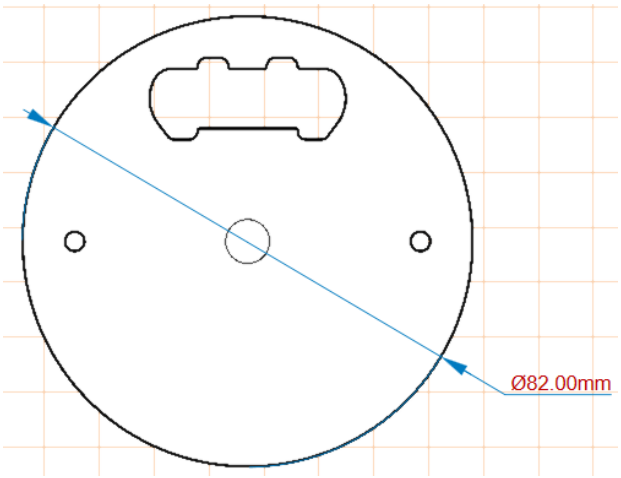
Approval Paper

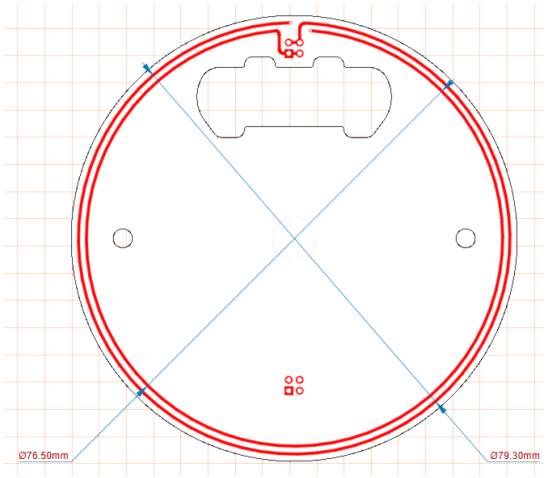
Internal NFC Antenna

Manufacturer:	Vix Technology
Address of the manufacturer:	Level 1, 50 St Georges Terrace, Perth WA 6000, Australia
Model number:	BRD0955-01A EMV Antenna PCB Type 1

Size

Disc of 82mm diameter





Specification

The Reader RFID antenna is a circular loop which generates a magnetic and an electric field around it, due to the current and the voltage it carries. The current is used for near magnetic field coupling with inductive receptors (Tags, smart cards...). The voltage is used for far field capacitive coupled receptors.

The input current to the SCR 50 ohm tuned antenna from the USB source is Iusb = 2Vusb / 50 = 0.2A.

The measured SCR output voltage across the antenna is Va = 2 x 40Vpp = 80Vpp.

The measured SCR antenna inductance is La = 660nH and, neglecting its series resistance, its impedance at Fa = 13.56MHz is Za = 2 x PI x Fa x La = 56.23ohm.

The calculated maximum voltage gain of the antenna is GV = Va / 2Vusb = 8, or iGVdB = 80 x log8 = 18.06dB, for far field applications.

The calculated maximum current gain is GI = (Va / Za) / Iusb = 7.11, for near field applications.

For the centre frequency of Fa=13.56MHz, the bandwidth of the antenna is: BWa = Fa / GV =1.695MHz.