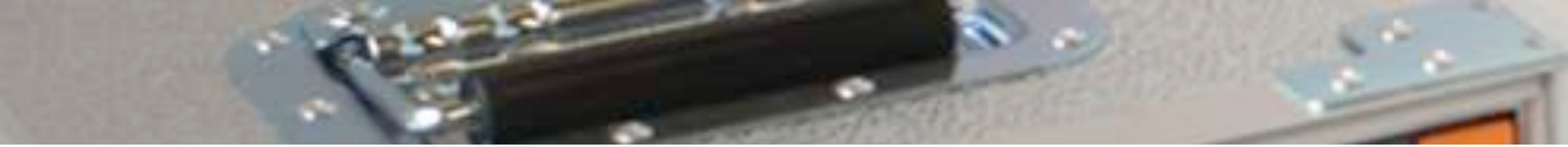
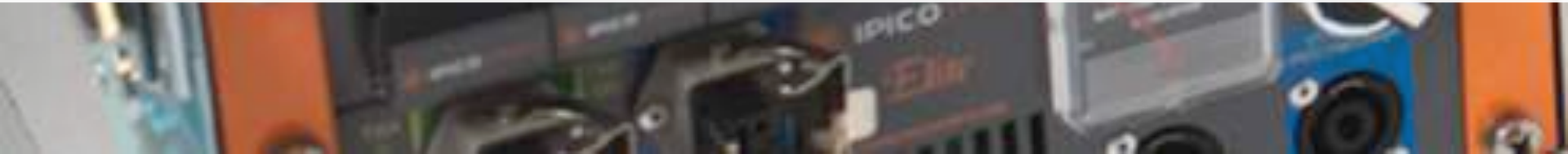


Tech Talk

IPICO SPORTS

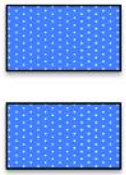
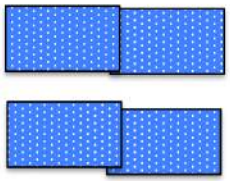
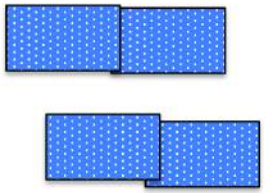


Overview

- Mat setups – Pros/Cons
- Cycle antenna / Power tag / Bike clip
- Tips to optimize for BiB tags
- Tips on using the Integrated Test Tag
- Super Elite modes and states
- UHF vs DF demo

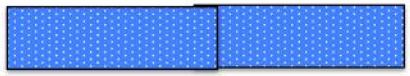
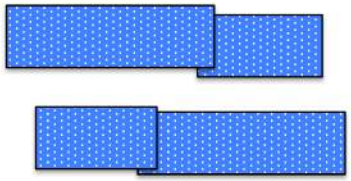
IPICOSPORTS

Summary Table 2.5m mat layout

Item	Mat layout	Detection	
		Shoe	BiB
1	2.5m Single 	Fair	Bad
2	2.5m Singles, 1 Row 	Fair	Bad
3	2.5m Singles, 2 Rows 	Good	Good
4	2.5m Singles, 2x2 Rows 	Good	Good Bad through centerline
5	2.5m Singles, 2x2 Rows Staggered 	Good	Good

IPICOSPORTS

Summary Table 5m mat layout

Item	Mat layout	Detection	
		Shoe	BiB
1	5m Single 	Fair	Bad
2	5m Singles, 1 Row 	Fair	Bad
3	5m Singles, 2 Rows 	Good	Good Bad through centerline
4	5m Singles, 2x2 Rows Staggered (0.5m) 	Good	Good
5	5m +2.5m Singles, 2x2 Rows Staggered (0.5m) 	Good	Good

IPICO SPORTS

Power-up/Detection area with a single 2.5m STK mat under no/low noise conditions.

Shoe	BiB
Fair	Bad

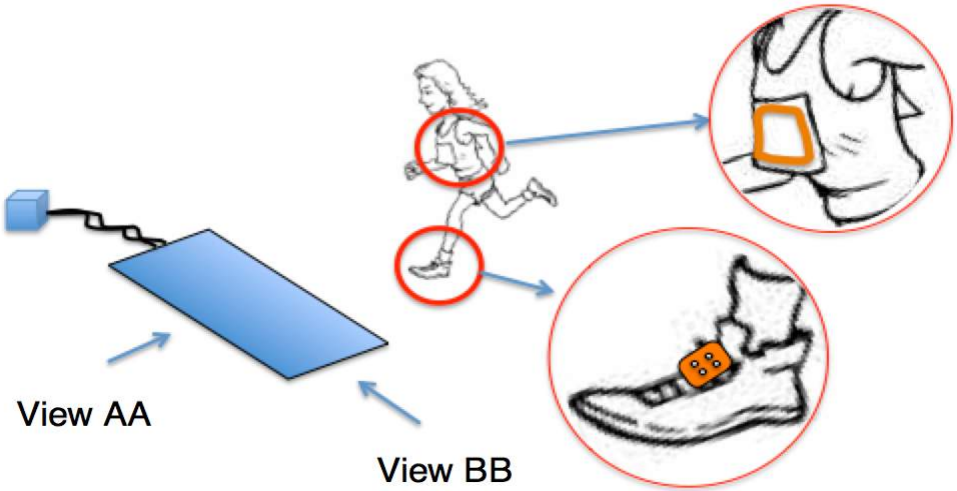


Fig 1. Single 2.5m mat layouts

Shoe Tag moving over a Single mat field:
(Green lobes depict good read areas)

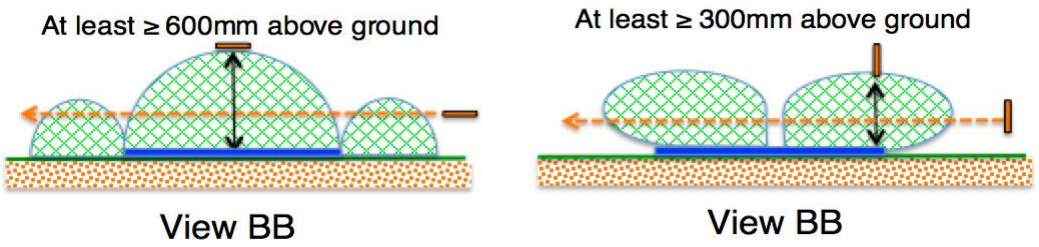


Fig 2. Shoe tag moving horizontally (left) and vertically (right) over a single mat

IPICO SPORTS

Power-up/Detection area with 2x 2.5m STK mats forming 1 row, under no/low noise conditions. **(Note ±300mm overlap on mats)**

Shoe	BiB
Fair	Bad

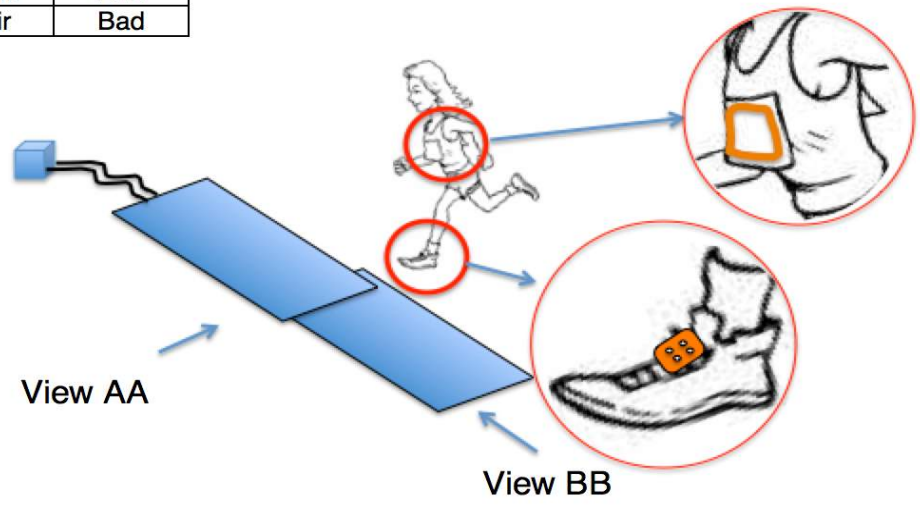


Fig 3. Single row layout of 2x 2.5m mats

Shoe Tag moving over a Single mat row field:
(Green/Blue lobes depict good read areas)

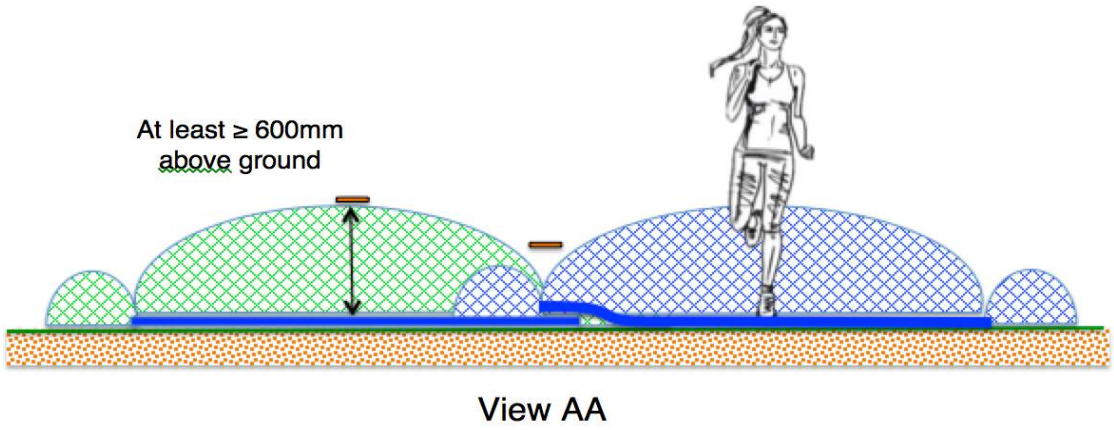


Fig 4. Shoe tag moving horizontally over a single row of 2x 2.5m mats

IPICO SPORTS

Power-up/Detection with 2x2.5m STK mats area under no/low noise conditions. **(Note mats are spaced d = ± 600mm apart)**

Shoe	BiB
Good	Good

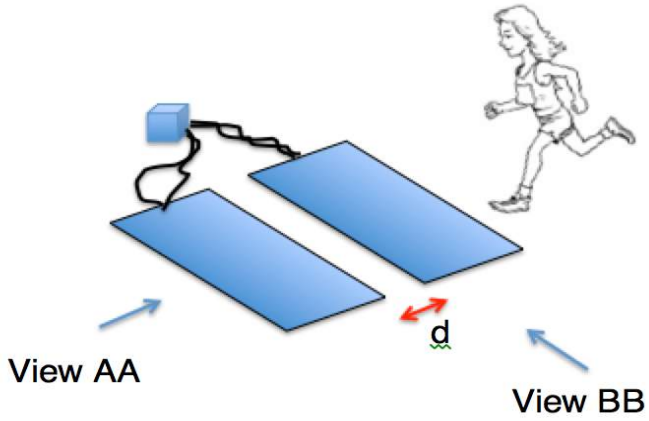


Fig 5. Double row layout of 2.5m mats

BIB Tag moving over 2 single mats placed parallel to each other field:
(Green lobes depict good read areas)

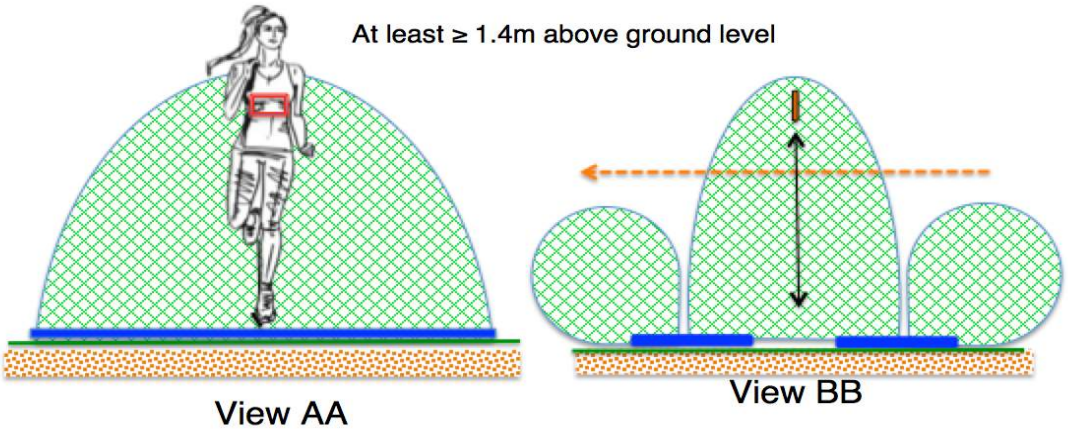


Fig 6. Shoe tag moving horizontally (left) and vertically (right) over a single mat

IPICO SPORTS

Power-up/Detection area with 2x2 rows 2.5m STK mats (Staggered), under no/low noise conditions.

Shoe	BiB
Good	Good

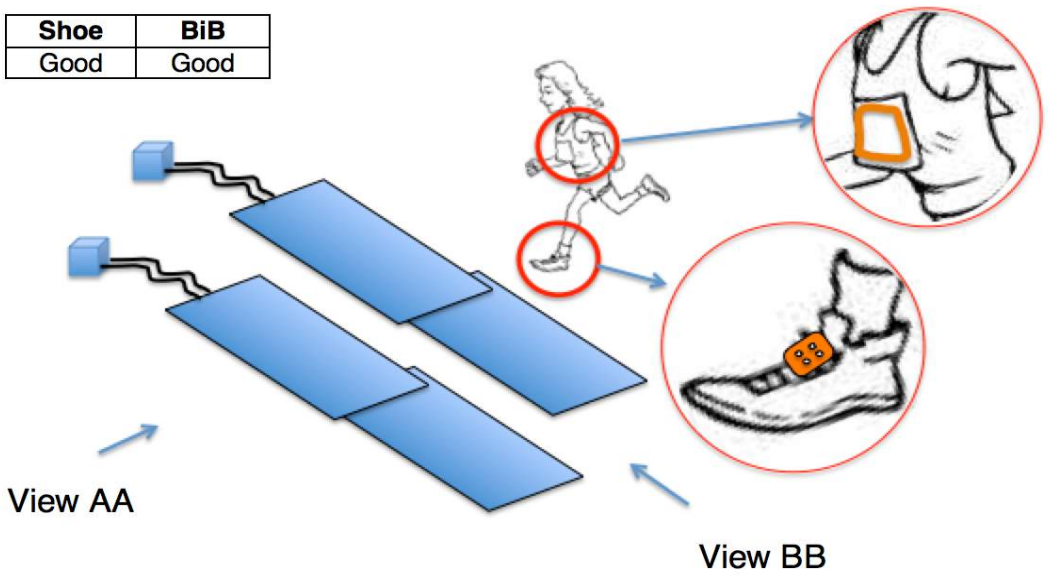


Fig 7. Double row layout of 2x2 2.5m mats

BiB Tag moving over 2 rows of mats that are staggered:
(Green/Blue lobes depict good read areas)

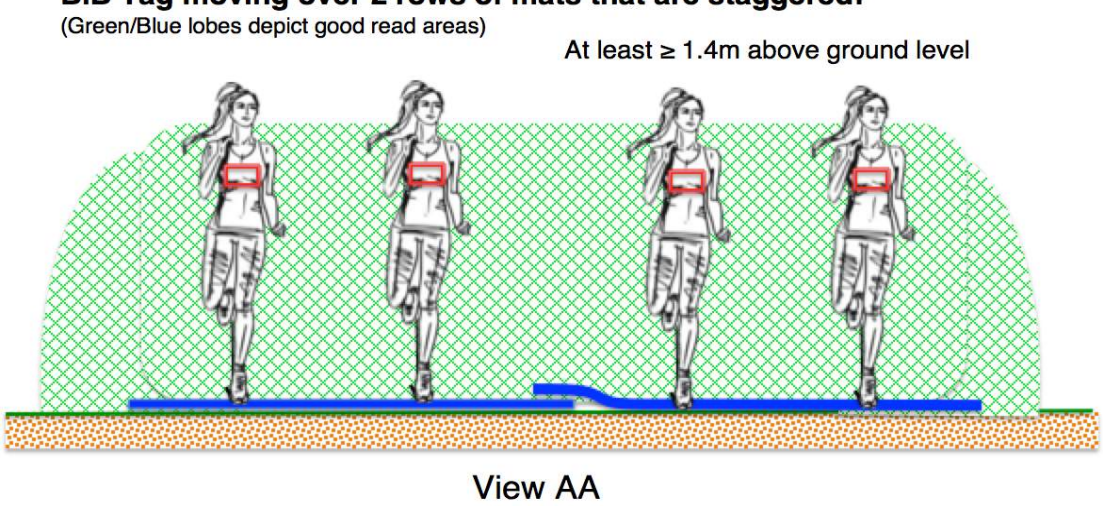


Fig 8. BiB tag moving horizontally over the 2 staggered rows of mats

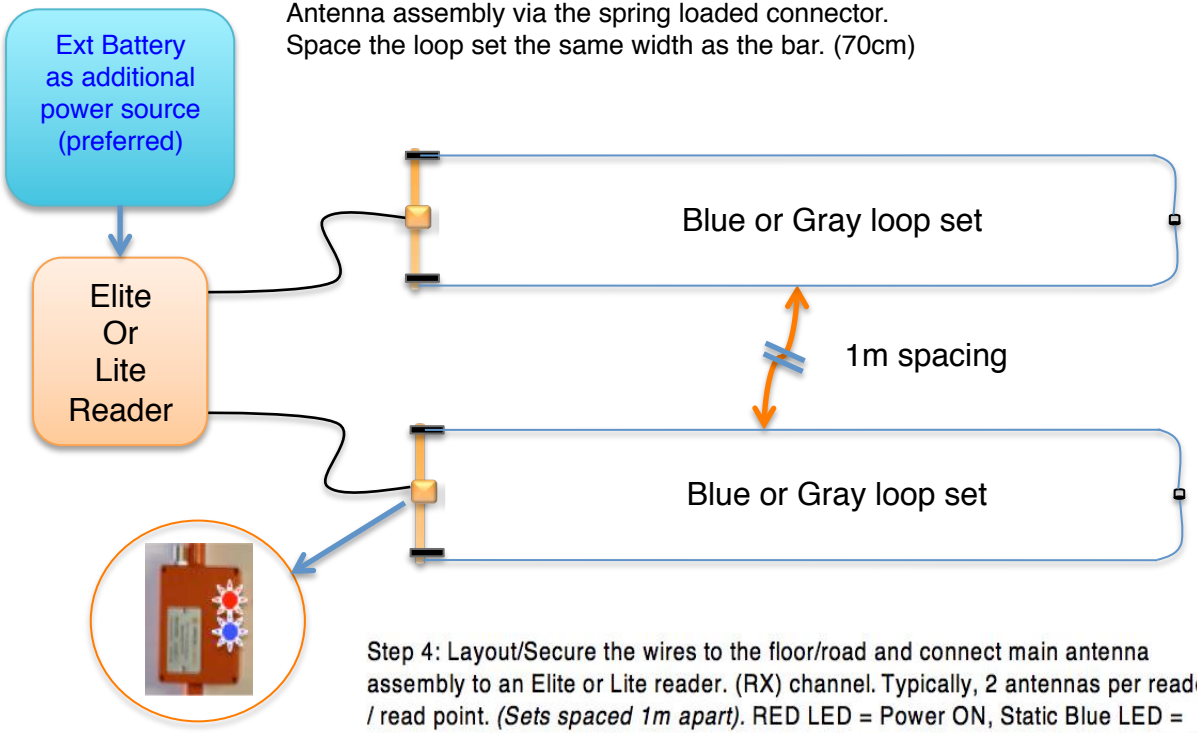
IPICO SPORTS

Cycle antenna / Power tag / Bike clip

Step 1: roll out the Blue or Gray loop set completely on the floor/ground.

Step 3: Connect Black coax cable between the antenna and the reader RX port.

Step 2: Connect the Loop set to the Antenna assembly via the spring loaded connector. Space the loop set the same width as the bar. (70cm)



Step 4: Layout/Secure the wires to the floor/road and connect main antenna assembly to an Elite or Lite reader. (RX) channel. Typically, 2 antennas per reader / read point. *(Sets spaced 1m apart)*. RED LED = Power ON, Static Blue LED = Antenna OK, Flashing Blue LED = Antenna wires are disconnected. Eliminate all external noise sources for max performance .ie Power/Comms cables close to the antenna, Laptop power supplies etc.

IPICO SPORTS

Power Tag - Model nr: IP3555-1 and Bicycle Bracket/Clip IP3004

The preferred position

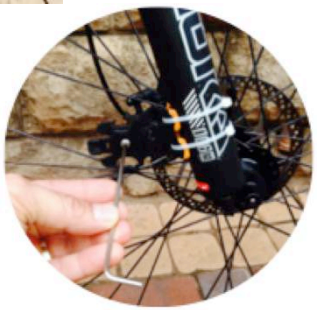
Is on the back chain stay
(Opposite the chain).

Secure the tag with 2 cable ties. This ensures a height of ± 30cm from the ground level for most bikes. This position will ensure the best detection on a bicycle.as it will be the lowest point.

Range: 0 - 450mm
Typically: 300mm
Above ground level

The alternative position

Is on the front fork.

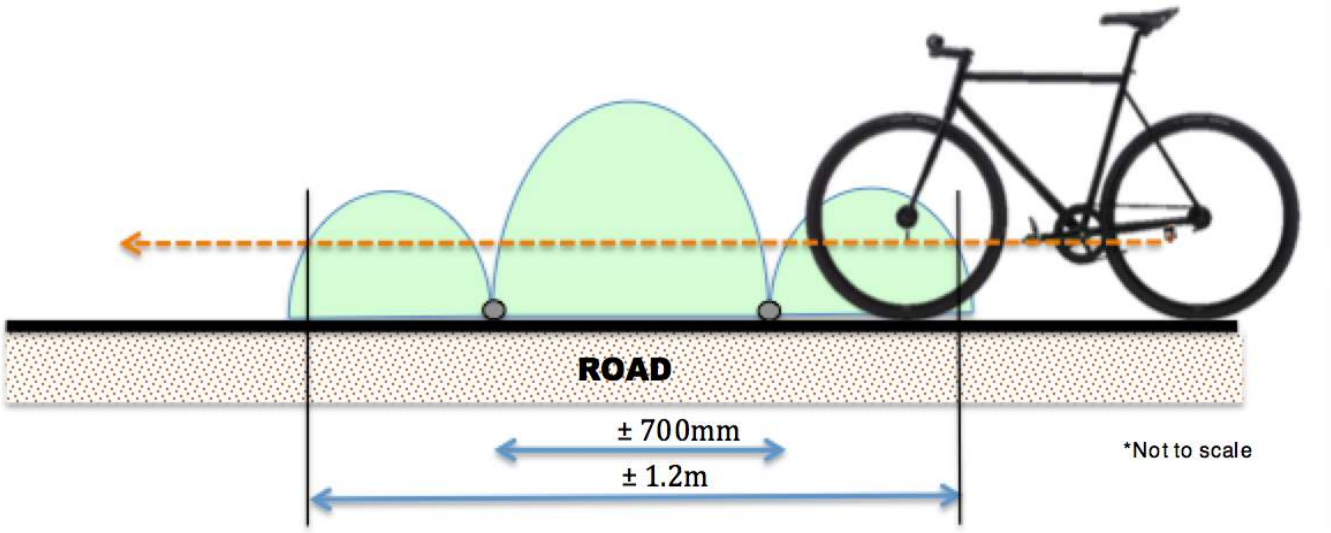


The clip can be adjusted so that tag is in optimal orientation to the road. This is done by loosening the lock nut, rotating the clip and securing it again, before inserting the tag.

IPICO SPORTS

Typical Detection area with the passive loop antenna under no/low noise conditions – side view of loop on the road.

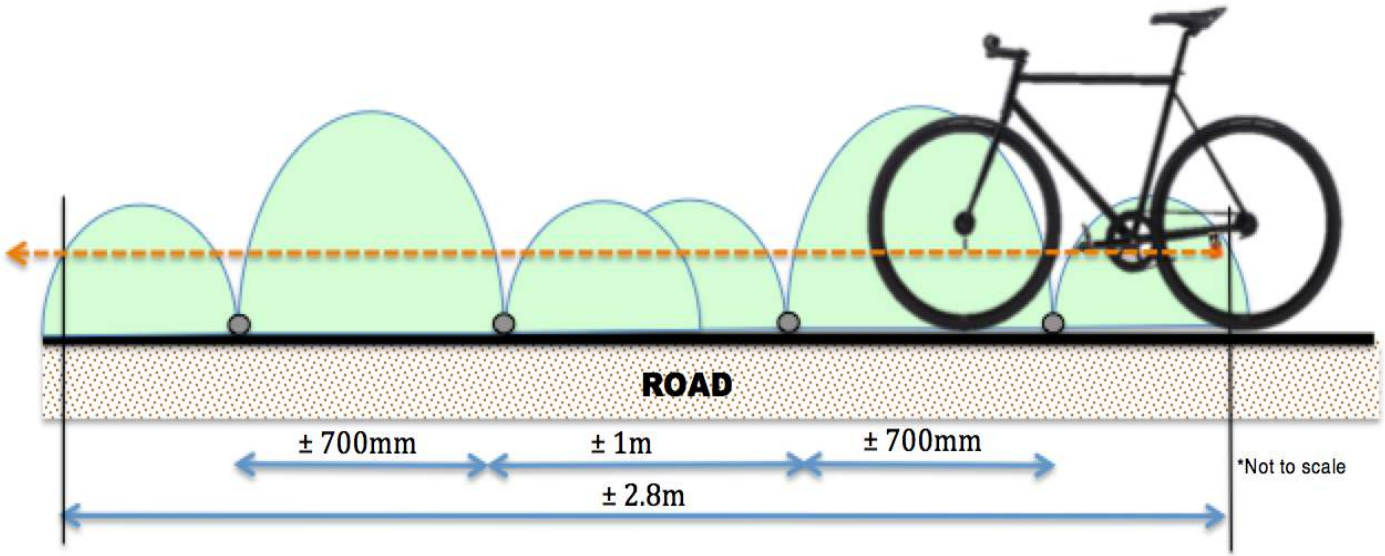
Using the IP3555 for low speed detections <30km/h: 1 loop set should be sufficient



IPICOSPORTS

Cycle antenna / Power tag / Bike clip

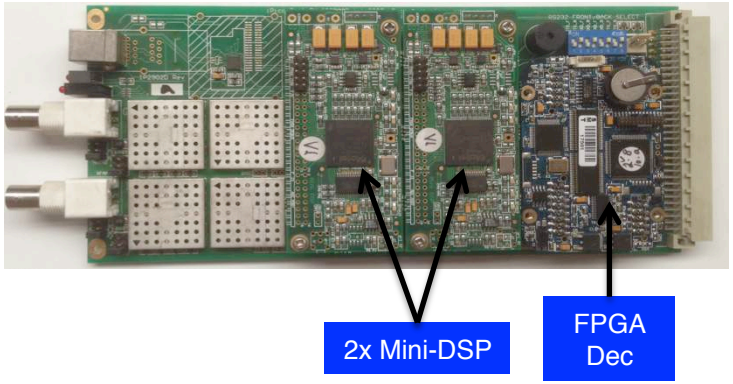
Using the IP3555 for med speed detections <70km/h: at least 2 loop sets (spaced ±1m apart) should be used to increase the detection area.



IPICOSPORTS

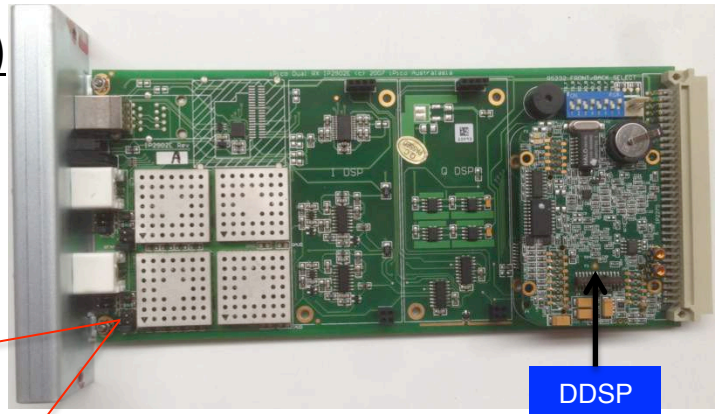
2nd Generation RX board

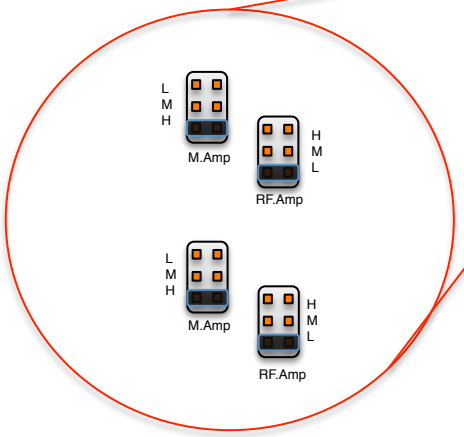
1. Elites – prior to Nov 2012 .
2. Lites – prior to AB000251
3. Mini-DSP should have V2 firmware on or it needs to be reprogrammed/upgraded.
4. Set jumpers on both ch's M.Amp = H, RFAmp = L



3rd Generation RX board (current)

1. All new readers are fitted with DDSP decoders
2. All new reader will have jumpers on both ch's set to M.Amp = H, RFAmp = L





DDSP Dec = Dual DSP Decoder, DSP=Digital Signal Processor

IPICO SPORTS

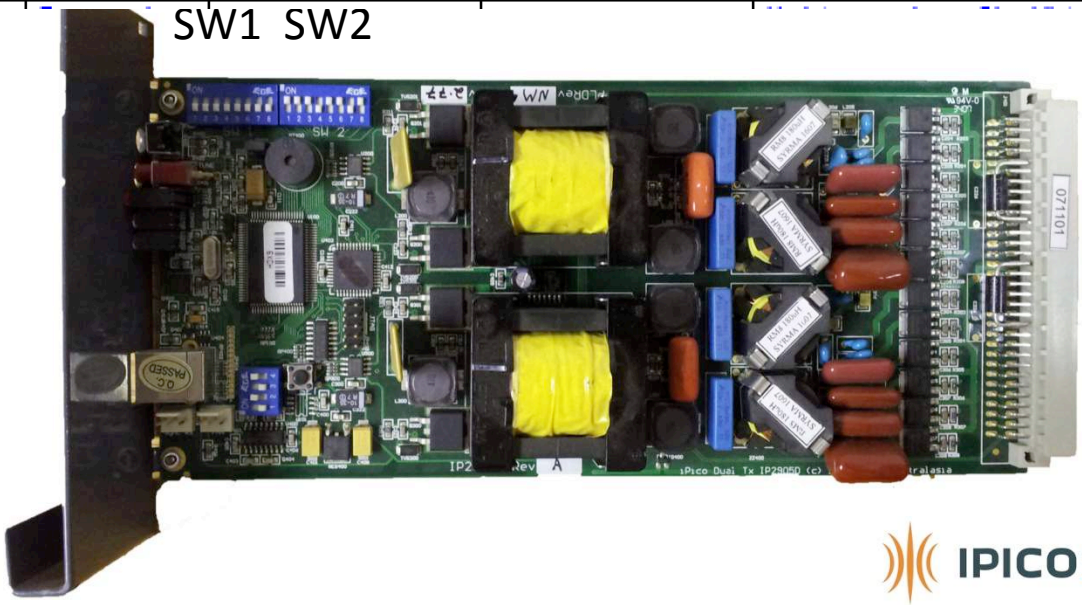
Optimize your TX card for BIB tags

TX board

1. Set SW1 and SW2 to new positions.
2. All reader after Nov 2012 should be OK

Part/Process /Doc	Description	Old value	New value	Reason
IP2905E	DIP SW1 settings	1 2 3 4 5 6 7 8 0 0 0 0 0 0 0 0	1 2 3 4 5 6 7 8 0 0 0 0 0 1 1 1	SW1, 6-8 = Set TXA @125kHz and TXB @ 127kHz
	DIP SW2 settings	1 2 3 4 5 6 7 8 1 1 1 0 1 1 0 1	1 2 3 4 5 6 7 8 1 0 0 0 1 1 0 0	SW2, 1-3 = Change Duty Cycle of TX from 100% to 10ms:10ms ON/OFF. Increase read range when TX is OFF. SW2, 8 = TX Report and Auto Tune Control 0=No Auto Tune, 1 =AT and Report Note – when set to 0 TX send a report each 10 seconds but does not carry out an auto tune

SW1 SW2



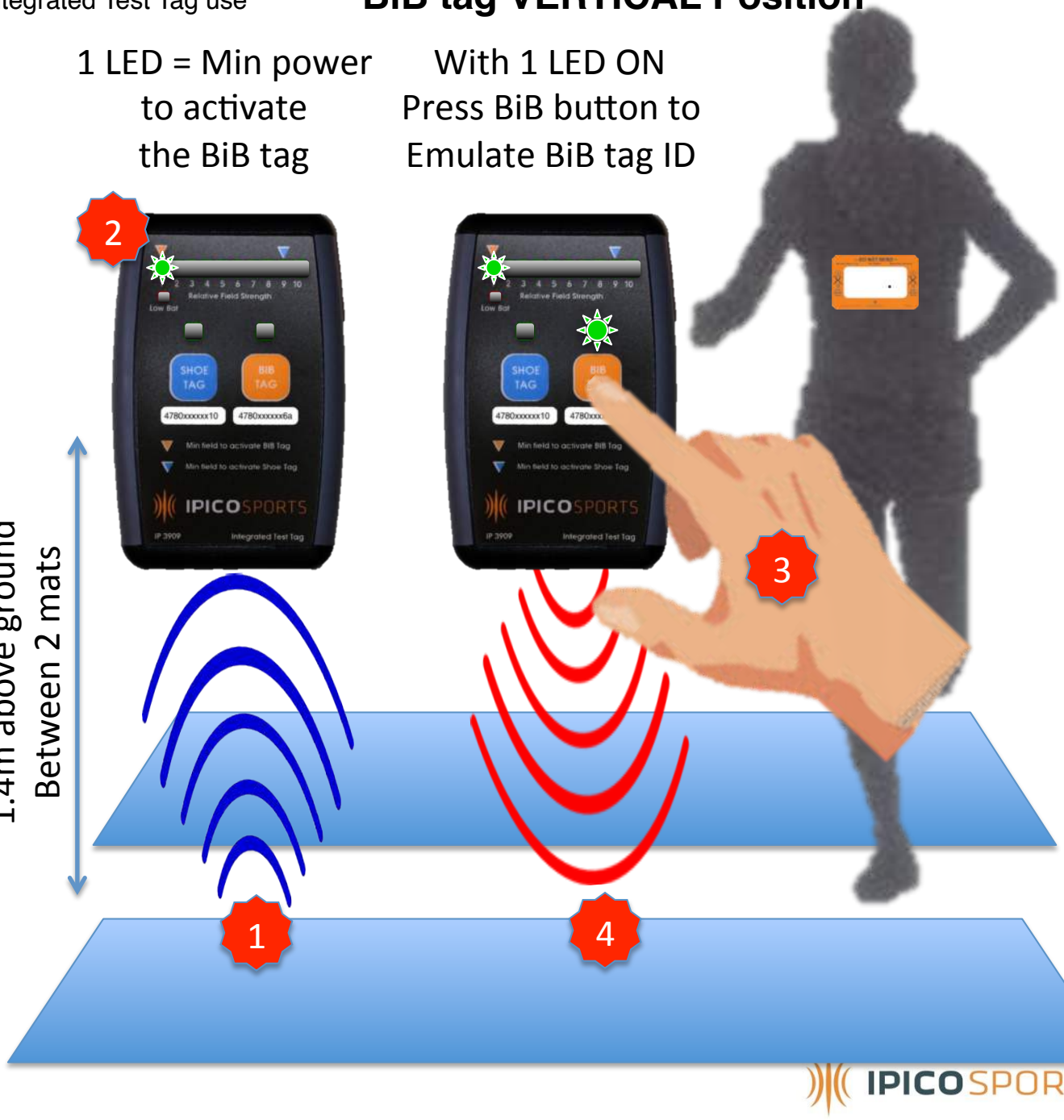
IPICOSPORTS

Integrated Test Tag use

BiB tag VERTICAL Position

1 LED = Min power to activate the BiB tag

With 1 LED ON Press BiB button to Emulate BiB tag ID



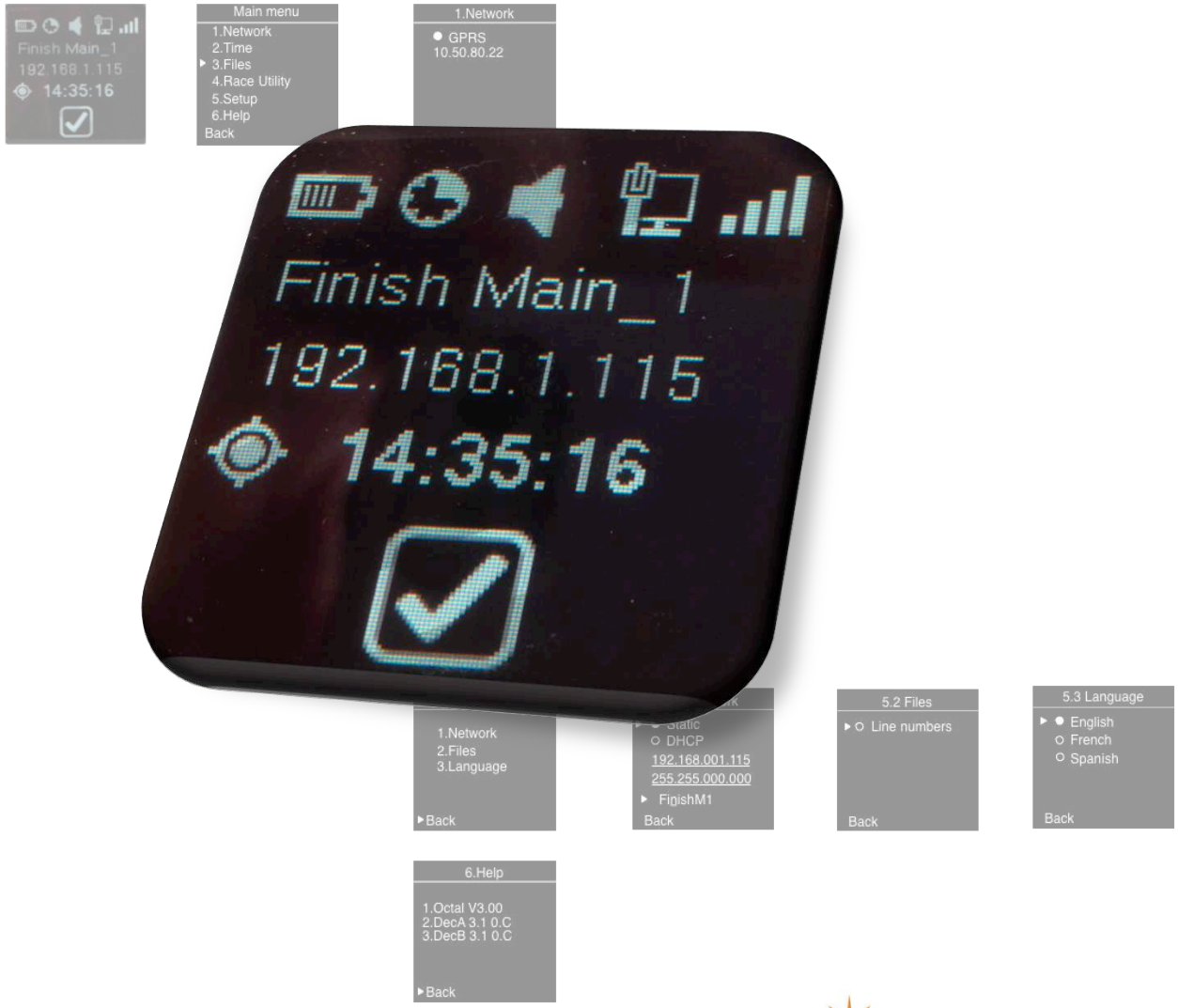
Shoe tag HORIZONTAL Position

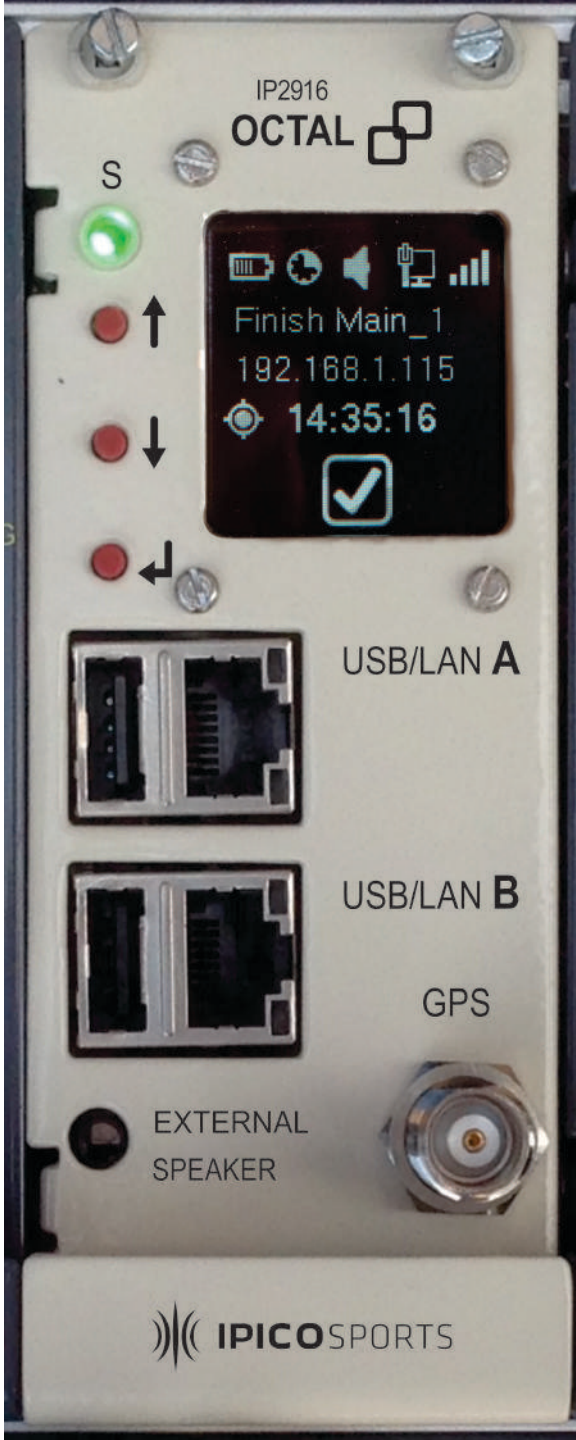
9 LEDs = Min power to activate the Shoe tag

With 9 LEDs ON Press ‘Shoe' button to Emulate Shoe tag ID

IPICOSPORTS

Super Elite Reader Modes and states





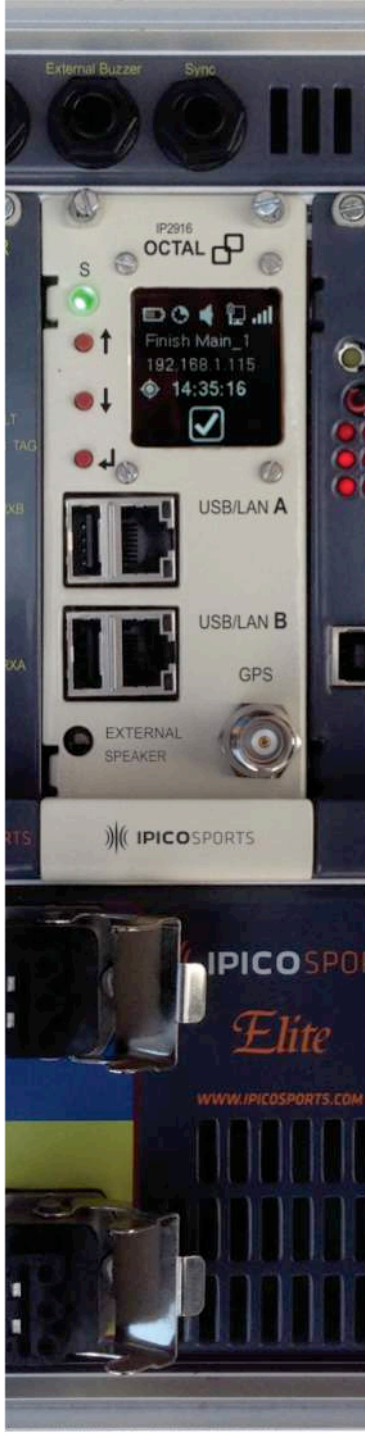
IPICOSPORTS

The Purpose

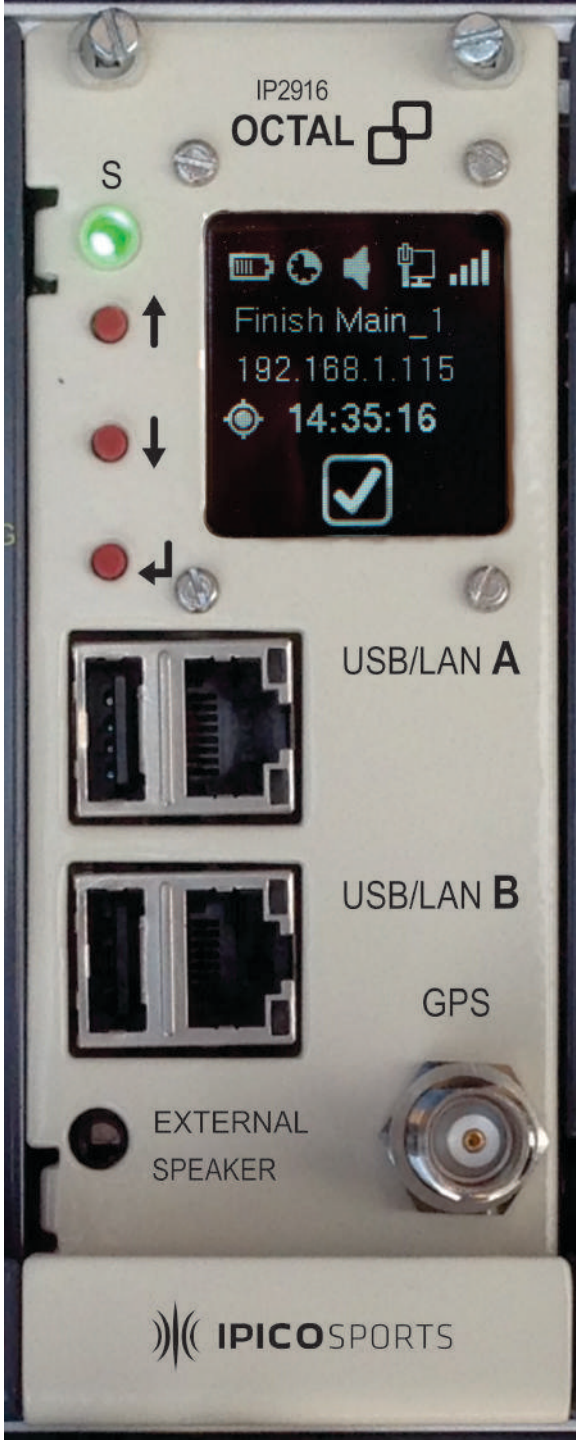
Ease of Use

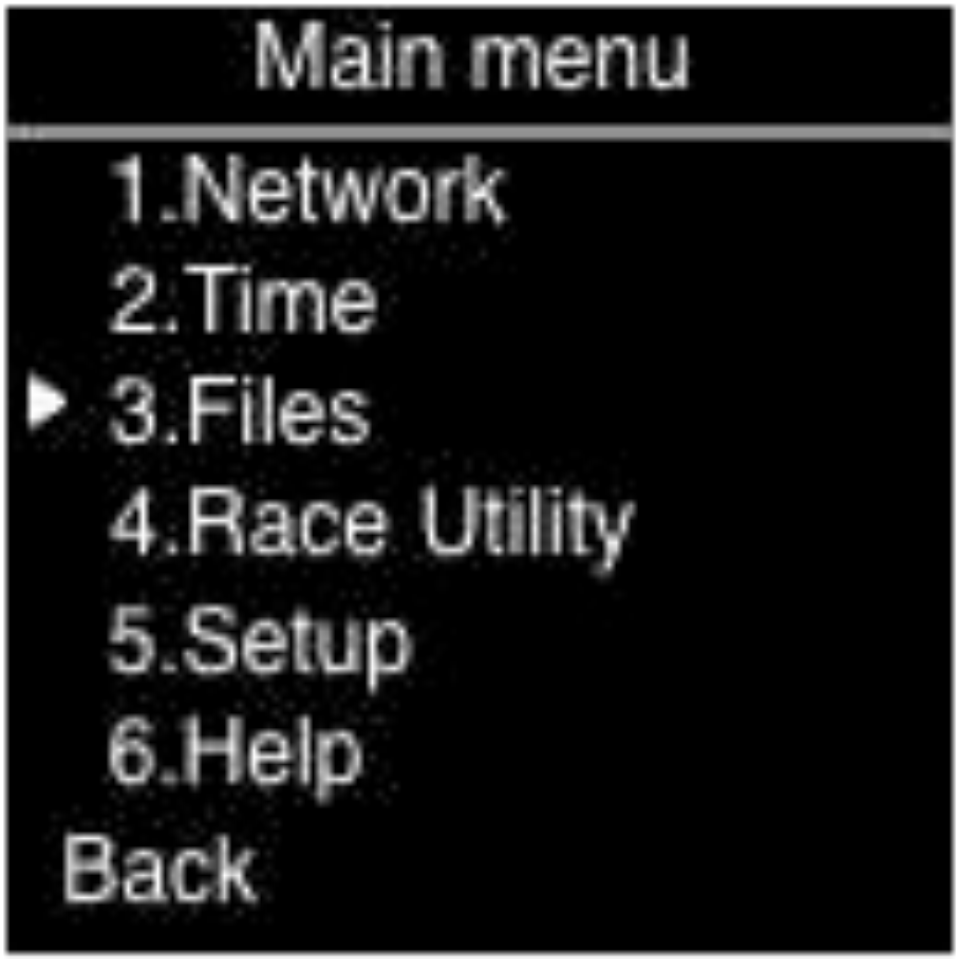
IPICOSPORTS

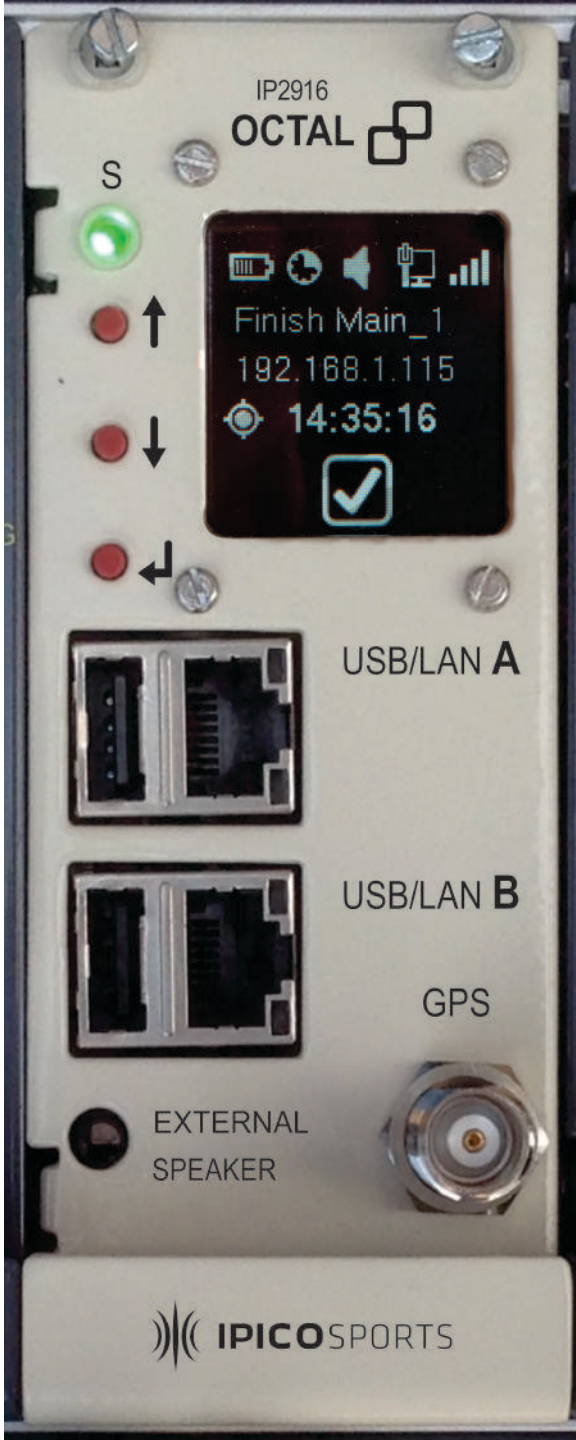
- **Usability**
  - Audio/Visual user interface – Pictograms/Sounds, Help menus in English, French or Spanish, Customized Logo / screensaver
- **Reliability**
  - Improved battery backup management / data storage
- **Maintainability/Serviceability**
  - Remote diagnostics, interactive menus, condition monitoring
- **Connectivity**
  - Improved Web/Cloud interfacing for real time data/results
  - Integrated switch to quickly “Daisy Chain” local readers
- **Time Accuracy**
  - Onboard GPS, Internet/Network or Local time synchronization
- **Performance**
  - 8x faster processing power, <2s Hotstart, <20s Coldstart
  - More integrated control over the rest of the reader.
- **Accessibility**
  - “On the fly“ setup without PC (IP, Name, etc)
  - Race info: Starters/Finishers, Multiple stopwatches feature
- **Operational Efficiency**
  - Smart power management, Quick deployments

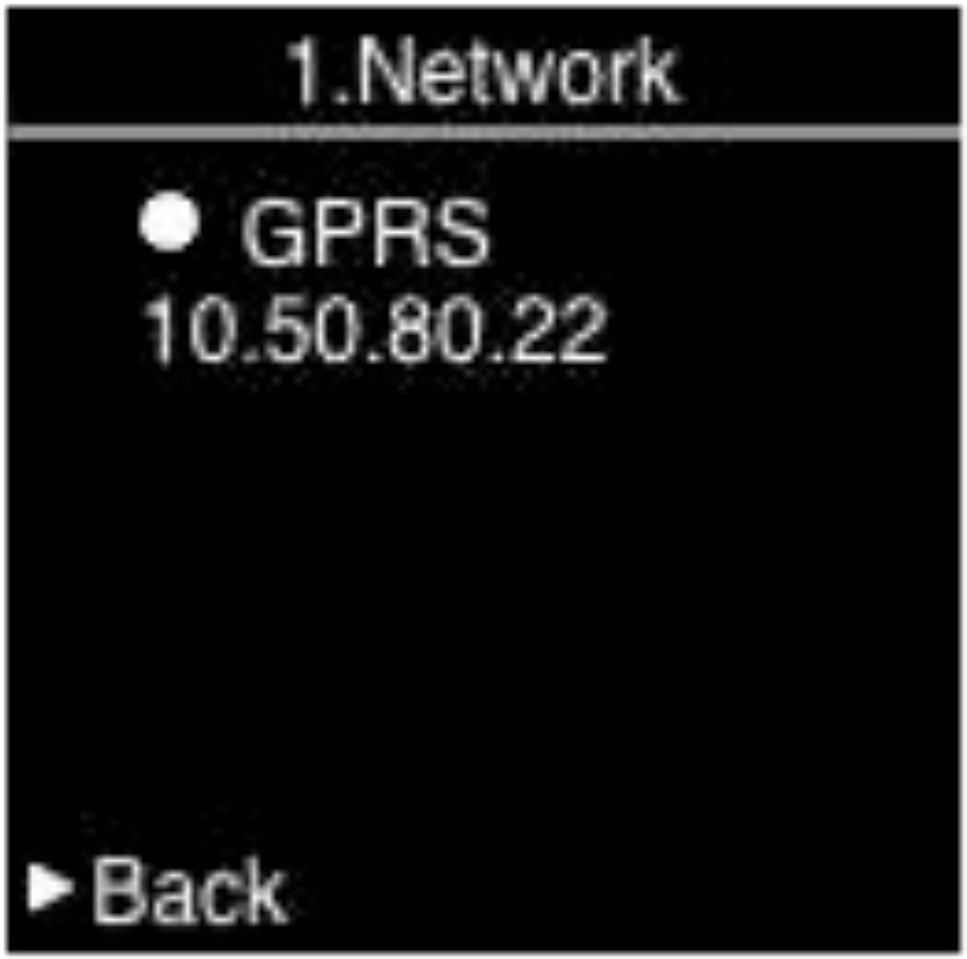


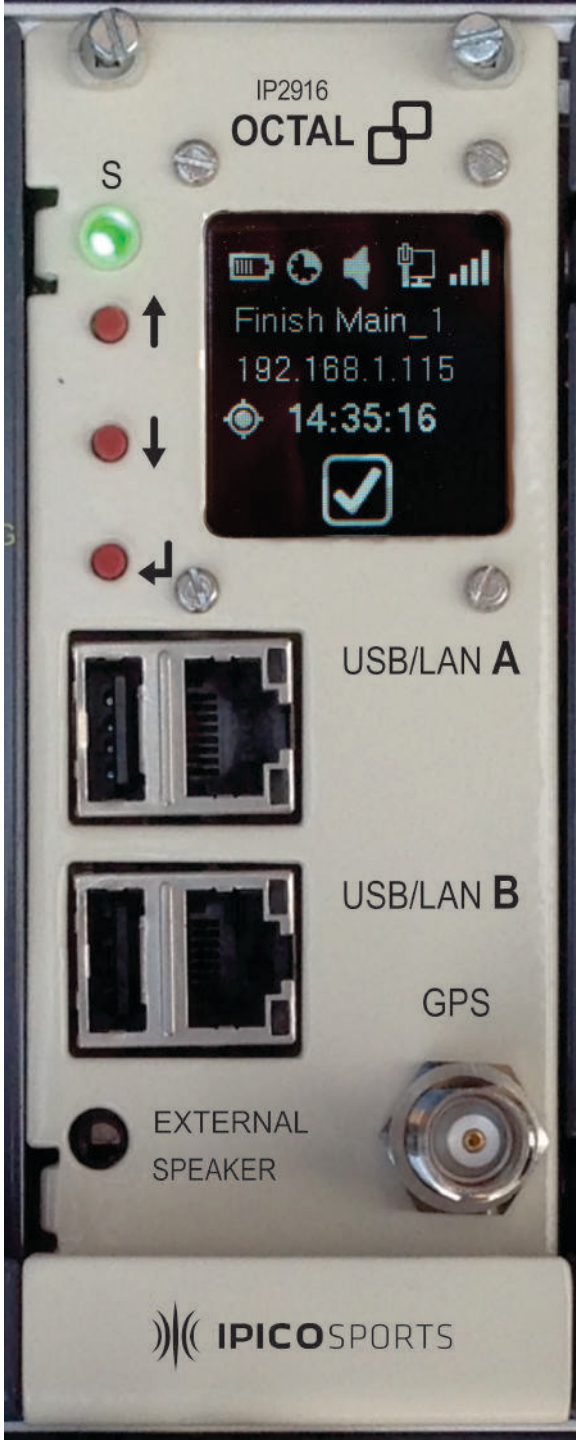

Finish Main_1
192.168.1.115
14:35:16


IP2916
OCTAL
S
Finish Main_1
192.168.1.115
14:35:16
USB/LAN A
USB/LAN B
GPS
EXTERNAL
SPEAKER
IPICOSPORTS

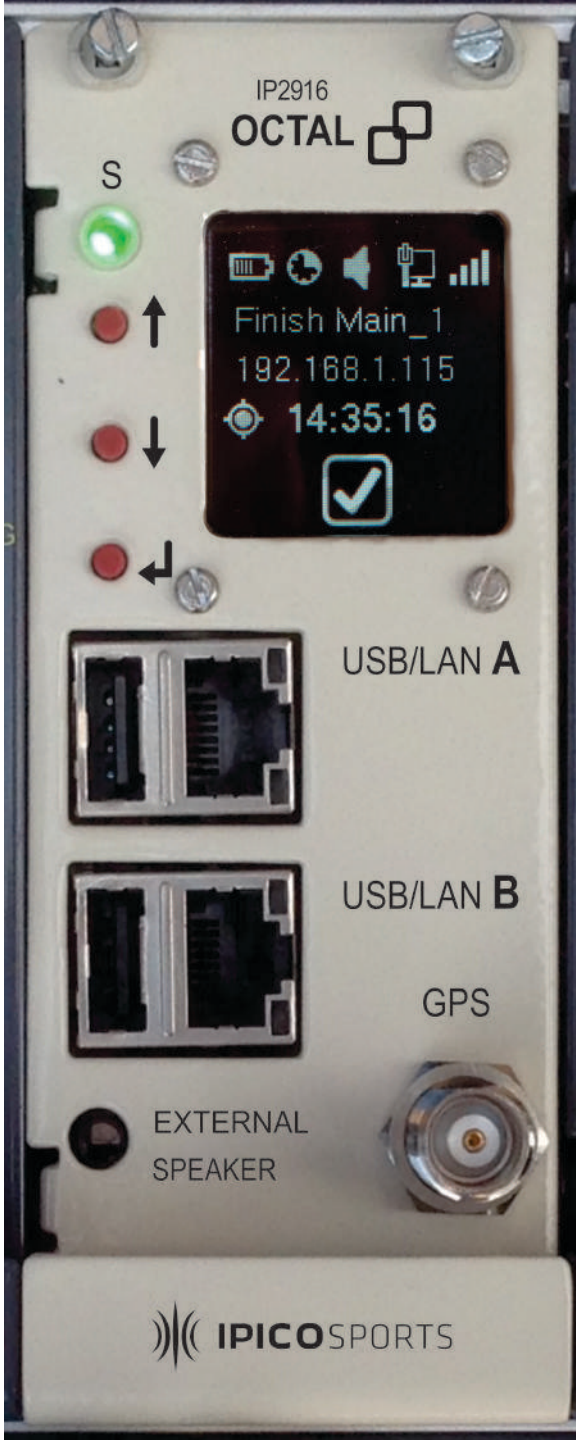

Main menu
1.Network
2.Time
3.Files
4.Race Utility
5.Setup
6.Help
Back


IP2916
OCTAL
S
Finish Main_1
192.168.1.115
14:35:16
USB/LAN A
USB/LAN B
GPS
EXTERNAL
SPEAKER
IPICOSPORTS


1.Network
GPRS
10.50.80.22
Back


IP2916
OCTAL
S
Finish Main_1
192.168.1.115
14:35:16
USB/LAN A
USB/LAN B
GPS
EXTERNAL
SPEAKER
IPICOSPORTS

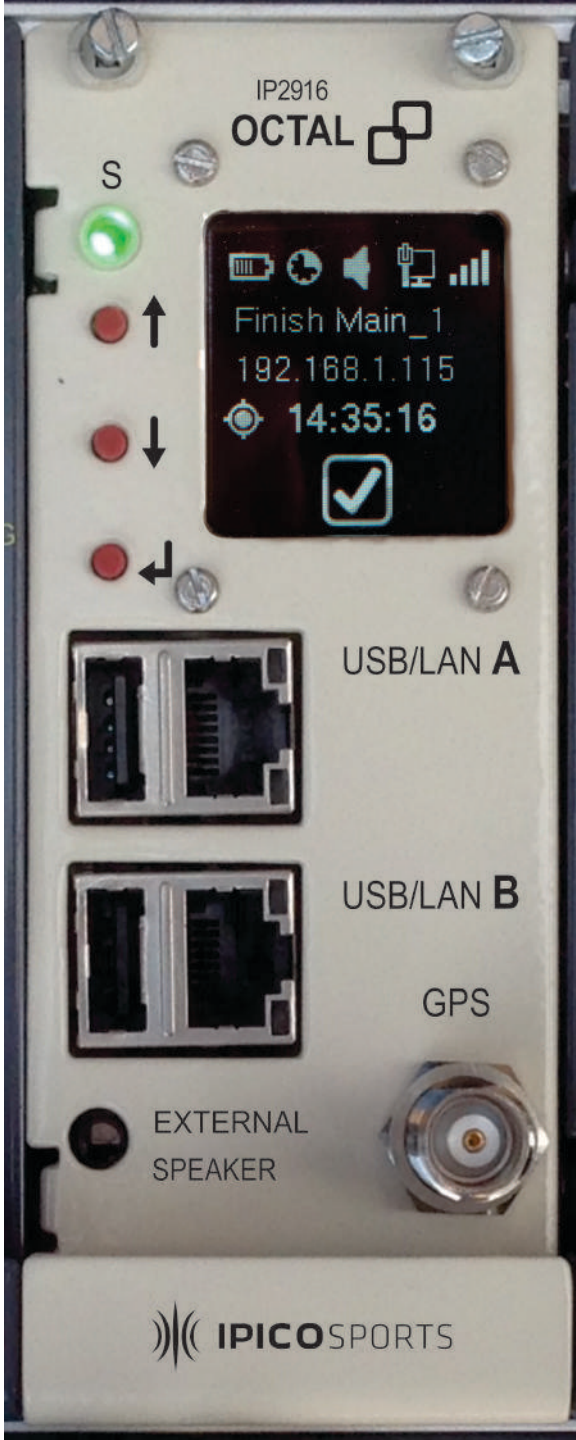

2.Time source
GPS
NTP
Local
Timezone
GMT+00:00
Back

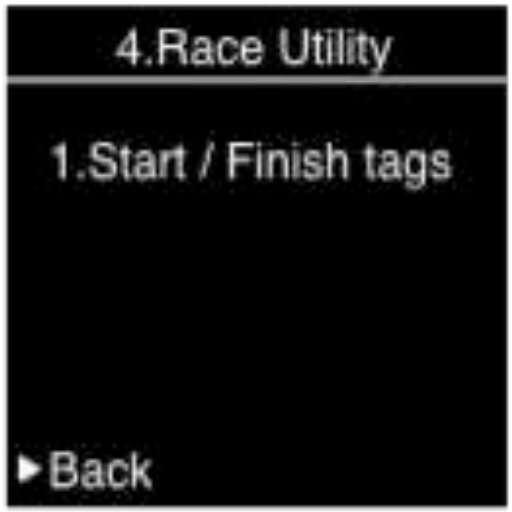

IP2916
OCTAL
S
Finish Main_1
192.168.1.115
14:35:16
USB/LAN A
USB/LAN B
GPS
EXTERNAL
SPEAKER
IPICOSPORTS

Tier 1
GPS reference

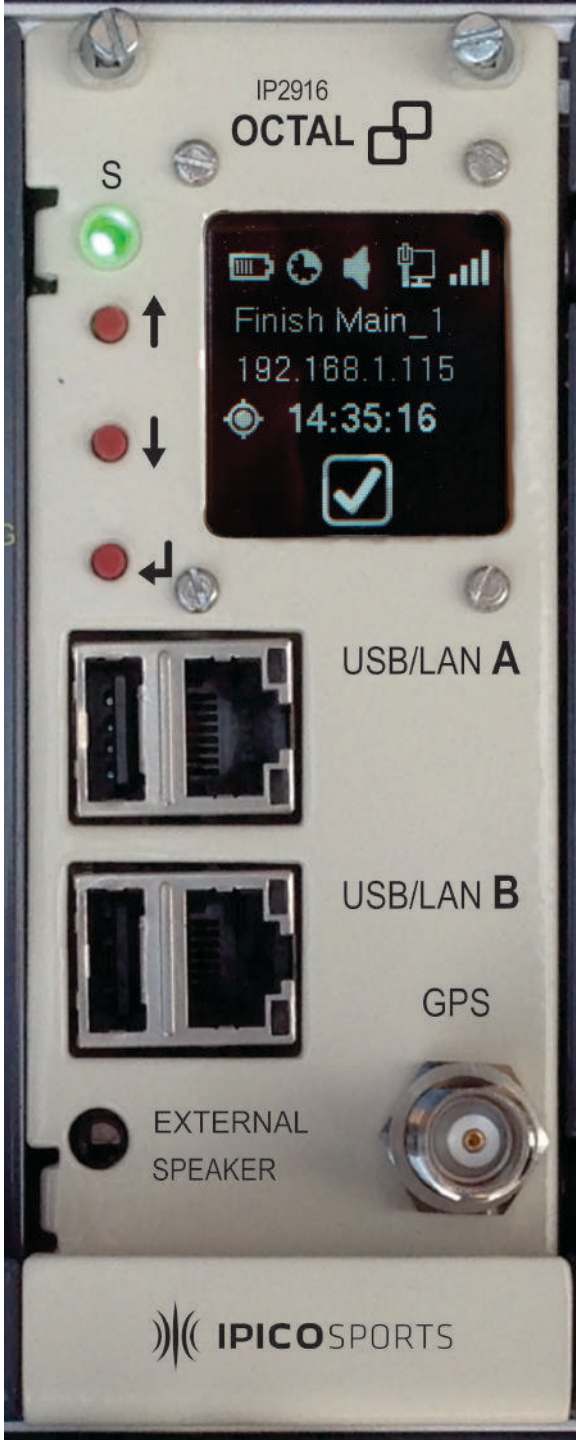
Tier 2
Network/Internet reference

Tier 3
Local reference



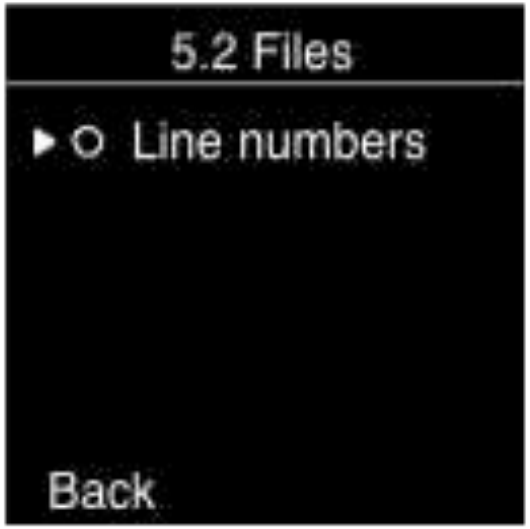

4.Race Utility
1.Start / Finish tags
Back


4.1 S/F
Start tags
456
Finish tags
300
Back

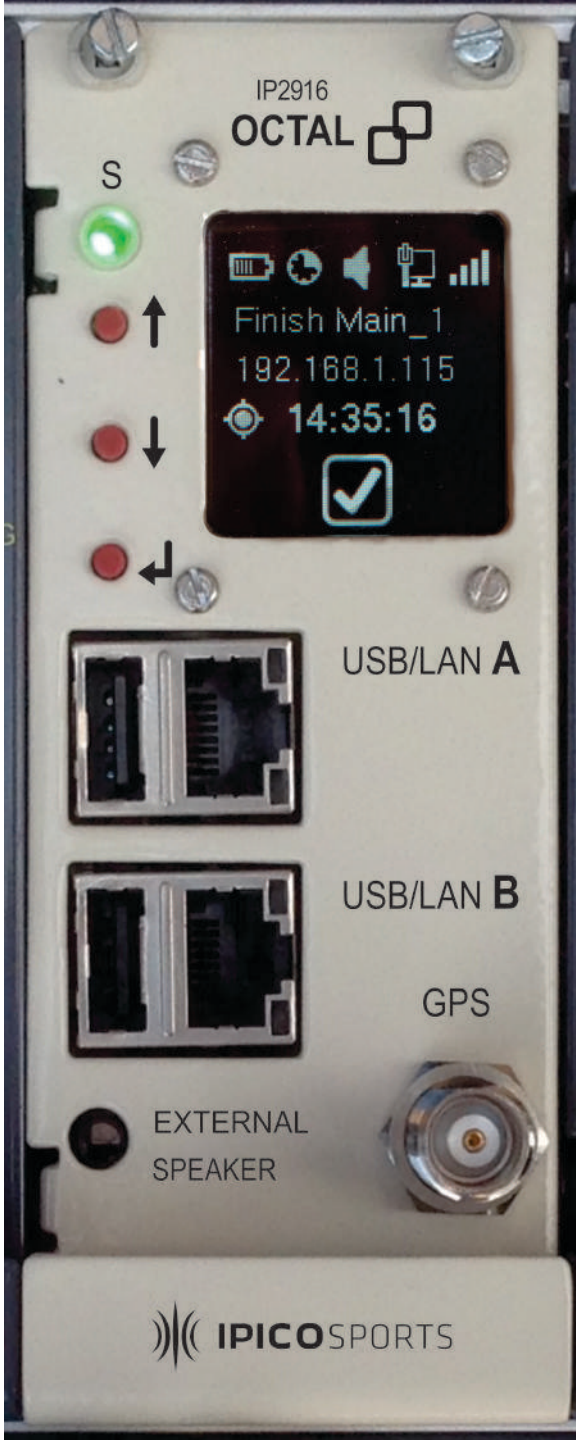

IP2916
OCTAL
S
Finish Main_1
192.168.1.115
14:35:16
USB/LAN A
USB/LAN B
GPS
EXTERNAL
SPEAKER
IPICOSPORTS


5.Setup
1.Network
2.Files
3.Language
Back


5.1 Network
Static
DHCP
192.168.001.115
255.255.000.000
FinishM1
Back


5.2 Files
Line numbers
Back


5.3 Language
English
French
Spanish
Back


IP2916
OCTAL
S
Finish Main_1
192.168.1.115
14:35:16
USB/LAN A
USB/LAN B
GPS
EXTERNAL
SPEAKER
IPICOSPORTS

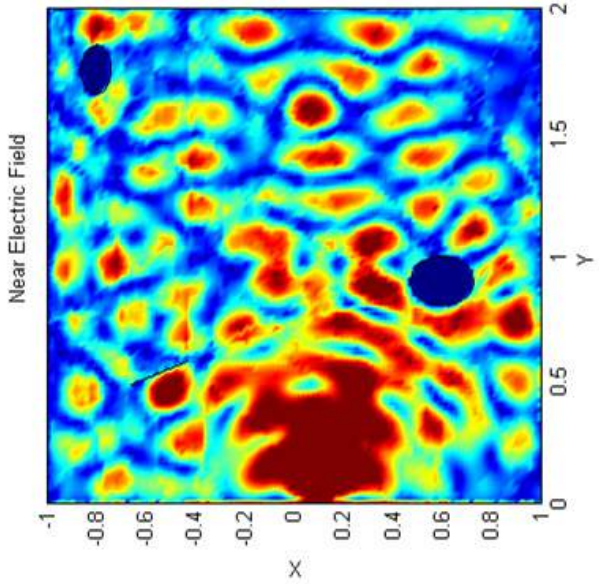
UHF

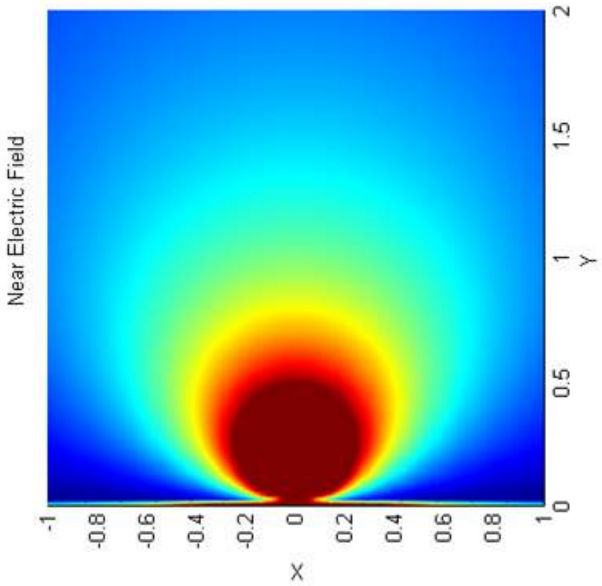
Quick

vs

demo

DF





Simulation Courtesy : Poynting Innovations

IPICO SPORTS