

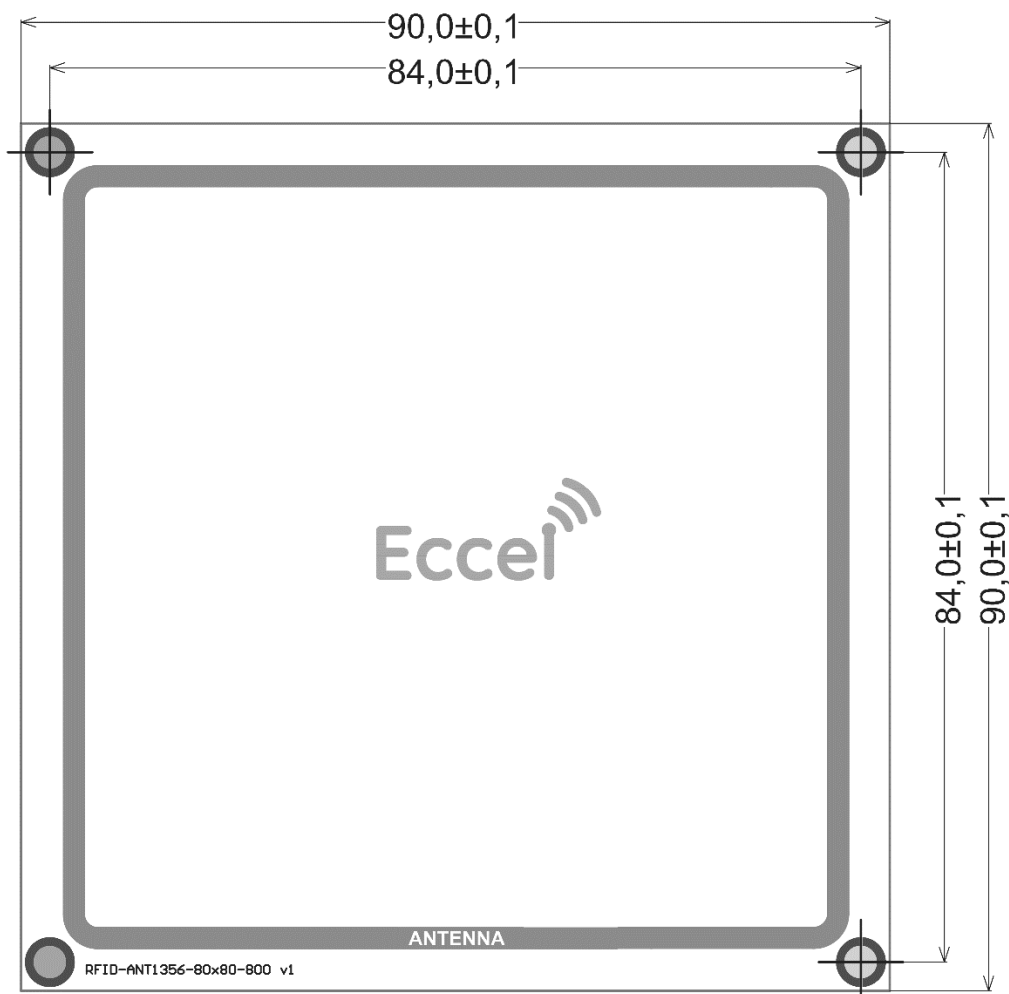
1. Antennas specification

1.1. 80x80mm Antennas



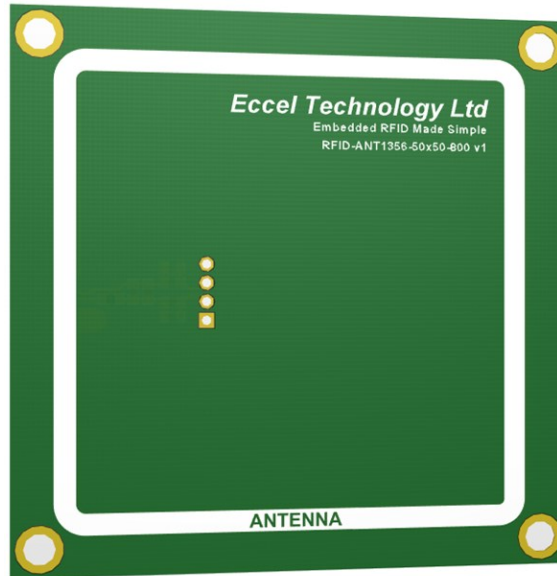
Standard specifications:

Operating Temperature Range	-40°C to + 85°C
Storage Temperature Range	-40°C to + 85°C
Operating frequency [MHz]	13.56
PCB dimensions: width x length x thickness [mm]	90 x 90 x 1
Coil antenna dimensions: width x length [mm]	80 x 80
Cable length XXX [mm]	800 or 300



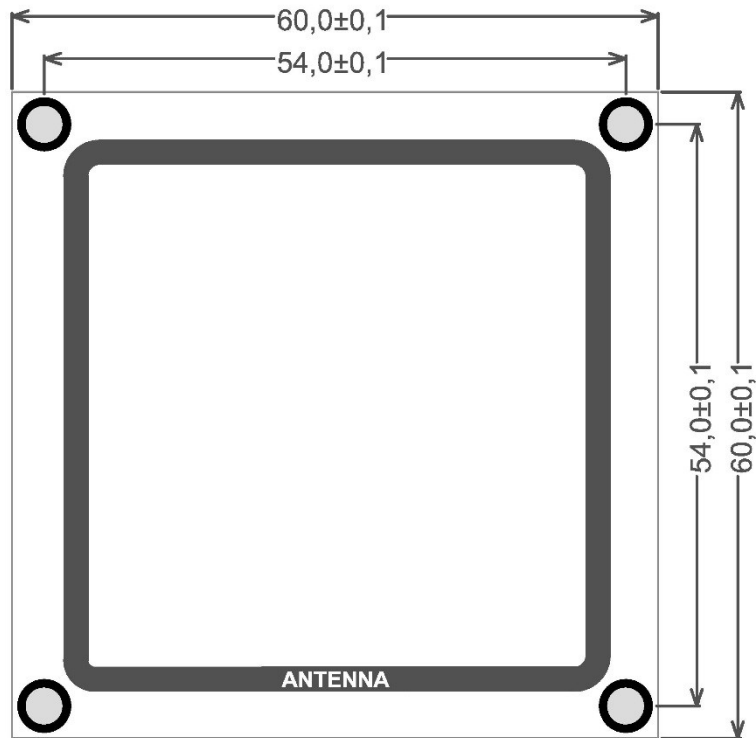
Hole size x4
Ø 3.4 mm
Outer diameter
Ø 5.0 mm

1.2. 50x50mm Antennas



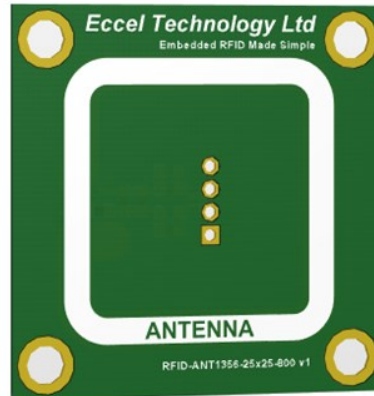
Standard specifications:

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]	60 x 60 x 1.8
Cable length XXX [mm]	300; 800



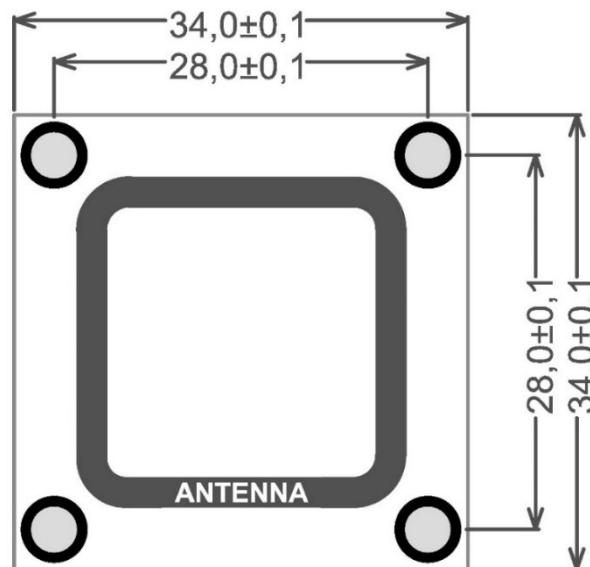
Hole size x4
 \varnothing 3,4 mm
Outer diameter
 \varnothing 5,0 mm

1.3. 25x25mm Antennas



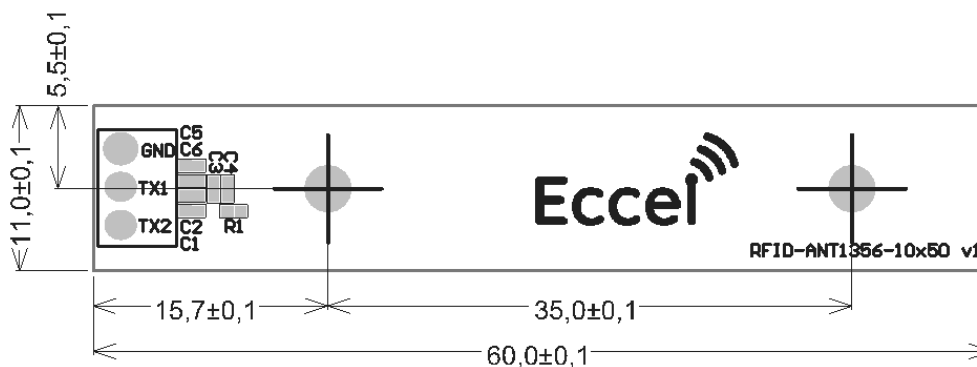
Standard specifications:

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]	34 x 34 x 1.8
Cable length XXX [mm]	300; 800



Hole size x4
Ø 3,4 mm
Outer diameter
Ø 5,0 mm

1.4. 10x50mm Antennas



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]	11 x 60 x 1.6
Cable length XXX [mm]	300; 800
Read range [mm]	Up to 40 (depend on the tag type)

1.5. Performance

25x25 and 50x50mm

Test conditions: Tested with ECCEL Technology RFID A1-1 module, $V_{cc} = 3.3\text{ V}$, $T_{amb} = 25^{\circ}\text{C}$

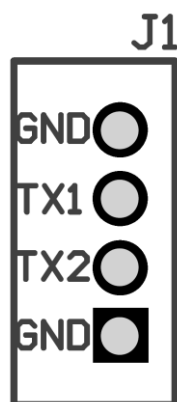
	Maximum range [mm]			
	Antenna #1 25 mm, cable 800 mm	Antenna #2 25 mm, cable 300 mm	Antenna #3. 50 mm, cable 800 mm	Antenna #4. 50 mm, cable 300 mm
Mifare Classic 1k (MF1S50) ISO card	40	40	65	65
Mifare Classic 4k (MF1S70) sticker 3x1,5 cm	20	20	25	25
Mifare Classic mini (MF1S20) ISO card	50	50	75	75
Mifare Ultralight ISO card	45	45	70	70
Mifare Ultralight C ISO card	10	10	20	20
Ntag 203F Sticker ϕ 20 mm	15	15	15	15
Ntag 212 Sticker ϕ 19 mm	20	20	30	30
Ntag 213 ISO card	30	30	40	40
Ntag 215 ISO card	30	30	40	40
Ntag 216 Iso card	35	35	50	50
Ntag 216 Sticker ϕ 21mm	25	30	30	30
Ntag 210 Sticker ϕ 38 mm	30	40	55	60

80x80mm

Test conditions: Tested with ECCEL Technology RFID B1-1, $V_{cc} = 3.3\text{ V}$, $T_{amb} = 25^{\circ}\text{C}$.

Read range with all types of tags is up to **110 mm**. It depends on the tag size and tag manufacturer. The tests were performed using MIFARE Classic® ISO cards, MIFARE Ultralight® ISO cards and NTAG2xx® ISO cards.

2. Pinout



TX1 – Antenna TX1
TX2 – Antenna TX2
GND – Ground

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. Antennas are provided with 2-conductor shielded cable, in lengths of 300 mm or 800mm, and terminated with a 4-pin connector JST PHR-4(RS Stock No. 820-1478). We also ship a suitable 4-way socket JST B4B-PH-K-S(LF)(SN) (RS Stock No. 820-1434) with each of our antennas to give users an “out of the box” complete bill of materials.

3. Description

Antenna type	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 RFID antenna was designed by Eccel Technology Limited.

The antenna is 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.

Dimensions are shown in the picture below.

4. Return Loss, SWR, Smith Chart

