CLAIMS:

1. An antenna device configured to be attached to a metal hull of a vessel and configured to communicate using the metal hull as a medium, comprising:

an antenna plate;

a feeding line connected to the antenna plate;

a ground line connected to the antenna plate;

a ground plate configured to be attached to the metal hull and support the antenna plate;

a support portion configured to maintain a predetermined distance between the antenna plate and the ground plate, the support portion being connected to the antenna plate at a position spaced apart from an edge of the antenna plate;

an impedance matching circuit for impedance matching of the antenna device; and

a shield portion configured to protect the impedance matching circuit and disposed such that the shield portion does not overlap the antenna plate in a direction perpendicular to the antenna plate,

wherein an area of an upper surface of the antenna plate is formed at a predesignated ratio according to a resonant frequency for communication, and

wherein each of the feeding line and the ground line is arranged parallel to a direction in which the support portion extends.

2. The antenna device of claim 1, wherein the antenna plate is grounded to the ground plate.

3. The antenna device of claim 1, further comprising:

a communication circuit configured to determine whether communication is possible by analyzing signals transmitted and received through the antenna plate.

4. The antenna device of claim 3, wherein the communication circuit is configured to identify a bit error rate by analyzing a signal received through the antenna plate, and determine whether communication is possible based on a result of comparing the identified bit error rate and a threshold value.

5. A wireless communication device comprising:

the antenna device of claim 1;

a processor configured to process signals transmitted and received through the antenna device; and

a communication module configured to transmit the signals processed by the processor to a communication terminal device.

6. The antenna device of claim 1, wherein the impedance matching of the antenna device is adjusted based on a distance between the feeding line and the ground line connected to the antenna plate, and the impedance matching circuit.