

MINI-GUARDRAIL ANTENNA DATASHEET

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1 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.

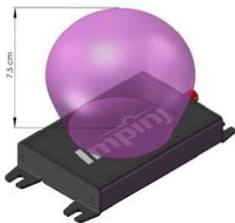


2 FEATURES

- 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

3 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.



4 ELECTRICAL SPECIFICATIONS

Parameter	Typical	Units	Conditions/Notes
Frequency Range	860 to 960	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

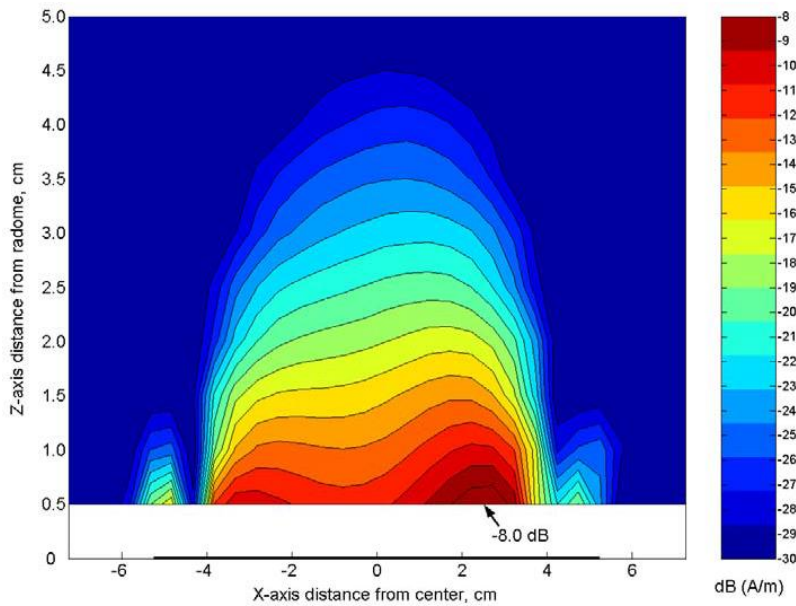
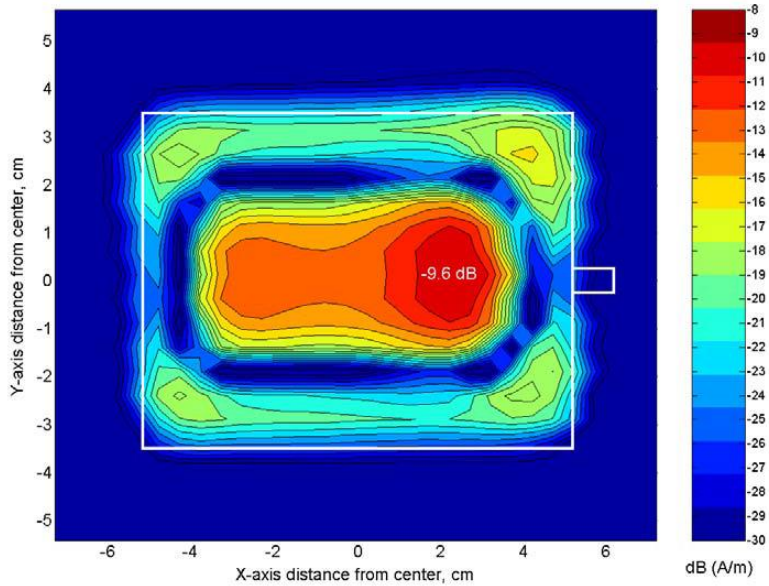
5 ENVIRONMENTAL SPECIFICATIONS

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, RoHS compliant

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.

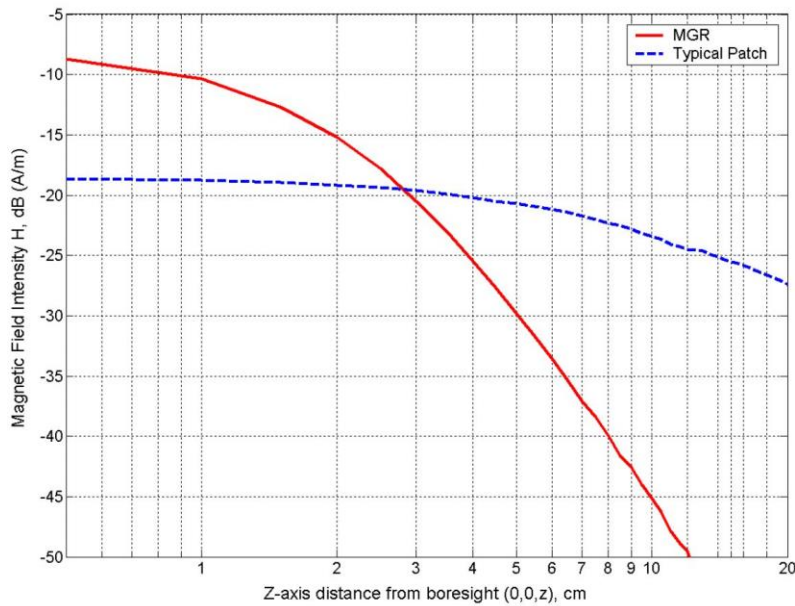
6 MAGNETIC FIELD INTENSITY PLOTS

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



7 MAGNETIC FIELD INTENSITY VERSUS TYPICAL PATCH ANTENNA

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



8 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	133.4 (l) x 69.9 (w) x 19.1 (h)	mm	
Mounting	4 holes for #10 or M5 screws spaced 120.0 (l) x 50.0 (w)	mm	

9 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)

10 VERSION & REVISION HISTORY

VERSION NUMBER	CHANGE DESCRIPTION	DATE
5.0	Document Created/Released	11/15/2017

11 NOTICES

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