



Datasheet

# MINI-GUARDRAIL ANTENNA

## READER ANTENNA DATASHEET

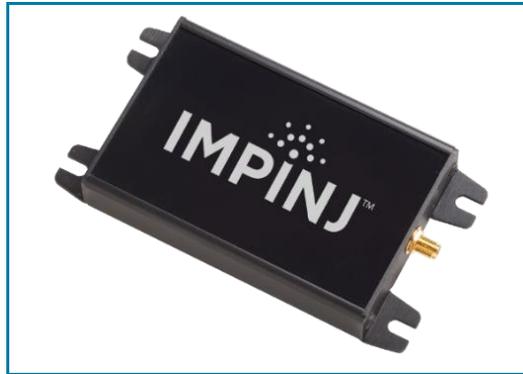
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# 1 OVERVIEW

The Impinj Mini-Guardrail antenna has a short-read zone and fits easily into small enclosures. The Mini-Guardrail reader antenna operates effectively at read distances of 7.5 cm or less. This antenna is the ideal choice for access control, ticketing, document control, high-speed encoding stations, packaging lines, or any application requiring high reliability and a constrained read zone. Because of its optimized short-range performance, the Mini-Guardrail antenna is virtually immune to the RF-transmission limiting effects of items such as liquids, powders, and metallic packaging.

Figure 1: Mini-Guardrail Antenna Picture



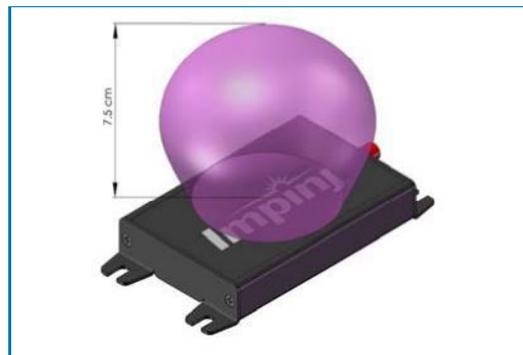
## 1.1 Features

- Strong near-field performance for reading tags at a distance up to 7.5cm
- Small form factor
- Weak far-field gain to minimize stray reads
- Broadband design to enable world-wide operation

# 2 READ ZONE CHARACTERISTICS

The Mini-Guardrail antenna’s short-range (0-7.5 centimeters) read zone makes it the ideal choice for a wide variety of item-level applications.

Figure 2: Mini-Guardrail Antenna Read Zone Diagram



### 3 SPECIFICATIONS

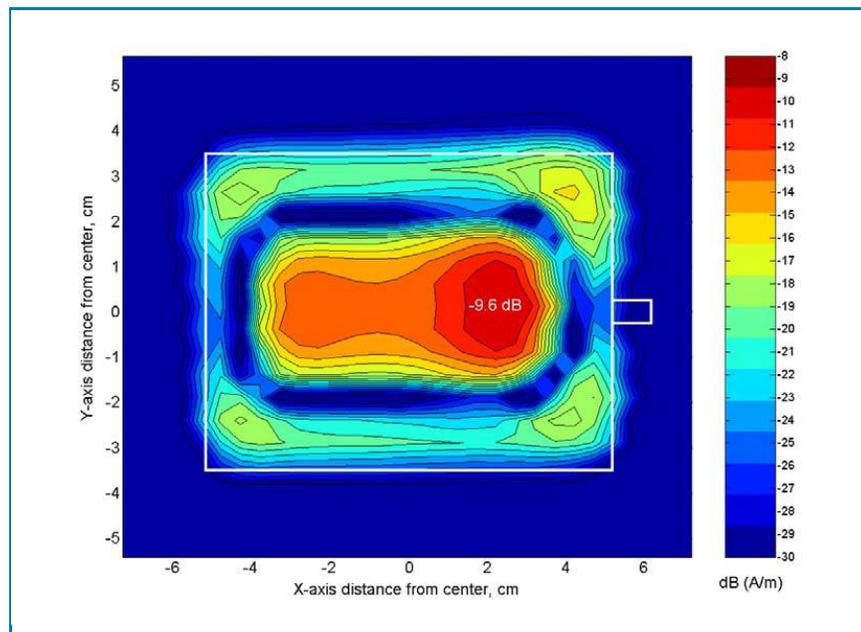
#### 3.1 Electrical Specifications

**Table 1: Electrical Specifications**

PARAMETER	VALUE
Frequency Range	860 to 960 MHz; Broadband for use in all regions
Polarization	Linear (Parallel to Short Axis)
Input Power	30 dBm (33 dBm absolute maximum)
Near-Field Intensity	-13 dBA/m
Far-Field Gain	-20 dBi
VSWR Across Frequency Range	1.25:1
Nominal Impedance	50Ω
Electrostatic Discharge	2 kV (Human Body Model)

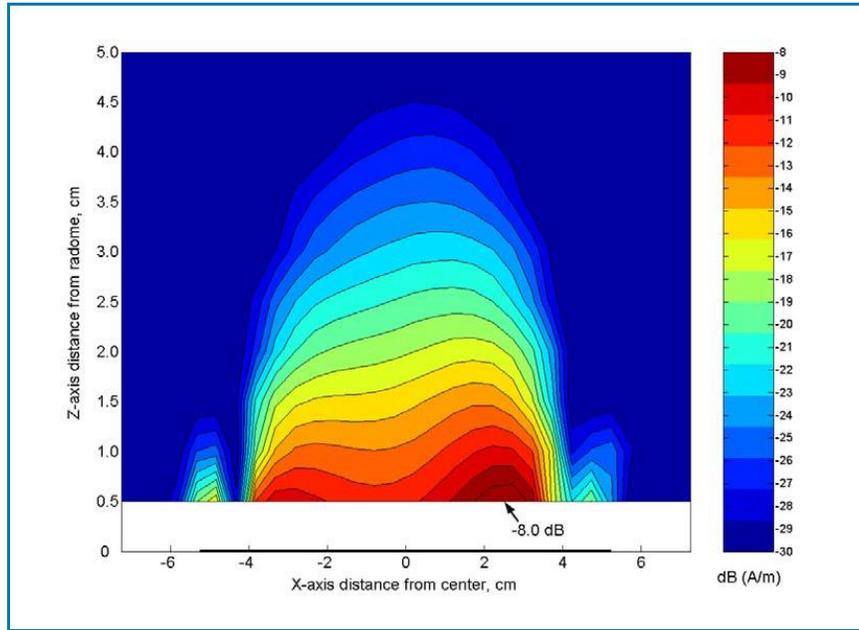
##### 3.1.1 Gain Plots

**Figure 3: Mini-Guardrail Magnetic Field Intensity Plot, X-Y Plane**



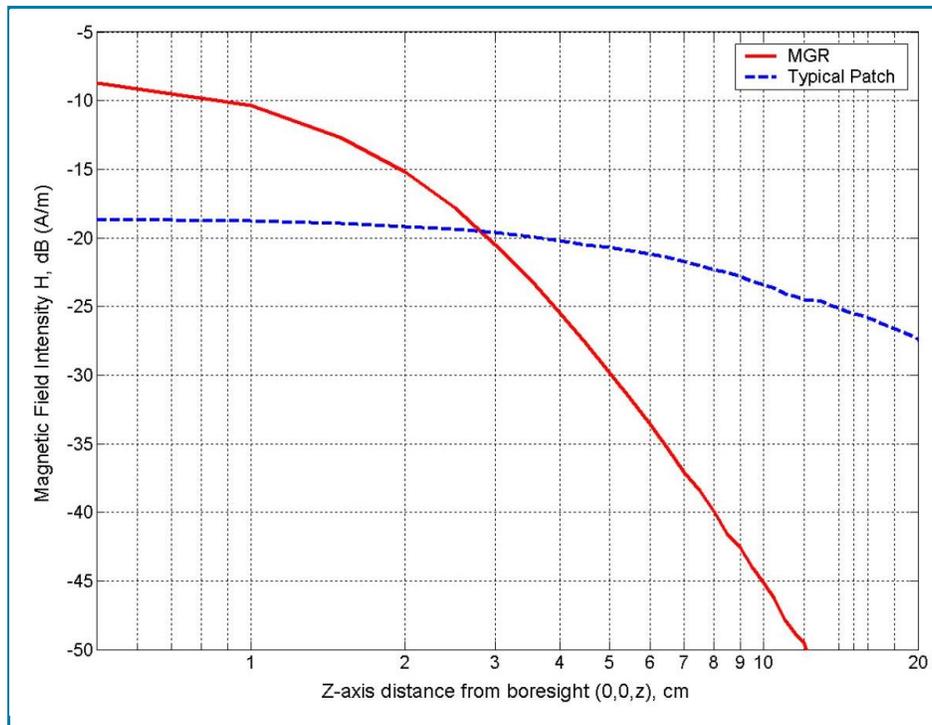
*dB (Amperes/meter) with +30 dBm input power at z = 1 cm from radome*

Figure 4: Magnetic Field Intensity Plot, X-Z Plane



*dB (Amperes/meter) with +30 dBm input power at z = 1 cm from radome*

Figure 5: Mini-Guardrail Magnetic Field Intensity vs. Typical Patch Antenna



*Intensity measured in dB (Amperes/meter) with +30 dBm input power*

### 3.2 Environmental Specifications

**Table 2: Environmental Specifications**

PARAMETER	VALUE
Environmental Rating	IP41 (Indoor Use Only)
Operating & Storage Temperature	0 °C to 40 °C (32 °F to 104 °F)
Humidity	5% to 95% (Relative, Non-Condensing)

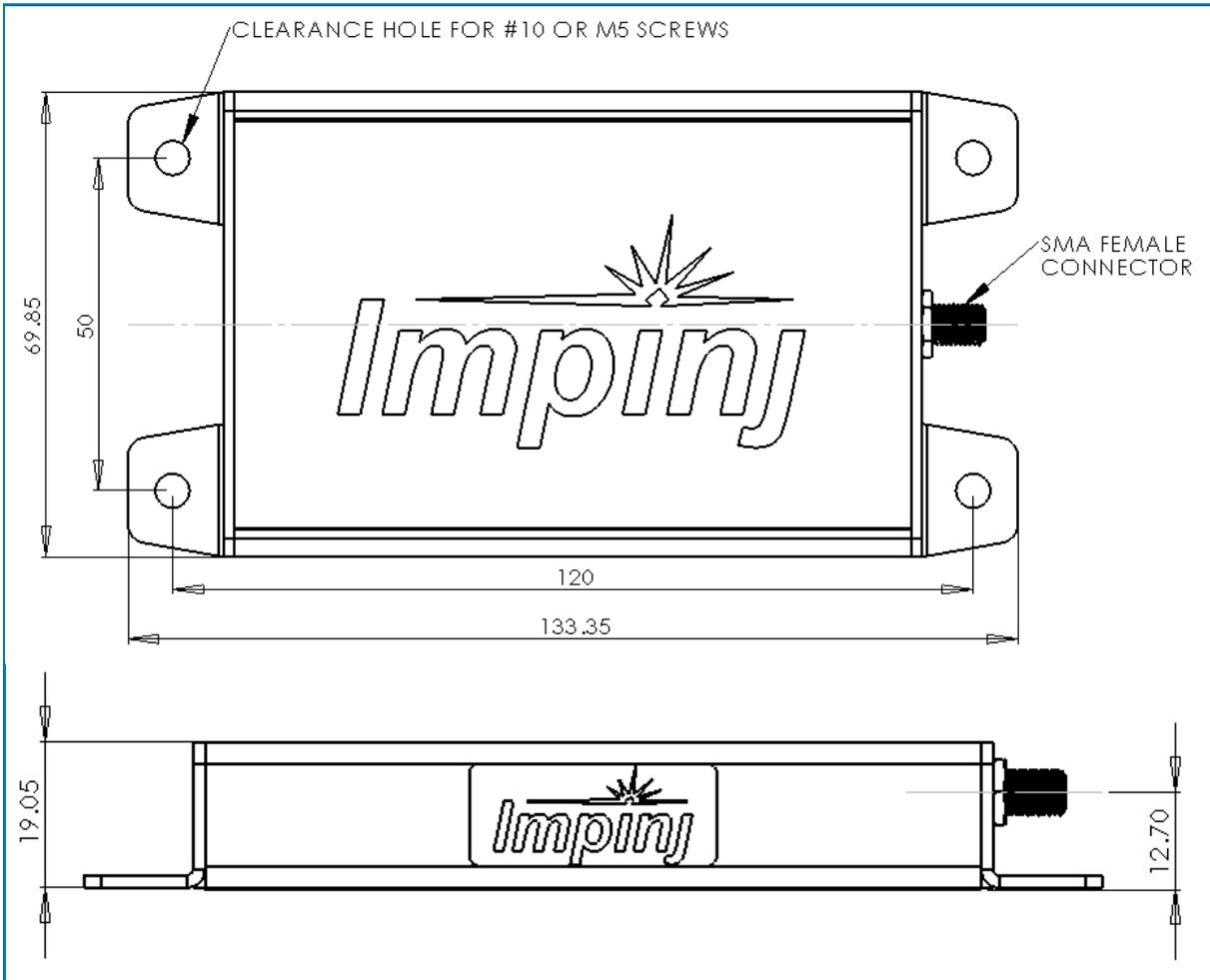
### 3.3 Mechanical Specifications

**Table 3: Mechanical Specifications**

PARAMETER	VALUE
Dimensions (L x W x D)	5.2 x 2.75 x 0.75 in
	13.3 x 7 x 1.9 cm
Weight	0.114 kg (0.25 lbs)
Mounting	4 holes for #10, or M5 screws spaced 120.0 mm length by 50.0 mm width
RoHS	RoHS Compliant
Radome	Acrylic
Enclosure	Aluminum
Mounting	4 holes for #10 or M5 screws spaced 12.0 cm length x 50.0 cm width
Connector Type	SMA female

### 3.3.1 Mechanical Drawings

**Figure 6: Mini-Guardrail Mechanical Enclosure Drawing**



Measurements in millimeters (mm).

## 4 ORDERING INFORMATION

**Table 4: Ordering Information**

PART NUMBER	DESCRIPTION
IPJ-A0303-000	Mini-Guardrail Antenna

## 5 NOTICES

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