TRACK BOX PASSIVE

The Track Box Passive allows UHF transponder timing with only one small device. The hands-free solution is easy to carry, super fast in setup and managed remotely. With UHF reader, GPS and battery integrated, it is the ideal device for split points, remote timing locations and advanced race visualization.

Features

- Internal battery for up to 18 hours of runtime
- Real-time timing data sent via mobile network (SIM)
- Easy, hands-free operation, easy to set up for volunteers
- Lightweight (1.7kg/3.7lbs) and portable for remote locations
- Remote configuration and management through an online interface
- Optional solar panel support
- Energy-efficient standby mode when inactive

Dimensions & Standards	
Protection class (power connector plugged in or closed)	IP54
Regulatory conformity and standards	EN60950 (safety) EN50581:2012 (RoHS) EN302208 (UHF RFID)* EN301489 (2.4 GHz)* FCC Part 15.247 (UHF RFID)* FCC Part 15 (2.4 GHz)* ARIB-STD-T106 (UHF RFID)*
Regulatory regions	ETSI_LOW ETSI_HIGH FCC CANADA JAPAN AUSTALIA CHINA
Versions**	1) 866 MHz / ETSI LOW 2) 915 Mhz / FCC 3) 915 Mhz / ETSI HIGH, CANADA, AUSTRALIA, CHINA, JAPAN
Temperature range	-20°C to 50°C
Dimensions / weight	335 mm x 160 mm x 55 mm 1.7 kg

*Pending
**UHF operates globally on different frequencies (e.g. Europe 865 - 868 MHz, USA 902-968 MHz, AUS 920-925 MHz) with different detailed regulatory requirements. That is why RACE RESULT provides different versions of the system for different regulatory areas. When operating the passive part of the system in another country, make sure it complies with local regulation.

Power & Battery	
Battery	3 x 4000 mAh 3.7 V Li-Po
Battery life***	12-18 h (UHF reader on - blue LED on) 10 days (Standby)
Charging time (0% to 90%)	6 h (UHF reader off - blue LED off) 10 h (UHF reader on - blue LED on)
Charging temperature	0°C - 40°C
Power consumption	4 W (UHF reader on & battery full) 10 W (battery charging)
DC power supply	12 V - 15 V, 800 mA (battery charging) 10.8 V PB battery undervoltage protection
AC power supply	100 V - 230 V, 50/60 Hz
Solar power supply	5 V - 25 V (4 W / 6 W / 8 W / 10 W) recommended - 30 W - 50 W "12 V" panel DC > 17 V enables solar mode

***Dependent on volume of data transmitted and temperature

Detection & Passings	
Memory	40,000 passings (not persistent)
Timing resolution	1/10th second
Timing accuracy	Up to 200 ms dependent on speed and distance between box and transponder
Detection rate (clear line of sight to visible transponders at 5x transponders per second = 300x per minute)	> 99% within 4 m of a single box > 90% within 8 m of a single box > 99% between 2 boxes with 8 m distance
Max speed	100 km/h / 60 mph (single transponder in read zone)
Max simultaneous transponders	40 x transponders in read zone
Max theoretical throughput	300 x transponders per minute

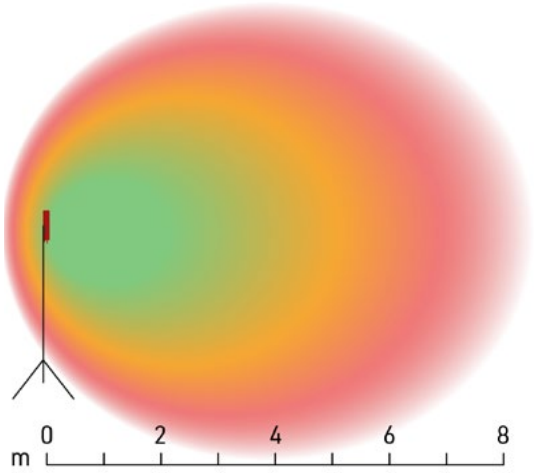
RF Characteristics	
2.4 GHz channel frequencies (worldwide compliance)	1:2480 /2410 5:2415 / 2445 2:2405 / 2470 6:2460 / 2430 3:2425 / 2465 7:2435 / 2455 4:2475 / 2440 8:2450 / 2420
2.4 GHz TX power	3.5 dBm
2.4 GHz range	50 m - 150 m
UHF bands	**ETSI LOW:** 865.7 / 866.3 / 866.9 / 867.5 MHz **ETSI HIGH / FCC/ CANADA / AUSTRALIA / CHINA / JAPAN:** 900-930 MHz (bands dependent on regional regulations)
UHF TX power	36 dBm EIRP typical (up to 39 dBm EIRP, dependent on regional regulations)
UHF RX sensitivity	-85 dBm
Integrated UHF Antenna	6 dBi gain 90° beamwidth

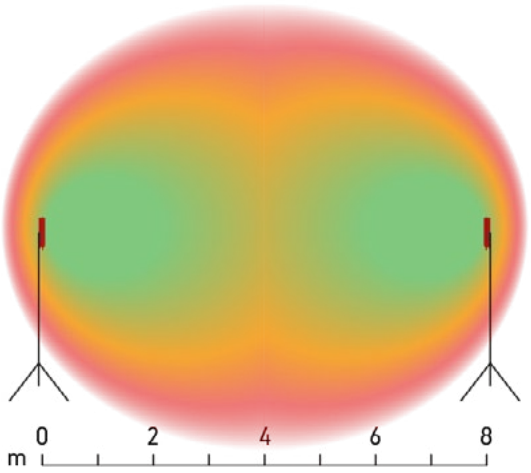
Connectivity & GPS	
Internal GPS	Qualcomm gpsOne Gen8c with GPS, GLONASS, BeiDou/Compass, Galileo and QZSS
29 band 4G / LTE / 3G / 2G module worldwide coverage	**FDD:** B1 / B2 / B3 / B4 / B5 / B7 / B8 / B12 / B13 / B18 / B19 / B20 / B26 / B28 **TDD:** B38 / B39 / B40 / B41 **WCDMA:** B1 / B2 / B4 / B5 / B8 / B6 / B19 **GSM:** B2 / B3 / B5 / B8
SIM card	2FF standard / mini-size 
Antennas	Internal

Sold as Pack with 2 Track Boxes	
Content	Foam-padded case with shoulder strap 2 x Track Boxes 2 x tripod mounts 2 x stakes 1 x double charge adapter 1 x 12 V AC adapter 1 x mains power lead
Dimensions / weight	390 mm x 300 mm x 135 mm / 5 kg

Detection Rates

Graphic refers to RACE RESULT Bib Transponder with single chip at running event. Bib worn visible on front of torso for direct line of sight.
Expect higher reads in free air (MTB Plate, Seat Post). Other transponders (HuTag, Disposable Triathlon Transponder) are not recommended due to their design and positioning, especially in ranges > 2m.
Two opposing boxes automatically communicate and automatically sync to each other so they do not interfere.

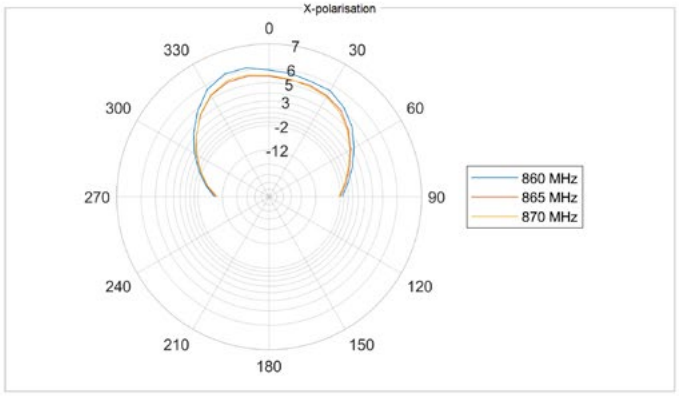


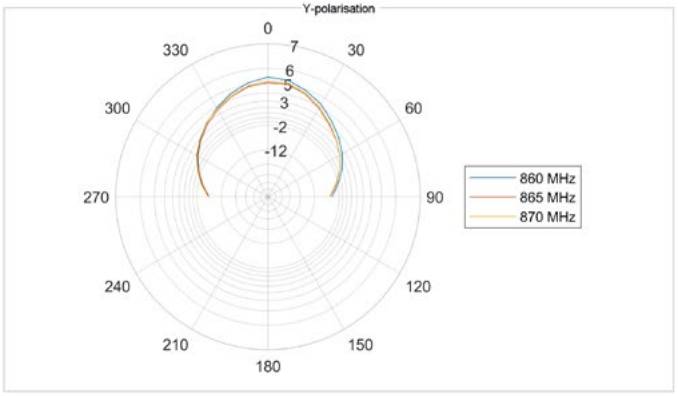


Detection Rates

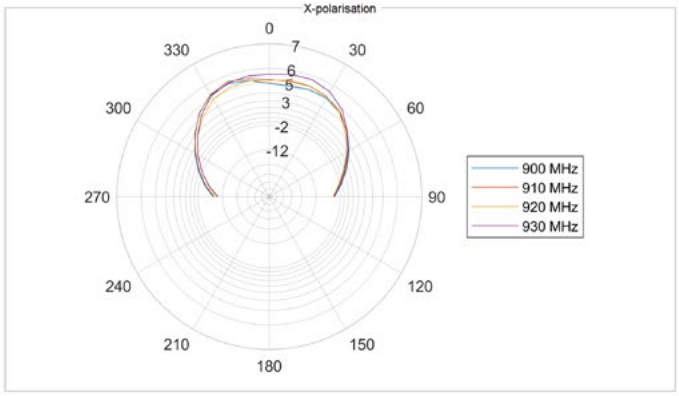
GOOD BAD

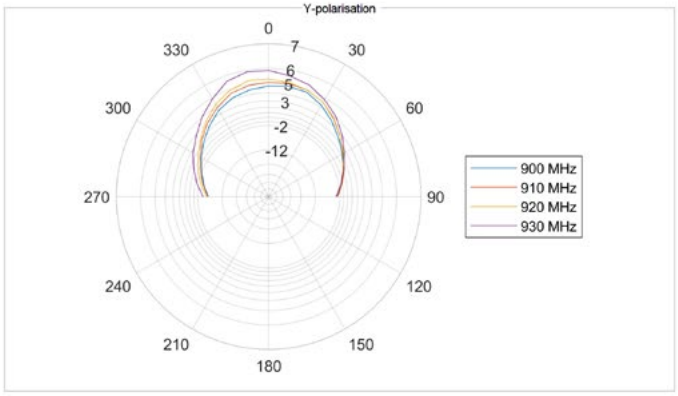
ETSI/EU Antenna Diagram





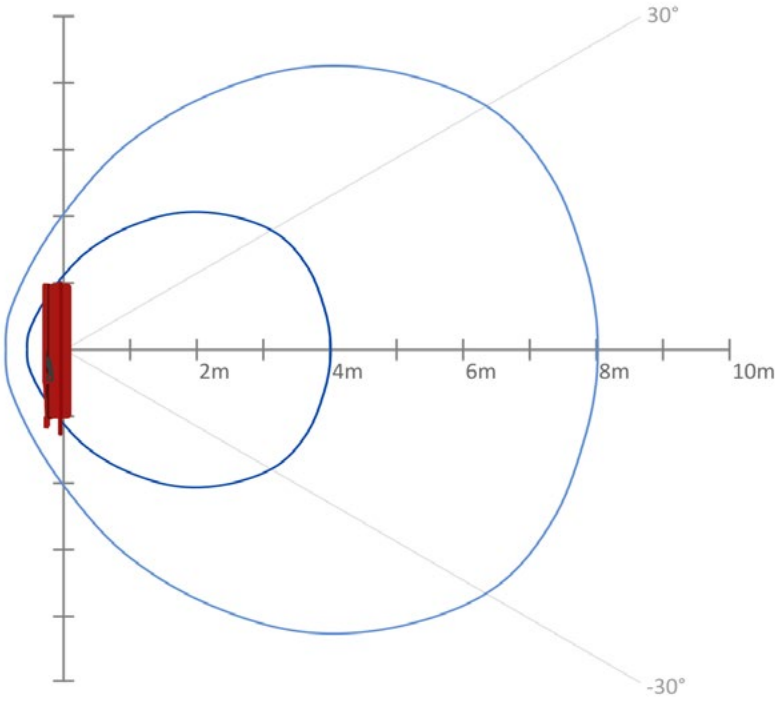
FCC and 915MHz Antenna Diagram



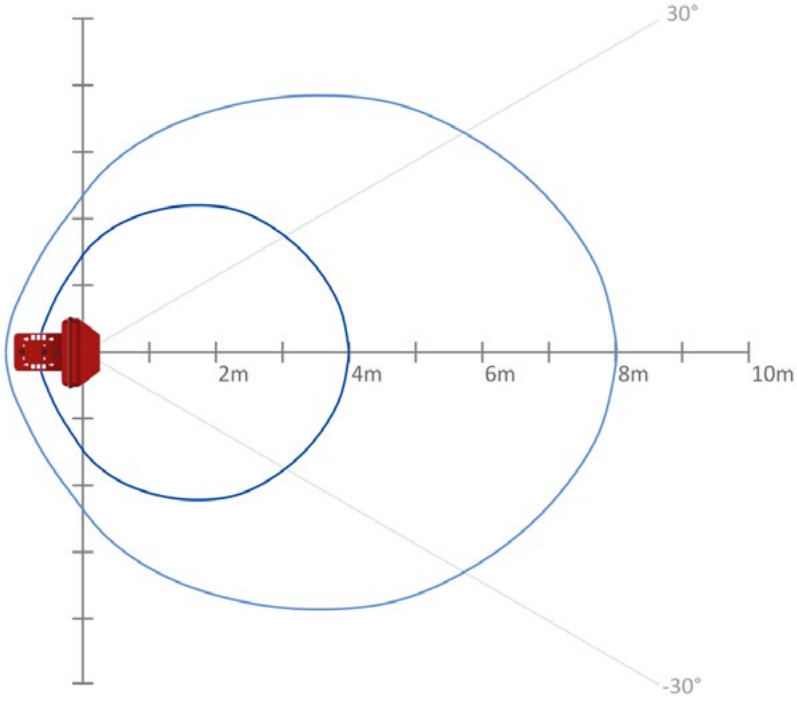


Detection Field Strength Pattern

Sideview

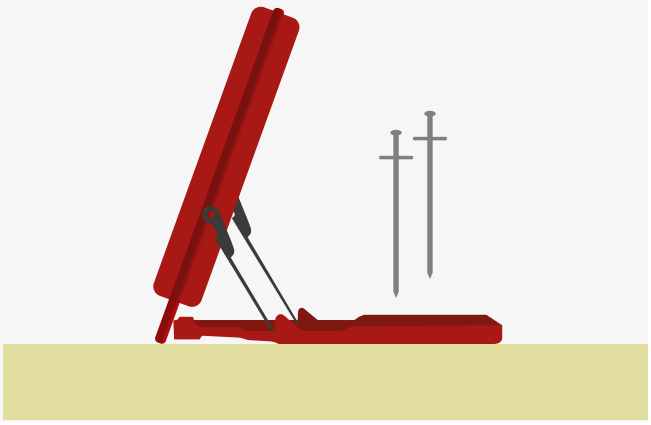


Topview

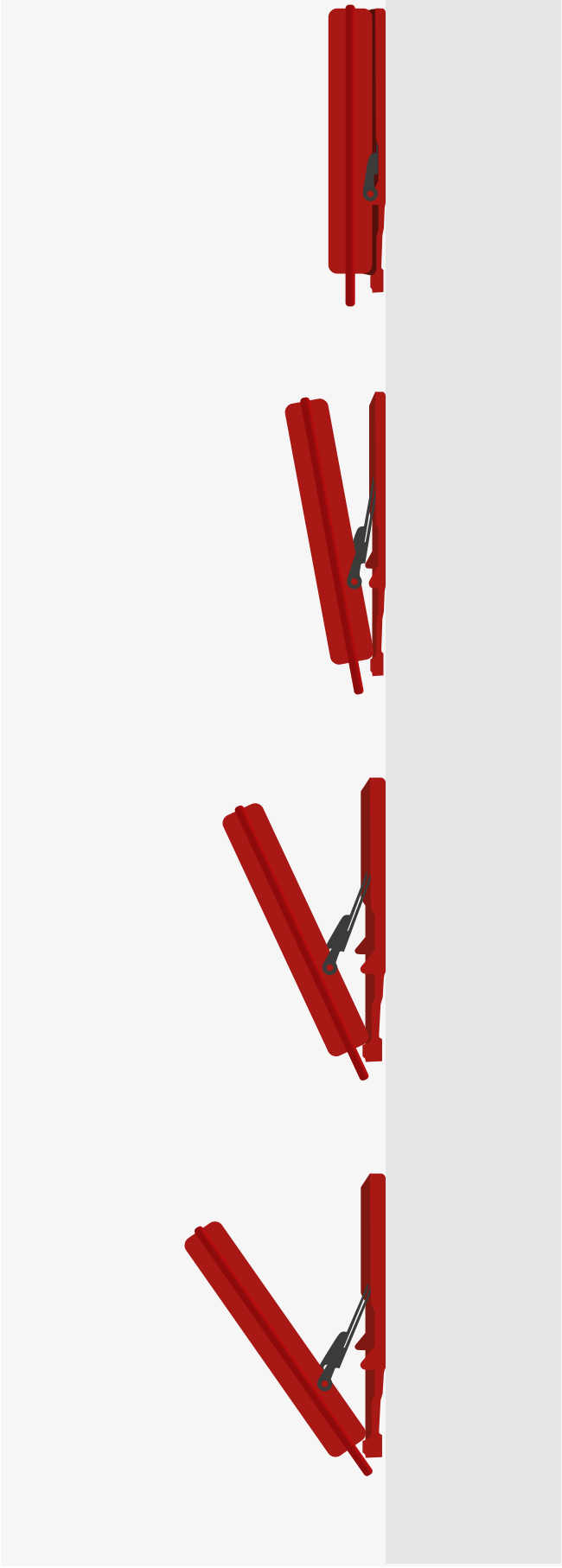


Mounting Options

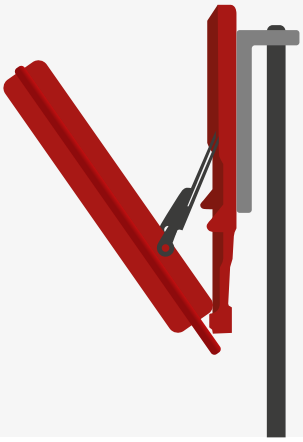
Standing on the floor (with stakes)



Hanging on magnets



Mounted on tripod



Mounted on wall with screws