

Mini-Guardrail ILT Antenna Datasheet



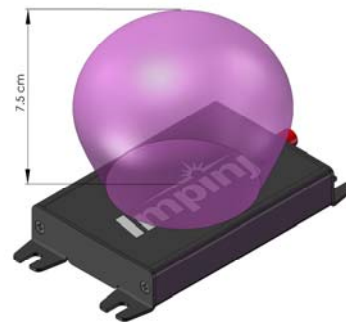
Overview

Specifically designed for demanding item-level deployments, Impinj's 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.

Features

- Strong near-field performance for reading tags at a distance of 0-7.5 cm
- Small form factor of 70 x 133 x 19 mm
- Weak far-field gain to minimize stray reads
- Broadband design to enable world-wide operation

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.

Electrical Specifications

Parameter	Typical	Units	Conditions/Notes
Frequency Range	865 to 954	MHz	Broadband for use in all regions
Near Field Intensity	-13	dBA/m	Center of antenna 1 cm from radome, 30dBm input power
Far Field Gain	-20	dBi	
Polarization	Linear		Parallel to short axis
VSWR ¹	1.25:1		Center of band
Input Impedance	50	Ω	
Input Power	30	dBm	33dBm absolute max
ESD	2	KV	Human Body Model

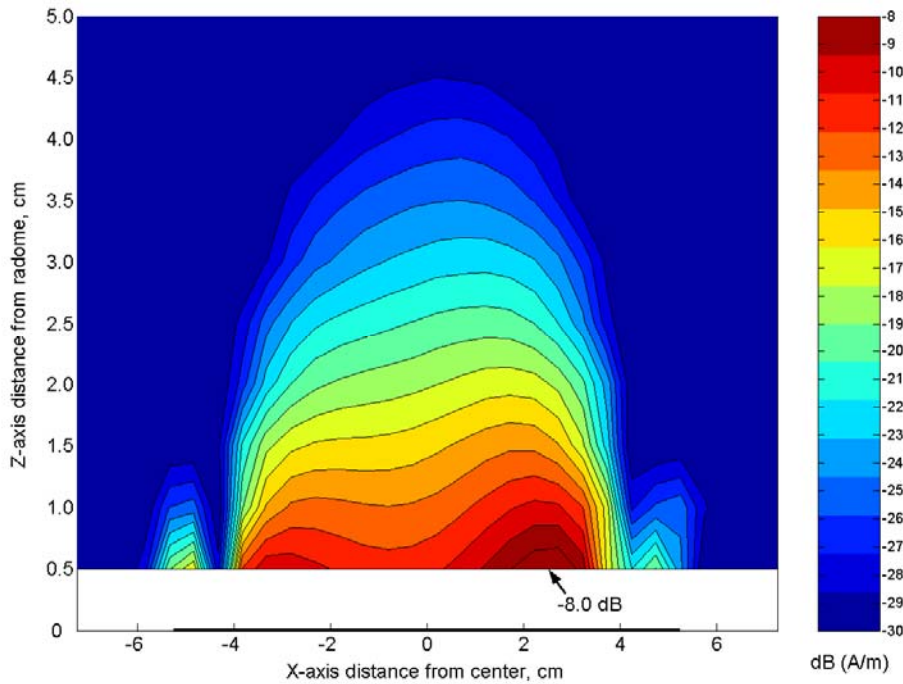
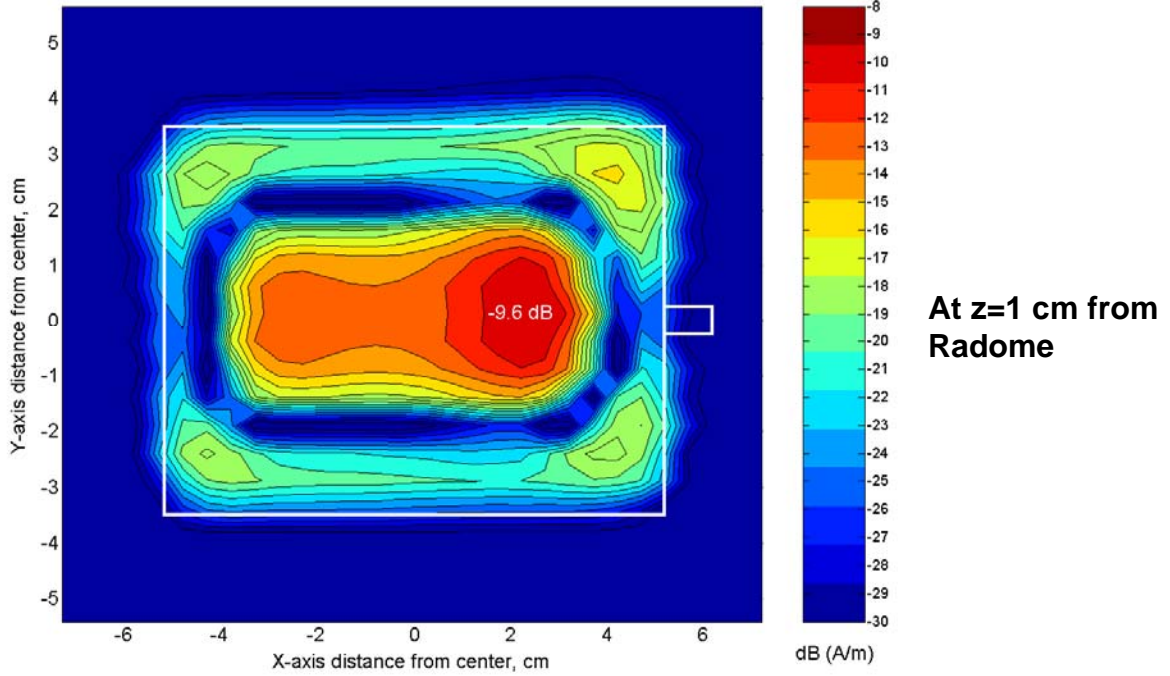
Environmental Specifications

Parameter	Typical	Units	Conditions/Notes
IP Rating	IP41		Indoor use only
Temperature	0–40	°C	Indoor use only
Humidity	5–95	%	Relative, non-condensing
RoHS	N/A		Designed to meet RoHS, not certified RoHS

¹ 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.

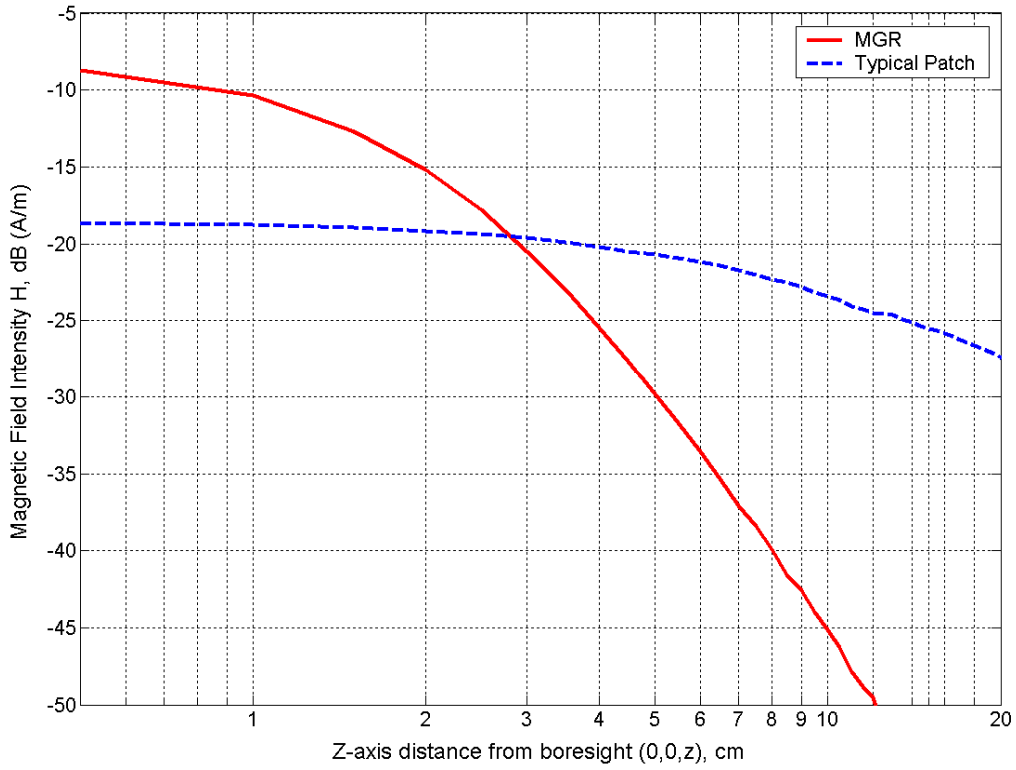
Magnetic Field Intensity Plots

(dB (Amperes/meter) with +30 dBm input power)



Magnetic Field Intensity versus Typical Patch Antenna

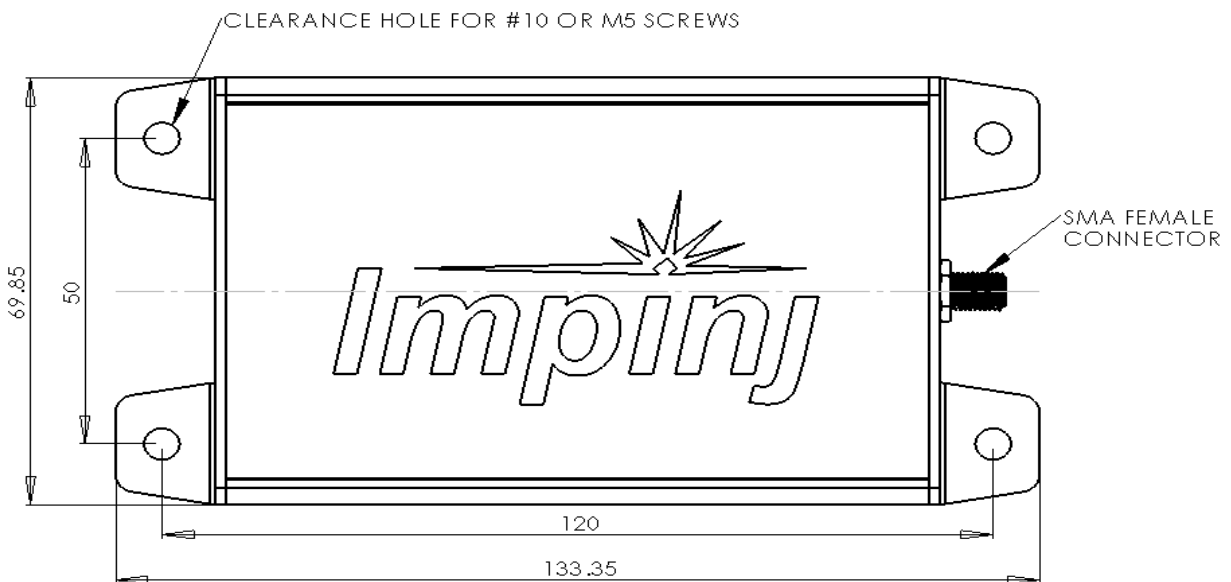
(dB (Amperes/meter) with +30 dBm input power)



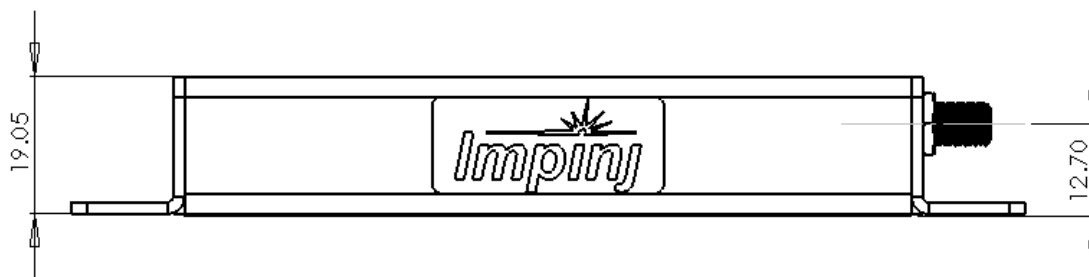
Mechanical Specifications

Parameter	Typical	Units	Conditions/Notes
Weight	114	grams	
Connector	SMA female		Requires accessory cable to connect to reader's RP-TNC connector
Radome	Acrylic		
Enclosure	Aluminum w/ black anodized coating		
Dimensions	69.85 x 133.35 x 19.05	mm	See drawing for detailed dimensions

Mechanical Enclosure



Top View Dimensions (mm)



Side View Dimensions (mm)



Ordering Information

Part Number	Accessories ²
IPJ-A0303-000	Male SMA to male RP-TNC 2 meters: IPJ-A3002-000 Male SMA to male RP-TNC 4 meters: IPJ-A3004-000 Male SMA to male RP-TNC 8 meters: IPJ-A3008-000

²Cables (for connection to Impinj Speedway reader)

Notices:

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Impinj assumes no responsibility for determining if the antenna and operation of the antenna with a reader product complies with laws, guidelines, and regulations of the region in which the antenna is located and operated.

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