



# ZEBRA RFID ANTENNA FAMILY

## COMPREHENSIVE RFID ANTENNA PORTFOLIO FOR DIVERSE APPLICATION NEEDS

Zebra's family of Radio Frequency Identification (RFID) Antennas offers the versatility and performance required to meet diverse environmental and application needs — including customer-facing areas, warehouses and outdoor environments. When used in conjunction with Zebra's Fixed RFID Readers, communication with Electronic Product Code (EPC™)-compliant RFID tags is accurate, fast and efficient. Vital components in reader-tag communications, our family of efficient, high-performance antennas can meet the needs of any RFID solution.

### ZEBRA RFID ANTENNAS— A VITAL RFID SYSTEM COMPONENT

RFID Antennas complement the portfolio of Zebra enterprise mobility solutions that enable organizations to capture, move and manage critical information to and from every point of business activity. In combination with Zebra's fixed readers, these efficient antennas deliver high-throughput, high capacity communication of EPC-compliant RFID tag data.

### SERVICES COMPLETE THE SOLUTION

To help you seamlessly and successfully integrate your RFID Antennas into your environment, Zebra offers a complete suite of services that span the entire solution lifecycle — from initial planning and assessment through ongoing training and support.

## VERSATILITY AND PERFORMANCE TO MEET YOUR DIVERSE APPLICATION NEEDS

### ON THE FLOOR ...

### FEATURES AND APPLICATIONS

#### AN200:

##### FEATURES

Supports drain holes for use in direct rain, snow or high humidity environments

##### APPLICATIONS

Dock doors, portals, outdoor gates

#### AN440:

##### FEATURES

- Dual-element, ideal for bi-static operation
- Can be used as two separate mono-static antennas in one package
- Rugged design suitable for industrial applications, IP-67 rated

##### APPLICATIONS

- Ceilings and walls to create superior read zones around shelves
- Doorways and chokepoints where boxes and pallets are moving through
- Portals, outdoor gates and conveyors
- RF-challenging environments

#### AN480:

##### FEATURES

- Excellent wide frequency band antenna response covering 865 Mhz ~ 956 Mhz , ideally suited for global deployments
- Available in right and left hand polarization.



#### APPLICATIONS

- Ceilings and walls to create superior read zones around shelves
- Doorways and chokepoints where boxes and pallets are moving through
- Portals, outdoor gates and conveyors
- Indoor and outdoor applications

#### AN600 SERIES: FEATURES

Flat panel, slim line antennas

#### APPLICATIONS

Suitable for use in indoor environments: wall mount, doorways, under counter, above counter as an RFID pad, on shelves, on end-cap displays, POS etc.

#### AN700 Series FEATURES

- Thin profile
- Low gain (~3dB) antenna for short range applications to create targeted zone

#### APPLICATIONS

Suitable for use in Indoor environments: in doorways, on shelves, on end-cap displays, on conveyors, or POS etc.

#### FEATURES

- Industrial class, IP 67 rated
- Wide beam-width of 100 degree for wider coverage
- Ideal for short range applications to create targeted zones

#### APPLICATIONS

- Suitable for use in Indoor and outdoor environments
- Indoors: In doorways, shelves, end-cap displays

### IN THE FIELD ...



### IN THE WAREHOUSE ...



- Outdoors: Doorways, small conveyors

## CHOOSE THE RIGHT ANTENNA FOR YOUR APPLICATION

Zebra's complete family of RFID antennas meets the needs of virtually any RFID application. Choose the antenna that is designed for your environment — carpeted, industrial or outdoors, delivers the right level of performance, meets mounting requirements and fits in your budget.

### GENERAL PURPOSE

#### AN200: GENERAL PURPOSE ANTENNA FOR INDOOR OR OUTDOOR APPLICATION



Get the convenience of a versatile antenna that can be utilized throughout your enterprise, from the warehouse floor and production line to outside the dock door. Able to withstand extreme heat and cold as well as moisture and vibration, the AN200 is ideal for nearly any application, including retail, manufacturing, wholesale distribution, healthcare, government and more.

This all-purpose antenna can be used in standard RFID applications with power levels up to one watt, as well as custom high-power applications requiring up to 20 watts. The antenna is traditionally used in pairs, with right and left hand polarization.

## **AN440: LARGE AREA COVERAGE FOR HIGH-CAPACITY, HIGH THROUGHPUT ENVIRONMENTS**



Need to keep track of thousands of assets? High product density and heavy traffic across a large area? Get the capacity and range you demand for reliable RFID tag reading with the AN440 high-performance RFID area antenna. A good-looking, rugged general-purpose area antenna, the AN440 is designed to perform exceptionally in all environments, customer-facing or industrial, indoors and out.

The AN440 RFID Antenna gives you a wide read field and high-speed RF signal conversion, so data capture is fast and accurate, even in expansive, high-demand environments. The AN440 is easy to mount on ceilings and walls, and its rugged white housing is at home in both customer-facing and industrial settings. So you can achieve superior read zones around stockroom shelves, warehouse doorways and dock platforms – anywhere boxes and pallets are moving into and out of your facility. Your workflow keeps flowing, your inventory count stays accurate and your productivity can reach new heights.

## **AN480: WIDE BAND ANTENNA FOR WORLDWIDE USE**





The AN480 single port antenna offers maximum performance and flexibility. The low axial ratio is nearly 50 percent lower than typical competitive devices, delivering a more uniform gain — and better performance. The wide frequency range enables this antenna to be utilized in worldwide deployments, providing cost-efficiencies and a simplified RFID infrastructure. The AN480 can be installed throughout the enterprise in manufacturing and warehouse floor environments, or any dock door receiving application. As with all Zebra antennas, the AN480 uses Zebra's standard mounting bracket — mounting the antenna for the first time or upgrading an existing Zebra antenna with the AN480 is fast and easy.

## **SLIM LINE**

### **AN600 SERIES: SLIM LINE, ULTRA-LOW PROFILE ANTENNA**



When your application calls for a “picture-frame” aesthetic antenna deployment, look to the newest ultra-low profile members of the Zebra family – the AN610 and AN620 Slimline Antennas. The AN610 and AN620 feature a simple, integrated mounting system that lets them stand just under one-half inch (12mm) from horizontal or vertical mounting surfaces. Space-saving and stylish, the outer housing is designed to be sleek and discreet enough to be at home in any business setting but rugged enough for indoor industrial environments. A perfect complement to the FX7400 RFID reader, the AN600 series antennas are ideally suited for use in wall mount, doorways, under counter, above counter as an RFID pad, on shelves, POS or end-cap displays like jewelry counter applications.

## COMPACT

### AN700 SERIES: COMPACT ANTENNAS FOR CUSTOMER FACING ENVIRONMENTS



The AN700 Series antennas offer all the features required for carpeted and customer-facing environments. A perfect complement to Zebra's FX7400 RFID Reader, the AN700 Series antennas are extremely compact, offering the aesthetics required for the most discreet installation in the most space constrained areas — for example, under the point of sale (POS) counter. The integrated mounting bracket enables easy installation in minutes. The AN710 is designed for inside the four walls. The rugged AN720 is designed to withstand exposure to rain, snow and extreme temperatures — ideal for the receiving dock doors or outdoor shopping areas.

	GENERAL PURPOSE			SLIM LINE		COMPACT	
ANTENNA ENVIRONMENT	AN200	AN440	AN480	AN610	AN620	AN710	AN720
BUSINESS-CLASS		•	•	•	•	•	•
INDUSTRIAL-CLASS – INDOOR	•	•	•	•	•		•
INDUSTRIAL-CLASS – OUTDOOR	•	•	•				•
VALUE SOLUTION			•			•	
COMPACT				SLIM	SLIM	•	•
HIGH PERFORMANCE/ HIGH GAIN (DB)	•	•	•				
POLARIZATION	R & L Circular	R & L Circular/ Dual	R & L Circular	L Circular	L Circular	L Circular	L Circular
<b>SPECIFICATIONS</b>							
	AN200		AN440		AN480		
<b>PHYSICAL</b>							
DIMENSIONS WITHOUT MOUNTING SCREWS:	11.1 in. L x 11.1 in. W x 1.9 in. D 281.9 mm L x 281.9 mm W x 48.3 mm D	22.6 in. L x 10.2 in. W x 1.32 in. D 575.1 mm L x 259.1 mm W x 33.52 mm D	10.2 in. L x 10.2 in. W x 1.32 in. D 259.1 mm L x 259.1 mm W x 33.5 mm D				
DIMENSIONS WITH MOUNTING SCREWS:	11.1 in. L x 11.1 in. W x 1.9 in. D 281.9 mm L x 281.9 mm W x 48.3 mm D	22.6 in. L x 10.2 in. W x 1.32 in. D 575.1 mm L x 259.1 mm W x 33.52 mm D	10.2 in. L x 10.2 in. W x 1.98 in. D 259.1 mm L x 259.1 mm W x 50.3 mm D				
CONNECTOR	Type "N" female		Type "N" female (2 qty)		Type 'N' female		
CONNECTOR POSITION			Rear		Pig-tail		
MOUNTING BRACKET	Integrated mounting holes						
WEIGHT	3 lbs./1.36 kg		7 lbs./3.2 Kg		2.5 lbs./1.13 kg		
CASING	Aluminum with plastic cover		UV Stable ASA, White		Aluminium with white plastic cover		
<b>OPERATIONAL</b>							
FREQ. RANGE	900-928MHz		EU: 865-868MHz; US*: 902-928MHz (AN440 optimized for US)		865-956 MHz		
GAIN			6.0 dBiL		6.0 dBiL		
VSWR (RETURN)			1.22 : 1(20 dB)		1.3 : 1		

LOSS)

<b>FRONT TO BACK RATIO</b>	> 10dB	20dB	18dB
<b>POLARIZATION</b>	LHCP or RHCP	1 x LHCP / 1 x RHCP	LHCP or RHCP
<b>3DB BEAM WIDTH</b>	60°	70° in both phases	65°
<b>MAX POWER</b>	20 watts	10 Watts	2 watts
<b>AXIAL RATIO</b>	< 3 db	1dB typical	1.5 dB

**ENVIRONMENTAL**

<b>OPER. TEMPS</b>	-40° F to +149° F, -40° C to +65° C	-22°F to +158°F, -30°C to +70°C	-13° F to +158° F, -25° C to +70° C
<b>ENVIRONMENTAL SEALING</b>	Weep holes	IP-67	IP-54
<b>STORAGE TEMPERATURE</b>	-40°F to +158° F, -40°C to +70° C	-40°F to +185°F, -40°C to +85°C	-40°F to +158° F, -40°C to +70° C
<b>VIBRATION</b>	IEC-68-2-6 (10 to 150 Hz, 0.5 g, one hour in each of two axes) (Random Vibration)		IEC-68 series
<b>HUMIDITY</b>	IEC-68-2-30 (-13° F to 104° F, -25° C to 40° C) 24 hour cycles of 90% relative humidity	MIL-Std 810G, METHOD 507.5, Procedure II - Aggravated	IEC 68-2-30

**COMPLIANCE**

<b>TAA COMPLIANT</b>	YES	NO
<b>PORT TO PORT ISOLATION</b>	38dB	

**SPECIFICATIONS**

**AN610**

**AN620**

**PHYSICAL**

<b>DIMENSIONS:</b>	10.8 in. L x 8.42 in. W x 0.47 in. D 275 mm L x 214 mm W x 12 mm D	15.39 in. L x 10.82 in. W x 0.47 in. D 391 mm L x 275 mm W x 12 mm D
<b>CONNECTOR</b>	Type "N" female	
<b>CONNECTOR POSITION</b>	Side	
<b>MOUNTING BRACKET</b>	Integrated mounting holes	
<b>WEIGHT</b>	1.3 lbs./ 0.6 kg	2.2 lbs./ 1.0 Kg
<b>CASING</b>	Superior Kydex	

**OPERATIONAL**

<b>FREQ. RANGE</b>	864-868 MHz (EU Version) 902-928 MHz (US Version)	
<b>GAIN</b>	1.0 dBIL	4.0 dBIL
<b>VSWR (RETURN LOSS)</b>	1.4 : 1	
<b>FRONT TO BACK RATIO</b>	18 dB	22 dB
<b>POLARIZATION</b>	LHCP	



<b>3DB BEAM WIDTH</b>	80° in both phases	75° horizontal , 48° vertical
<b>MAX POWER</b>	6 watts	
<b>AXIAL RATIO</b>	< 2 dB	
<b>ENVIRONMENTAL</b>		
<b>OPER. TEMPS</b>	-22° F to +149° F, -30° C to +65° C	
<b>STORAGE TEMPERATURE</b>	-40° F to +158° F, -40°C to +70° C	
<b>VIBRATION</b>	IEC-68-2-6 (10 to 150 Hz, 0.5 g, one hour in each of two axes) (Random Vibration)	
<b>HUMIDITY</b>	IEC-68-2-30 (-13° F to 104° F, -25° C to 40° C) 24 hour cycles of 90% relative humidity	
	<b>AN710</b>	<b>AN720</b>
<b>PHYSICAL</b>		
<b>DIMENSIONS WITHOUT MOUNTING SCREWS:</b>	5.75 in. L x 5.75 in. W x 0.69 in. D 146.05 mm L x 146.05 mm W x 17.53 mm D	5.2 in. L x 5.2 in. W x 0.7 in. D 132.8 mm L x 132.8 mm W x 18.1 mm D
<b>DIMENSIONS WITH MOUNTING SCREWS:</b>	N/A	
<b>CONNECTOR</b>	Type 'N' female	
<b>CONNECTOR POSITION</b>	Pig-tail	Rear
<b>MOUNTING BRACKET</b>	includes articulating mount	
<b>WEIGHT</b>	1.1 lbs/0.5 kg	0.8 lbs/0.37 kg
<b>CASING</b>	White ABS plastic	Aluminium with white plastic cover
<b>OPERATIONAL</b>		
<b>FREQ. RANGE</b>	900-928 MHz (US) & 867-870 MHz (EU)	900-928 MHz (US) & 865-868 MHz (EU)
<b>GAIN</b>	3.0 dBil	US/Canada: 3.0 dBil; Europe: 3.5 dBil
<b>VSWR (RETURN LOSS)</b>	2 : 1	1.5 : 1
<b>FRONT TO BACK RATIO</b>	> 10dB	8db
<b>POLARIZATION</b>	LHCP	
<b>3DB BEAM WIDTH</b>	80°	100°
<b>MAX POWER</b>	10 watts	
<b>AXIAL RATIO</b>	< 3 db	2 dB
<b>ENVIRONMENTAL</b>		
<b>OPER. TEMPS</b>	-22° F to +158° F, -30° C to 70° C	-13° F to +158° F, -25° C to +70° C
<b>ENVIRONMENTAL SEALING</b>	IP 65 Vented	IP67

<b>STORAGE TEMPERATURE</b>	-40° F to +158° F, -40° C to +70° C	-40° F to +158° F, -40° C to +70° C
<b>VIBRATION</b>	EN 61373, IEEE 1478, Mil-810G	MIL-STD-810
<b>HUMIDITY</b>	Not Spec'd	IEC-68-2-30
<b>COMPLIANCE</b>		
<b>TAA COMPLIANT</b>	YES	

The antenna frequency specification and label is a characteristic trait of the antenna's peak frequency response. The RFID reader, when professionally installed and selected for a country of operation, dictates the actual frequency of transmission/reception to ensure regulatory compliance for operation in a designated country. The actual frequency specification of the antenna is not material to regulatory compliance.

The AN200 will perform reasonably well in EU frequency in most applications.



Repairs of Zebra RFID antennas for fixed readers may require the use of Zebra proprietary parts (and/or Zebra proprietary information). Zebra will sell these parts (and provide this proprietary information) only to end-user customers for self-service. Applicable in the U.S. For all other countries, please contact your Zebra account manager or the local Zebra Customer Service representative in your area for further detail

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**ZEBRA TECHNOLOGIES**