

## Overview

RFDesign has developed an ultra low profile antenna for harsh applications in sports timing and related applications. At 1200 x 645 x 14 mm size, the antenna element is a robust, compact unit which can be located in the tightest spaces.

The antenna element is integrated into a 14mm thin, robust mat which is suitable for setting out on roads or sports tracks.

RF beam patterns have been optimised to enable detection from as low as 15mm across the full width of the antenna.

## Features

- Ultra low profile
- Customisable graphics area (1200 x 242mm )
- Mechanically robust with stainless steel mat joiners
- Uniform field pattern across width of the antenna
- Optimised beam pattern for shoe-tag and cycle-tag.
- Compliant with ETSI EN 302 208

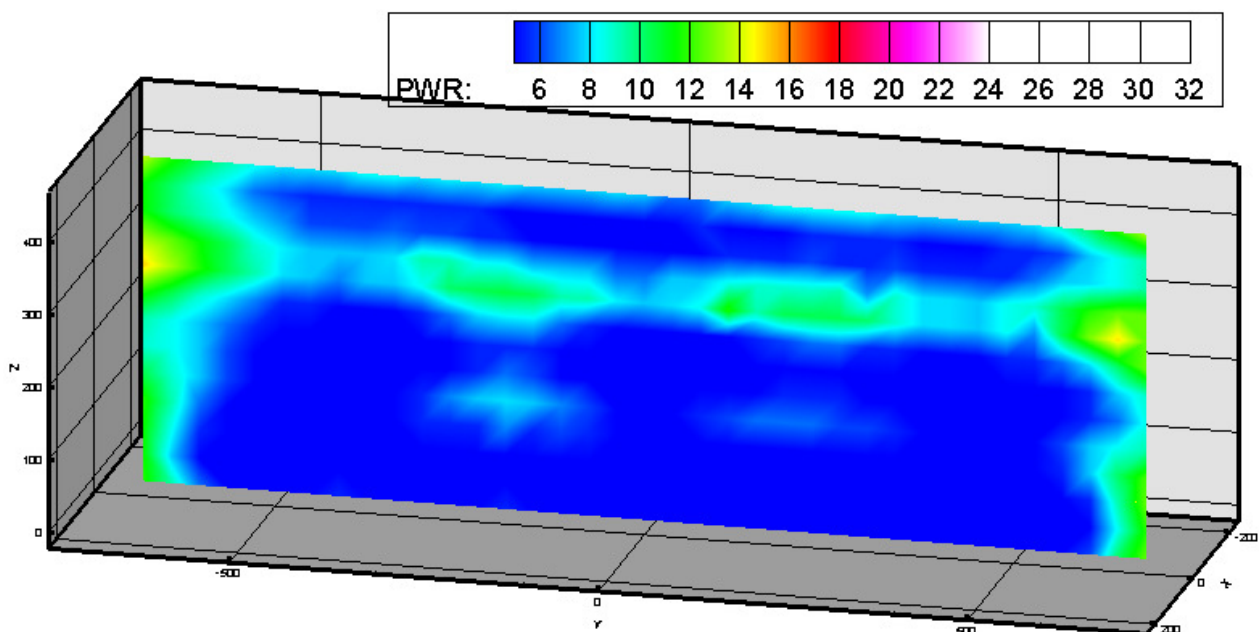


## Electrical Specifications

Parameter	Typical Value	Units	Notes
Bandwidth	865 - 868 902 - 928	MHz MHz	ETSI FCC
Gain	> 9	dBi	
HPBW (x-z)	74	deg	Compliant with ETSI EN 302 208 v1.3.1
HPBW (y-z)	14	deg	Compliant with ETSI EN 302 208 v1.3.1
Polarisation	Linear		Parallel to Y axis
Beam Tilt	0	deg	Normal to antenna plane
Field uniformity	< 7	dB	Variation in field strength across the plane of antenna between 0.1m and 1.0m
Return Loss	< -10dB		
Impedance	50	Ohms	
Power Handling	33	dBm	Levels in applications depend on regulatory limits for the country of intended use.
ESD	16	kV	No damage to antenna element itself from ESD, reader may require separate protection

## Near Field Detection Threshold

Detection threshold based on ThingMagic M6E reader with MAT1 RF cable length.  
Tag used Alien Squiggle Tag (864X)



## Environmental Specifications

Temperature: -20 to +85 deg C

The antenna is designed to be operated in a non-condensing, non-submerged environment. It will survive immersion in water without damage for short periods.

In the event of immersion in water it recommended to rinse the antenna with clean water to remove any contaminants or corrosive materials.

The antenna is RoHS compliant.

## Physical Specifications

Sports mat antenna:	1200 x 645 x 14 mm
Material:	EPDM (Synthetic Rubber)
Weight:	8.7 kg (approx)
Coaxial cable:	Low Loss CLF-200
Coaxial termination:	RP-TNC (female)

## Ordering Information

Part Number:	RFDUHF-ANT-866-(X) (ETSI)
	RFDUHF-ANT-915-(X) (FCC)

X = Mat position, (1 - 6).

Mats are designed to have cable lengths 2metres beyond the edge of the mat for connection to the RFID reader.

The list below gives the total cable length from the center of the mat.

Mat Position 1	: 2.6m
Mat Position 2	: 3.8m
Mat Position 3	: 5.0m
Mat Position 4	: 6.2m
Mat Position 5	: 7.4m
Mat Position 6	: 8.6m

## Specification Note

RFDDesign is continually improving its products and process to ensure best performance for its customers, specifications are subject to change without notice.