Agfa NV – Radiology Solutions

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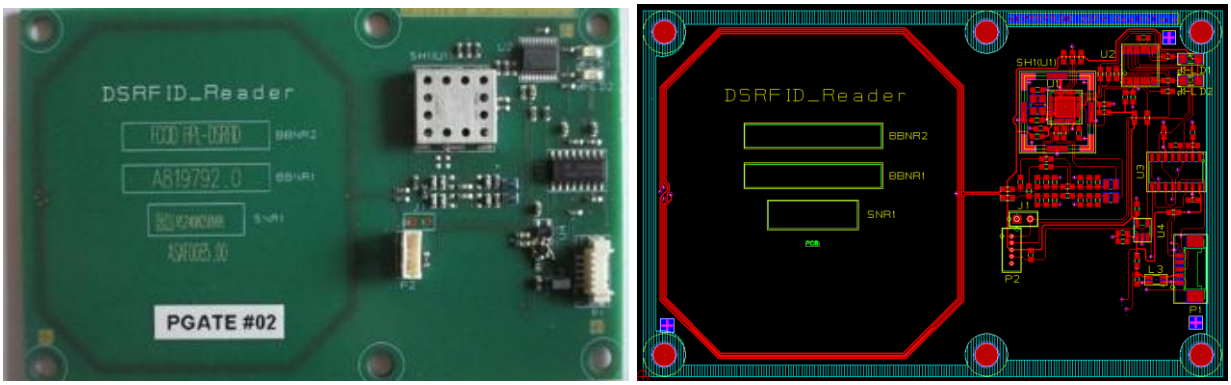
Concerning: module A800126 index 7 or larger (FCC ID: HPL-DSRFID-D)

Here we show the antenna details of the inductive coil.

The printed circuit board (PCB) measures 6.8cm x 10.8cm. The inductive coil has 4 windings and is W=5.7cm wide and H=6.2cm high. The copper PCB tracks are 200µm wide and their pitch is 350µm. The PCB bottom side has no active components, only a grounded track under the coil but split in the center on the left hand side. There is ground plane under the integrated circuits. The coil center on the right side is grounded, exact in the coil center. The coil is connected to an RF matching circuit which is driven by two differential drivers, the RF signals are sensed differentially.



The antenna works on 13.56MHz and the wavelength λ is about 22m (rounded down). The circumference of the antenna is 2x (W+H)=0.24m (rounded up) and the “antenna size” is about 0.011 or λ/90. The inductive coil is small and this is an indication that very little power is radiated and almost all energy is stored as inductive energy in the near field.
It is difficult to define an antenna gain. Note also that the coil is always in the horizontal plane as this is constrained to maximize the coil coupling with the RF tag which is also constrained to the horizontal plane. This RF module will only be used in Drystar printer models and, as such, the antenna is fixed in the horizontal plane. Note that the DSRFID type D module was tested in horizontal plane in the FCC radio type testing.

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