

# Mini-Guardrail ILT Antenna Datasheet



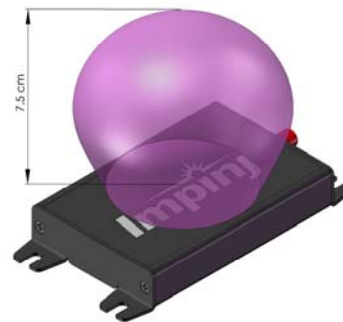
## Overview

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 <sup>1</sup>	1.25:1		Center of band
Input Impedance	50	$\Omega$	
Input Power	30	dBm	33dBm absolute max
ESD	2	KV	Human Body Model

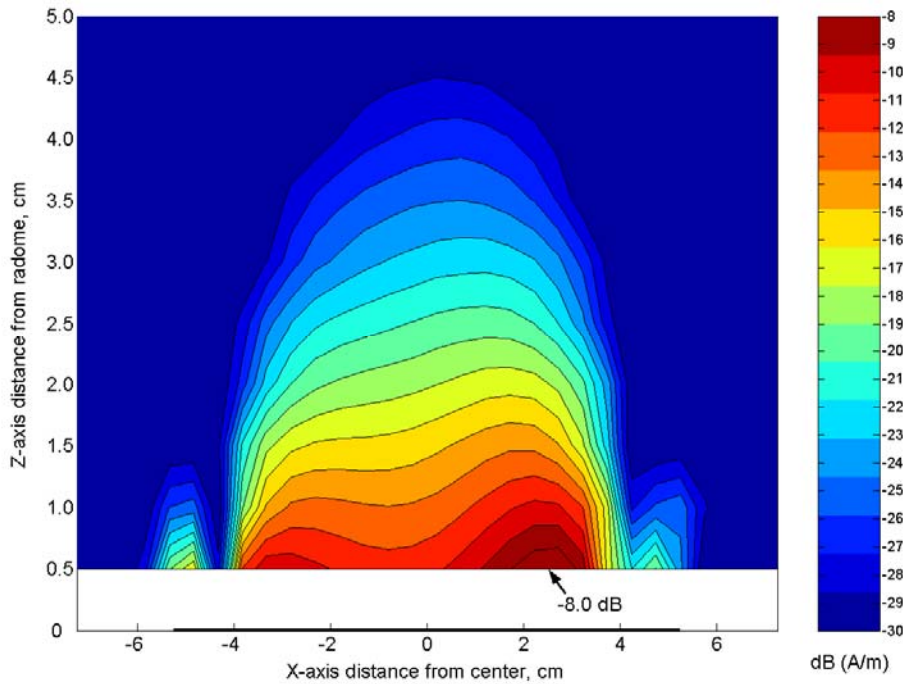
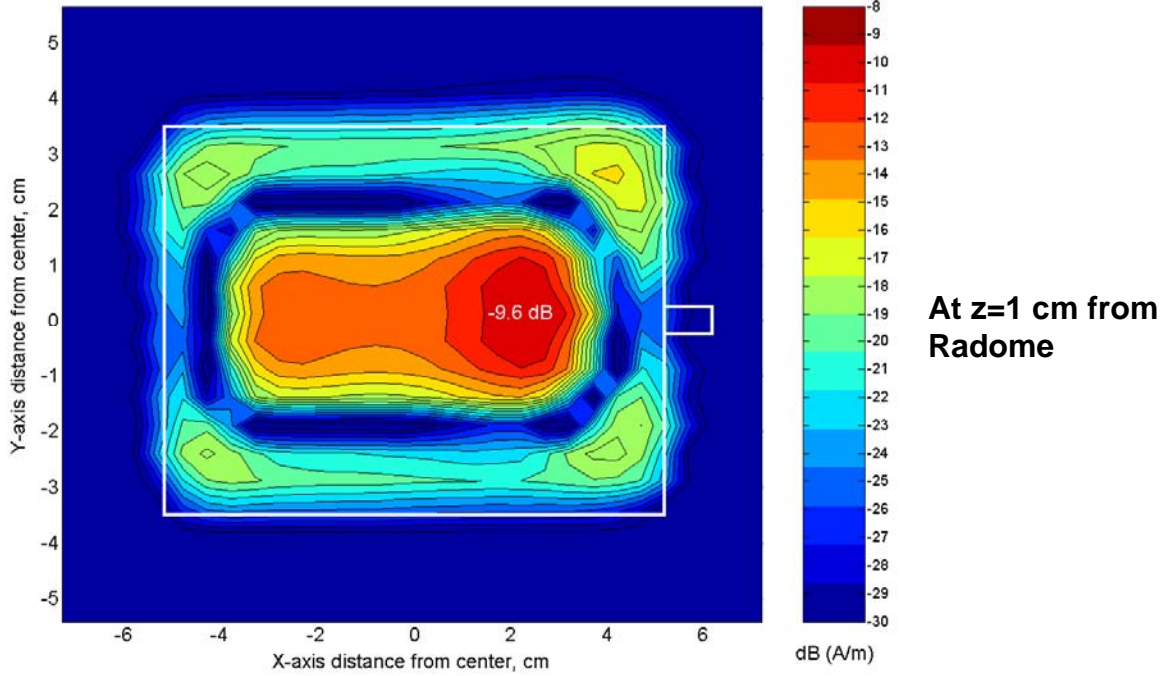
## Environmental Specifications

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

<sup>1</sup> 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.

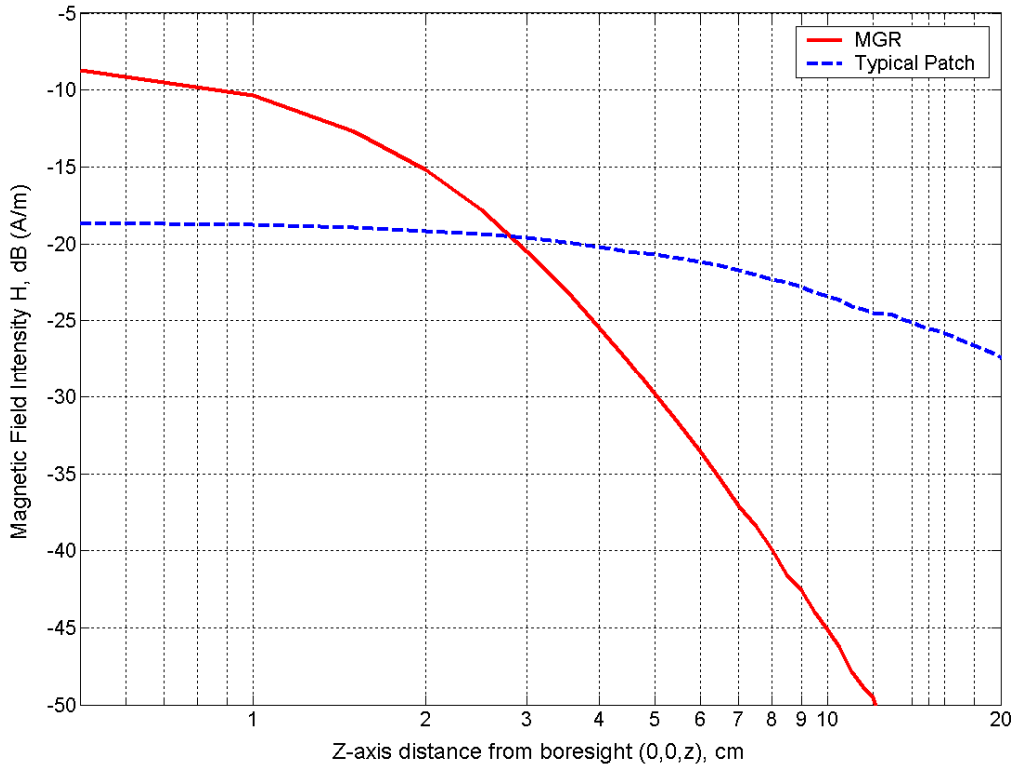
### Magnetic Field Intensity Plots

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



## Magnetic Field Intensity versus Typical Patch Antenna

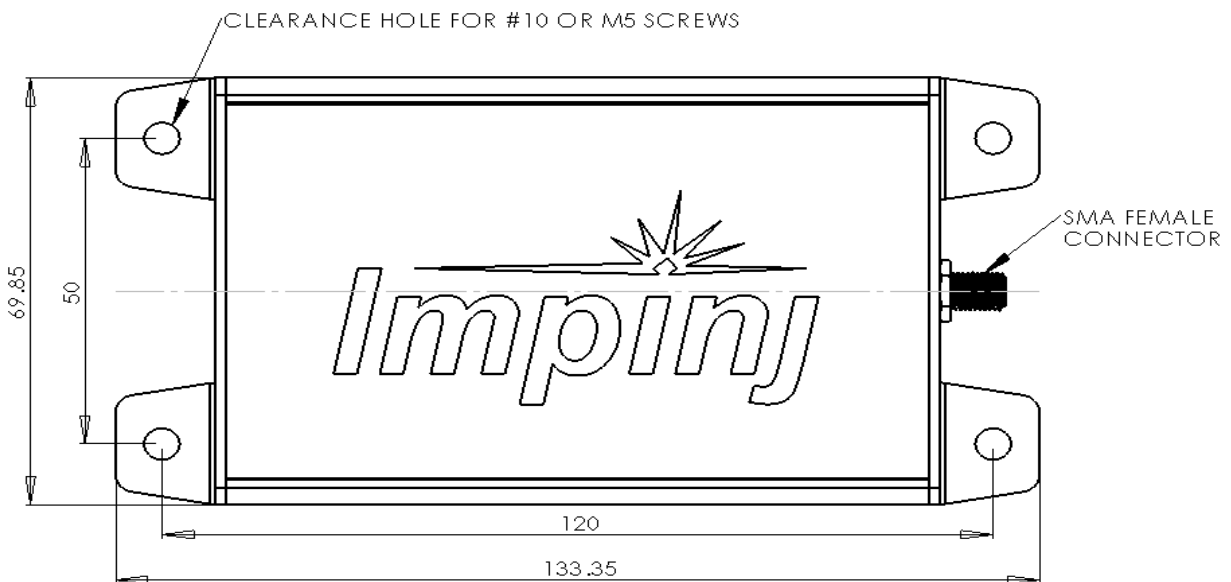
(dB (Amperes/meter) with +30 dBm input power)



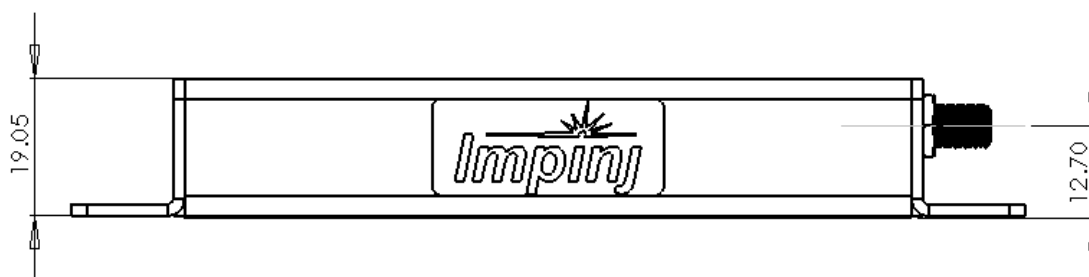
## Mechanical Specifications

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)



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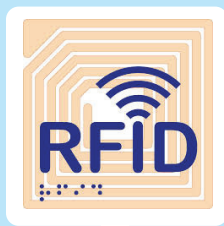
Barcode readers



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(labels, ribbons, PVC cards)



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