US 20220352757A1

(19) **United States**

(12) **Patent Application Publication** (10) **Pub. No.: US 2022/0352757 A1**

SHIN et al. (43) **Pub. Date: Nov. 3, 2022**

(54) **MULTI-COIL ANTENNA, ELECTRONIC DEVICE, AND METHOD FOR CONNECTING MULTI-COIL ANTENNA IN ELECTRONIC DEVICE**

(71) Applicant: **Samsung Electronics Co., Ltd.**, Gyeonggi-do (KR)

(72) Inventors: **Seungshik SHIN**, Gyeonggi-do (KR); **Sangwoo KANG**, Gyeonggi-do (KR); **Kyungmin PARK**, Gyeonggi-do (KR); **Baewon PARK**, Gyeonggi-do (KR); **Juhyang LEE**, Gyeonggi-do (KR); **Jinsik CHOI**, Gyeonggi-do (KR); **Jaeyoung HUH**, Gyeonggi-do (KR)

(21) Appl. No.: **17/422,793**

(22) PCT Filed: **Jul. 9, 2021**

(86) PCT No.: **PCT/KR2021/008814**

§ 371 (c)(1),
(2) Date: **Jul. 14, 2021**

(30) **Foreign Application Priority Data**

Jul. 16, 2020 (KR) 10-2020-0088383

Publication Classification

(51) **Int. Cl.**

H02J 50/12	(2006.01)
H02J 7/00	(2006.01)
H01Q 7/00	(2006.01)

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

CPC ***H02J 50/12*** (2016.02); ***H02J 7/00032*** (2020.01); ***H01Q 7/00*** (2013.01)

(57) **ABSTRACT**

According to one embodiment, an electronic device comprises a battery, an antenna module including a first coil and a second coil, at least one switch electrically connected with the antenna module, a magnetic field controller electrically connected with the antenna module, a charger electrically connected with the battery and the magnetic field controller, and at least one processor electrically connected with the at least one switch, the magnetic field controller, and the charger. The at least one processor may be configured to, based on an operation mode associated with the antenna module, control the at least one switch to connect the first coil with the magnetic field controller, or to connect the first coil and the second coil in parallel and allow the first coil and the second coil connected in parallel to connect with the magnetic field controller. Other embodiments may be possible as well.