**Transmit Antenna**

The transmit antenna consists of a straight wire of about 3.2" (8.2 cm) long as one electrode, and the copper "ground" plane of the printed circuit board (PCB) as the other electrode. The length of the PCB, from the antenna feed-point to the edge farthest from the wire, is also about 8.2 cm. The wire-PCB structure therefore constitutes a half-wave dipole antenna at 915 MHz.

The theoretical directivity of a half-wave dipole antenna is 1.64[1].

Radiated power is reduced from the input power to the antenna due to losses in conductors, etc. An "antenna efficiency" of 50 to 60 % is considered a good implementation by the industry[2].

Using the theoretical directivity and an optimistic antenna efficiency, the effective peak gain of this structure is estimated to be:

   1.64 x 0.6 = 0.984 (-0.07 dB)

or "about 0 dB".

[1]   "Reference Data for Radio Engineers", fourth edition, International Telephone and Telegraph Corporation (1956).

[2]   https://www.eetimes.com/radiated-efficiency-a-true-measure-of-antenna-performance/