RFID RACE TIMING SYSTEMS

Timing is Everything

# Ultra – Step into the future of timing

**Press Release – November 9, 2009**

We are pleased to announce the release of Ultra, the latest offering from RFID Race Timing Systems. Ultra uses the latest in EPCglobal Class 1, Generation 2 UHF tags, RFID readers and antennas to create a superior timing solution. The three unique components of Ultra are;

***The Box*** – Contains the RFID reader, networking hardware and industrial computer. The control box is a small heavy duty case that is designed for work in tough conditions. With 8 antenna ports, one control box can drive 8 antennas to cover a 9m wide timing point. The UHF reader inside is currently the world's most sensitive Gen2 reader with a maximum receive sensitivity of -80dBm. With some antennas we have achieved a read range of up to 80m using these readers.

***The Antenna*** – RFID Race Timing has developed their own UHF patch antennas specifically for sports timing. These antennas have maximum sensitivity to our chosen tags whilst minimising unwanted reads flanking the read zone. The antennas are currently embedded in a flexible EVA mat that is easy to position in many configurations. Each mat piece measures 1.1m wide by 0.45m deep and weigh's 2.5kg. The antenna mats are extremely thin at just 11mm (0.4 inches) high thereby avoiding issues with athletes tripping on a thick and bulky antenna section.

POWER ID
Empowering RFID

***The BAP*** – Stands for **B**attery **A**ssisted **P**assive and is an absolute revolution in transponder design. Until now UHF tags have had problems being read on the human body. Several of our competitors have tried to address this by placing the transponder off the human body using fiddly shoe lace tags – a system that requires input from the competitor and is not 'idiot proof'. All passive tags are severely compromised when placed very close to the human body due to detuning and loss of backscatter signal. Enter the BAP tag by PowerID™. These tags use an ultra thin, flexible, and environment friendly battery that powers the onboard RFID chip thereby boosting energy backscatter to the reader. The performance gains are remarkable for what is essentially a passive tag that can be produced at low cost (unlike an active tag that uses a coin battery cell). The battery is non-toxic and has been cleared for safe disposal by the most stringent of environmental rules imposed in Europe.

The beauty of the BAP is that it can be worn on the back of the chest race number completely eliminating the need for the competitor to perform fiddly manoeuvres with an adhesive label on their shoe. This really is the ultimate system for timing large running events throughout the world.

**Applications** – ULTRA has been designed primarily to time major running events but is also extremely efficient at timing mountain biking and road cycling. For cycling the BAP's are easily read from the race number plate (MTB) or from a special disposable label wrapped around the seat post.

The advantages over our competitors –

- The BAPs cost about the same as shoe tags without the hassle of runners having to place a transponder on the shoe. The athlete does not have to do anything special that they otherwise would be doing in a manually timed race.
- The smallest and most compact of all timing systems with the control box 35cm x 25cm x 20cm able to time 9 metres width.
- Proven and stable firmware ported across from our successful HDD Systems.
- Antennas are embedded in mats that are easy to transport. We also design antennas for overhead gantries but believe the mats are the simple and safest option.
- RFID Race Timing does not mark-up the costs of tags and in fact encourages timers to go direct to Power-ID, the makers of the BAP.
- Race Bib and tag are easily posted out to competitors pre-race.
- All the benefits of tag encoding and printing on the latest Datamax and Zebra RFID thermal printers.
- Reasonable pricing on control box and antenna mats.

**What is UHF?**

UHF stands for Ultra High Frequency. Ultra uses UHF RFID to communicate between reader and tag around the 900MHz spectrum. The FCC standard for USA is 902-928 MHz whilst Europe is more stringent with just less channels near 868Mhz. Countries like Hong Kong, Singapore and Australia use a similar spectrum between 920-926 Mhz. Readers are preconfigured to these spectrums and country specific protocols (ie. frequency hopping or fixed frequency).

**What is EPC Class 1 Gen 2 Protocol?**

Ultra utilises the Gen2 Protocol adopted worldwide for passive UHF readers and tags. There are many vendors manufacturing hardware that can read the same tags in most countries. As the name suggests, this is the second protocol that has been released which gives far better tag reading performance over legacy protocols. The reading of 100 tags per second in difficult environments with the one reader is now quite achievable using Gen2.

**What advantages does UHF have over low and dual frequency?**

The number of vendors that manufacture UHF tags is large. That means UHF tags are some of the least expensive of RFID transponders on the market owing to manufacture volumes, competition between vendors and minimal use of copper and silicon. This makes the UHF tag priced low enough to make it disposable.

**What is the lifespan on the BAP?**

The battery on the BAP lasts for 2.5 years when kept at temperatures below 20 degrees Celsius. The tag can still be read with a dead battery and will act like any other passive UHF tag after this time.

**Do the BAPs work in the rain?**

Yes. We have tested the read rates of BAPs under wet and raining conditions and there is no compromise in performance under these conditions. The BAPs themselves are waterproof when applied to a normal wax style race bib commonly used in running races.


Further info:

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