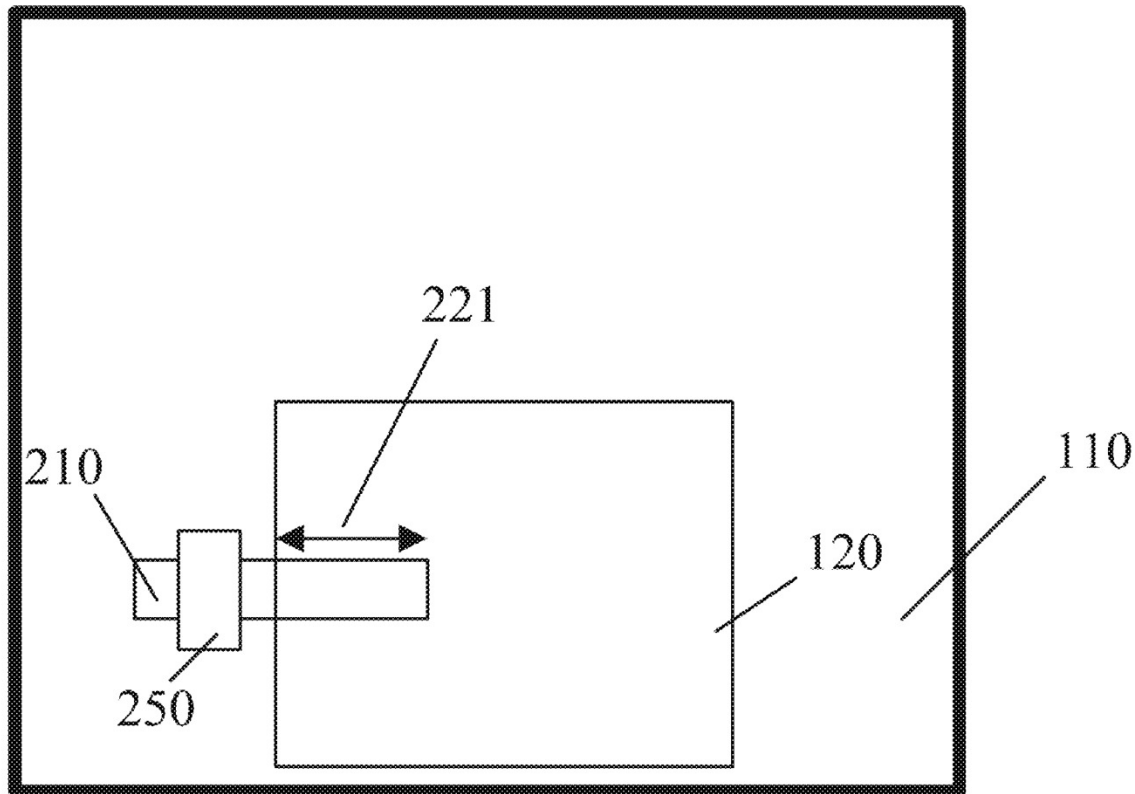
Publication Classification

(51) **Int. Cl.**
H01Q 7/00 (2006.01)
H01Q 1/22 (2006.01)
H01Q 1/52 (2006.01)

(52) **U.S. Cl.**
CPC **H01Q 7/00** (2013.01); **H01Q 1/22**
(2013.01); **H01Q 1/526** (2013.01)

(57) **ABSTRACT**

An antenna apparatus and an electronic device are provided. The antenna apparatus includes: a substrate, a metal shielding cover disposed on the upper surface of the substrate, a metal ground plane disposed on the lower surface of the substrate, and at least one feeding structure. The metal shielding cover has an open side. The open side faces an edge of the substrate. A sidewall of the metal shielding cover is connected to the metal ground plane. The feeding structure includes: a first portion located outside the metal shielding cover, and a second portion located inside the metal shielding cover. The first portion and the second portion being connected to each other through the sidewall of the metal shielding cover. The feeding structure is configured to form a current loop inside a cavity of the metal shielding cover to excite a cavity antenna.





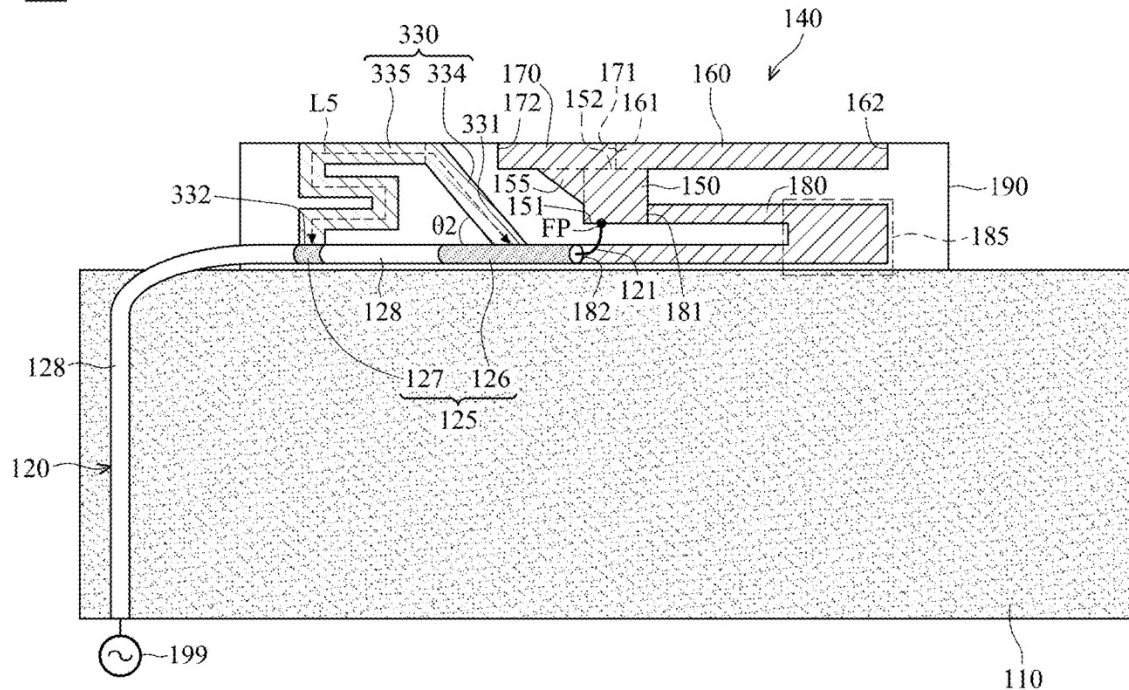
US 20260180183A1

(19) **United States**(12) **Patent Application Publication**
CHANG et al.(10) **Pub. No.: US 2026/0180183 A1**(43) **Pub. Date: Jun. 25, 2026**(54) **COMMUNICATION DEVICE**(52) **U.S. Cl.**(71) Applicant: **Quanta Computer Inc.**, Taoyuan City
(TW)CPC **H01Q 9/0421** (2013.01); **H01Q 1/27**
(2013.01); **H01Q 1/48** (2013.01); **H01Q 5/20**
(2015.01)(72) Inventors: **Hung-Chi CHANG**, Taoyuan City
(TW); **Chun-I LIN**, Taoyuan City (TW)(57) **ABSTRACT**(21) Appl. No.: **19/015,072**(22) Filed: **Jan. 9, 2025**(30) **Foreign Application Priority Data**

Dec. 23, 2024 (TW) 113150168

Publication Classification(51) **Int. Cl.**
H01Q 9/04 (2006.01)
H01Q 1/27 (2006.01)
H01Q 1/48 (2006.01)
H01Q 5/20 (2015.01)

A communication device includes a ground plane, an antenna structure, a cable, a connection metal element, and a dielectric substrate. The antenna structure has a feeding point. The cable includes a feeding conductor and a grounding conductor. The feeding conductor is coupled to the feeding point. The grounding conductor includes a first conductive region and a second conductive region. The connection metal element is coupled between the first conductive region and the second conductive region of the grounding conductor. The antenna structure and the connection metal element are disposed on the dielectric substrate. The cable is adjacent to the ground plane. Neither the first conductive region nor the second conductive region of the grounding conductor is coupled to the ground plane.

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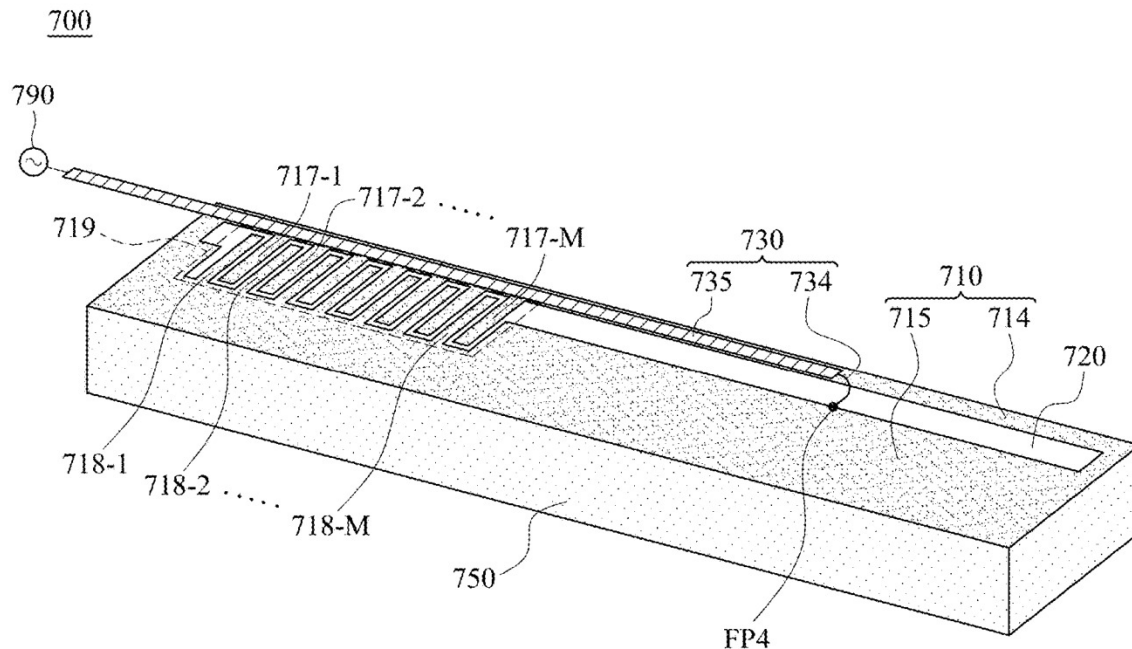
US 20260180194A1

(19) **United States**(12) **Patent Application Publication**
WU et al.(10) **Pub. No.: US 2026/0180194 A1**(43) **Pub. Date: Jun. 25, 2026**(54) **ANTENNA STRUCTURE**(71) Applicant: **WNC Corporation**, Hsinchu (TW)(72) Inventors: **Tzu-Min WU**, Hsinchu (TW); **Yi-Teng HSIAO**, Hsinchu (TW); **Kuo-Jen LAL**, Hsinchu (TW); **Kuang-Yuan KU**, Hsinchu (TW)(21) Appl. No.: **19/387,999**(22) Filed: **Nov. 13, 2025**(30) **Foreign Application Priority Data**

Dec. 24, 2024 (TW) 113150361

Publication Classification(51) **Int. Cl.**
H01Q 13/20 (2006.01)
H01Q 1/50 (2006.01)(52) **U.S. Cl.**CPC **H01Q 13/20** (2013.01); **H01Q 1/50** (2013.01)(57) **ABSTRACT**

An antenna structure includes a first ground plane, a first capacitor, a feeding element, a dielectric substrate, and a metal cavity. The first ground plane includes a narrow edge segment and a wide edge segment. The first ground plane has a first slot. The first capacitor is coupled between the narrow edge segment and the wide edge segment. The first slot of the first ground plane is excited by the feeding element. The dielectric substrate has a first surface and a second surface which are opposite to each other. The first ground plane, the first capacitor, and the feeding element are disposed on the first surface of the dielectric substrate. The metal cavity is coupled to the first ground plane. The metal cavity is adjacent to the dielectric substrate.





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(19) **United States**

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

(10) **Pub. No.: US 2026/0188891 A1**

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

(54) **ELECTRONIC DEVICE**

Publication Classification

(71) Applicant: **Huawei Technologies Co., Ltd.**,
Shenzhen (CN)

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

(72) Inventors: **Ben Lai**, Wuhan (CN); **Jun You**,
Wuhan (CN)

(52) **U.S. Cl.**
CPC **H01Q 1/243** (2013.01); **H01Q 9/0457**
(2013.01)

(21) Appl. No.: **19/548,324**

(22) Filed: **Feb. 24, 2026**

Related U.S. Application Data

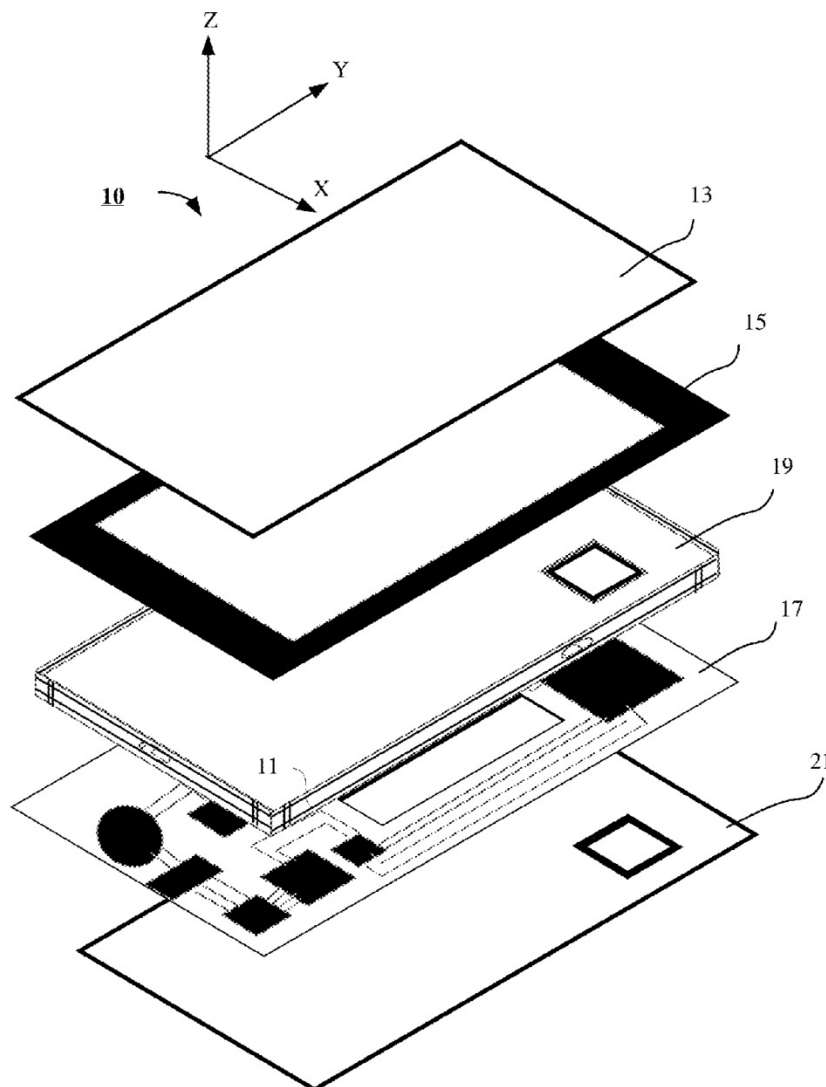
(63) Continuation of application No. PCT/CN2024/
127371, filed on Oct. 25, 2024.

(30) **Foreign Application Priority Data**

Oct. 31, 2023 (CN) 202311441372.3

(57) **ABSTRACT**

An electronic device, including an antenna, where the antenna uses a conductive part of a side frame of the electronic device as a first radiator, and a second radiator is spaced from a side of the first radiator. The first radiator and the second radiator disposed close to each other thereby form an antenna structure. The first radiator and the second radiator are configured to generate a composite antenna mode, with relatively low directivity factors.





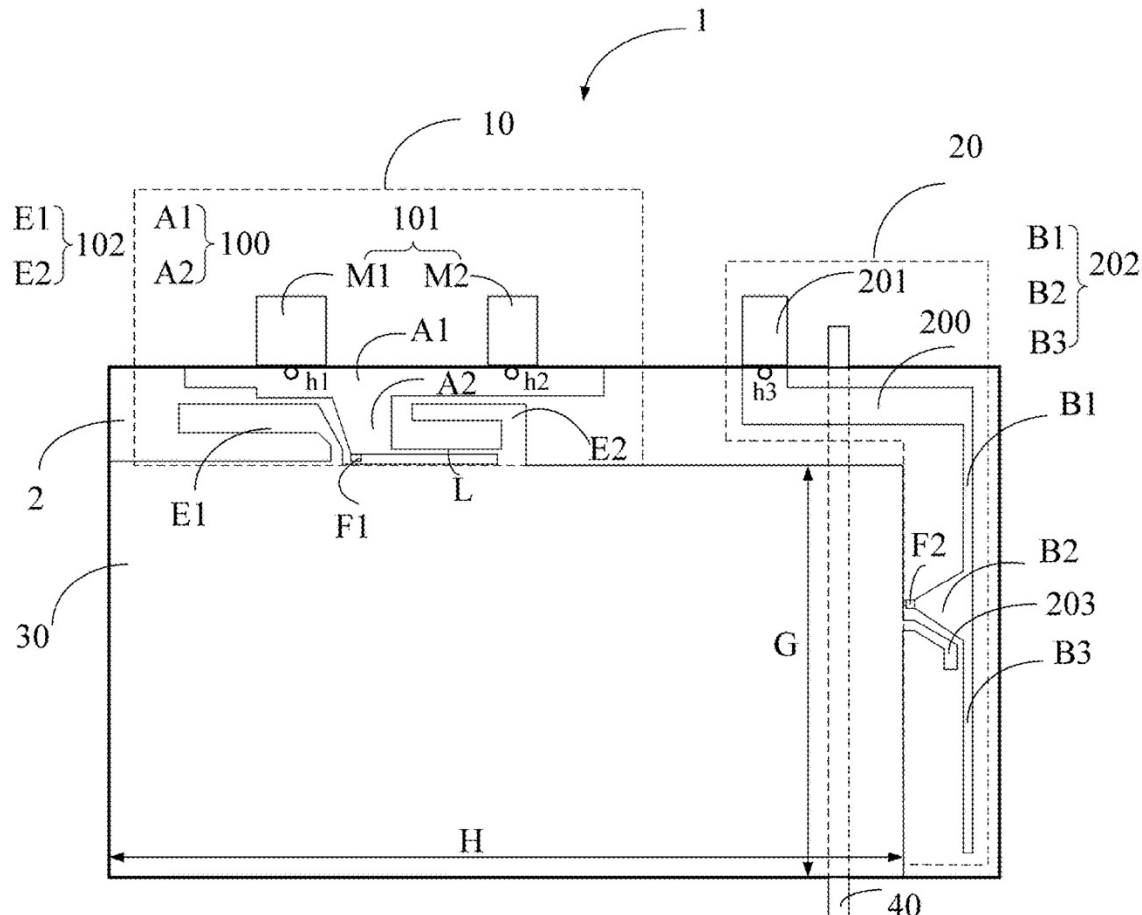
US 20260188901A1

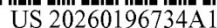
(19) **United States**(12) **Patent Application Publication**
Lin et al.(10) **Pub. No.: US 2026/0188901 A1**(43) **Pub. Date: Jul. 2, 2026**(54) **ANTENNA STRUCTURE AND ELECTRONIC
DEVICE**(71) Applicant: **Shenzhen Fulian Fugui Precision
Industry Co., Ltd.**, Shenzhen (CN)(72) Inventors: **Shiou-Jen Lin**, New Taipei (TW);
Yen-Ming Tseng, New Taipei (TW)(21) Appl. No.: **19/006,589**(22) Filed: **Dec. 31, 2024****Publication Classification**

(51) **Int. Cl.**
H01Q 5/20 (2015.01)
H01Q 1/00 (2006.01)
H01Q 1/22 (2006.01)
H01Q 1/48 (2006.01)
H01Q 1/52 (2006.01)
H01Q 5/10 (2015.01)
H01Q 9/04 (2006.01)

(52) **U.S. Cl.**CPC **H01Q 5/20** (2015.01); **H01Q 1/002**
(2013.01); **H01Q 1/22** (2013.01); **H01Q 1/48**
(2013.01); **H01Q 1/521** (2013.01); **H01Q 5/10**
(2015.01); **H01Q 9/0407** (2013.01)(57) **ABSTRACT**

An antenna structure includes a first antenna and a second antenna, the first antenna includes: a first radiation part arranged on a first surface of a mainboard; a first external metal strip with one end fixed on a second surface of the mainboard to excite a first operating frequency band; a first grounding extension part with one end connected to metal grounding plane to excite a second operating frequency band and a third operating frequency band; the second antenna includes: a second radiation part arranged on the first surface; a second external metal strip with one end fixed on the second surface to excite the first operating frequency band; a third radiation part with one end connected to the second radiation part; a second grounding extension part with one end connected to the metal grounding plane to excite the second operating frequency band and the third operating frequency band.





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Publication Classification

(51) **Int. Cl.**
H01Q 13/18 (2006.01)
H01Q 1/22 (2006.01)

(52) **U.S. Cl.**
CPC **H01Q 13/18** (2013.01); **H01Q 1/2266**
(2013.01)

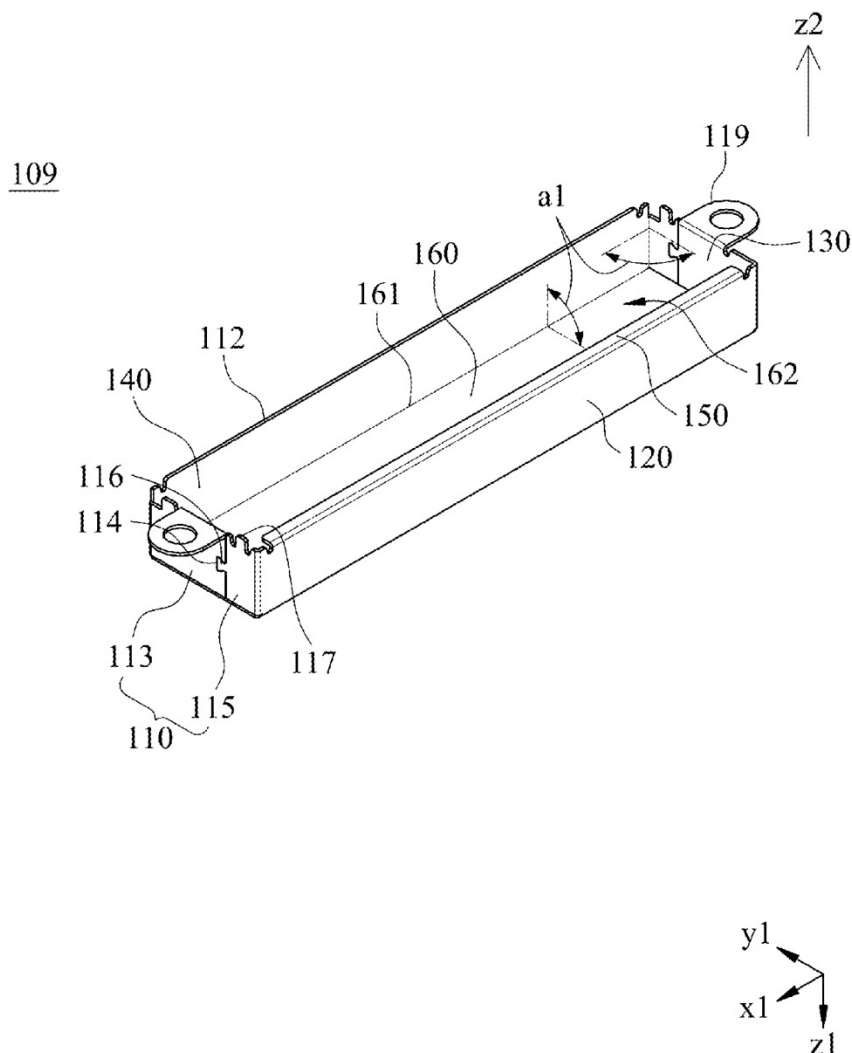
(57) **ABSTRACT**

A cavity antenna is made of a metal material and includes an antenna opening, a bottom portion and four side portions. The bottom portion is disposed opposite to the antenna opening, and the bottom portion is in a rectangular shape and includes four bottom edges. The four side portions are connected to the four bottom edges, respectively, and the four side portions are connected in sequence to form the cavity antenna being groove-shaped. One of the four side portions is a first side portion, which includes a concave section and a convex section. A concave edge of the concave section is coupled with a convex edge of the convex section to form the first side portion.

(22) Filed: **Jul. 3, 2025**

(30) **Foreign Application Priority Data**

Jan. 8, 2025 (CN) 202510029493.X





US 20260196729A1

(19) **United States**

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

(10) **Pub. No.: US 2026/0196729 A1**

(43) **Pub. Date: Jul. 9, 2026**

(54) **ANTENNA STRUCTURE AND ELECTRONIC
DEVICE THEREOF**

Publication Classification

(71) Applicant: **Huawei Technologies Co., Ltd.**,
Shenzhen (CN)

(72) Inventors: **Pengfei Wu**, Shanghai (CN); **Hanyang
Wang**, Reading (GB)

(21) Appl. No.: **19/462,390**

(22) Filed: **Jan. 28, 2026**

Related U.S. Application Data

(63) Continuation of application No. PCT/CN2024/
115886, filed on Aug. 30, 2024.

(30) **Foreign Application Priority Data**

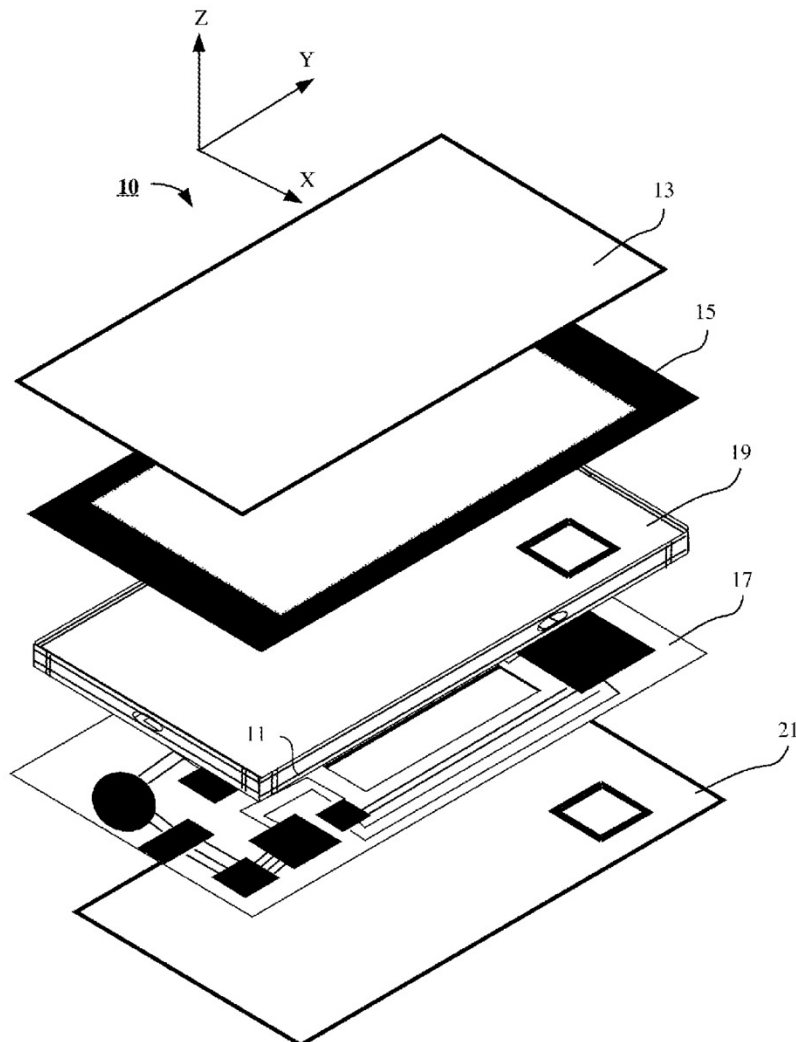
Aug. 31, 2023 (CN) 202311129261.9
Aug. 28, 2024 (CN) 202411194733.3

(51) **Int. Cl.**
H01Q 5/40 (2015.01)
H01Q 1/22 (2006.01)
H01Q 5/20 (2015.01)

(52) **U.S. Cl.**
CPC **H01Q 5/40** (2015.01); **H01Q 1/22**
(2013.01); **H01Q 5/20** (2015.01)

(57) **ABSTRACT**

This application provides an antenna structure and an electronic device thereof. The antenna structure uses a conductive part of a side frame as a radiator. Feed members are spaced from each other on one side of the radiator, and the antenna structure feeds an electrical signal into the radiator through indirect coupling. The feed member and the radiator are configured to generate a first resonance and a second resonance.





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(19) **United States**
(12) **Patent Application Publication**
Hsu et al.

(10) **Pub. No.:** **US 2026/0196722 A1**
(43) **Pub. Date:** **Jul. 9, 2026**

(54) **ANTENNA SYSTEM FOR OPTIMIZING ANTENNA PATTERN**

(52) **U.S. CL.**

CPC **H01Q 3/247** (2013.01); **H01Q 5/307** (2015.01); **H01Q 5/50** (2015.01)

(71) Applicant: **ASUSTeK COMPUTER INC.,**
Taipei (TW)

(72) Inventors: **Chien-Ming Hsu, Taipei (TW);**
Chun-Chieh Su, Taipei (TW);
Sung-Mao Liao, Taipei (TW)

(21) Appl. No.: **19/416,027**

(22) Filed: **Dec. 11, 2025**

(30) **Foreign Application Priority Data**
Jan. 6, 2025 (TW)114100519

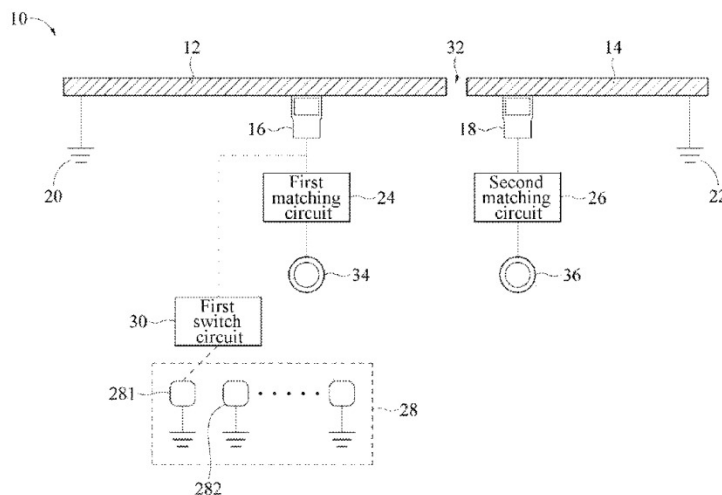
Publication Classification

(51) **Int. Cl.**

H01Q 3/24 (2006.01)
H01Q 5/307 (2015.01)
H01Q 5/50 (2015.01)

(57) **ABSTRACT**

An antenna system for optimizing an antenna pattern includes: an open circuit between a first antenna metal portion and a second antenna metal portion; a first feeding contact is connected to the first antenna metal portion, and a second feeding contact is connected to the second antenna metal portion; a first ground contact is connected to the first antenna metal portion, and a second ground contact is connected to the second antenna metal portion; a first matching circuit is connected to the first feeding contact, and a second matching circuit is electrically connected to the second feeding contact; a plurality of first ground paths is connected to the first feeding contact; and one end of a first switch circuit is connected between the first feeding contact and the first matching circuit, and the other end of the first switch circuit is connected to the plurality of first ground paths.





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(19) **United States**

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

(10) **Pub. No.: US 2026/0196726 A1**

(43) **Pub. Date: Jul. 9, 2026**

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

Publication Classification

(51) **Int. Cl.**
H01Q 5/20 (2015.01)
H01Q 9/04 (2006.01)
H01Q 21/06 (2006.01)
(52) **U.S. Cl.**
CPC *H01Q 5/20* (2015.01); *H01Q 9/0407*
(2013.01); *H01Q 21/065* (2013.01)

(57) **ABSTRACT**

An electronic device includes: at least one processor, wireless communication circuitry coupled to the at least one processor, and an antenna module coupled to the wireless communication circuitry. The antenna module includes a circuit board on which a first radiator array for a first frequency band, a second radiator array for a second frequency band higher than the first frequency band, and a third radiator array for a third frequency band lower than the first frequency band are disposed. The first radiator array includes patch radiators having a first size, disposed on a first layer among a plurality of layers of the circuit board. The second radiator array includes patch radiators having a second size smaller than the first size, disposed on a second layer above the first layer with respect to a side of the circuit board among the plurality of layers of the circuit board.

(21) Appl. No.: **19/560,972**

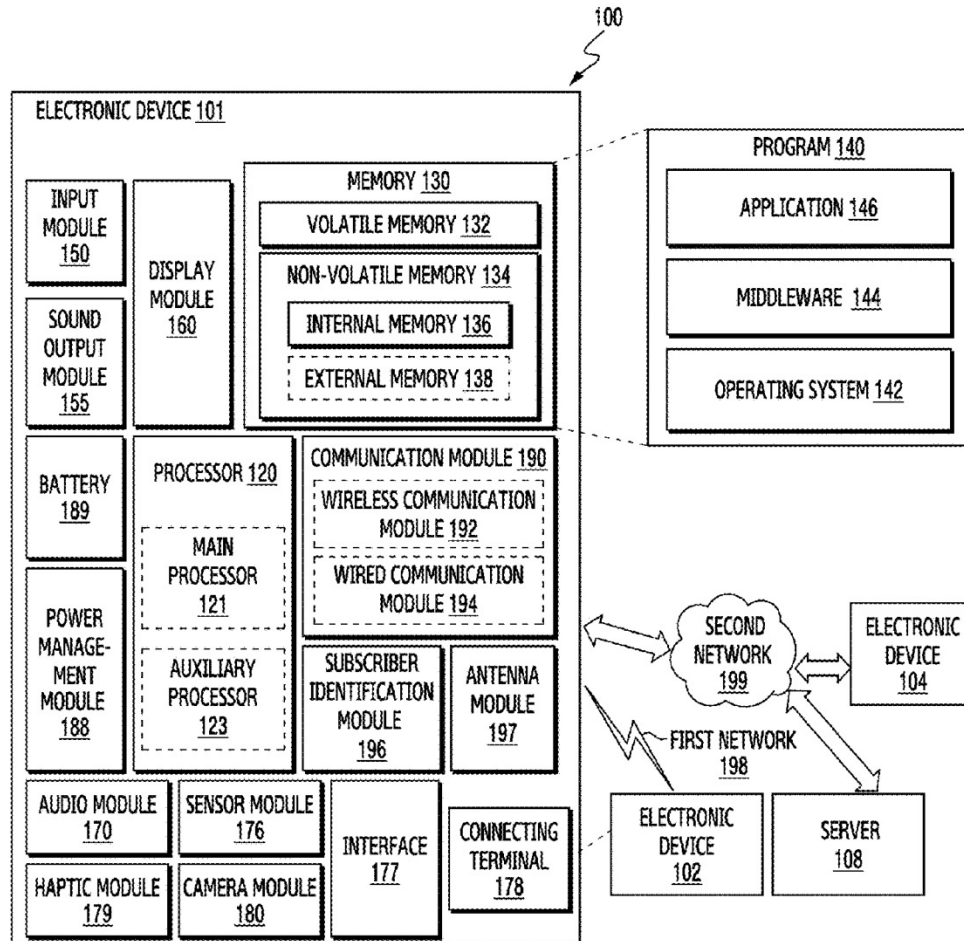
(22) Filed: **Mar. 9, 2026**

Related U.S. Application Data

(63) Continuation of application No. PCT/KR2025/019110, filed on Nov. 18, 2025.

(30) **Foreign Application Priority Data**

Nov. 18, 2024 (KR) 10-2024-0164081
Jan. 9, 2025 (KR) 10-2025-0003721





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(19) **United States**

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

(10) **Pub. No.: US 2026/0196727 A1**

(43) **Pub. Date: Jul. 9, 2026**

(54) **ELECTRONIC DEVICE INCLUDING ANTENNA**

Publication Classification

(51) **Int. Cl.**
H01Q 5/335 (2015.01)
H01Q 5/50 (2015.01)
(52) **U.S. Cl.**
CPC **H01Q 5/335** (2015.01); **H01Q 5/50** (2015.01)

(71) Applicant: **Samsung Electronics Co., Ltd.**,
Suwon-si (KR)
(72) Inventors: **Donguk CHOI**, Suwon-si (KR);
Soonho HWANG, Suwon-si (KR);
Seunghwan KIM, Suwon-si (KR);
Sanggon SHIN, Suwon-si (KR);
Jaebong CHUN, Suwon-si (KR);
Hochul HWANG, Suwon-si (KR)

(21) Appl. No.: **19/556,434**

(22) Filed: **Mar. 4, 2026**

Related U.S. Application Data

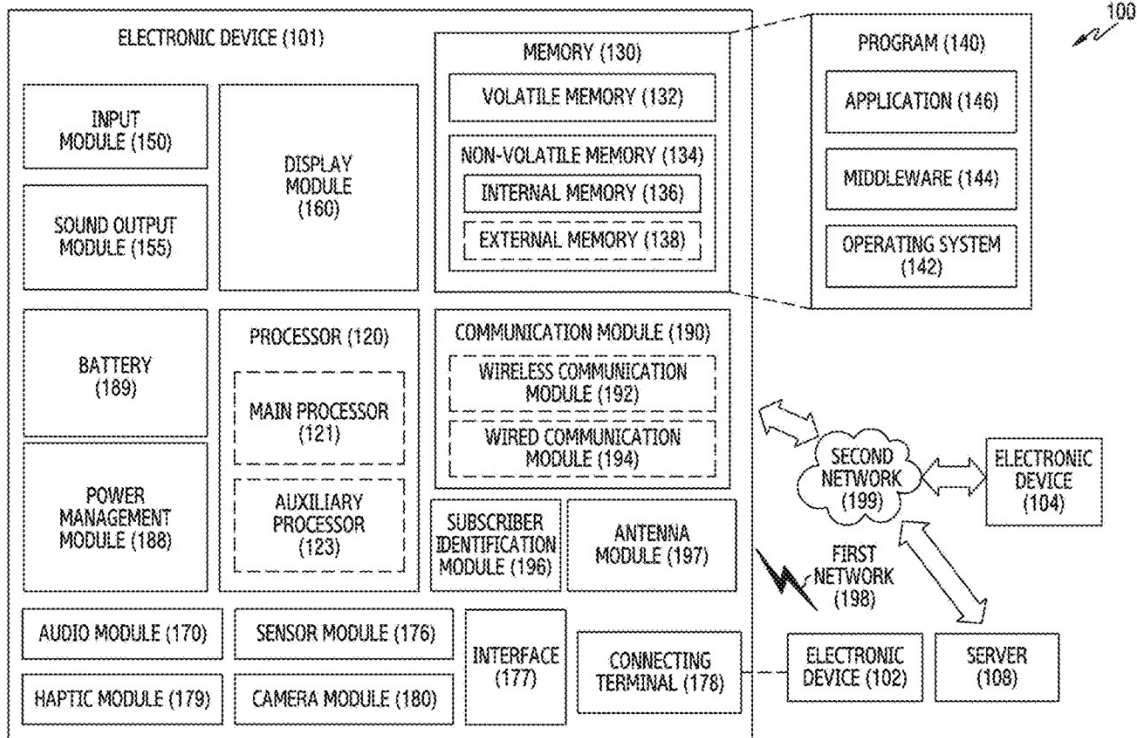
(63) Continuation of application No. PCT/KR2024/
012891, filed on Aug. 28, 2024.

Foreign Application Priority Data

Sep. 4, 2023 (KR) 10-2023-0117087
Sep. 27, 2023 (KR) 10-2023-0130243

(57) **ABSTRACT**

An electronic device is provided that includes at least one wireless communication circuit configured to provide a signal of a specified frequency band to a conductive portion operating as an antenna radiator, a first ground member arranged in a housing, a second ground member arranged in the housing, a first matching circuit, disposed on a first feeding line configured to transmit a first feeding signal of a first frequency band provided to a first feeding point on the conductive portion, grounded to the first ground member, a first filter, connected to the first feeding point, grounded to the second ground member, a second matching circuit, disposed on a second feeding line configured to transmit a second feeding signal of a second frequency band provided to a second feeding point on the conductive portion, grounded to the first ground member, and a second filter, connected to the second feeding point, grounded to the second ground member.





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(19) **United States**
(12) **Patent Application Publication**
Wu et al.

(10) **Pub. No.:** **US 2026/0204767 A1**
(43) **Pub. Date:** **Jul. 16, 2026**

(54) **ELECTRONIC DEVICE**

Publication Classification

(51) **Int. Cl.**

H01Q 1/22 (2006.01)
H01Q 1/02 (2006.01)
H01Q 5/20 (2015.01)
H01Q 5/30 (2015.01)

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

CPC *H01Q 1/2266* (2013.01); *H01Q 1/02* (2013.01); *H01Q 5/20* (2015.01); *H01Q 5/30* (2015.01)

(71) Applicant: **PEGATRON CORPORATION,**
TAIPEI CITY (TW)

(72) Inventors: **Cheng-Hsiung Wu,** Taipei City (TW); **Chih-Wei Liao,** Taipei City (TW); **Chia-Hung Chen,** Taipei City (TW); **Chao-Hsu Wu,** Taipei City (TW); **Hau Yuen Tan,** Taipei City (TW); **Chih-Chien Hsieh,** Taipei City (TW)

(73) Assignee: **PEGATRON CORPORATION,**
TAIPEI CITY (TW)

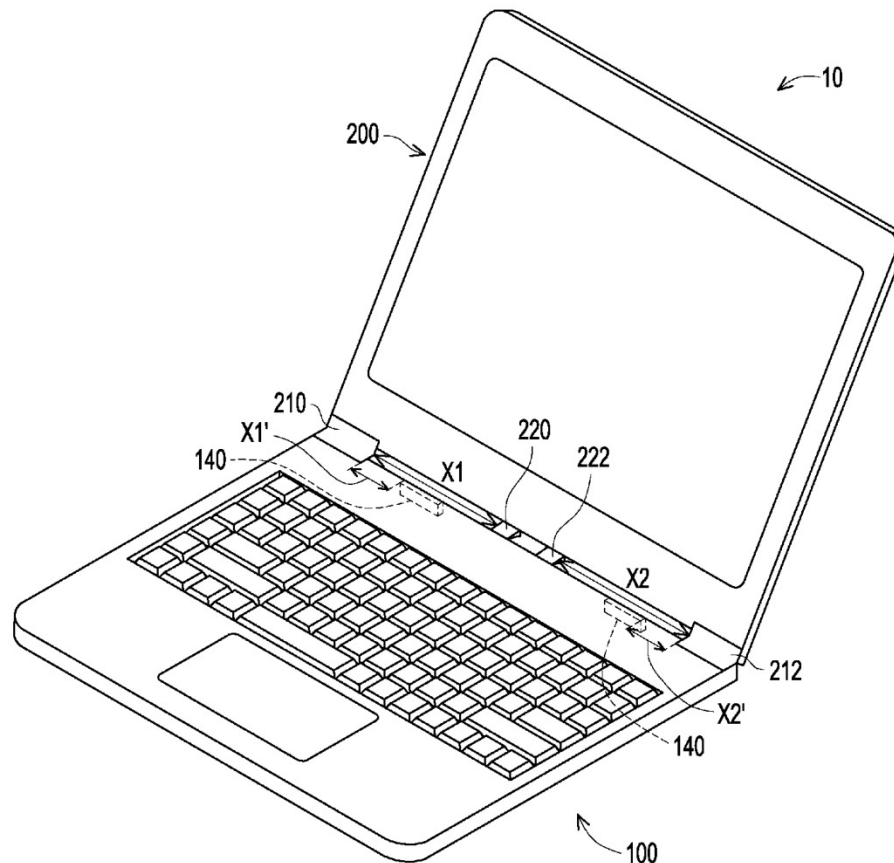
(21) Appl. No.: **19/363,745**

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

(30) **Foreign Application Priority Data**
Jan. 10, 2025 (TW)114101087

(57) **ABSTRACT**

An electronic device, including a first body including first and second metallic enclosures, a metal assembly and an antenna. The second metallic enclosure is arranged at the first metallic enclosure. An internal space is formed between the first and second metallic enclosures. The metal assembly is disposed in the internal space. The metal assembly is connected to the first and second metallic enclosures, and forms a metal cavity together with the first and second metallic enclosures. The metal cavity has an opening opposite to the metal assembly. The antenna is disposed in the metal cavity and close to the opening, and includes a grounded radiator, a radiator assembly and a low frequency feed arm. The grounded radiator is conducted to the first metallic enclosure. A ground end of the radiator assembly is connected to the ground radiator. The low frequency feed arm is connected to the radiator assembly.





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

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

Publication Classification

(2006.01)

(2006.01)

(2015.01)

(2006.01)

CPC *H01Q 1/243* (2013.01); *H01Q 1/2283*

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9/0421 (2013.01)

(57) **ABSTRACT**

(57)

(22) Filed: **Mar. 13, 2026**

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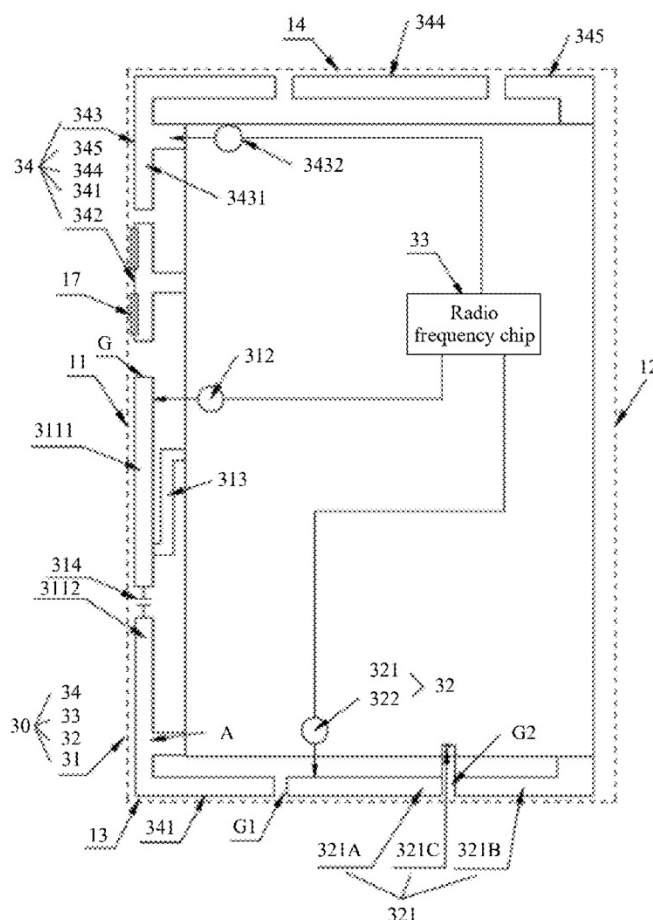
(63) Continuation of application No. PCT/CN2024/134587, filed on Nov. 26, 2024.

(30) **Foreign Application Priority Data**

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A terminal device includes an antenna system. At least a part of a first radiator in a first antenna in the antenna system is distributed on a first side edge of a first body. At least a part of a second radiator in a second antenna in the antenna system is located on a third side edge of the first body. An inductive structure in the first antenna is connected between a first stub of the first radiator and a ground plane. The first stub and a second stub of the first radiator are coupled via a capacitive structure.





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(19) **United States**(12) **Patent Application Publication**
Wu et al.(10) **Pub. No.: US 2026/0204784 A1**(43) **Pub. Date: Jul. 16, 2026**(54) **DUAL FEED ANTENNA SYSTEM**(71) Applicant: **ASUSTeK COMPUTER INC.**, Taipei
(TW)(72) Inventors: **Yu-Ching Wu**, Taipei (TW); **Yu-Lin Hsieh**, Taipei (TW); **Yu-Yu Chen**, Taipei (TW); **Chun-Chieh Su**, Taipei (TW)(21) Appl. No.: **19/438,845**(22) Filed: **Jan. 2, 2026**(30) **Foreign Application Priority Data**

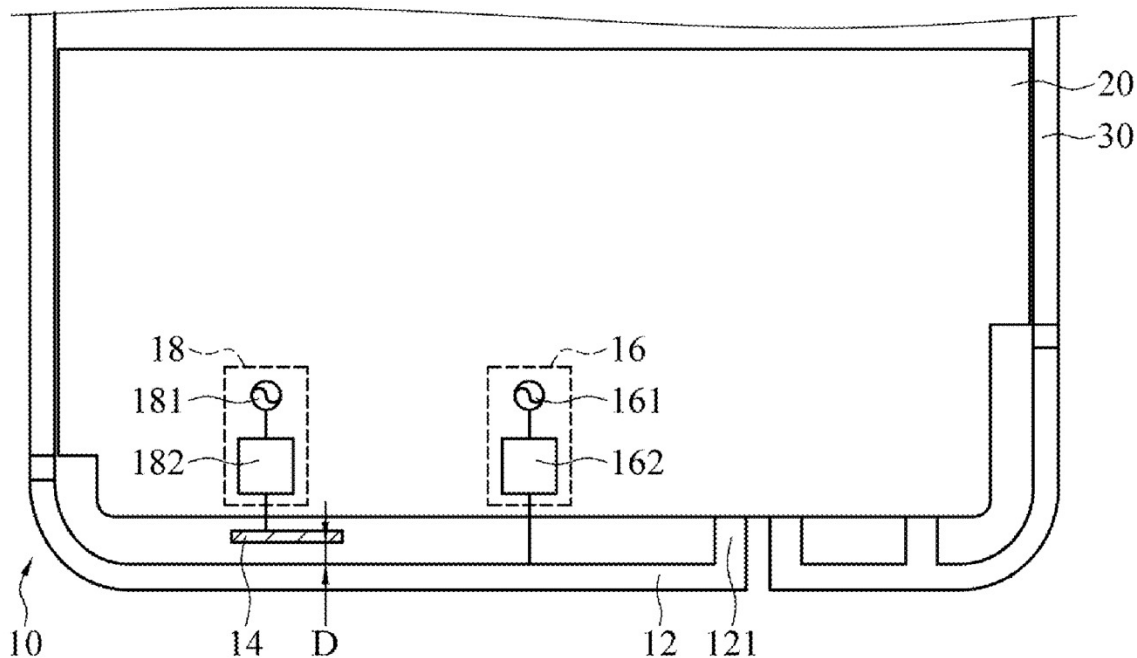
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Publication Classification(51) **Int. Cl.**
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H01Q 1/22 (2006.01)(52) **U.S. Cl.**CPC **H01Q 5/30** (2015.01); **H01Q 1/22**
(2013.01)

(57)

ABSTRACT

The disclosure provides a dual feed antenna system, which includes a metal radiating portion, a coupling metal portion, a first signal feed module and a second signal feed module. In the dual feed antenna system, the metal radiating portion is disposed on a frame of an electronic device, and there is a coupling distance between the coupling metal portion and the metal radiating portion. The first signal feeding module is electrically connected to the metal radiating portion to transmit and receive a first frequency band radio frequency signal through the metal radiating portion. The second signal feed module is electrically connected to the coupling metal portion to transmit and receive a second frequency band radio frequency signal through the coupling feed of the metal radiating portion and the coupling metal portion. Therefore, a shared metal radiating portion is used to achieve dual feed broadband operation.



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

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Publication Classification

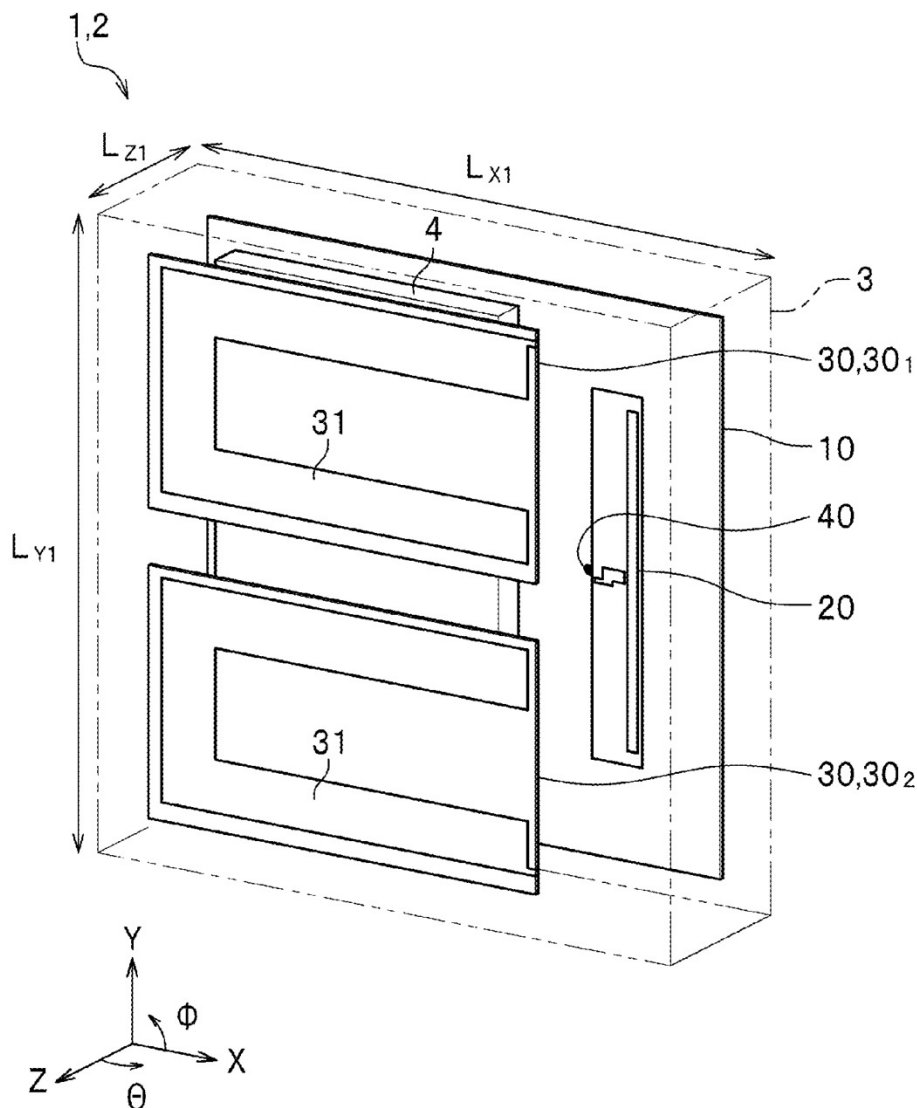
(51) **Int. Cl.**
H01Q 13/10 (2006.01)
H01Q 1/48 (2006.01)

(52) **U.S. Cl.**
CPC *H01Q 13/10* (2013.01); *H01Q 1/48*
(2013.01)

(57) **ABSTRACT**

A slot antenna includes a ground that is sheet shaped and includes a slot, an antenna element disposed within the slot; and a parasitic element that is sheet shaped and disposed parallel to the ground. The parasitic element includes a slit.

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(54) **ELECTRONIC DEVICE**

Publication Classification

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(51) **Int. Cl.**
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H01Q 21/28 (2006.01)
H01Q 25/04 (2006.01)

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(52) **U.S. Cl.**
CPC **H01Q 13/106** (2013.01); **H01Q 1/38** (2013.01); **H01Q 1/48** (2013.01); **H01Q 21/28** (2013.01); **H01Q 25/04** (2013.01)

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

(57) **ABSTRACT**

(21) Appl. No.: **19/563,788**

An electronic device includes an outer casing and an antenna structure located in the outer casing. The antenna structure includes a circuit board and a first radiation structure including a first radiation ring and a plurality of stubs. The outer casing includes a metal ring housing extending in an axial direction, which is parallel to the axial direction of the first radiation ring. The plurality of stubs, including one feed stub and at least two first grounding stubs, are distributed in a circumferential direction of the first radiation ring and are connected between the first radiation ring and the circuit board. Two adjacent stubs and a first section of the first radiation ring that is located between the two adjacent stubs form an antenna substructure. The feed stub is configured to feed the first radiation ring that is configured to generate a first resonance.

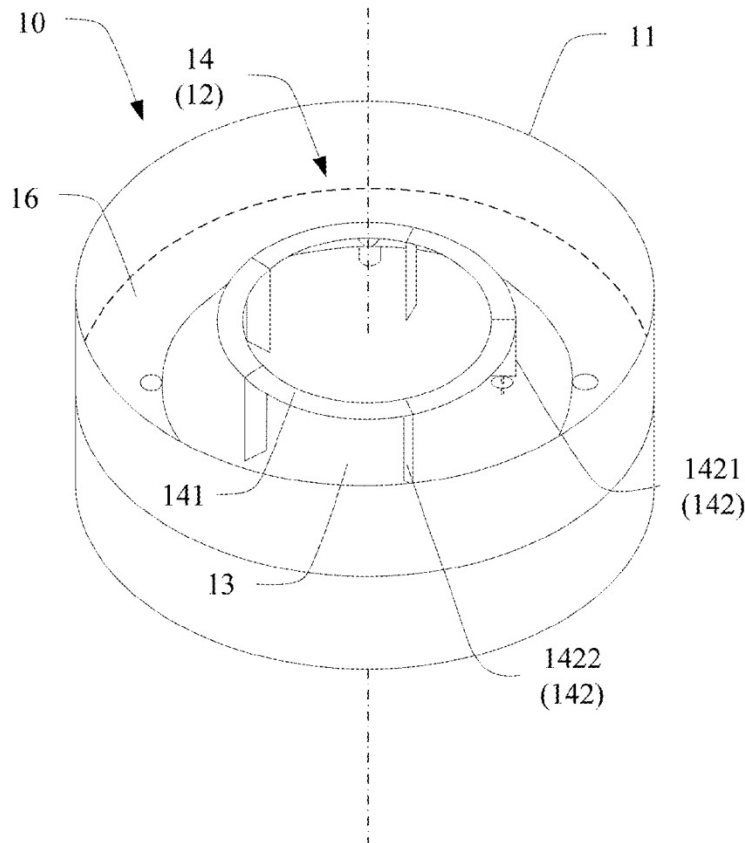
(22) Filed: **Mar. 11, 2026**

Related U.S. Application Data

(63) Continuation of application No. PCT/CN2024/104293, filed on Jul. 8, 2024.

(30) **Foreign Application Priority Data**

Sep. 27, 2023 (CN) 202311290660.3
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(19) **United States**
(12) **Patent Application Publication**
CHUNG

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

(54) **ELECTRONIC DEVICE CAPABLE OF
OPERATING WITH BATTERY INSTALLED**

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

CPC

H05K 1/0243 (2013.01); **H01Q 1/22**
(2013.01); **H05K 2201/1003** (2013.01);
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2201/10098 (2013.01)

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Publication Classification

(51) **Int. Cl.**

H05K 1/02 (2006.01)
H01Q 1/22 (2006.01)

(57) **ABSTRACT**

An electronic device is capable of operating with a battery installed, and the electronic device includes a substrate, an antenna, a system ground portion, a battery ground portion, and an inductor element. The antenna is disposed on the substrate, the system ground portion is disposed on the substrate, and the battery ground portion is configured to be connected to a negative terminal of the battery. The battery ground portion and the system ground portion are separate from each other, and the inductor element is connected between the battery ground portion and the system ground portion.

