



# Trolley Scan (Pty) Ltd

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## TROLLEYPONDER/ECOTAG/RADAR RFID Newsletter #104

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Your latest copy of our regular newsletter keeping you up to date with developments.

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#### 1. Development of passive UHF RFID animal eartag for cattle and wild game

RFID systems have two major components, namely the reader and the transponder. If there is a suitable transponder available for a particular application, then RFID solutions can be provided for that industry.

To attach transponders to large animals such as cows or kudu, if you are wanting to get a reasonable read range, then the transponder needs to be outside of the body. (The water content of the body means that only magnetic coupled transponder technology can be used when the transponder is inserted under the skin and these have very short read ranges.)

To get the transponder mounted outside of the body, it is usual to attach the transponder to the ear tag on the animal. This presents problems in the past as it is very difficult to glue anything to an ear tag due to its material of manufacture, and the performance of the transponder changes when it is in close contact with the material of the ear tag meaning short read ranges.

Trolley Scan have developed a UHF passive RFID transponder that now has a read range up to **10 meters**. The transponder is moulded inside the ear tag protecting it from damage and giving the RFID ear tag a long operating life. The ear tag is passive - so no batteries are needed - and the electronics should have a 100 year life.

The ear tag is based on the standard range of ear tags produced by SafeTag in East London, South Africa and comes with all the supporting equipment needed to apply the tags in the field. This includes having the ability to have the animal number marked on the ear tag with a laser etching process for permanent marking.

To develop this transponder, Trolley Scan faced a number of challenges. An antenna needs to be very efficient to offer long reading ranges and this means it must resonate at the operating frequency. This is similar to the situation of a tuning fork in an audio situation. The antenna is influenced by materials in close proximity to the circuit board and by other items in its environment

up to 9 centimeters away from the circuit board. These influences change the operating performance of the transponder compared to when it is operating in air such that when attached to the eartag all the performance has disappeared. This meant that a new design of the transponder had to be developed by Trolley Scan to compensate for all these influences and to get back the transponder performance that it would be able to be read at 10 meters from the reader when attached to the animal. This required a new design as the transponder is now embedded inside the eartag material and is influenced by the moulding material on both sides of the transponder.

This development opens opportunities for monitoring of large animals up to 10 meters from the reader and is particularly suited to unmanned monitoring of animals on a continuous basis.

More details can be found at <http://rapidttp.co.za/trolley/datacatt.html> Datasheet - Bokkie-tag(tm)/Ecocattle(tm) passive RFID eartag for wild game and cattle

## **2. New solar reader coming shortly**

In our next newsletter we are expecting to announce the availability of a stand alone solar powered reader for monitoring animals in their grazing situation. This has produced some amazing challenges as it has to be designed to recover from complete power-downs when rain sets in for long periods, and the ability to establish communications to relay measurements back to the websites of the clients.

## **3. Product range**

Trolley Scan are a manufacturer of UHF RFID systems. Trolley Scan manufacture fixed readers, portable readers and RFID-radar systems (Real Time Locating systems that give accurate position information) as well as a variety of transponders for different applications. Transponders come in the form of passive transponders with operating ranges up to 20 metres and battery assisted transponders with an operating range up to 40 metres. Trolley Scan also combine some of these components into packages for end users which are supplied with the appropriate software. Typical applications are asset management, notebook tracking, equipment barriers, store control, sheep and cattle tracking, event logging and sports timing systems.

Trolley Scan have been delivering their RFID solutions for the past 16 years and offer full support for all their equipment.

## **4. Getting your own complete RFID/radar system**

You can order RFID systems or RFID-radar systems from [Trolleyscan.com](http://Trolleyscan.com)

Trolley Scan provide small RFID reader systems which give new users the ability to evaluate UHF RFID and their applications without needing specialised skills.

Trolley Scan provide a variety of easy starter systems for first time users who have an application that needs a solution. Typical packages are :

- ? Standard UHF long range readers with antennas and 100 transponders
- ? RFID-radar system comprising long range reader, antennas and a variety of different transponders.
- ? RFID-asset tracking systems comprising portable reader, antenna and a variety of transponders with software.
- ? RFID-notebook/laptop tracking system comprising reader, antennas, transponders and software

In addition components such as readers and transponders are available

These systems are already operating in 52 countries.

To find out details of the systems and to order see <http://trolleyscan.com/>