Datasheet

MINI-GUARDRAIL ANTENNA

READER ANTENNA DATASHEET

Version 6.0

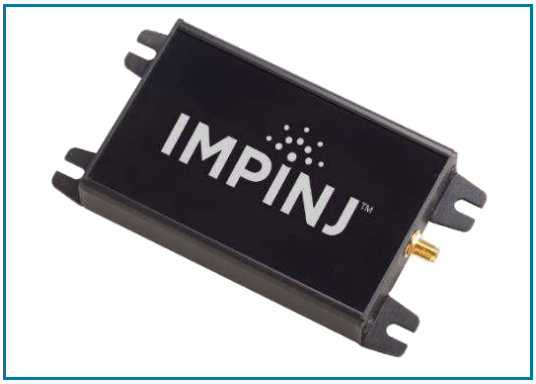
www.impinj.com

TABLE OF CONTENTS

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



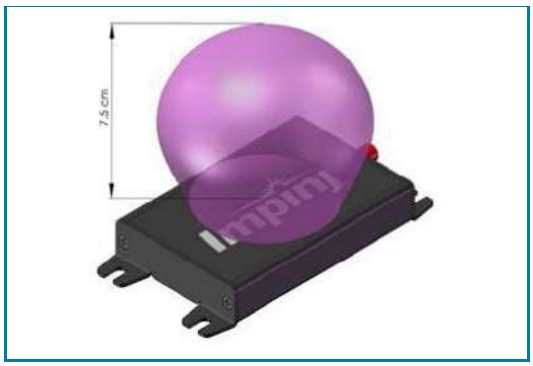
1.1 Features

- 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

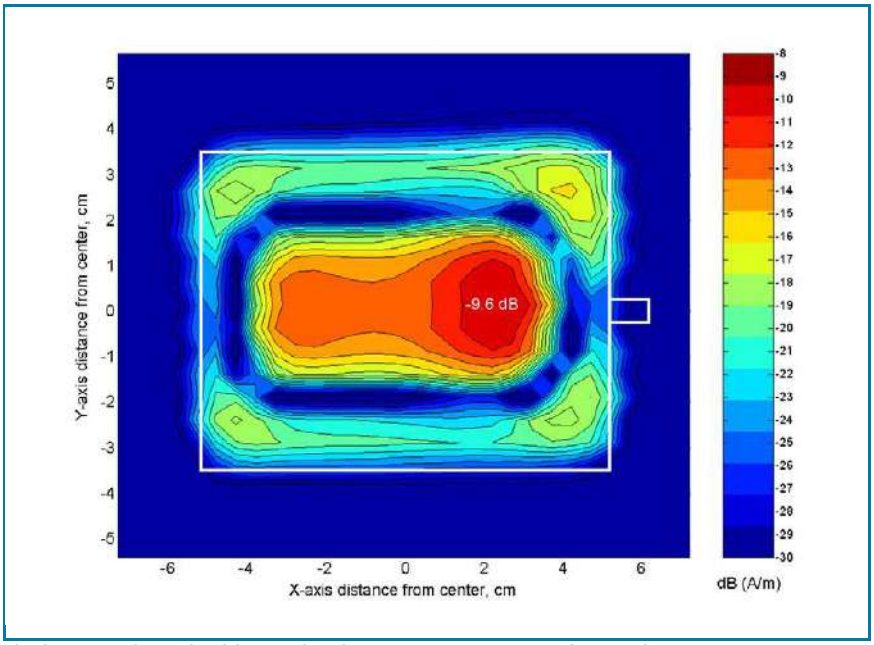
3.1 Electrical Specifications

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)

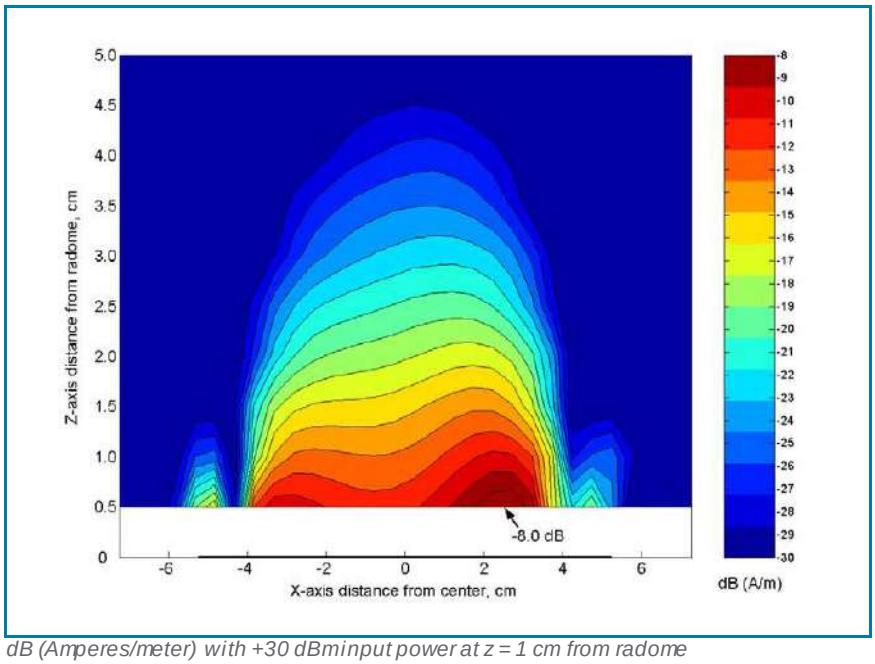
3.1.1 Gain Plots

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



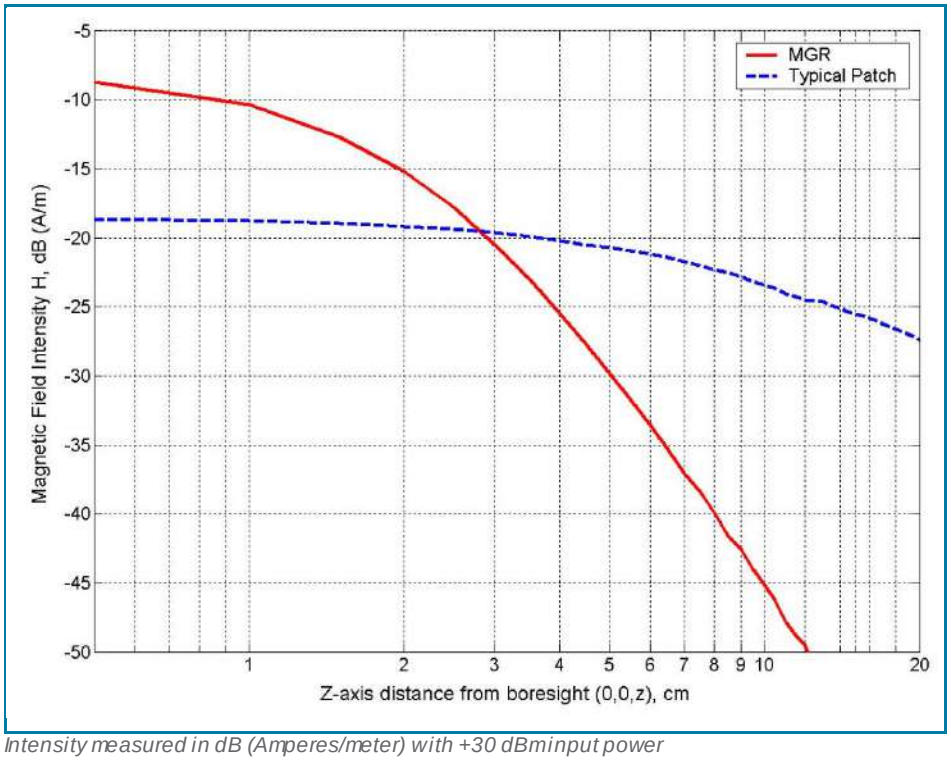
dB (Amperes/meter) with +30 dBminput power at z = 1 cm from radome

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



dB (Amperes/meter) with +30 dBminput 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 dBminput 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)

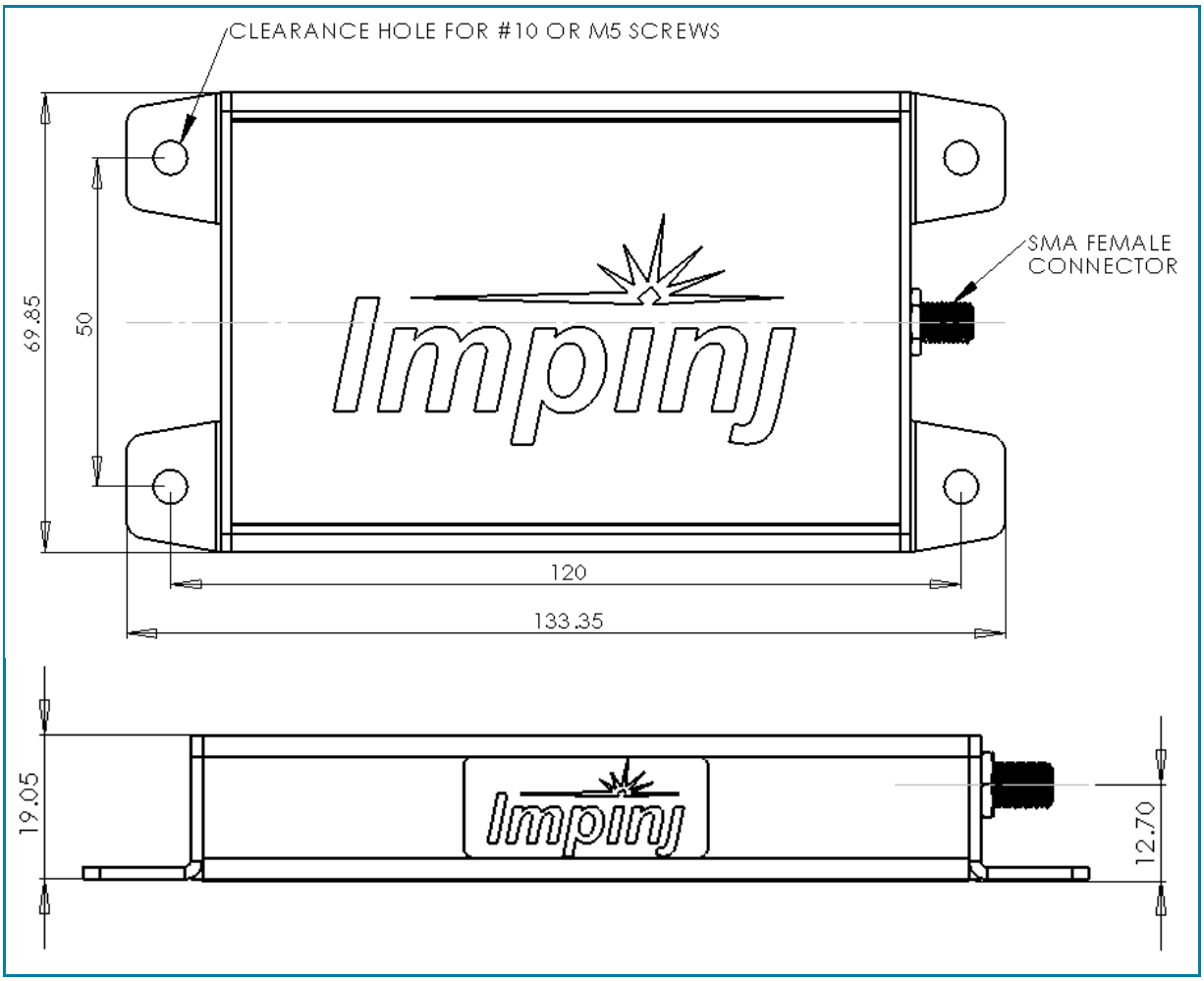
3.3 Mechanical Specifications

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

Impinj gives no representation or warranty, express or implied, for accuracy or reliability of information in this document. Impinj reserves the right to change its products and services and this information at any time without notice.

EXCEPT AS PROVIDED IN IMPINJ'S TERMS AND CONDITIONS OF SALE (OR AS OTHERWISE AGREED IN A VALID WRITTEN INDIVIDUAL AGREEMENT WITH IMPINJ), IMPINJ ASSUMES NO LIABILITY WHATSOEVER AND IMPINJ DISCLAIMS ANY EXPRESS OR IMPLIED WARRANTY, RELATED TO SALE AND/OR USE OF IMPINJ PRODUCTS INCLUDING LIABILITY OR WARRANTIES RELATING TO FITNESS FOR A PARTICULAR PURPOSE, MERCHANTABILITY, OR INFRINGEMENT.

NO LICENSE, EXPRESS OR IMPLIED, BY ESTOPPEL OR OTHERWISE, TO ANY PATENT, COPYRIGHT, MASKWORK RIGHT, OR OTHER INTELLECTUAL PROPERTY RIGHT IS GRANTED BY THIS DOCUMENT.

Impinj assumes no liability for applications assistance or customer product design. Customers should provide adequate design and operating safeguards to minimize risks.

Impinj products are not designed, warranted or authorized for use in any product or application where a malfunction may reasonably be expected to cause personal injury or death, or property or environmental damage ("hazardous uses"), including but not limited to military applications; life-support systems; aircraft control, navigation or communication; air-traffic management; or in the design, construction, operation, or maintenance of a nuclear facility. Customers must indemnify Impinj against any damages arising out of the use of Impinj products in any hazardous uses

Impinj, and Impinj products and features are trademarks or registered trademarks of Impinj, Inc. For a complete list of Impinj Trademarks, visit www.impinj.com/trademarks. All other product or service names may be trademarks of their respective companies.

The products referenced in this document may be covered by one or more U.S. patents. See www.impinj.com/patents for details.