

# Flexible RFID antenna 13.56 MHz with adhesive layer

V1.1  
2023-06-27

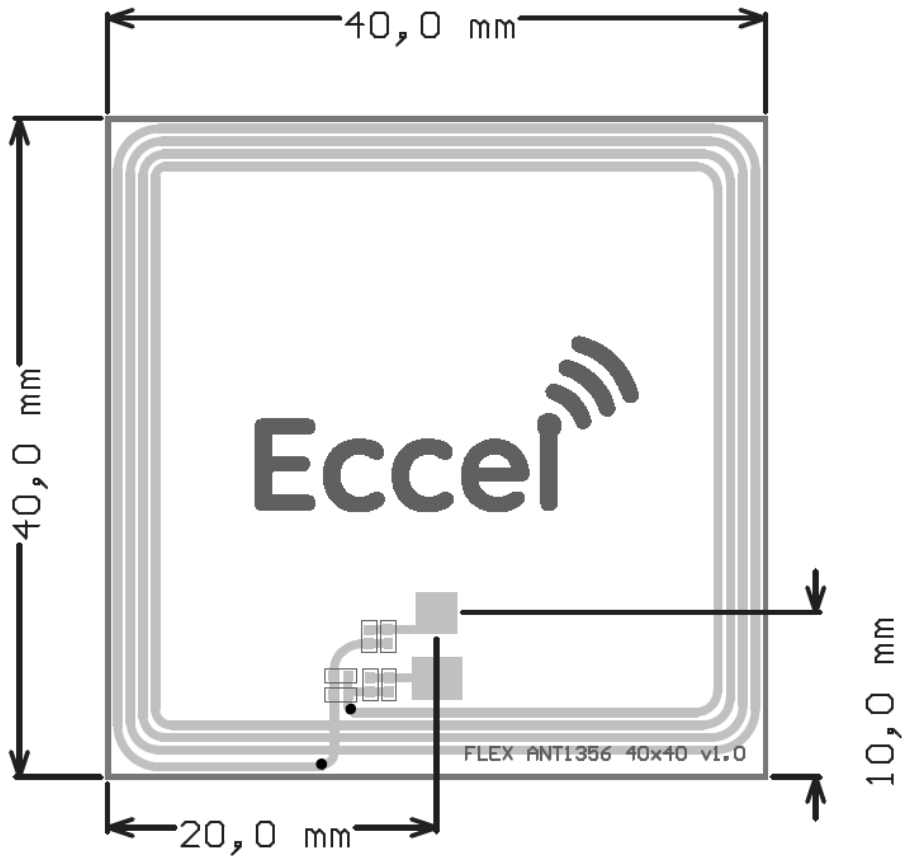


# 1. FLEX-ANT1356-40x40-XXX v1

Standard specifications:

Operating Temperature Range	-40°C to + 85°C
Storage Temperature Range	-40°C to + 85°C
Operating frequency [MHz]	13.56
Dimensions W x D x H [mm]	40 x 40 x 0.1*
Cable length XXX [mm]	100; 250

\*Thickness with components is 1.1mm



## 2. Performance

Test conditions: Tested with ECCEL Technology C1 RFID Module, Vcc = 5V USB, T<sub>amb</sub> = 25°C

	Cable 100 mm	Cable 250 mm
Mifare Classic 1k (MF1S50) ISO card	80	80
Mifare Classic 4k (MF1S70) sticker 3x1,5 cm	80	80
Mifare Classic mini (MF1S20) ISO card	90	90
Mifare Ultralight ISO card	90	90
ICODE standard card	120	120
ICODE 50x50mm label	120	120

Table 1. Antenna maximum ranges with different tags.

### 3. Description

Antenna type	Integral, PCB track loop
Manufacturer	Eccel Technology Limited
Gain	N/A
Frequency of operation	13.553 - 13.567MHz 13.56MHz center frequency
Type of modulation	100% ASK
Antenna Gain	0dBi(Max.)

The antenna is made from polyimide flexible material. On the bottom side an adhesive layer is included.

To achieve self-adhesion, tesa® 8854 tape of 100um thickness is used.

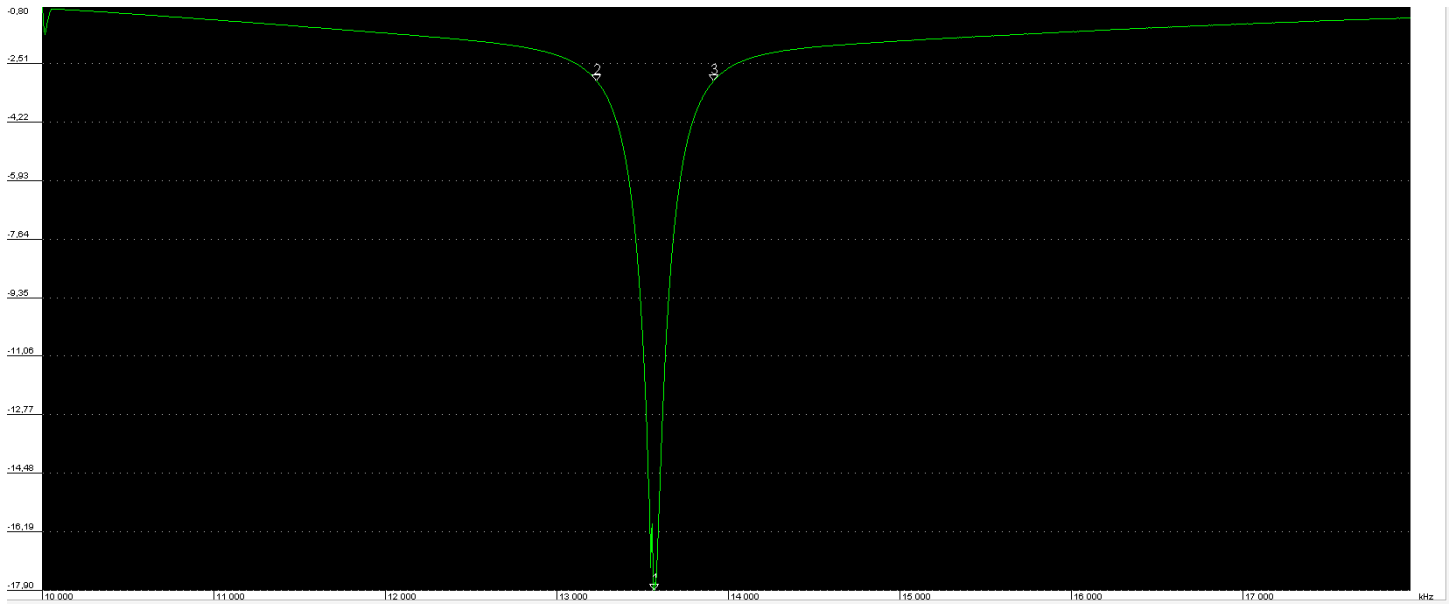
The connector is a standard u.FL, I-PEX connector attached to the 1.13mm thick coaxial cable. This connector mates with receptacles from various manufacturers, for example Molex 734120114.

PCB antenna products can be customized as per application requirements. Parameters such as the dimensions or shape of the coil or its inductance can be altered.

The RFID antenna was designed by Eccel Technology Limited. The antenna is an integrated part of the main electronics board and it's made from the PCB tracks.

This communication feature is implemented by magnetic induction in a very near field environment and antenna gain information is not required to be declared.

## 4. Return Loss, SWR, Smith Chart



Częstotliwość [kHz]	RL (dB)	RP (°)	Z  (Ω)	Rs (Ω)	Xs (Ω)	Theta	SWR
M							
1	13 575 385	-17,90	-179,92	38,7	38,7	-0,0	1,29:1
Δ	337 590	14,89	349,54	29,0	30,1	4,4	0,0
2	13 237 795	-3,01	169,62	9,7	8,6	4,4	5,83:1
3	13 923 205	-3,02	-162,20	11,6	8,8	-7,6	5,81:1
4							

