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IPJ-A0303-000

Mini-Guardrail ILT Antenna Datasheet



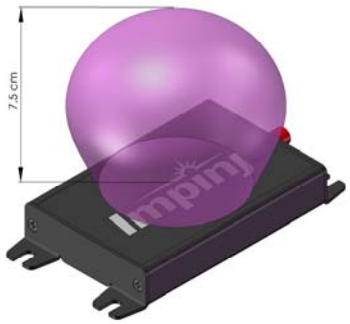
Overview

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.

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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

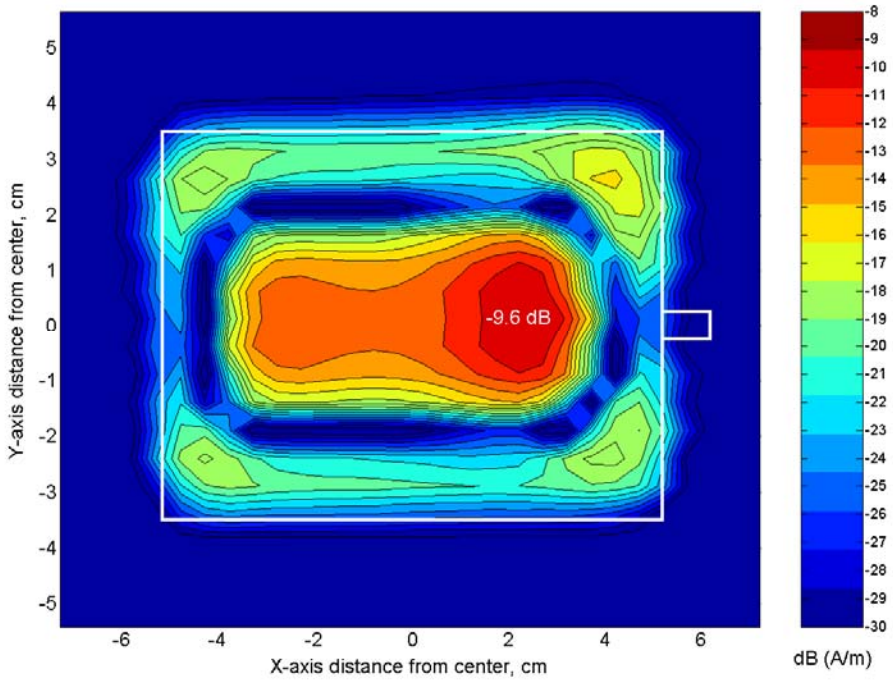
Parameter	Typical	Units	Conditions/Notes
IP Rating	IP41		Indoor use only
Temperature	0–40	°C	Indoor use only
Humidity	5–95	%	Relative, non-condensing
RoHS	N/A		Designed to meet RoHS, not certified RoHS

[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.

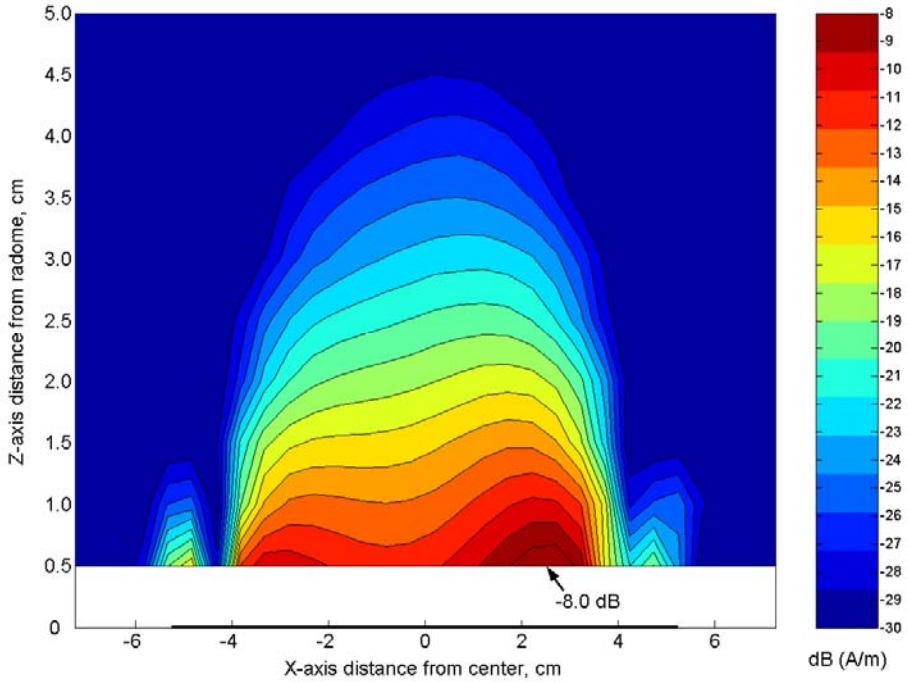
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Magnetic Field Intensity Plots

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

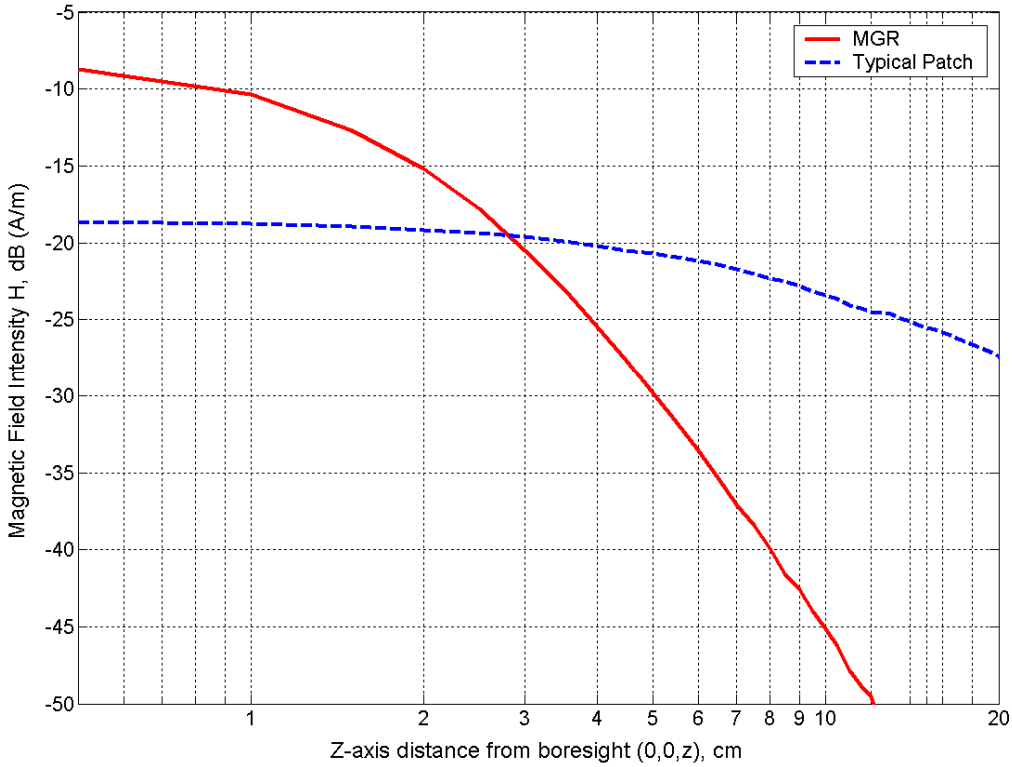


At z=1 cm from Radome



Magnetic Field Intensity versus Typical Patch Antenna

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

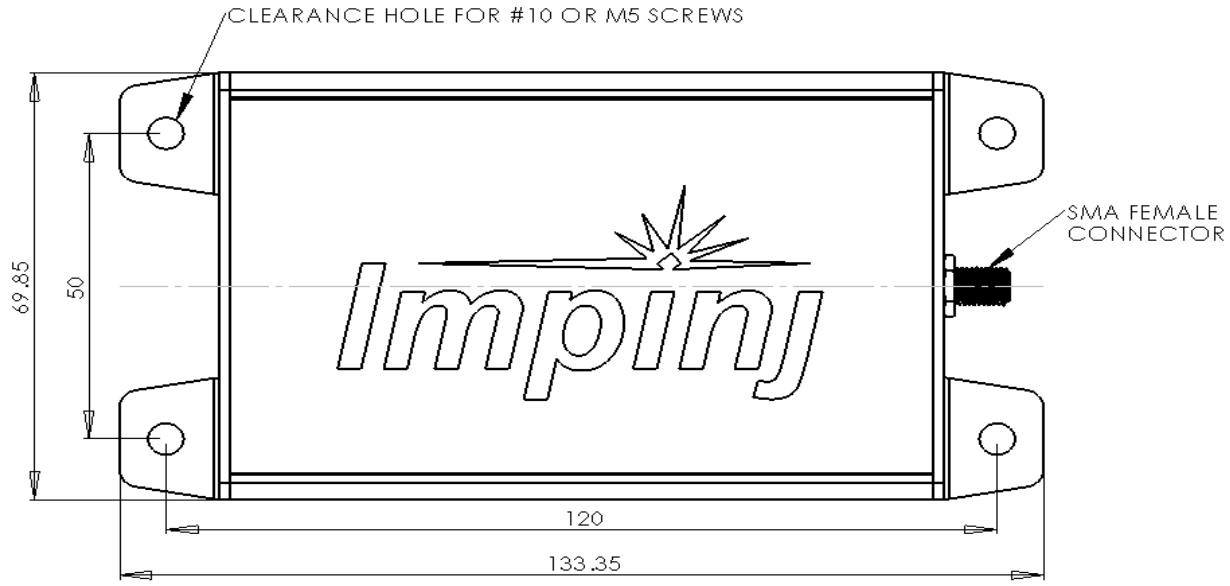


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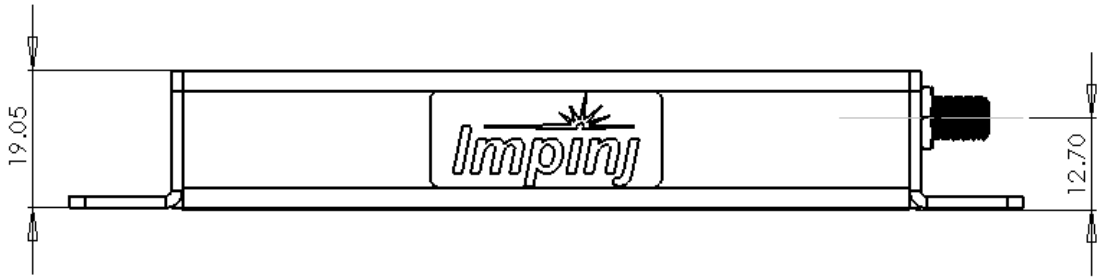
Mechanical Specifications

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

[2]Cables (for connection to Impinj Speedway reader)

Notices:

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This antenna may only be used with an Impinj reader or "Powered by Impinj" reader. Using this antenna with any other device voids the antenna warranty and may cause damage to the antenna or device.

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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