



RFID ANTENNA SELECTION



ON THE FLOOR ...



IN THE FIELD ...



IN THE WAREHOUSE ...





Motorola Antenna Solution Set

- **Motorola antenna portfolio offers**
 - versatility and performance to meet your diverse application needs.
- **Global Operation**
 - All antennas can be used for global operation.
 - The AN400 and AN200 will perform reasonably well in EU frequency in most applications.



Motorola Offers

AN200	Environmentally-flexible general purpose indoor/outdoor antenna
AN400	Dual-element, highly efficient high-performance area antenna, ideally suited for bi-static operation
AN480	Versatile, wide-band, high-performance general purpose antenna
AN710	Small form factor, low cost, low gain, general purpose antenna
AN720	Industrial, rugged, small form-factor, wide-beam-width antenna
AN610	Ultra-low profile flat panel aesthetic antenna – Small
AN620	Ultra-low profile flat panel aesthetic antenna – Large

CHOOSE THE RIGHT ANTENNA FOR YOUR APPLICATION



NOTES:

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 AN400 and AN200 will perform reasonably well in EU frequency in most applications.

Motorola'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			SLIM LINE		COMPACT	
ANTENNA	AN200	AN400	AN480	AN610	AN620	AN710	AN720
ENVIRONMENT							
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



How do I determine which antenna is right for my application?

- **Antenna selection should comprise a judicious analysis of performance and environmental specifications:**
 - Environment –Indoor /Outdoor, and other extreme requirements such as rain, freezer, moisture, humidity, high temperature etc.
 - Frequency Band
 - Gain
 - Beam-width
 - Form-factor
 - Mono-static or Bi-static operation / polarization requirements
- **One antenna set may provide significant advantage to those characteristics applicable to your environment.**
- **Read range is determined by a number of factors including reader, tag, antenna, and environmental.**
- **Brackets and Mounts are included with the AN710 and AN720**
- **Brackets and Mounts are separately available for the AN400 and AN480**
- **No Brackets are required with AN610/AN620 antenna**

AN200

General Purpose Indoor/Outdoor Antenna



AN200

DESCRIPTION

- Convenience of a versatile antenna
- Able to withstand extreme heat and cold as well as moisture and vibration
- All-purpose antenna can be used in standard RFID applications with power levels up to one watt, as well as custom high-power applications up to 20 watts

FEATURES

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

APPLICATIONS

Dock Doors, Portals, Outdoor Gates

PART NUMBER

- ANT-71720-01 (Right Polarity)
- ANT-71721-01 (Left Polarity)

PHYSICAL

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
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
Connector	Type "N" female
Connector Position	Rear
Mounting bracket	Available Separately
Weight	3 lbs./1.36 kg
Casing	Aluminium with Plastic Cover

OPERATIONAL

Freq. Range	900-928 MHz
Gain	6.0 dBiL
VSWR (Return Loss)	1.22 : 1 (20 dB)
Front to Back Ratio	> 10 dB
Polarization	LHCP or RHCP
3db Beam Width	60°
Max Power	20 watts
Axial Ratio	< 3 db

ENVIRONMENTAL

Oper. Temps	-40°F to +149° F -40° C to +65° C
Environmental Sealing	Weep Holes
Storage Temperature	-40°F to +158° F/ -40°C to +70° C
Vibration	IEC-68-2-6 (10 to 150 Hz, 0.5 g, 1 hour in each of 2 axes) (Random Vibration)
Humidity	IEC-68-2-30 (77° to 104° F/-25° to 40° C 24 hour cycles of 90% relative humidity)

COMPLIANCE

TAA Compliant	YES
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AN400

High-Performance Antenna



AN400

DESCRIPTION	<ul style="list-style-type: none"> General-purpose high performance antennas for long range and large area RFID tag reading Optimized to perform in RF challenging environments
FEATURES	<ul style="list-style-type: none"> Dual-element, ideal for bi-static operation. Can be used as two separate mono-static antennas in one package.
APPLICATIONS	<ul style="list-style-type: none"> 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
MOUNTING	<ul style="list-style-type: none"> Brackets and Mounts are separately available for the AN400 and AN480
PART NUMBER	AN400-CB66203WR (Left & Right Polarity)

PHYSICAL	Dimensions Without mounting screws:	28.3 in. L x 12.5 in. W x 1.5 in. D 717 mm L x 317 mm W x 38 mm D
	Dimensions With mounting screws:	28.3 in. L x 12.5 in. W x 2.25 in. D 717 mm L x 317 mm W x 57.15 mm D
	Connector	Type "N" female (2 qty)
	Connector Position	Rear
	Mounting bracket	Available Separately
	Weight	7 lbs./3.2 Kg
	Casing	Aluminum with polycarbonate cover
OPERATIONAL	Freq. Range	900-928 MHz
	Gain	6.0 dBiL
	VSWR (Return Loss)	1.22 : 1(20 dB)
	Front to Back Ratio	> 10dB
	Polarization	Port1- RHCP Port2- LHCP
	3db Beam Width	60°
	Max Power	10 Watts
Axial Ratio	3.5 dB	
ENVIRONMENTAL	Oper. Temps	-40°F to +149° F -40° C to +65° C
	Environmental Sealing	Weep Holes
	Storage Temperature	-40°F to +158° F/ -40°C to +70° C
	Vibration	IEC-68-2-6 (10 to 150 Hz, 0.5 g, 1 hour in each of 2 axes) (Random Vibration)
	Humidity	IEC-68-2-30 (77° to 104° F/-25° to 40° C 24 hour cycles of 90% relative humidity)
COMPLIANCE	TAA Compliant	YES
	Port to Port Isolation	38dB



AN480 High-Performance Worldwide Antenna



AN480

DESCRIPTION	<ul style="list-style-type: none"> All-purpose high performance antenna can be used in indoor setting either in business or industrial environments. If using outdoors, make sure it is not directly under rain or snow. Convenience of a versatile antenna for most general purpose applications
FEATURES	<ul style="list-style-type: none"> Excellent wide frequency band antenna response covering 865 Mhz ~ 956 Mhz , ideally suited for global deployments Available in right and left hand polarization.
APPLICATIONS	<ul style="list-style-type: none"> 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
MOUNTING	<ul style="list-style-type: none"> Compatible with all with all bracket and mounting options Brackets and Mounts are separately available for the AN400 and AN480
PART NUMBER	<ul style="list-style-type: none"> AN480-CL66100WR (left polarity) AN480-CR66100WR (right polarity)



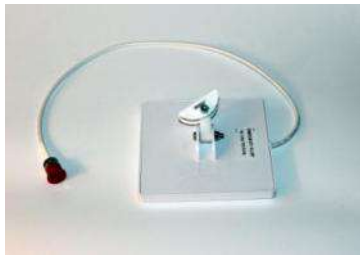
PHYSICAL	Dimensions Without mounting screws:	10.2 in. L x 10.2 in. W x 1.32 in. D 259.1 mm L x 259.1 mm W x 33.5 mm D
	Dimensions With mounting screws:	10.2 in. L x 10.2 in. W x 1.98 in. D 259.1 mm L x 259.1 mm W x 50.3 mm D
	Connector	Type 'N' female
	Connector Position	pig-tail
	Mounting bracket	Available Separately
	Weight	2.5 lbs./1.13 kg
	Casing	Aluminium with White Plastic Cover
OPERATIONAL	Freq. Range	865-956 MHz
	Gain	6.0 dBiL
	VSWR (Return Loss)	1.3 : 1
	Front to Back Ratio	18 dB
	Polarization	LHCP or RHCP
	3db Beam Width	65°
	Max Power	2 watts
Axial Ratio	1.5 dB	
ENVIRONMENTAL	Oper. Temps	-13°F to +158° F -25°C to +70° C
	Environmental Sealing	IP54
	Storage Temperature	-40°F to +158° F/ -40°C to +70° C
	Vibration	IEC-68 series
	Humidity	IEC 68-2-30
COMPLIANCE	TAA Compliant	NO

AN710 – Compact, Low Profile Antenna



AN710	
DESCRIPTION	Small form factor, low cost, low gain, general purpose antenna
FEATURES	<ul style="list-style-type: none"> • 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.
MOUNTING	<ul style="list-style-type: none"> • Comes with an attached articulating mount • Comes with 2 ft of pigtail cable, compatible to Motorola standard antenna cables for extension
PART NUMBER	<ul style="list-style-type: none"> • AN710-L61NF00WUS (Left Polarity) • AN710-L61NF00WEU (Left Polarity)

AN710 with Articulating Mount



PHYSICAL	Dimensions Without mounting screws:	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
	Dimensions With mounting screws:	N/A
	Connector	Type 'N' female
	Connector Position	pig-tail
	Mounting bracket	includes articulating mount
	Weight	1.1 lbs/0.5 kg
	Casing	White ABS plastic
OPERATIONAL	Freq. Range	900-928 MHz (US) & 867-870 MHz (EU)
	Gain	3.0 dBiL
	VSWR (Return Loss)	2 : 1
	Front to Back Ratio	> 10dB
	Polarization	LHCP
	3db Beam Width	80°
	Max Power	10 watts
ENVIRONMENTAL	Axial Ratio	< 3 db
	Oper. Temps	-22° F to +158° F -30° C to +70° C
	Environmental Sealing	IP 65 Vented
	Storage Temperature	-40°F to +158° F/ -40°C to +70° C
	Vibration	Vibration: EN 61373, IEEE 1478, Mil-810G
Humidity	Not Spec'd	
COMPLIANCE	TAA Compliant	YES

AN720 Rugged Indoor/Outdoor Antenna



AN720 with Articulating Mount

AN720

DESCRIPTION	<ul style="list-style-type: none"> Industrial, rugged, small form-factor, wide-beam width antenna Ideal for indoor or outdoor use in harsh environments such as: dock doors, gated access control, outdoor storage locations, etc.
FEATURES	<ul style="list-style-type: none"> Industrial class, IP 67 rated Wide beam-width of 100 degree for wider coverage Ideal for short range applications to create targeted zones
APPLICATIONS	<ul style="list-style-type: none"> Suitable for use in Indoor and outdoor environments Indoors: In doorways, shelves, end-cap displays Outdoors: Doorways, small conveyors,
MOUNTING	Comes complete with articulating mount
PART NUMBER	<ul style="list-style-type: none"> AN720-L51NF00WUS (left polarity) AN720-L51NF00WEU (left polarity)



PHYSICAL	Dimensions Without mounting screws:	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
	Dimensions With mounting screws:	N/A
	Connector	Type 'N' female
	Connector Position	Rear
	Mounting bracket	includes articulating mount
	Weight	0.8 lbs/0.37 kg
	Casing	Aluminium with White Plastic Cover
OPERATIONAL	Freq. Range	900-928 MHz (US) & 865-868 MHz (EU)
	Gain	US/Canada: 3.0 dBiL Europe: 3.5 dBiL
	VSWR (Return Loss)	1.5 : 1
	Front to Back Ratio	8db
	Polarization	LHCP
	3db Beam Width	100°
	Max Power	10 watts
Axial Ratio	2 dB	
ENVIRONMENTAL	Oper. Temps	-13° F to +158° F -25° C to +70° C
	Environmental Sealing	IP67
	Storage Temperature	-40°F to +158°F /-40°C to +70° C
	Vibration	MIL-STD-810
Humidity	IEC-68-2-30	
COMPLIANCE	TAA Compliant	YES

GENERAL PURPOSE & COMPACT ANTENNA SPECIFICATIONS



		AN200 General Purpose Indoor/Outdoor Antenna	AN400 High Performance Area Antenna	AN480 High Performance WW Indoor Wide Band Antenna	AN710 General Purpose Compact Indoor Antenna	AN720 Compact Rugged Indoor/Outdoor Antenna
PHYSICAL	Dimensions Without mounting screws:	11.1 in. L x 11.1 in. W x 1.9 in. D	28.3 in. L x 12.5 in. W x 1.5 in. D	10.2 in. L x 10.2 in. W x 1.32 in. D	5.75 in. L x 5.75 in. W x 0.69 in. D	5.2 in. L x 5.2 in. W x 0.7 in. D
		281.9 mm L x 281.9 mm W x 48.3 mm D	717 mm L x 317 mm W x 38 mm D	259.1 mm L x 259.1 mm W x 33.5 mm D	146.05 mm L x 146.05 mm W x 17.53 mm D	132.8 mm L x 132.8 mm W x 18.1 mm D
	Dimensions With mounting screws:	11.1 in. L x 11.1 in. W x 1.9 in. D	28.3 in. L x 12.5 in. W x 2.25 in. D	10.2 in. L x 10.2 in. W x 1.98 in. D	N/A	N/A
		281.9 mm L x 281.9 mm W x 48.3 mm D	717 mm L x 317 mm W x 57.15 mm 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	Type 'N' female	Type 'N' female
	Connector Position	Rear	Rear	pig-tail	pig-tail	Rear
	Mounting bracket	Available Separately	Available Separately	Available Separately	includes articulating mount	includes articulating mount
Weight	3 lbs./1.36 kg	7 lbs./3.2 Kg	2.5 lbs./1.13 kg	1.1 lbs/0.5 kg	0.8 lbs/0.37 kg	
Casing	Aluminium with Plastic Cover	Aluminum with polycarbonate cover	Aluminium with White Plastic Cover	White ABS plastic	Aluminium with White Plastic Cover	
OPERATIONAL	Freq. Range	900-928 MHz	900-928 MHz	865-956 MHz	900-928 MHz (US) & 867-870 MHz (EU)	900-928 MHz (US) & 865-868 MHz (EU)
	Gain	6.0 dBiL	6.0 dBiL	6.0 dBiL	3.0 dBiL	US/Canada: 3.0 dBiL Europe: 3.5 dBiL
	VSWR (Return Loss)	1.22 : 1 (20 dB)	1.22 : 1(20 dB)	1.3 : 1	2 : 1	1.5 : 1
	Front to Back Ratio	> 10 dB	> 10dB	18 dB	> 10dB	8db
	Polarization	LHCP or RHCP	Port1- RHCP Port2- LHCP	LHCP or RHCP	LHCP	LHCP
	3db Beam Width	60°	60°	65°	80°	100°
	Max Power	20 watts	10 Watts	2 watts	10 watts	10 watts
	Axial Ratio	< 3 db	3.5 dB	1.5 dB	< 3 db	2 dB
ENVIRONMENTAL	Oper. Temps	-40°F to +149° F -40° C to +65° C	-40°F to +149° F -40° C to +65° C	-13°F to +158° F -25°C to +70° C	-22° F to +158° F -30° C to +70° C	-13°F to +158° F -25°C to +70° C
	Environmental Sealing	Weep Holes	Weep Holes	IP54	IP 65 Vented	IP67
	Storage Temperature	-40°F to +158° F/ -40°C to +70° C	-40°F to +158° F/ -40°C to +70° C	-40°F to +158° F/ -40°C to +70° C	-40°F to +158° F/ -40°C to +70° C	-40°F to +158° F / -40°C to +70° C
	Vibration	IEC-68-2-6 (10 to 150 Hz, 0.5 g, 1 hour in each of 2 axes) (Random Vibration)	IEC-68-2-6 (10 to 150 Hz, 0.5 g, 1 hour in each of 2 axes) (Random Vibration)	IEC-68 series	Vibration: EN 61373, IEEE 1478, Mil-810G	MIL-STD-810
	Humidity	IEC-68-2-30 (77° to 104° F/-25° to 40° C 24 hour cycles of 90% relative humidity)	IEC-68-2-30 (77° to 104° F/-25° to 40° C 24 hour cycles of 90% relative humidity)	IEC 68-2-30	Not Spec'd	IEC-68-2-30
COMPLIANCE	TAA Compliant	YES	YES	NO	YES	YES

AN610 & AN620

Slim Line, Ultra-low Profile Antennas



AN610 / AN620

DESCRIPTION

Ultra-low profile flat panel aesthetic antenna

FEATURES

- Sleek, rectangular circularly polarized antenna

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.

MOUNTING

- Integrated Mounting Holes
- Comes with mounting hardware for flat panel mounting
- Comes with 1 ft of pigtail cable, compatible to Motorola standard antenna cables for extension

PART NUMBER

- AN610-SCL71129US (Left Polarity)
- AN610-SCL71128EU (Left Polarity)
- AN620-SCL71131US (Left Polarity)
- AN620-SCL71130EU (Left Polarity)



AN610 & AN620

SLIM LINE

SPECIFICATIONS



		AN610 Slim Line Antenna	AN620 Slim Line Antenna
PHYSICAL	Dimensions (inches/mm):	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
	Connector	Type "N" female	Type "N" female
	Connector Position	Side	Side
	Mounting bracket	Integrated mounting holes	Integrated mounting holes
	Weight	1.3 lbs./ 0.6 kg	2.2 lbs./ 1.0 Kg
	Casing	Superior Kydex	Superior Kydex
OPERATIONAL	Freq. Range	864-868, 902-928 MHz	864-868, 902-928 MHz
	Gain	1.0 dBiL	4.0 dBiL
	VSWR (Return Loss)	1.4 : 1	1.4 : 1
	Front to Back Ratio	18 dB	22 dB
	Polarization	LHCP	LHCP
	3db Beam Width	80° in both phases	75° Horizontal , 48° Vertical
	Max Power	6 watts	6 Watts
Axial Ratio	< 2 dB	< 2 dB	
ENVIRONMENTAL	Oper. Temps	-4°F to +131° F -20° C to +55° C	-4°F to +131° F -20° C to +55° C
	Environmental Sealing	IP-65	IP-65
	Storage Temperature	-22°F to +149° F/-30°C to +65° C	-22°F to +149° F/-30°C to +65° C
	Vibration	IEC-68-2-6 (10 to 150 Hz, 0.5 g, 1 hour in each of 2 axes) (Random Vibration)	IEC-68-2-6 (10 to 150 Hz, 0.5 g, 1 hour in each of 2 axes) (Random Vibration)
	Humidity	IEC-68-2-30 (77° to 104° F/-25° to 40° C 24 hour cycles of 90% relative humidity)	IEC-68-2-30 (77° to 104° F/-25° to 40° C 24 hour cycles of 90% relative humidity)
COMPLIANCE	TAA Compliant	TBD	TBD

Mono-Static and Bi-Static Antenna Operation



- **Mono-Static Operation**

- typically the polarization is not relevant since the reader transmits and receive over the same port, as such you may order either left or right polarized antenna – either of them is fine.
- Only one antenna port on the reader is active at one time. Hence, You don't need to order in pairs. Also, you need to order only one cable for one antenna per port.
- Either polarity of the antenna may be ordered except when used in portal configuration with antennas facing each other **and more than one reader driving it**, then it is recommended to order both polarities.

- **Bi-static operation**

- The transmit and receive takes place on different ports for providing maximum RF isolation and higher receive sensitivity
- Order left and right polarized antenna, and order two cables; one for transmit and one for receive. You may order dual-element antenna , the AN400 or the single element antennas in pair (e.g...AN480, AN200)

Motorola Antenna Cables



Part Number	Description
CBLRD-1B4000680R	SHORT ANTENNA CABLE (5.6 ft / 1.7 m) CBL:RF,RPTNC-N MALE STR,LMR-240,68
CBLRD-1B4001800R	MEDIUM ANTENNA CABLE (15 ft / 4.6 m) CBL:RF,RPTNC-N MALE STR,LMR-240,180
CBLRD-1B4002400R	LONG ANTENNA CABLE (20 ft. / 6 m) CBL:RF,RPTNC-N MALE STR,LMR-240,240



Motorola Antenna Mounting Brackets

for AN400 and AN480 Antennas



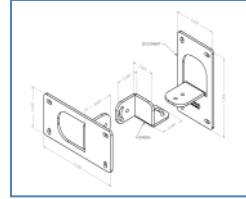
Description

PART NUMBER: BRKT-70661-01R

KIT: STD MNT FOR HP AREA ANT

Standard – Two plates with an articulating joint

It has a 2.75" x 5.88" mounting plate and one swivel joint and one swivel plate. This is good when you have plenty of room where the antenna will be installed. With this bracket you can tilt the antenna up/down and side to side. Due to the closeness of its installation to a surface you will be limited in the amount of room you can turn or tilt the antenna.

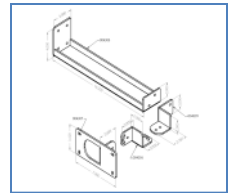


PART NUMBER: BRKT-70662-01R

KIT: HVY DTY 16 MNT BRKT HP AREA ANT

Heavy Duty Brackets – comes with a 16" mounting extension arm

It has a 1.50" x 2.50" mounting plate and one swivel joint and swivel base and extension arm. It offers you the capability of installing an antenna in an area where you have little wall space where bringing the antenna out 16" you can fit it in the space. This can be used in rugged environments. It provides the ability to tilt and/or angle the antenna in multiple positions to get the best reads.



PART NUMBER: BRKT-70665-01R

KIT:INDTRL 24 MNT BRKT HP AREA ANT

Heavy Duty Brackets – comes with a 16" mounting extension arm

It has a 1.50" x 2.50" mounting plate and one swivel joint and swivel base and extension arm. It offers you the capability of installing an antenna in an area where you have little wall space where bringing the antenna out 16" you can fit it in the space. This can be used in rugged environments. It provides the ability to tilt and/or angle the antenna in multiple positions to get the best reads.

