Zebra UHF RFID Antennas

Versatile, high-performance antennas
for a wide variety of applications

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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 UHF RFID tags is accurate, fast and efficient. As vital components in reader-tag communications, our portfolio of high-performance antennas can meet the needs of any RFID solution.

Whether your application requires an antenna that blends into the environment, is IP67 sealed for rugged and extreme weather environments, or slim to fit into small spaces, we have the right antenna to complete your solution.

One pain point when choosing an antenna for your RFID solution is knowing which antenna can be used with a fixed RFID reader in order to get maximum performance while not to exceeding your local regulations. Zebra's UHF RFID antennas have been specifically tested with our fixed reader portfolio to ensure that the highest performance is possible while still maintaining compliance with regulatory standards.

Service Completes 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.

Zebra AN440
Dual-Element RFID Antenna

Large area coverage for high-capacity, high-throughput environments

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 housing is at home in both customer-facing and industrial settings. You can achieve superior read zones around stockroom shelves, warehouse doorways and dock doors—anywhere boxes and pallets are moving in and out of your facility. Your workflow keeps flowing, your inventory count stays accurate and your productivity can reach new heights.

AN440 Specifications

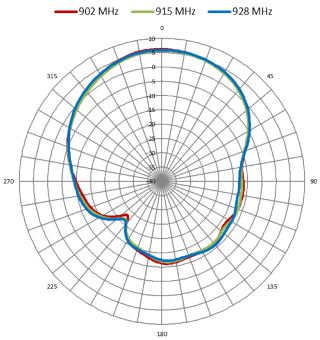
PHYSICAL CHARACTERISTICS	
Polarization	1 x left-hand circular/1 x right-hand circular
Dimensions	575.1 mm x 259.1 mm x 33.52 mm/ 22.6 in. x 10.2 in. x 1.32 in.
Connector	Dual N-Type Female
Connector Location	Rear
Mounting Options	Mounting studs provided
Weight	3.2 kg/7.0 lbs
Casing/Materials	UV Stable ASA
Frequency Ranges	EU: 865–868 MHz US: 902–928 MHz*
VSWR (Return Loss)	1.22:1
Gain	US/Canada: 6.0 dBiL

Front to Back Ratio	20 dB
3 dB Beam Width	70° in both planes
Maximum Power	10 Watts
Axial Ratio	1 dB typical
Operating Temperature	-30° to +70°C/-22° to +158°F
Storage Temperature	-40° to +85°C/-40° to +185°F
IP Sealing	IP67
Vibration	MIL-STD-810G, Method 507.5, Procedure II–Aggravated, IEC-68-2-6 (10 to 150 Hz, 0.5g, one hour in each of two axes–random vibration)
Humidity	IEC-68-2-30 (-25° to +40°C/-13° to +104°F) 24 hour cycles of 90% relative humidity

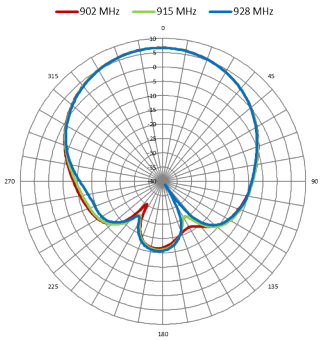
* Optimized for US

Vertical Markets
- Retail
- Enterprise/Office
- Hospitality
- Healthcare
- Transportation and Logistics
- Manufacturing

Applications
- Point of sale
- Conveyor belts
- Control points
- Hallways
- Dock doors



Horizontal (LHCP)



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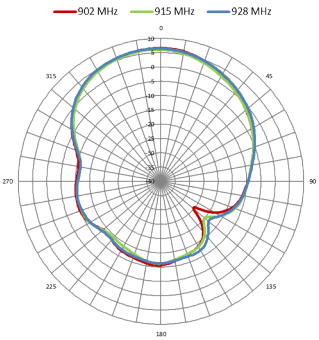
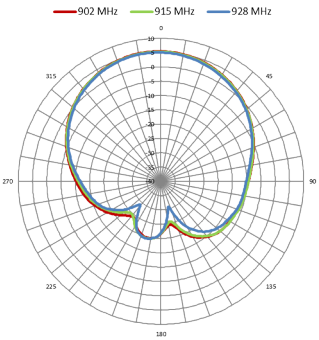


Horizontal (RHCP)



Vertical (RHCP)

Zebra AN480
Wide-Band RFID Antenna

High-performance, 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.

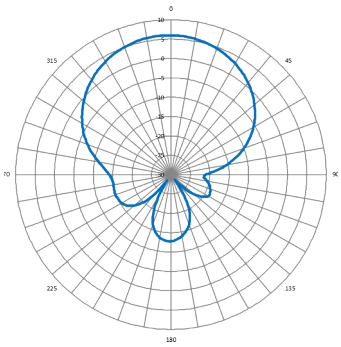
AN480 Specifications

PHYSICAL CHARACTERISTICS	
Polarization	Left-hand circular or right-hand circular
Dimensions	259.1 mm x 259.1 mm x 33.5 mm/ 10.2 in. x 10.2 in. x 1.32 in.
Connector	N-Type Female
Connector Location	Rear
Mounting Options	Mounting studs provided
Weight	1.13 kg/2.5 lbs
Casing/Materials	Aluminum with white plastic cover
Frequency Ranges	865–956 MHz
VSWR (Return Loss)	1.3:1

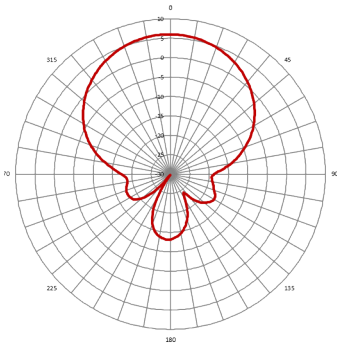
Gain	6.0 dBiL
Front to Back Ratio	18 dB
3 dB Beam Width	65° in both planes
Maximum Power	2 Watts
Axial Ratio	1.5 dB typical
Operating Temperature	-25° to +70°C/-13° to +158°F
Storage Temperature	-40° to +70°C/-40° to +158°F
IP Sealing	IP54
Vibration	IEC-68 series
Humidity	IEC-68-2-30

Vertical Markets
- Retail
- Enterprise/Office
- Hospitality
- Healthcare

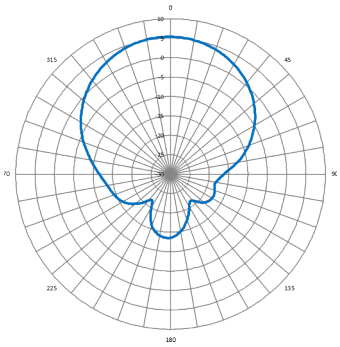
Applications
- Point of sale
- Control points
- Hallways



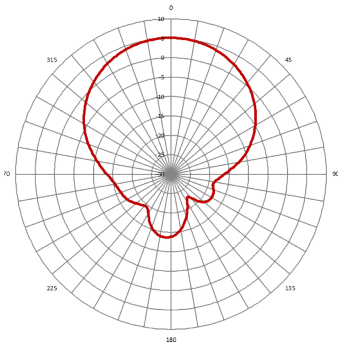
Horizontal (FCC)



Vertical (FCC)



Horizontal (ETSI)

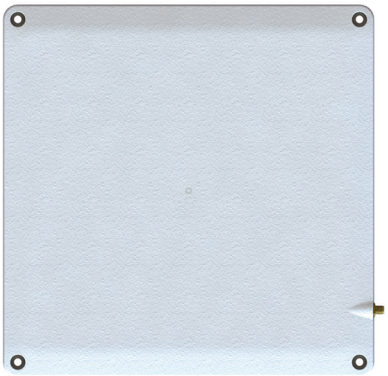


Vertical (ETSI)

Zebra AN510
Ultra-Rugged, Low-Profile Antenna

IP67 rated for indoor and outdoor applications

The AN510 ultra-rugged, low-profile antenna, with an IP67 rating, is suitable for use in a wide range of indoor and outdoor environments including outdoor shopping areas, receiving dock doors, ceilings, out on the tarmac and on conveyor belts, to name a few. The outer housing is designed to be sleek and discreet enough to be at home in any business but rugged enough for outdoor industrial environments. The versatile flush and VESA-studded mounting options make installation and mounting simple.



AN510 Specifications

PHYSICAL CHARACTERISTICS	
Polarization	Right-hand circular
Dimensions	250 mm x 250 mm x 14 mm/ 9.85 in. x 9.85 in. x 0.55 in.
Connector	SMA Female
Connector Location	side mounted
Mounting Options	Flush mount or VESA mount
Weight	0.75 kg/1.6 lbs
Casing/Materials	UV-Resistant ABS
Frequency Ranges	EU: 865–868 MHz US: 902–928 MHz
Gain	8.5 dBic

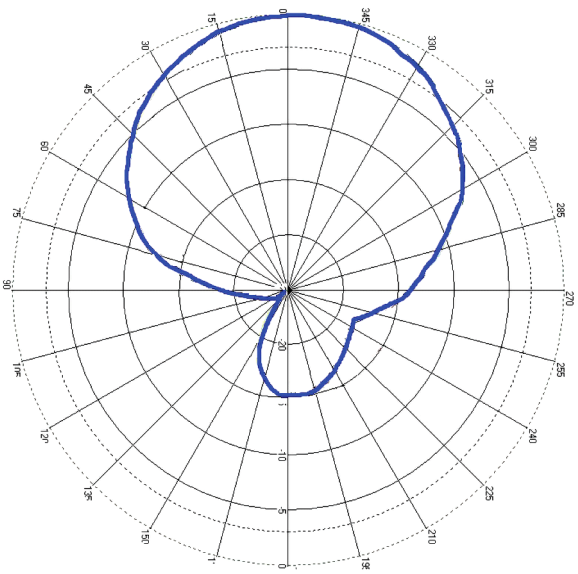
VSWR (Return Loss)	1.3:1
Front to Back Ratio	20 dB
3 dB Beam Width	68° in both planes
Maximum Power	3 Watts
Axial Ratio	1 dB
Operating Temperature	-20° to +55°C/-4° to +131°F
Storage Temperature	-30° to +65°C/-22° to +149°F
IP Sealing	IP67
Vibration	MIL-STD-810G
Humidity	72 Hours @ 85°C relative humidity

Vertical Markets

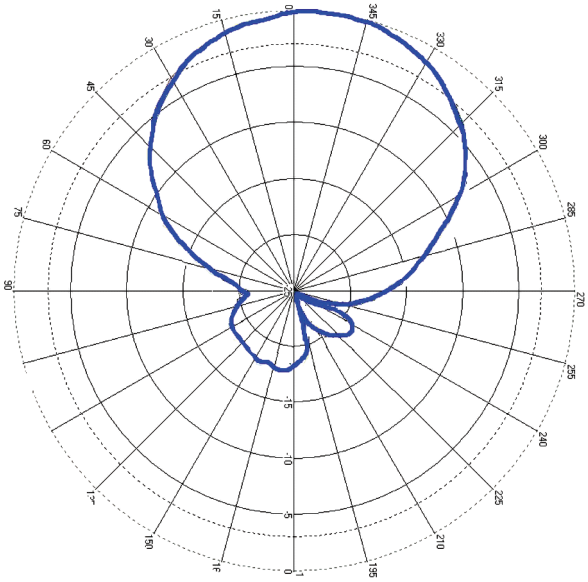
- Retail
- Warehouse Management
- Manufacturing
- Cold-chain
- Aviation

Applications

- Outdoor shopping areas
- Receiving dock doors
- Ceilings and walls to create superior read zones around shelves
- Freezers and freezer trucks
- Baggage tracking solutions
- Access control systems



Horizontal (ETSI and FCC)

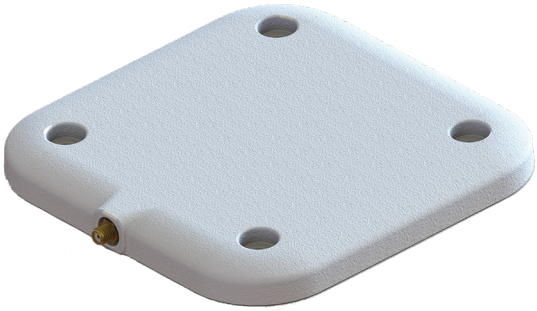


Vertical (ETSI and FCC)

Zebra AN520
Ultra-Rugged, Low-Profile Antenna

IP68 rated for indoor and outdoor applications

The AN520 ultra-rugged, low-profile antenna, with an IP68 rating, is suitable for use in a variety of indoor and outdoor environments that require a small-form-factor, high-performance antenna. The outer housing is designed to be sleek and discreet enough to be integrated into any business, but rugged enough for outdoor industrial environments. The versatile flush mount blends into any location.



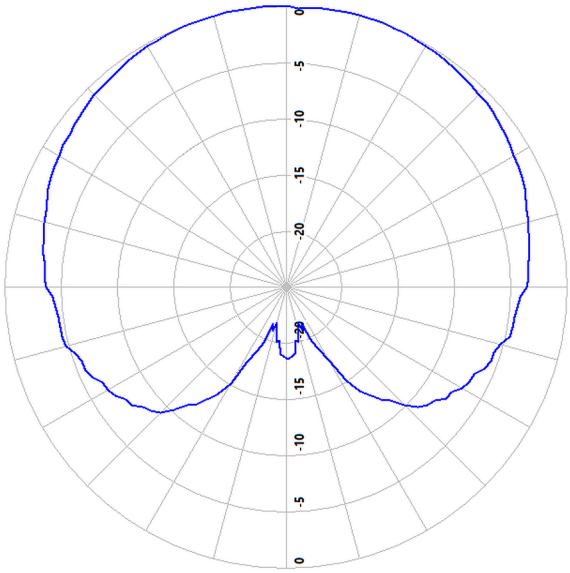
AN520 Specifications

PHYSICAL CHARACTERISTICS	
Polarization	RHCP (Right Hand Circular Polarized)
Dimensions	150 mm x 150 mm x 14 mm/ 5.9 in. x 5.9 in. x 0.55 in.
Connector	SMA Female
Connector Location	Side connector
Mounting Options	Flush mount
Weight	0.25 kg/0.55 lbs
Casing/Materials	UV-Resistant ABS
Frequency Ranges	EU: 865–868 MHz US: 902–928 MHz
Gain	5.5 dBiC typical

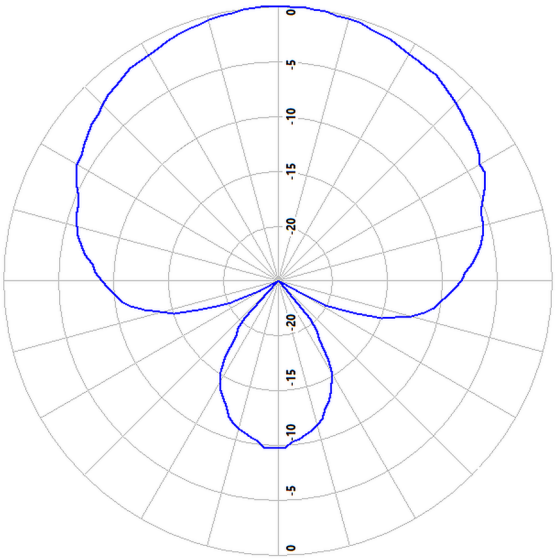
VSWR (Return Loss)	1.4 typical
Front to Back Ratio	-10 dB
3 dB Beam Width	115° in both planes
Maximum Power	3 Watts
Axial Ratio	2 dB typical
Operating Temperature	-40° to +65°C/-40° to +149°F
Storage Temperature	-40° to +65°C/-40° to +149°F
IP Sealing	IP68
Vibration	IEC60068-2-64
Humidity	72 Hours @ 85°C relative humidity

Vertical Markets
- Retail
- Warehouse Management
- Manufacturing
- Cold-chain
- Aviation
- Enterprise

Applications
- Point of sale
- Under the counter/ within shelving
- In server racks
- Inside medical cabinets
- Luggage tracking
- Access control
- Manufacturing line
- Receiving dock doors



Horizontal (ETSI and FCC)



Vertical (ETSI and FCC)

Zebra AN610
Ultra-Low-Profile RFID Antenna

Slim with integrated mounting holes for a space-saving, simple solution

Whether your application calls for a “picture-frame” aesthetic or a space-saving antenna deployment, look to the ultra-low-profile member of the Zebra family—the AN610. The AN610 features a simple, integrated mounting system with holes built right into the antenna that let it stand just under one-half inch (12 mm) 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 Zebra fixed RFID readers, the AN610 is ideal for use in wall mount, doorways, under counter, above counter as an RFID pad, on shelves, at the point of sale, or end-cap displays, or locations that have limited space like jewelry counters.

AN610 Specifications

PHYSICAL CHARACTERISTICS	
Polarization	Left-hand circular
Dimensions	275 mm x 214 mm x 12 mm/ 10.8 in. x 8.5 in. x 0.47 in.
Connector	N-Type Female
Connector Location	Pigtail-Side
Mounting Options	Flush mount
Weight	0.6 kg/1.3 lbs
Casing/Materials	Aluminum with Kydex Casing
Frequency Ranges	EU: 865–868 MHz US: 902–928 MHz
VSWR (Return Loss)	1.4:1

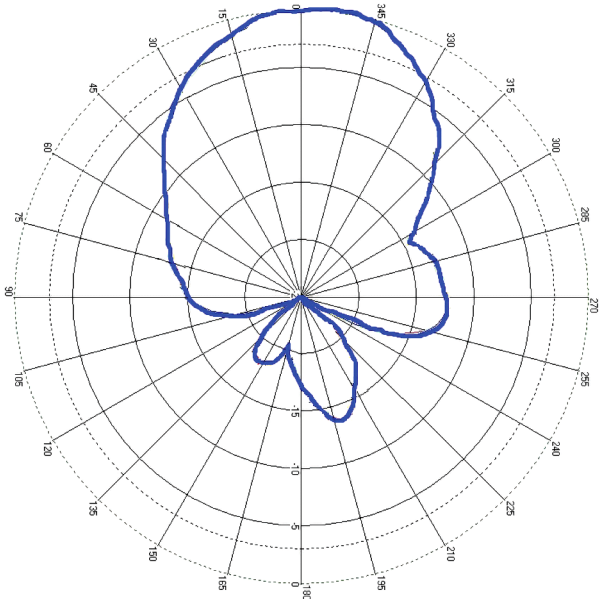
Gain	5.0 dBic
Front to Back Ratio	18 dB
3 dB Beam Width	80° in both planes
Maximum Power	6 Watts
Axial Ratio	less than 2 dB
Operating Temperature	-20° to +55°C/-4° to +131°F
Storage Temperature	-30° to +65°C/-22° to +149°F
IP Sealing	IP54
Vibration	IEC-68-2-6 (10 to 150 Hz, 0.5 g, one hour in each of two axes) (Random Vibration)
Humidity	IEC-68-2-30 (-13°F to 104°F, -25°C to 40°C) 24 hour cycles of 90% relative humidity

Vertical Markets

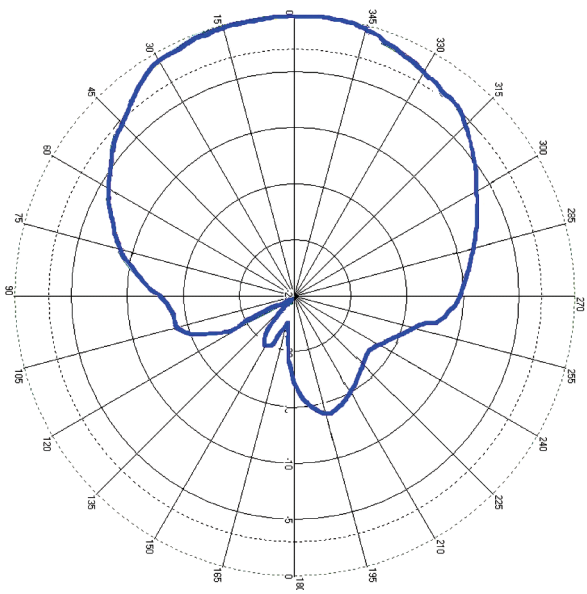
- Retail
- Enterprise/Office
- Data center
- Hospitality
- Healthcare

Applications

- Point of sale
- Receiving dock doors
- Under-the-counter/ within shelving
- In server racks
- Inside medical cabinets



Horizontal (ETSI and FCC)



Vertical (ETSI and FCC)

Zebra AN620
Ultra-Low-Profile RFID Antenna

Slim with integrated mounting holes for a space-saving, simple solution

Whether your application calls for a “picture-frame” aesthetic or a space-saving antenna deployment, look to the ultra-low-profile member of the Zebra family—the AN620. The AN620 features a simple, integrated mounting system with holes built right into the antenna that let it stand just under one-half inch (12 mm) 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 Zebra fixed RFID readers, the AN620 is ideal for use in wall mount, doorways, under counter, above counter as an RFID pad, on shelves, at the point of sale, or end-cap displays, or locations that have limited space like jewelry counters.

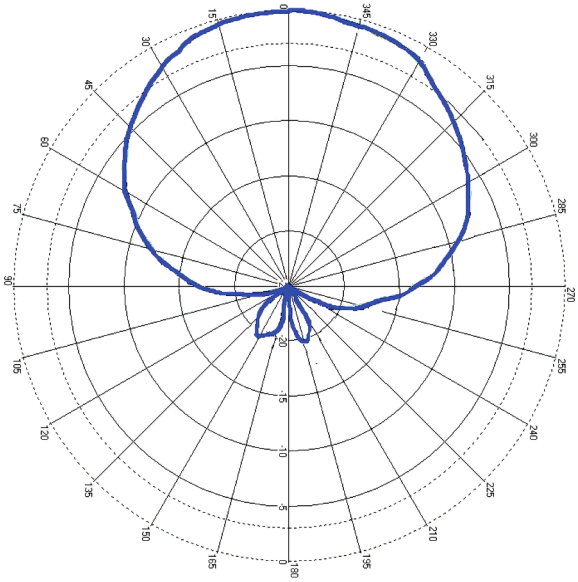
AN620 Specifications

PHYSICAL CHARACTERISTICS	
Polarization	Left-hand circular
Dimensions	391 mm x 275 mm X 12 mm/ 15.39 in. x 10.82 in. x 0.47 in.
Connector	N-Type Female
Connector Location	Pigtail-Side
Mounting Options	Flush mount
Weight	1.0 kg/2.2 lbs
Casing/Materials	Aluminum with Kydex Casing
Frequency Ranges	EU: 865–868 MHz US: 902–928 MHz
VSWR (Return Loss)	1.4:1

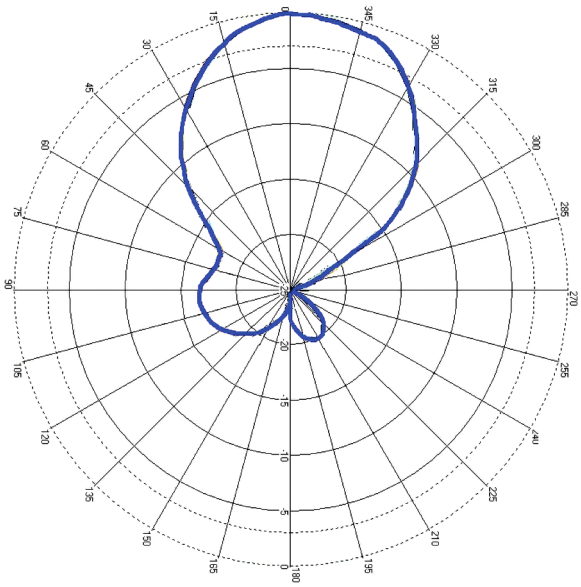
Gain	7.0 dBic
Front to Back Ratio	22 dB
3 dB Beam Width	75° in horizontal plane, 48° in vertical plane
Maximum Power	6 Watts
Axial Ratio	less than 2 dB
Operating Temperature	-20° to +55°C/-4° to +131°F
Storage Temperature	-30° to +65°C/-22° to +149°F
IP Sealing	IP54
Vibration	IEC-68-2-6 (10 to 150 Hz, 0.5 g, one hour in each of two axes) (Random Vibration)
Humidity	IEC-68-2-30 (-13°F to 104°F, -25°C to 40°C) 24 hour cycles of 90% relative humidity

Vertical Markets
- Retail
- Enterprise/Office
- Data center
- Hospitality
- Healthcare

Applications
- Point of sale
- Receiving dock doors
- Under the counter/ within shelving
- In server racks
- Inside medical cabinets

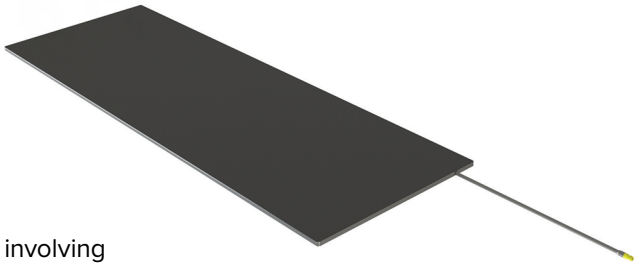


Horizontal (ETSI and FCC)



Vertical (ETSI and FCC)

Zebra AN650 Ultra-Low-Profile Circularly Polarized UHF Ground Antenna



Slim, ultra-low-profile ground antenna designed to lay flat on the ground and support moderate loads

The AN650 ultra-low-profile ground is optimized for RFID deployments involving moving products, assets and people. From conference attendee and people tracking to retail presence, awarenness/loyalty and race timing, the AN650 is ideal for applications where traditional side antennas are unsuitable or not optimized for the application. At just 8 mm/0.3 in. thick, the durable, high-performance AN650 is uniquely capable of lying flat on the ground within a doorway-sized footprint.

AN650 Specifications

PHYSICAL CHARACTERISTICS	
Polarization	RHCP (Right Hand Circular Polarized)
Dimensions	915 mm x 305 mm X 8 mm/ 36.02 in. x 12.00 in. x 0.31 in.
Connector	SMA Female Side Fly Lead (300 mm/1 ft.)
Radome Material	Fire retardant ABS
Anti-static Protection	Yes, DC grounded
Weight	2.4 kg/5.29 lbs Gross: 2.8 kg/6.17 lbs
Radome Material	Fire retardant ABS
Frequency Ranges	EU: 865–868 MHz US: 902–928 MHz
VSWR (Return Loss)	1.4 typical

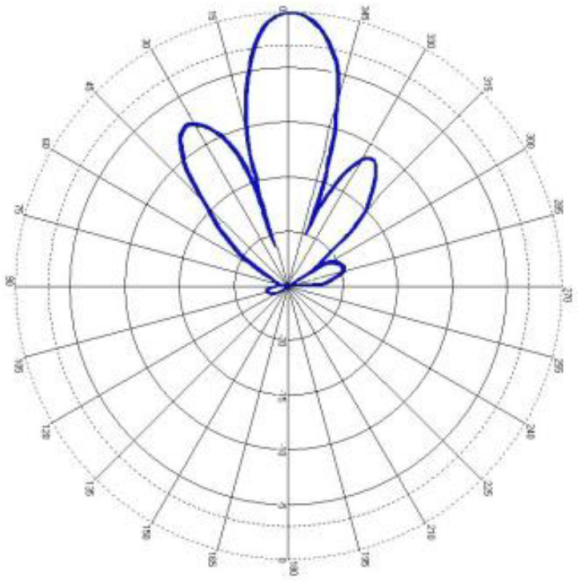
Gain	9 dBiC typical
Front to Back Ratio	24 dB
3 dB Beam Width	20° in xz-plane, 80° in yz-plane
Maximum Power	3 Watts
Axial Ratio	2 dB typical
Operating Temperature	-20° to +55°C/-4° to +131°F
Storage Temperature	-30° to +65°C/-22 to +149°F
IP Sealing	IP65
Nominal Impedance	50 Ω
Antenna Detection	10 K Ω resistance

Vertical Markets

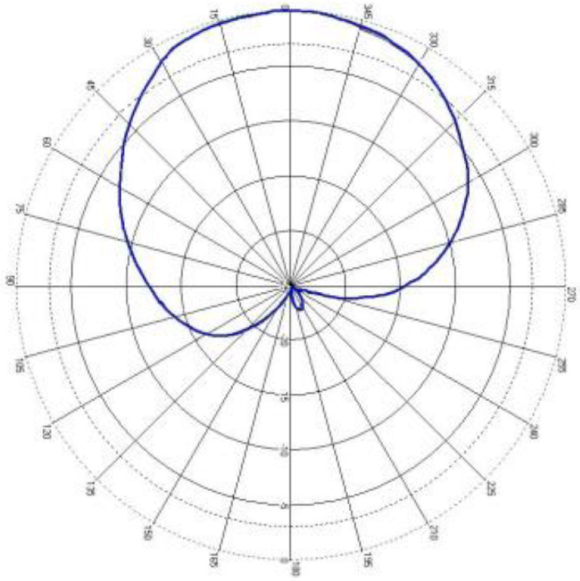
- Retail
- Enterprise/Office
- Data center
- Hospitality
- Healthcare

Applications

- Conference attendee/ people tracking
- Retail presence aware/ loyalty based marketing
- Race and event timing

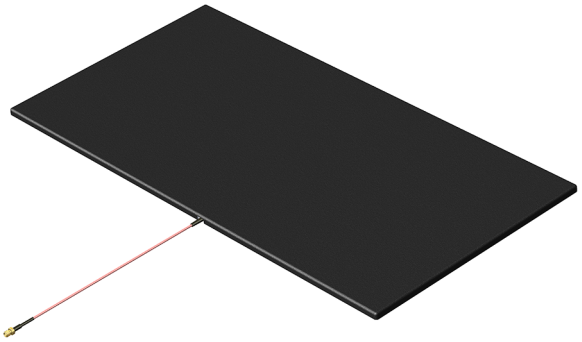


XZ-Plane



YZ-Plane

Zebra AN660 Low-Profile, High-Gain RFID Antenna



Super-sleek form factor with high-gain performance for greater accuracy

The AN660 low-profile, high-gain RFID antenna is designed with a directed spatial range for specific, predictable readings. With exceptionally strong signal strength, the AN660 penetrates deeply into packaging for more accurate readings. Perfect for control points, the powerful beam delivers greater precision when reading tightly packed boxes and pallets.

AN660 Specifications

PHYSICAL CHARACTERISTICS	
Polarization	Right-hand circular
Dimensions	604 x 304 x 8.6mm 23.78 in. x 11.97 in. x 0.34 in.
Connector	SMA Female Fly Lead
Connector Location	Side
Mounting Options	Integrated flush mounting holes or VESA mount
Weight	1.48 kg/3.3 lbs
Casing/Materials	Flame Retardant ABS
Frequency Ranges	EU: 865-868 MHz US: 902-928 MHz
Gain	10.5 dBiC

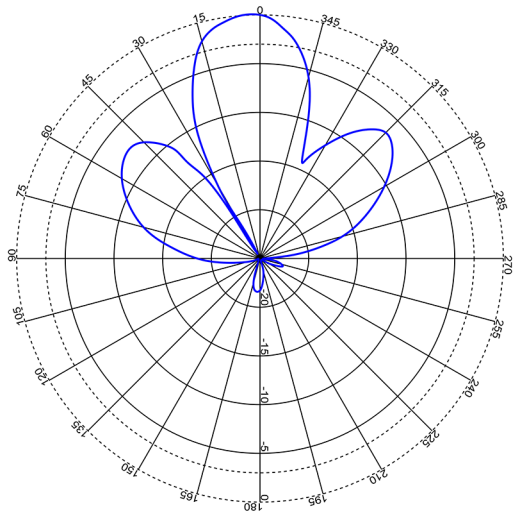
VSWR (Return Loss)	1.4 typical
Front to Back Ratio	-25 dB
3 dB Beam Width	25° in xz-plane, 60° in yz-plane
Maximum Power	3 Watts
Axial Ratio	2dB
Operating Temperature	20° to +55°C/-4° to +131°F
Storage Temperature	-30° to +60°C/-22° to +140°F
IP Sealing	IP54
Nominal Impedence	50 Ω
Antenna Detection	10K Ω resistance

Vertical Markets

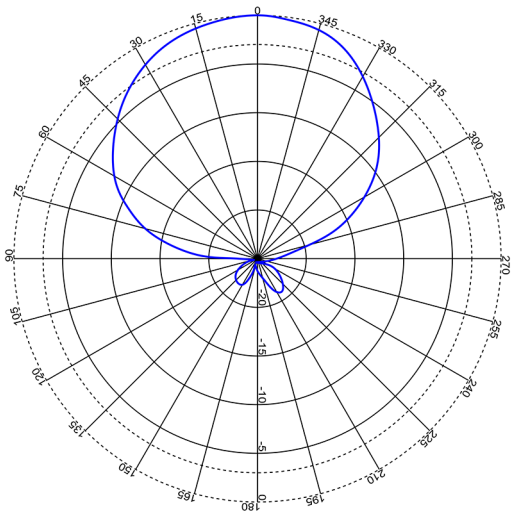
- Retail
- Transportation/Logistics
- Offices
- Hospitality
- Healthcare
- Data Center

Applications

- Under the counter/within shelving
- In server racks
- Luggage tracking
- Receiving dock doors
- Conference/ attendee tracking

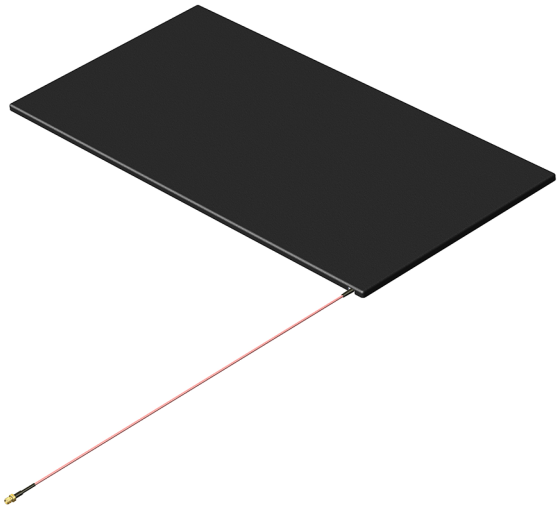


XZ-Plane



YZ-Plane

Zebra AN670 Low-Profile, Near-Field RFID Antenna



Discreet form factor with near-field radiation for tighter zone control

The AN670 low-profile, near-field RFID antenna is designed with a tightly constrained spatial range for precise control, allowing you to read assets within a specific proximity. It also has increased power density that allows you to read a broader range of product types. Its ultrathin, 1/3" profile means it can be used in even the smallest settings without being noticed.

AN670 Specifications

PHYSICAL CHARACTERISTICS	
Polarization	Near-Field
Dimensions	604 x 304 x 8.5mm 23.77 in. x 11.96 in. x 0.33 in.
Connector	SMA Female Fly Lead
Connector Location	Side
Mounting Options	Integrated flush mounting holes or VESA mount
Weight	1.18 kg/2.59 lbs
Casing/Materials	Flame Retardant ABS
Frequency Ranges	EU: 865-867 MHz US: 902-928 MHz

VSWR (Return Loss)	1.95 typical
Maximum Power	3 Watts
Operating Temperature	0° to +50°C/+32° to +122°F
Storage Temperature	-30° to +50°C/-22° to +122°F
IP Sealing	IP54
Nominal Impedence	50 Ω
Antenna Detection	10K Ω resistance

Vertical Markets

- Retail
- Offices
- Hospitality
- Healthcare

Applications

- Point of sale
- Under the counter
- Within shelving
- Inside medical cabinets

Zebra AN720
Compact, Rugged RFID Antenna

Compact antenna for rugged and outdoor environments

The AN720, with an IP67 rating, is at home indoors or out—suited for customer facing, rugged and outdoor environments, shopping areas, receiving dock doors and ceilings, as well as out on the tarmac, and on conveyor belts to name a few. The outer housing is designed to be sleek and discreet enough to be at home in any business but rugged enough for outdoor industrial environments.

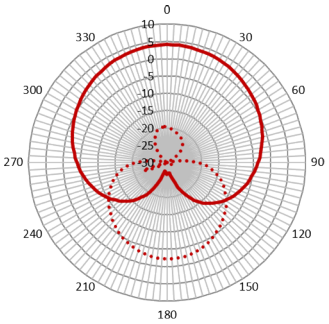
AN720 Specifications

PHYSICAL CHARACTERISTICS	
Polarization	Left-hand circular
Dimensions	132.8 mm x 132.8 mm x 18.1 mm/ 5.2 in. x 5.2 in. x 0.7 in.
Connector	N-Type Female
Connector Location	Rear
Mounting Options	Articulating mounting bracket included
Weight	0.37 kg/0.8 lbs
Casing/Materials	Aluminum with white plastic cover
Frequency Ranges	EU: 865–868 MHz US: 902–928 MHz
VSWR (Return Loss)	1.5:1

Gain	US/Canada: 3.0 dBiL; EU: 3.5 dBiL
Front to Back Ratio	8 dB
3 dB Beam Width	100° in both planes
Maximum Power	10 Watts
Axial Ratio	2 dB
Operating Temperature	-25° to +70°C/-13° to +158°F
Storage Temperature	-40° to +70°C/-40° to +158°F
IP Sealing	IP67
Vibration	MIL-STD-810
Humidity	IEC-68-2-30

Vertical Markets
- Retail
- Enterprise/Office
- Hospitality
- Healthcare
- Transportation and Logistics

Applications
- Point of sale
- Conveyor belts
- Control points
- Hallways



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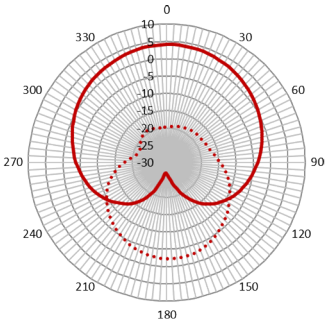

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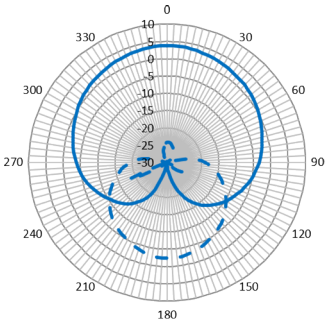

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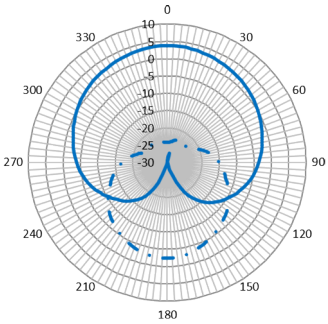
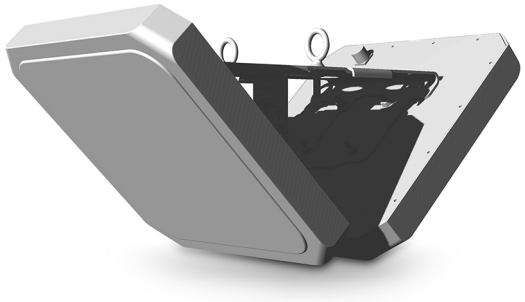


Vertical (ETSI)

Zebra SR5502 Backroom and Warehouse RFID Antenna

Dual RFID antenna to track inventory in the backroom from “arrival to departure”

Start the tracking cycle by detecting and recording the movement of RFID-tagged inventory from the moment it enters your backroom to the moment it leaves. Handle high tag volumes with increased accuracy and read rates. Installation is simple–just mount the supplied bracket and insert the Backroom SmartLens Sensor. Eliminate the need to install power outlets with Power-over-Ethernet (PoE)—ideal for typical complex backroom environments. Easily deploy by just turning on the device and you’re up and running.



SR5502 Specifications

PHYSICAL CHARACTERISTICS	
Polarization	Left-hand circular
Dimensions	432 mm x 254 mm x 178 mm/ 17.0 in. x 10.0 in. x 7.00 in.
Connector	N-Type Female x 2
Connector Location	Rear
Mounting Options	Integrated mounting bracket
Weight	2.5 kg/5.5 lbs
Casing/Materials	Aluminum with white plastic cover

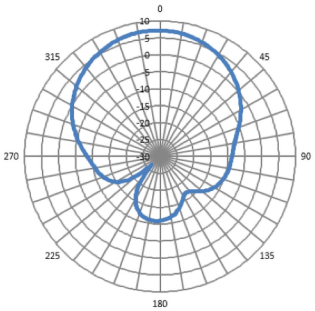
Frequency Ranges	865–956 MHz
Gain	US: 6.7 dBiL; EU: 2 dBiL
3 dB Beam Width	83° x 84°/71° x 67°
Maximum Power	18 Watts (37-55 VDC POE)
Operating Temperature	-20° to +55°C/-4° to +131°F
Storage Temperature	-40° to +70°C/-40° to +158°F
Humidity	95% RH non-condensing

Vertical Markets

- Retail
- Warehouse Management
- Manufacturing

Applications

- Stock room aisles
- Flush mount ceiling or wall applications
- Receiving and staging areas
- Open work areas



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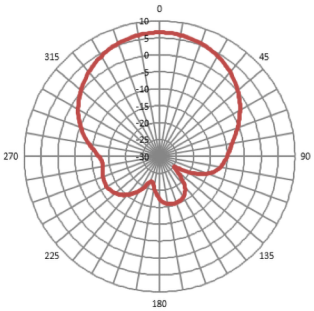

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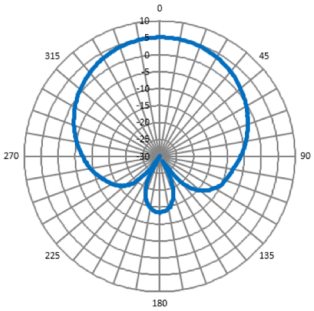

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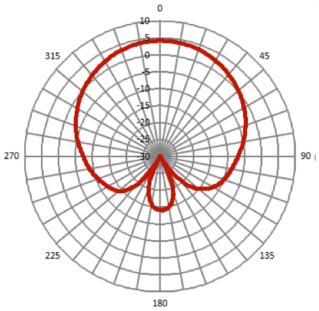


Vertical (ETSI)

Zebra SP5504
Point of Sale (POS) RFID Antenna

Track inventory in your POS lanes or will-call areas

This sensor logs items passing through your POS lanes, through will-call areas and omnichannel pickup—anywhere you want to track inventory in an area with limited space. A cost-effective solution with a highly localized antenna technology, a Zebra SP5504 Point of Sale (POS) RFID Antenna can be installed in multiple places without risking interference.

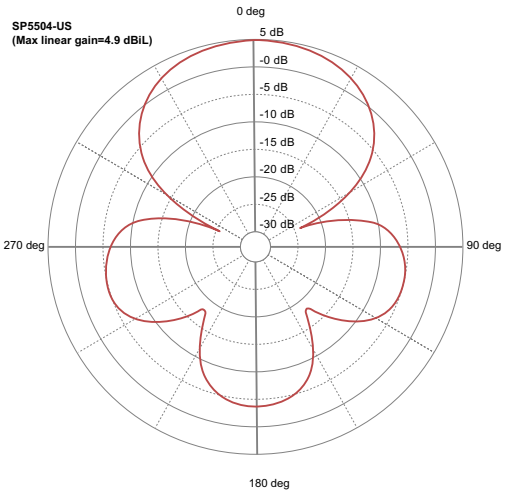
SP5504 Specifications

PHYSICAL CHARACTERISTICS	
Polarization	Left-hand circular
Dimensions	184 mm x 184 mm diameter/ 7.0 in. x 7.3 in. diameter
Connector	N-Type Female
Connector Location	Top
Mounting Options	Accessory pole available
Weight	1.0 kg/2.2 lbs
Casing/Materials	Aluminum diecast w/white plastic cover
Frequency Ranges	865 to 868 MHz or 902 to 928 MHz

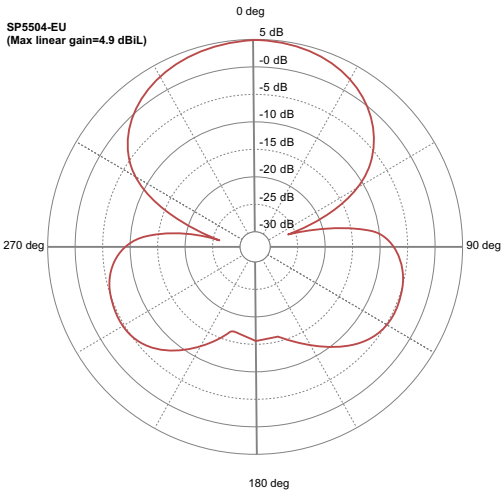
VSWR (Return Loss)	1.5:1
Gain	4.9 dB dBiL
3 dB Beam Width	63°/60°
Maximum Power	13 Watts (37-55 VDC POE)
Operating Temperature	0° to +50°C/32° to +122°F
Storage Temperature	-40° to +70°C/-40° to +158°F
Humidity	95% RH non-condensing

Vertical Markets
- Retail
- Warehouse Management
- Manufacturing

Applications
- Point of sale
- BOPIS or staging areas
- Fitting rooms



US



EU

Sirap Limited
Sirap House? 229, Sliema Road, KAPPARA, SGN 4413, Malta
https://www.sirap.com.mt
+35621385911

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