【CLAIMS】

【Claim 1】

An electronic device comprising:

a housing;

a first circuit board disposed in the housing;

a flexible circuit board electrically connected to the first circuit board;

a coil antenna disposed inside the housing and comprising a plurality of antennas on which a conductive pattern is provided and configured to generate magnetic fields;

a shielding layer disposed below a first antenna among the plurality of antennas; and

a metal shield disposed about a side surface of the coil antenna and configured to shield a magnetic field in a first direction among the magnetic fields generated by the coil antenna.

【Claim 2】

The electronic device of claim 1, wherein the metal shield is spaced apart from the coil antenna by a first distance in the first direction and spaced apart from the coil antenna by a second distance in a second direction.

【Claim 3】

The electronic device of claim 2, wherein the metal shield is spaced apart from the coil antenna in a range of 2 mm to 100 mm in the first direction.

【Claim 4】

The electronic device of claim 3, wherein the metal shield is spaced apart from the coil antenna in a range of 0.1 mm to 5.0 mm in the second direction.

【Claim 5】

The electronic device of claim 2, wherein the metal shield is spaced apart from a lower end of the coil antenna in a range of 0.2 mm to 2.0 mm in a third direction.

【Claim 6】

The electronic device of claim 1, wherein the metal shield is spaced apart from the coil antenna in a range of 2 mm to 100 mm in the first direction,

wherein the metal shield is spaced apart from the coil antenna in a range of 0.1

mm to 5.0 mm in a second direction, and

wherein the metal shield is spaced apart from a lower end of the coil antenna in a range of 0.2 mm to 2.0 mm in a third direction.

【Claim 7】

The electronic device of claim 6, wherein the metal shield is disposed at a position lower than a lower end of the coil antenna.

【Claim 8】

The electronic device of claim 7, wherein the metal shield is configured to shield a magnetic field in a -z axis direction.

【Claim 9】

The electronic device of claim 1, wherein the flexible printed circuit board overlaps a second antenna among the plurality of antennas, and

wherein the shielding layer is disposed to not overlap the second antenna.

【Claim 10】

The electronic device of claim 9, wherein the coil antenna comprises a wireless power consortium (WPC) antenna, a near-field communication (NFC) antenna, and a magnetic secure transmission (MST) antenna.

【Claim 11】

The electronic device of claim 10, wherein the first antenna comprises the WPC antenna, and

wherein the second antenna comprises the NFC antenna.

【Claim 12】

The electronic device of claim 1, wherein the metal shield comprises one of a paramagnetic material, a diamagnetic material, and a ferromagnetic material.

【Claim 13】

The electronic device of claim 12, wherein the metal shield comprises a paramagnetic material having a magnetic permeability (Mu) of about 1.

【Claim 14】

The electronic device of claim 12, wherein the metal shield comprises a diamagnetic material having a magnetic permeability (Mu) of about 0.5.

【Claim 15】

The electronic device of claim 12, wherein the metal shield comprises a ferromagnetic material having a magnetic permeability (Mu) of about 150.