Datasheet

THRESHOLD ANTENNA

READER ANTENNA DATASHEET

Version 3.0

www.impinj.com

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1 OVERVIEW

The Impinj Threshold RAIN RFID antenna provides wide zone coverage ideal for a road race course or other boundary or threshold crossings. The Impinj Threshold antenna has a very wide beam width to maximize zone coverage. Threshold antennas provide a consistent and continuous read zone when linearly distributed head-to-tail. At 46cm x 9cm x 2 cm, the Threshold antenna's planar form factor fits readily onto fencing or other borders.

Figure 1: Antenna Picture

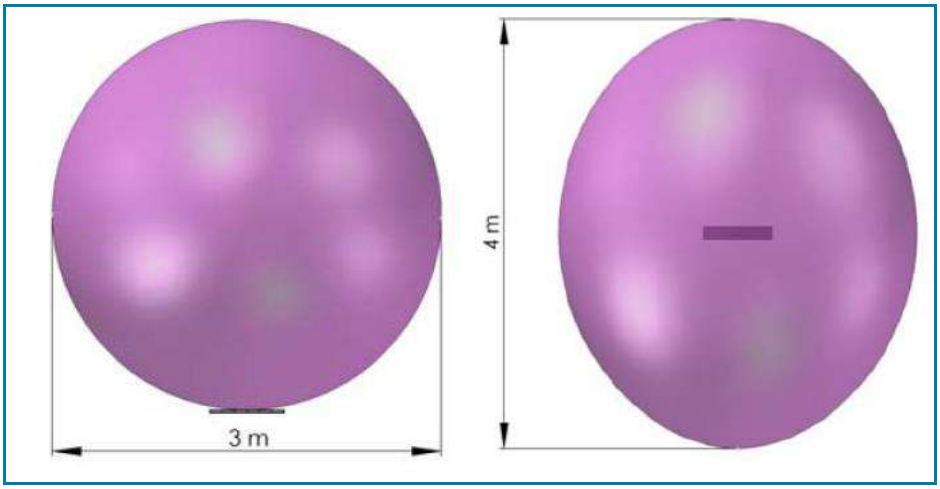
1.1 Features

- Bespoke design for boundary/threshold crossings
- Purpose built to provide a curtain of coverage across wider thresholds
- Low profile form factor of 46cm x 9cm x 2 cm,
- FCC and ETSI versions available

2 READ ZONE CHARACTERISTICS

The Threshold antenna's wide beam width provides extensive coverage across a boundary edge. By lining Threshold antennas up along the short edge, one continuous read zone may be established along a boundary line.

Figure 2: Threshold Antenna Read Zone Diagram



3 SPECIFICATIONS

3.1 Electrical Specifications

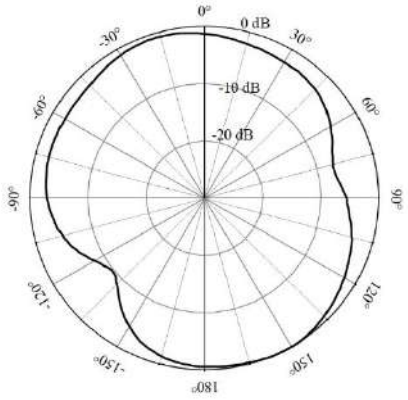
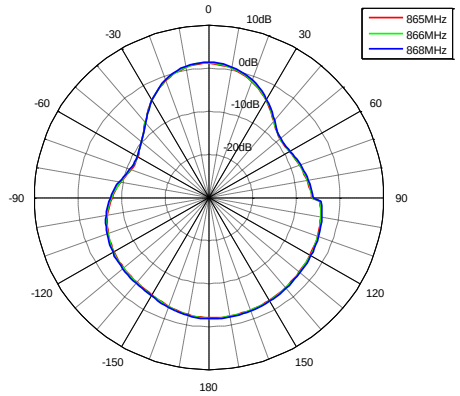
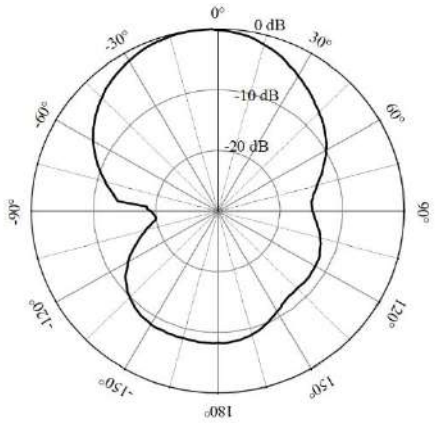
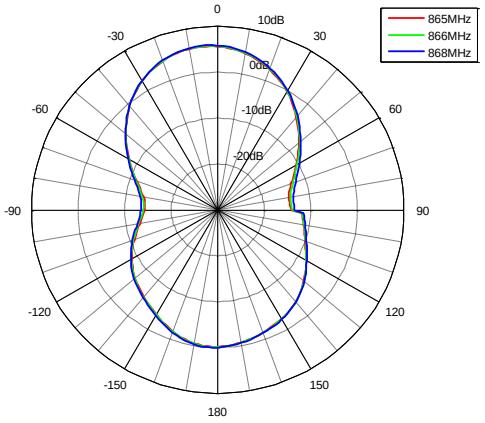
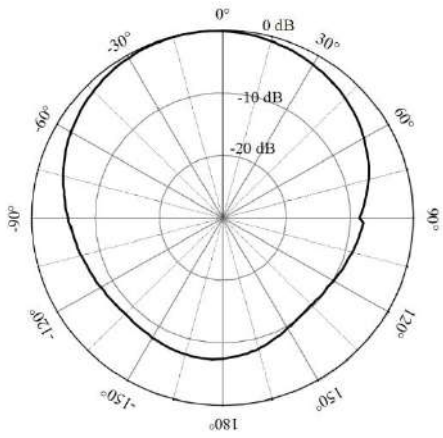
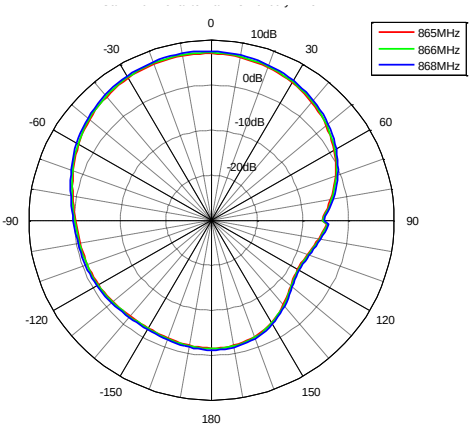
Table 1: Electrical Specifications

PARAMETER	VALUE
Frequency Range	FCC: 902-928 MHz
	ETSI: 865-868 MHz
Polarization	Linear (Parallel to Short Axis)
Far-Field Gain	5.0 dBi
Far-Field 3 dB Beamwidth	FCC: 60° +/- 3° (x-z plane), 120° +/- 3° (y-z plane)
	ETSI: 50° +/-3° (x-z plane), 100° +/- 3° (y-z plane)
VSWR Across Frequency Range*	FCC: 2:1
	ETSI: 1.5:1
Pattern Variation (x-y plane)	FCC: 10 dBi
	ETSI: 1.5:1
Nominal Impedance	50 Ω
Electrostatic Discharge	2 kV (Human Body Model)

** Some item-level applications - where the tag is close to the reader antenna - can cause a 2:1 VSWR from the antenna to the reader. Users should ensure that their reader can tolerate a VSWR as high as 2:1.*

3.1.1 Field Plots

Table 2: Threshold Antenna Radiation Patterns in FCC and ETSI

FCC (915 MHZ)	ETSI (866 MHZ)
X-Y Plane	
	
X-Z Plane	
	
Y-Z Plane	
	

Please note that all radiation patterns are normalized. See mechanical dimension drawings to correlate the radiation patterns to the appropriate axes and planes of the antenna.

Figure 3: Radiation Pattern at 915 MHz (x-y plane)

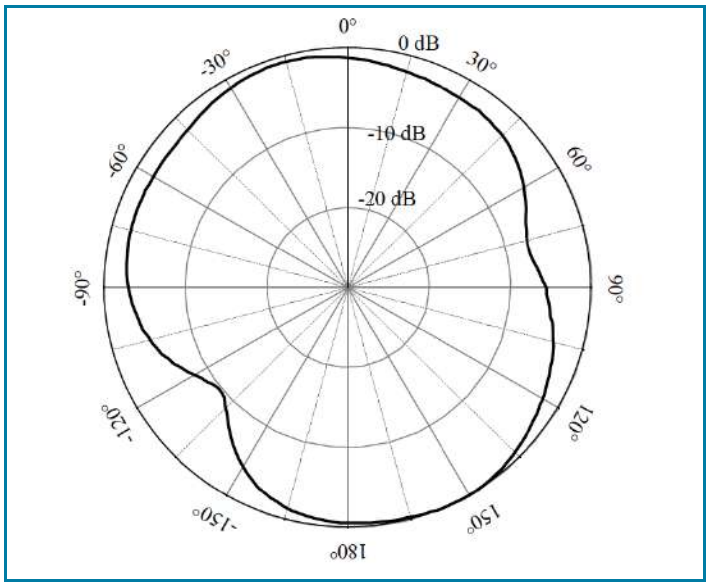


Figure 4: Radiation Pattern at 915 MHz (x-z plane)

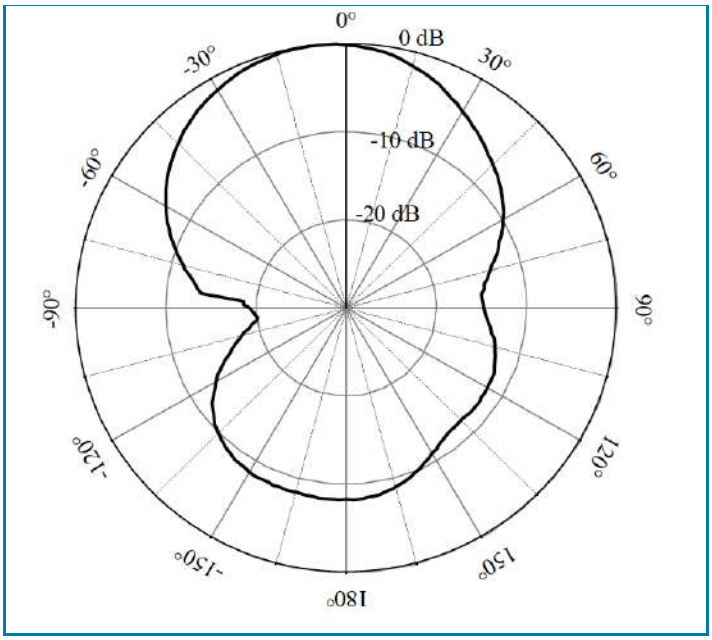


Figure 5: Radiation Pattern at 915 MHz (x-z plane)

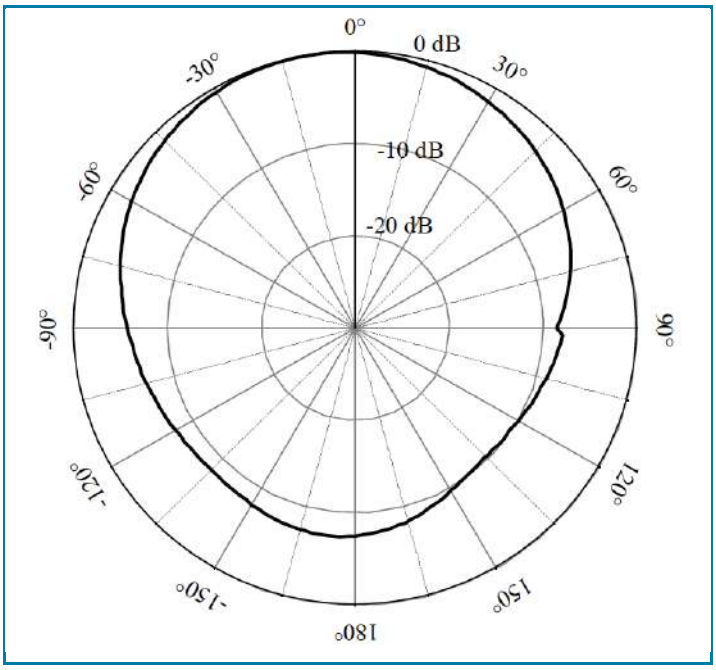


Figure 6: Radiation Pattern at 866 MHz (x-y plane)

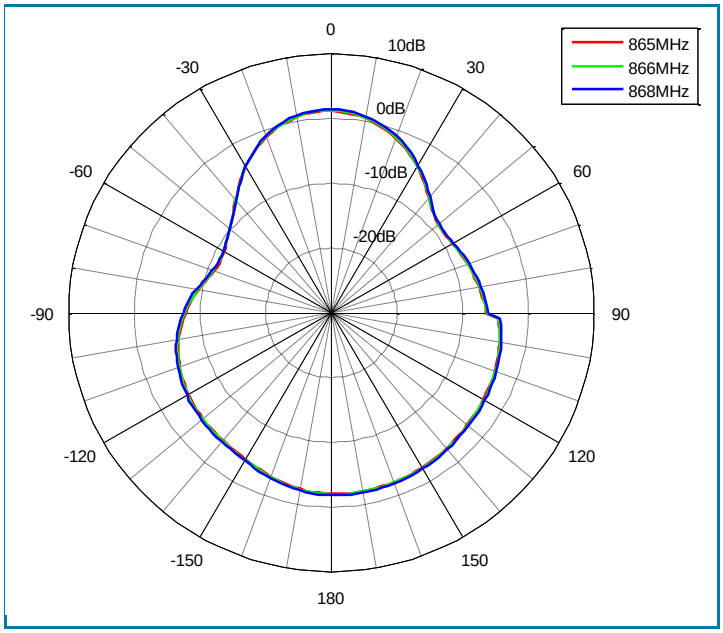


Figure 7: Radiation Pattern at 866 MHz (x-z plane)

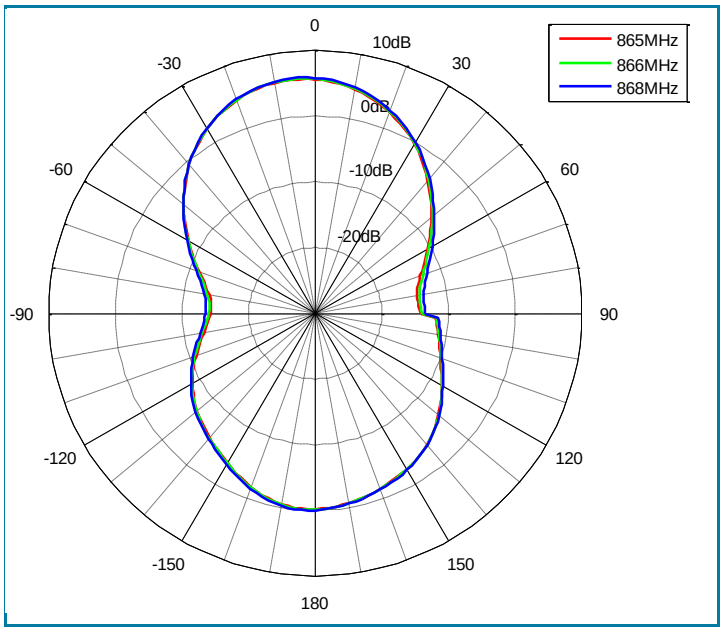
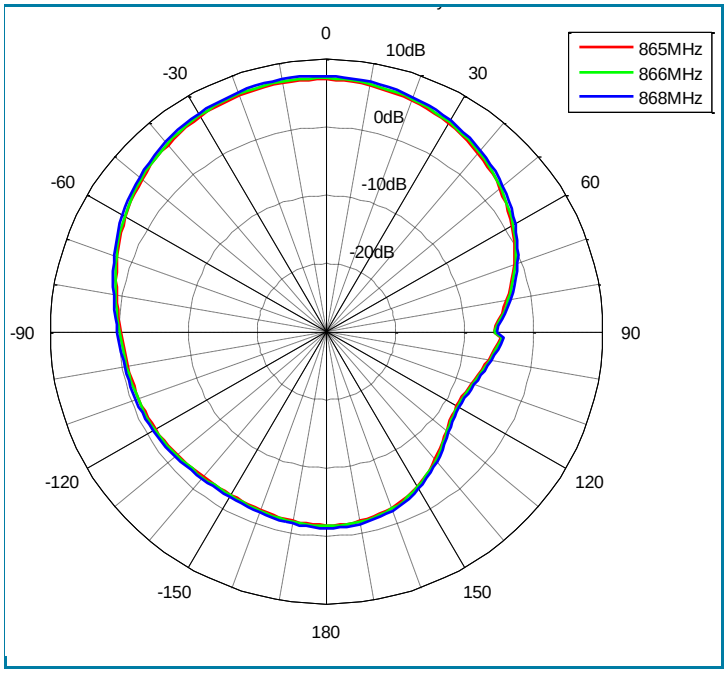


Figure 8: Radiation Pattern at 866 MHz (y-z plane)



3.2 Environmental Specifications

Table 3: Environmental Specifications

PARAMETER	VALUE
Operating & Storage Temperature	-25 °C to 55 °C (-13 °F to 131 °F)
Humidity	5% to 95% (Relative, Non-Condensing)

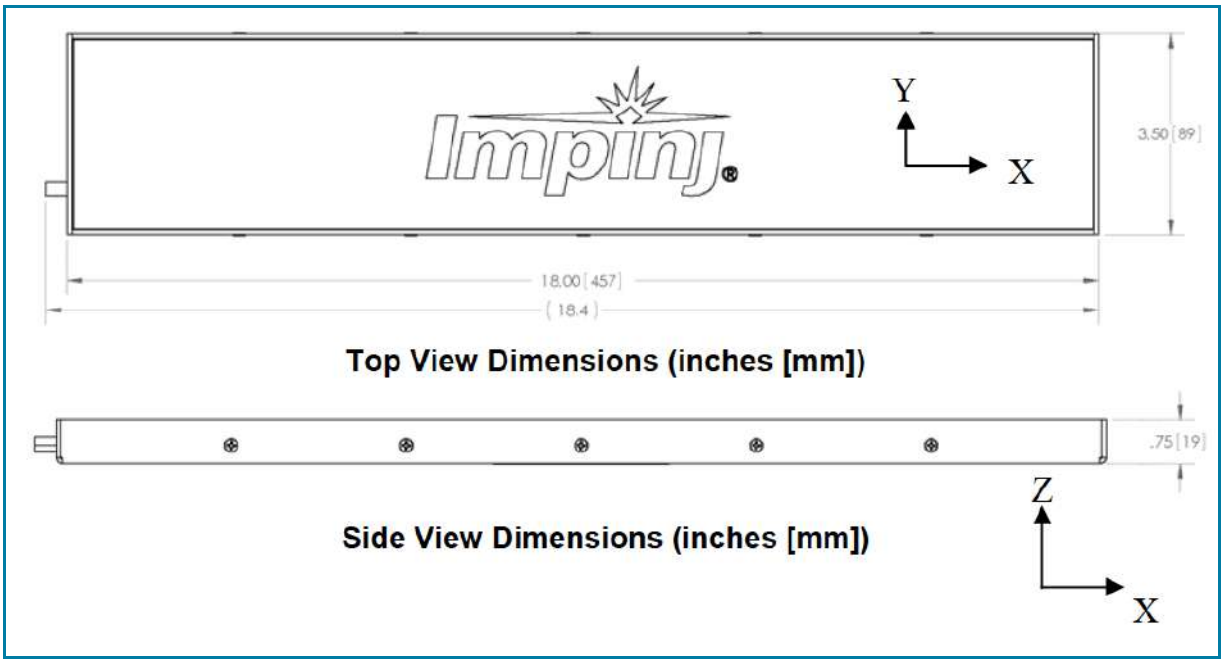
3.3 Mechanical Specifications

Table 4: Mechanical Specifications

PARAMETER	VALUE
Dimensions (L x W x D)	18 in x 3.5 in x 0.75 in
	45.7 cm x 8.9 cm x 1.9 cm
Weight	1.57 lbs. (0.71 g)
Mounting	Recommended to be recessed within a cable mat
RoHS	RoHS Compliant
Radome	ABS
Enclosure	Bent sheet aluminium, clear finish
Connector Type	SMA female
Cable Length	305 mm (+/- 12 mm)

3.3.1 Mechanical Drawings

Figure 9: Threshold Antenna Mechanical Drawing



4 ORDERING INFORMATION

Table 5: Ordering Information

PART NUMBER	DESCRIPTION
IPJ-A0311-USA	Threshold Antenna (FCC)
IPJ-A0311-EU1	Threshold Antenna (ETSI)

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