



Broadband • Single • Dual • Triple • Indoor

Antennas

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Single Band Urban Antenna

65° 0.7 m vertical polarized FET Antenna

Part Number:
7270.02

Horizontal Beamwidth: 65°
Gain: 12.5 dBi / 10.4 dBd

Electrical Downtilt: 0°
Connector Type: 7/16 DIN female

824-896 MHz

The Powerwave® Urban Single Band Antenna blends inconspicuously into structural backgrounds due to its slim design. This makes it an ideal choice for built-up areas, whether domestic or commercial. State-of-the-art patch technology allows the antenna's characteristic flat design. Made from corrosion-resistant aluminum and PVC, its exceptionally rugged design reassures you that every Urban antenna we produce provides reliable, lasting service even in the most demanding environments.



Key Benefits

- Market Leading Performance
- Vertical Polarization
- Light Weight
- Reliable Lasting Service

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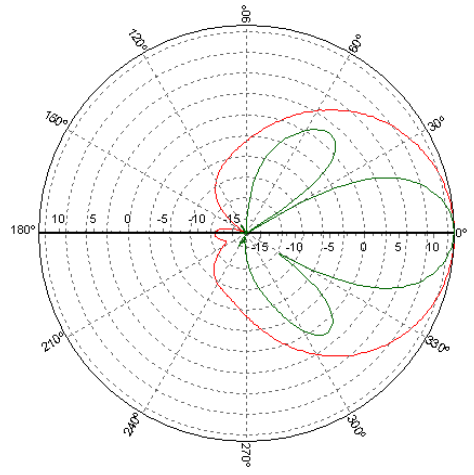
Single Band Metro Antenna

824-896 MHz

Electrical Specifications

Frequency Band (MHz)	824 – 896
Gain (dBi / dBd)	12.5 / 10.4
Polarization	Linear vertical
Nominal Impedance (Ohm)	50
VSWR	< 1.3:1
Horizontal –3 dB beamwidth	65°
Electrical downtilt	0°
Vertical –3 dB beamwidth	28°
First upper sidelobe suppression (dB)	>10
Front-to-back ratio, co-polar (dB)	> 24
Maximum input power (W)	300
IM3, @2x43dBm (dBc)	<-150

All specifications are subject to change without notice.
Contact your Powerwave representative for complete performance data.



Typical Horizontal and Vertical 7270.02 Patterns

Mechanical Specifications

Connector Type	7/16 DIN female
Connector Position	Bottom
Dimensions, HxWxD	660x256x50mm (2'2"x10"x2")
Weight Including Bracket	7.6 kg (16.6 lbs)
Wind Load, Frontal, 42 m/s, Cd=1	213 N (47.8 lbf)
Survival Wind Speed	55 m/s (123 mph)
Lightning Protection	DC grounded
Radome Material	PVC
Radome Color	Light gray
Packing Size	770x308x121mm (2'6"x1'x5")
Shipping Weight	8.3 kg (18.2 lbs)

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Single Band Urban Antenna

65° 1.3 m vertical polarized FET Antenna

Part Number: 7271.02	Horizontal Beamwidth: 65° Gain: 15.5 dBi / 13.4 dBd	Electrical Downtilt: 0° Connector Type: 7/16 DIN female
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824-896 MHz

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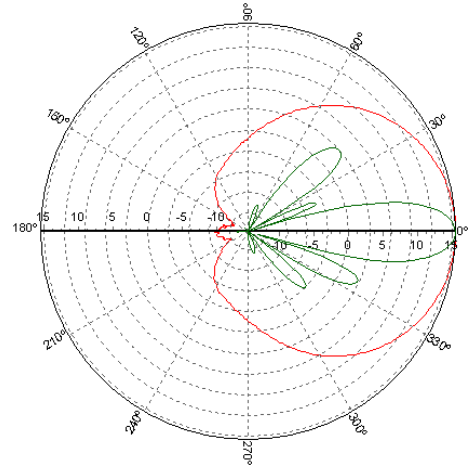
Single Band Metro Antenna

824-896 MHz

Electrical Specifications

Frequency Band (MHz)	824 – 896
Gain (dBi / dBd)	15.5 / 13.4
Polarization	Linear vertical
Nominal Impedance (Ohm)	50
VSWR	< 1.3:1
Horizontal –3 dB beamwidth	65°
Electrical downtilt	0°
Vertical –3 dB beamwidth	14°
First upper sidelobe suppression (dB)	>17
Front-to-back ratio, co-polar (dB)	> 24
Maximum input power (W)	500
IM3, @2x43dBm (dBc)	<-150

All specifications are subject to change without notice.
Contact your Powerwave representative for complete performance data.



Typical Horizontal and Vertical 7271.02 Patterns

Mechanical Specifications

Connector Type	7/16 DIN female
Connector Position	Bottom
Dimensions, HxWxD	1320x256x50mm (4'4"x10"x2")
Weight Including Bracket	7 kg (15.4 lbs)
Wind Load, Frontal, 42 m/s, Cd=1	376 N (95.6 lbf)
Survival Wind Speed	55 m/s (123 mph)
Lightning Protection	DC grounded
Radome Material	PVC
Radome Color	Light gray
Packing Size	1430x308x121mm (4'8"x1'x5")
Shipping Weight	8.5 kg (18.7 lbs)

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QUALITY AND RELIABILITY

Single Band Urban Antenna

65° 1.3 m vertical polarized FET Antenna

Part Number: 7271.03	Horizontal Beamwidth: 65° Gain: 15 dBi / 12.9 dBd	Electrical Downtilt: 5° Connector Type: 7/16 DIN female
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824-896 MHz

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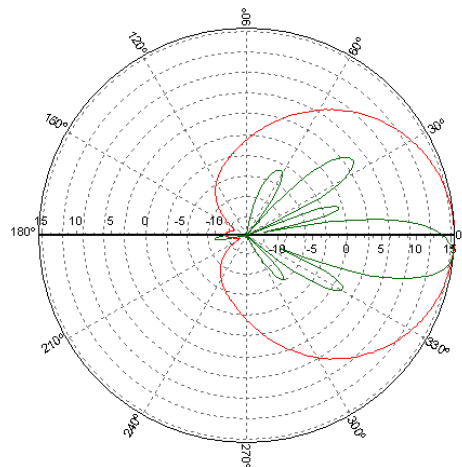
824-896 MHz

Single Band Metro Antenna

Electrical Specifications

Frequency Band (MHz)	824 – 896
Gain (dBi / dBd)	15 / 12.9
Polarization	Linear vertical
Nominal Impedance (Ohm)	50
VSWR	< 1.4:1
Horizontal –3 dB beamwidth	65°
Electrical downtilt	0°
Vertical –3 dB beamwidth	14°
First upper sidelobe suppression (dB)	>15
Front-to-back ratio, co-polar (dB)	> 24
Maximum input power (W)	500
IM3, @2x43dBm (dBc)	<-150

All specifications are subject to change without notice.
Contact your Powerwave representative for complete performance data.



Typical Horizontal and Vertical 7271.03 Patterns

Mechanical Specifications

Connector Type	7/16 DIN female
Connector Position	Bottom
Dimensions, HxWxD	1320x256x50mm (4'4"x10"x2")
Weight Including Bracket	7 kg (15.4 lbs)
Wind Load, Frontal, 42 m/s, Cd=1	376 N (95.6 lbf)
Survival Wind Speed	55 m/s (123 mph)
Lightning Protection	DC grounded
Radome Material	PVC
Radome Color	Light gray
Packing Size	1430x308x121mm (4'8"x1'x5")
Shipping Weight	8.5 kg (18.7 lbs)

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Single Band Urban Antenna

65° 1.3 m vertical polarized FET Antenna

Part Number: 7272.02	Horizontal Beamwidth: 65° Gain: 17 dBi / 14.9 dBd	Electrical Downtilt: 0° Connector Type: 7/16 DIN female
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824-896 MHz

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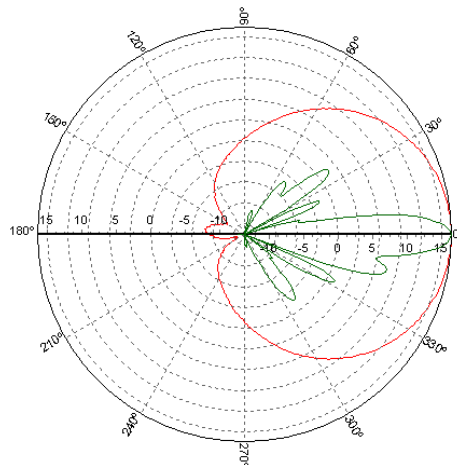
Single Band Metro Antenna

824-896 MHz

Electrical Specifications

Frequency Band (MHz)	824 – 896
Gain (dBi / dBd)	17 / 14.9
Polarization	Linear vertical
Nominal Impedance (Ohm)	50
VSWR	< 1.4:1
Horizontal –3 dB beamwidth	65°
Electrical downtilt	0°
Vertical –3 dB beamwidth	9.5°
Vertical beam squint	0.4°
First upper sidelobe suppression (dB)	>18
Front-to-back ratio, co-polar (dB)	> 24
Maximum input power (W)	500
IM3, @2x43dBm (dBc)	<-150

All specifications are subject to change without notice.
Contact your Powerwave representative for complete performance data.



Typical Horizontal and Vertical 7272.02 Patterns

Mechanical Specifications

Connector Type	7/16 DIN female
Connector Position	Bottom
Dimensions, HxWxD	1320x256x50mm (4'4"x10"x2")
Weight Including Bracket	11kg (24 lbs)
Wind Load, Frontal, 42 m/s, Cd=1	625 N (140 lbf)
Survival Wind Speed	55 m/s (123 mph)
Lightning Protection	DC grounded
Radome Material	PVC
Radome Color	Light gray
Packing Size	1430x308x121mm (4'8"x1'x5")
Shipping Weight	13kg (29 lbs)

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Single Band Urban Antenna

65° 1.3 m vertical polarized FET Antenna

Part Number: 7273.02	Horizontal Beamwidth: 65° Gain: 18.0 dBi / 15.9 dBd	Electrical Downtilt: 0° Connector Type: 7/16 DIN female
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824-896 MHz

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Key Benefits

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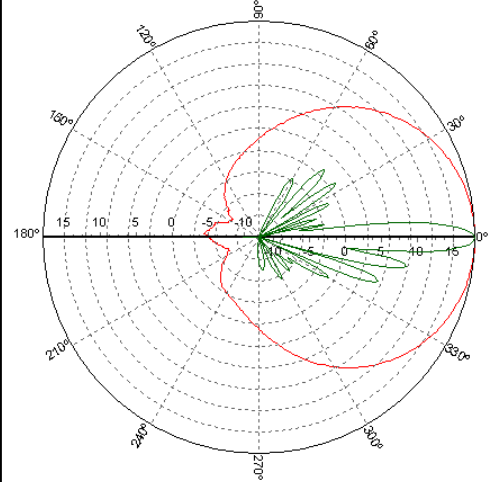
824-896 MHz

Single Band Urban Antenna

Electrical Specifications

Frequency Band (MHz)	824 – 896
Gain (dBi / dBd)	18.0 / 15.9
Polarization	Linear vertical
Nominal Impedance (Ohm)	50
VSWR	< 1.3:1
Horizontal –3 dB beamwidth	65°
Electrical downtilt	0°
Vertical –3 dB beamwidth	7°
First upper sidelobe suppression (dB)	>18
Vertical beam squint	0.3°
Front-to-back ratio, co-polar (dB)	> 24
First null below horizon (dB)	> -22
Maximum input power (W)	500
IM3, @2x43dBm (dBc)	<-150

All specifications are subject to change without notice.
Contact your Powerwave representative for complete performance data.



Typical Horizontal and Vertical 7273.02 Patterns

Mechanical Specifications

Connector Type	7/16 DIN female
Connector Position	Bottom
Dimensions, HxWxD	1320x256x50mm (4'4"x10"x2")
Weight Including Bracket	14kg (31 lbs)
Wind Load, Frontal, 42 m/s, Cd=1	373 N (84 lbf)
Survival Wind Speed	55 m/s (123 mph)
Lightning Protection	DC grounded
Radome Material	PVC
Radome Color	Light gray
Packing Size	1430x308x121mm (4'8"x1'x5")
Shipping Weight	17kg (34.5 lbs)

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Single Band Urban Antenna

65° 2.6 m vertical polarized FET Antenna

Part Number: 7273.03	Horizontal Beamwidth: 65° Gain: 17.5 dBi / 15.4 dBd	Electrical Downtilt: 4° Connector Type: 7/16 DIN female
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824-896 MHz

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Key Benefits

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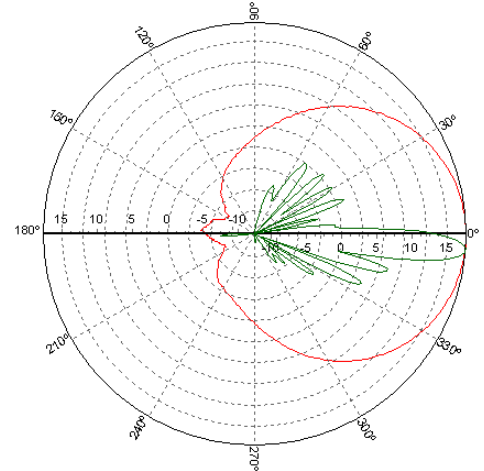
824-896 MHz

Single Band Urban Antenna

Electrical Specifications

Frequency Band (MHz)	824 – 896
Gain (dBi / dBd)	17.5 / 15.4
Polarization	Linear vertical
Nominal Impedance (Ohm)	50
VSWR	< 1.3:1
Horizontal –3 dB beamwidth	65°
Electrical downtilt	4°
Vertical –3 dB beamwidth	7°
First upper sidelobe suppression (dB)	>17
Vertical beam squint	< 0.3°
Front-to-back ratio, co-polar (dB)	> 22
First null below horizon (dB)	> -22
Maximum input power (W)	500
IM3, @2x43dBm (dBc)	<-150

All specifications are subject to change without notice.
Contact your Powerwave representative for complete performance data.



Typical Horizontal and Vertical 7273.03 Patterns

Mechanical Specifications

Connector Type	7/16 DIN female
Connector Position	Bottom
Dimensions, HxWxD	2580x256x50mm (8' 6"x10"x2")
Weight Including Bracket	14kg (31 lbs)
Wind Load, Frontal, 42 m/s, Cd=1	728 N (164 lbf)
Survival Wind Speed	55 m/s (123 mph)
Lightning Protection	DC grounded
Radome Material	PVC
Radome Color	Light gray
Packing Size	2690x308x121mm (8'10"x1'x5")
Shipping Weight	17kg (34.5 lbs)

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QUALITY AND RELIABILITY

Single Band Urban Antenna

90° 1.3 m vertical polarized FET Antenna

Part Number: 7276.02	Horizontal Beamwidth: 90° Gain: 14.0 dBi / 11.9 dBd	Electrical Downtilt: 0° Connector Type: 7/16 DIN female
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824-896 MHz

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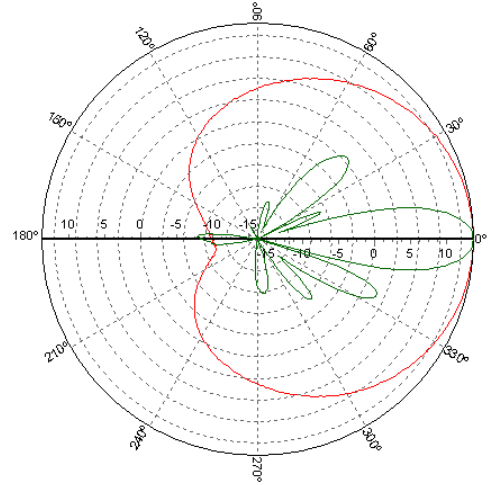
Single Band Urban Antenna

824-896 MHz

Electrical Specifications

Frequency Band (MHz)	824 – 896
Gain (dBi / dBd)	14.0 / 11.9
Polarization	Linear vertical
Nominal Impedance (Ohm)	50
VSWR	< 1.3:1
Horizontal –3 dB beamwidth	90°
Electrical downtilt	0°
Vertical –3 dB beamwidth	14.5°
First upper sidelobe suppression (dB)	>17
Vertical beam squint	< 0.4°
Front-to-back ratio, co-polar (dB)	> 20
Maximum input power (W)	500
IM3, @2x43dBm (dBc)	<-150

All specifications are subject to change without notice.
Contact your Powerwave representative for complete performance data.



Typical Horizontal and Vertical 7276.02 Patterns

Mechanical Specifications

Connector Type	7/16 DIN female
Connector Position	Bottom
Dimensions, HxWxD	1320x160x55mm (4'4"x6"x2")
Weight Including Bracket	6kg (13lbs)
Wind Load, Frontal, 42 m/s, Cd=1	233 N (52 lbf)
Survival Wind Speed	55 m/s (123 mph)
Lightning Protection	DC grounded
Radome Material	PVC
Radome Color	Light gray
Packing Size	1430x216x156mm (4'8"x8"x6")
Shipping Weight	7,5kg (16.5lbs)

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QUALITY AND RELIABILITY

Single Band Urban Antenna

90° 1.9 m vertical polarized FET Antenna

Part Number: 7277.02	Horizontal Beamwidth: 90° Gain: 15.0 dBi / 12.9 dBd	Electrical Downtilt: 0° Connector Type: 7/16 DIN female
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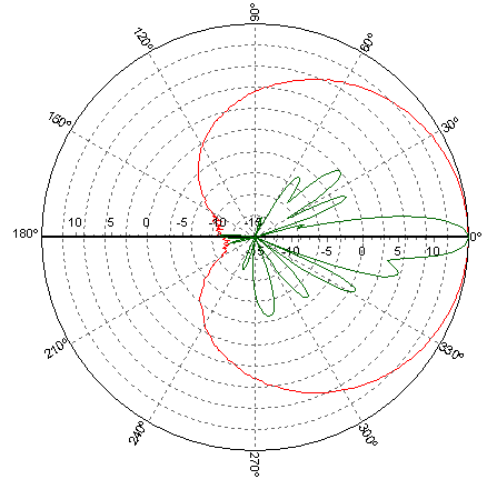
Single Band Urban Antenna

824-896 MHz

Electrical Specifications

Frequency Band (MHz)	824 – 896
Gain (dBi / dBd)	15.0 / 12.9
Polarization	Linear vertical
Nominal Impedance (Ohm)	50
VSWR	< 1.3:1
Horizontal –3 dB beamwidth	90°
Electrical downtilt	0°
Vertical –3 dB beamwidth	9.5°
First upper sidelobe suppression (dB)	>17
Vertical beam squint	< 0.3°
Front-to-back ratio, co-polar (dB)	> 21
First null below horizon (dB)	> -15
Maximum input power (W)	500
IM3, @2x43dBm (dBc)	<-150

All specifications are subject to change without notice.
Contact your Powerwave representative for complete performance data.



Typical Horizontal and Vertical 7277.02 Patterns

Mechanical Specifications

Connector Type	7/16 DIN female
Connector Position	Bottom
Dimensions, HxWxD	1940x160x55mm (6'4"x6"x2")
Weight Including Bracket	9kg (20lbs)
Wind Load, Frontal, 42 m/s, Cd=1	342 N (77 lbf)
Survival Wind Speed	55 m/s (123 mph)
Lightning Protection	DC grounded
Radome Material	PVC
Radome Color	Light gray
Packing Size	2050x216x156mm (6'9"x8"x6")
Shipping Weight	12kg (26.5lbs)

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Single Band Urban Antenna

90° 2.6 m vertical polarized FET Antenna

Part Number: 7278.02	Horizontal Beamwidth: 90° Gain: 16.0 dBi / 13.9 dBd	Electrical Downtilt: 0° Connector Type: 7/16 DIN female
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824-896 MHz

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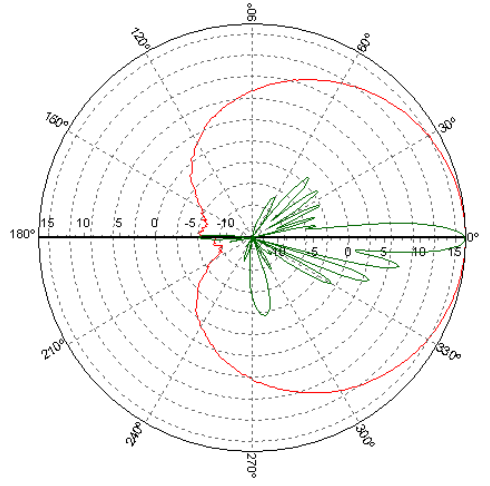
Single Band Urban Antenna

824-896 MHz

Electrical Specifications

Frequency Band (MHz)	824 – 896
Gain (dBi / dBd)	16.0 / 13.9
Polarization	Linear vertical
Nominal Impedance (Ohm)	50
VSWR	< 1.3:1
Horizontal –3 dB beamwidth	90°
Electrical downtilt	0°
Vertical –3 dB beamwidth	7°
First upper sidelobe suppression (dB)	>17
Vertical beam squint	< 0.3°
Front-to-back ratio, co-polar (dB)	> 21
First null below horizon (dB)	> -22
Maximum input power (W)	500
IM3, @2x43dBm (dBc)	<-150

All specifications are subject to change without notice.
Contact your Powerwave representative for complete performance data.



Typical Horizontal and Vertical 7278.02 Patterns

Mechanical Specifications

Connector Type	7/16 DIN female
Connector Position	Bottom
Dimensions, HxWxD	2580x160x55mm (8'6"x6"x2")
Weight Including Bracket	11kg (24lbs)
Wind Load, Frontal, 42 m/s, Cd=1	455 N (102 lbf)
Survival Wind Speed	55 m/s (123 mph)
Lightning Protection	DC grounded
Radome Material	PVC
Radome Color	Light gray
Packing Size	2690x216x156mm (8'10"x8"x6")
Shipping Weight	14kg (31lbs)

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Single Band X-Urban Antenna

65° 1.3 m X-polarized FET Antenna

Part Number: 7263.01	Horizontal Beamwidth: 65° Gain: 15 dBi / 12.9 dBd	Electrical Downtilt: 0° Connector Type: 7/16 DIN female
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824-896 MHz

The Powerwave® X-Urban Single Band Antenna shares its characteristically slim design with the Urban antenna. Its outstanding performance in the field derives from excellent VSWR (Voltage Standing Wave Ratio), isolation beam squint and tracking. This design ensures minimized intermodulation products, thus substantially enhancing system benefits.

The Powerwave polarization diversity systems use one antenna with two orthogonal polarizations slanted at $\pm 45^\circ$ to provide the independently fading signals needed for achieving top-quality coverage. As a result of thorough, in-depth research and testing, Powerwave has produced a variety of designs that ensure the isolation, cross polarization discrimination and orthogonality between inputs needed to achieve the highest possible diversity gain, hence the most efficient system performance.



Key Benefits

- Dual Polarization
- Market Leading Performance
- Light and slim design
- Robust and reliable
- Guaranteed passive intermodulation performance

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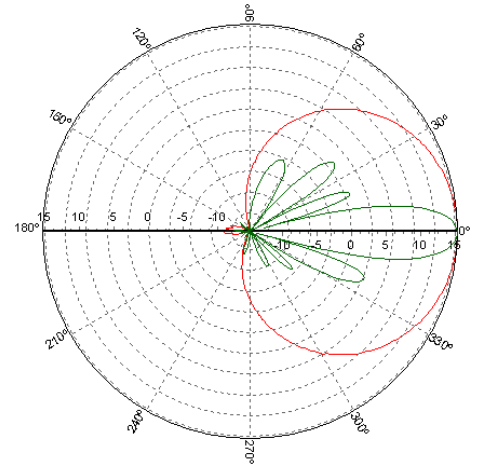
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Single Band X-Urban Antenna

Electrical Specifications

Frequency Band (MHz)	824 – 896
Gain (dBi / dBd)	15 / 12.9
Polarization	Linear slanted $\pm 45^\circ$
Nominal Impedance (Ohm)	50
VSWR	< 1.4:1
Isolation between inputs (dB)	> 30
Horizontal -3 dB beamwidth	65°
Tracking, Horizontal plane (dB)	< 0.5
Electrical downtilt	0°
Vertical -3 dB beamwidth	13°
First upper sidelobe suppression (dB)	> 14
Vertical beam squint	< 0.3°
Front-to-back ratio, co-polar (dB)	>22
Cross-polar discrimination (dB)	>18
Maximum input power (W)	500
IM3, @2x43dBm (dBc)	<-150



Typical Horizontal and Vertical 7263.01 Patterns

All specifications are subject to change without notice.
Contact your Powerwave representative for complete performance data.

Mechanical Specifications

Connector Type	7/16 DIN female
Connector Position	Bottom
Dimensions, HxWxD	1320x256x50mm (52" x 10.4" x2")
Weight Including Bracket	7.5 kg (16.5 lbs)
Wind Load, Frontal, 42 m/s, Cd=1	419 N (256 lbf)
Survival Wind Speed	55 m/s (123 mph)
Lightning Protection	DC grounded
Radome Material	PVC
Radome Color	Light gray
Packing Size	1430x308x121mm (56" x 12" x 5")
Shipping Weight	8.5 kg (19 lbs)

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Single Band X-Urban Antenna

65° 1.3 m X-polarized FET Antenna

Part Number: 7263.04	Horizontal Beamwidth: 65° Gain: 15 dBi / 12.9 dBd	Electrical Downtilt: 6° Connector Type: 7/16 DIN female
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824-896 MHz

The Powerwave® X-Urban Single Band Antenna shares its characteristically slim design with the Urban antenna. Its outstanding performance in the field derives from excellent VSWR (Voltage Standing Wave Ratio), isolation beam squint and tracking. This design ensures minimized intermodulation products, thus substantially enhancing system benefits.

The Powerwave polarization diversity systems use one antenna with two orthogonal polarizations slanted at $\pm 45^\circ$ to provide the independently fading signals needed for achieving top-quality coverage. As a result of thorough, in-depth research and testing, Powerwave has produced a variety of designs that ensure the isolation, cross polarization discrimination and orthogonality between inputs needed to achieve the highest possible diversity gain, hence the most efficient system performance.



Key Benefits

- Dual Polarization
- Market Leading Performance
- Light and slim design
- Robust and reliable
- Guaranteed passive intermodulation performance

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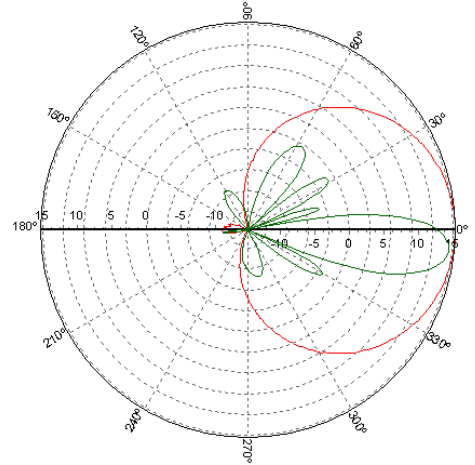
 **Powerwave**
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Single Band X-Urban Antenna

824-896 MHz

Electrical Specifications

Frequency Band (MHz)	824 – 896
Gain (dBi / dBd)	15 / 12.9
Polarization	Linear slanted $\pm 45^\circ$
Nominal Impedance (Ohm)	50
VSWR	< 1.4:1
Isolation between inputs (dB)	> 30
Horizontal –3 dB beamwidth	65°
Tracking, Horizontal plane (dB)	< 0.5
Electrical downtilt	6°
Vertical –3 dB beamwidth	13°
First upper sidelobe suppression (dB)	> 14
Vertical beam squint	< 0.3°
Front-to-back ratio, co-polar (dB)	>22
Cross-polar discrimination (dB)	>18
Maximum input power (W)	500
IM3, @2x43dBm (dBc)	<-150



Typical Horizontal and Vertical 7263.04 Patterns

All specifications are subject to change without notice.
Contact your Powerwave representative for complete performance data.

Mechanical Specifications

Connector Type	7/16 DIN female
Connector Position	Bottom
Dimensions, HxWxD	1320x256x50mm (52" x 10.4" x2")
Weight Including Bracket	7.5 kg (16.5 lbs)
Wind Load, Frontal, 42 m/s, Cd=1	419 N (256 lbf)
Survival Wind Speed	55 m/s (123 mph)
Lightning Protection	DC grounded
Radome Material	PVC
Radome Color	Light gray
Packing Size	1430x308x121mm (56" x 12" x 5")
Shipping Weight	8.5 kg (19 lbs)

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Single Band X-Urban Antenna

65° 1.9 m X-polarized FET Antenna

Part Number: 7281.02	Horizontal Beamwidth: 65° Gain: 16.5 dBi / 14.9 dBd	Electrical Downtilt: 0° Connector Type: 7/16 DIN female
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824-896 MHz

The Powerwave® X-Urban Single Band Antenna blends inconspicuously into structural backgrounds due to its slim design. This makes it an ideal choice for built-up areas, whether domestic or commercial. State-of-the-art patch technology allows the antenna's characteristic flat design. Made from corrosion-resistant aluminum and PVC, its exceptionally rugged design reassures you that every Urban antenna we produce provides reliable, lasting service even in the most demanding environments.



Key Benefits

- Market Leading Performance
- Vertical Polarization
- Light Weight
- Reliable Lasting Service

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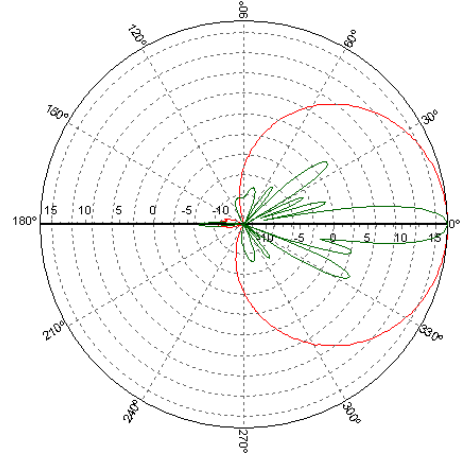
Single Band X-Urban Antenna

824-896 MHz

Electrical Specifications

Frequency Band (MHz)	824 – 896
Gain (dBi / dBd)	16.5 / 14.4
Polarization	Linear vertical
Nominal Impedance (Ohm)	50
VSWR	< 1.3:1
Isolation between inputs (dB)	> 30
Horizontal –3 dB beamwidth	65°
Horizontal tracking (dB)	< 0.5
Electrical downtilt	0°
Vertical –3 dB beamwidth	9°
First upper sidelobe suppression (dB)	> 15
Vertical beam squint	< 0.3°
Front-to-back ratio, co-polar (dB)	> 24
Cross-polar discrimination (dB)	> 20
Maximum input power (W)	500
IM3, @2x43dBm (dBc)	<-150

All specifications are subject to change without notice.
Contact your Powerwave representative for complete performance data.



Typical Horizontal and Vertical 7281.02 Patterns

Mechanical Specifications

Connector Type	7/16 DIN female
Connector Position	Bottom
Dimensions, HxWxD	1939x256x50mm (6'4"x10"x2")
Weight Including Bracket	9kg (20lbs)
Wind Load, Frontal, 42 m/s, Cd=1	547 N (123 lbf)
Survival Wind Speed	55 m/s (123 mph)
Lightning Protection	DC grounded
Radome Material	PVC
Radome Color	Light gray
Packing Size	2050x308x121mm (6'9"x1'x5')
Shipping Weight	10kg (22lbs)

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Single Band X-Urban Antenna

65° 1.9 m X-polarized FET Antenna

Part Number: 7281.04	Horizontal Beamwidth: 65° Gain: 16.5 dBi / 14.9 dBd	Electrical Downtilt: 6° Connector Type: 7/16 DIN female
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824-896 MHz

The Powerwave® X-Urban Single Band Antenna blends inconspicuously into structural backgrounds due to its slim design. This makes it an ideal choice for built-up areas, whether domestic or commercial. State-of-the-art patch technology allows the antenna's characteristic flat design. Made from corrosion-resistant aluminum and PVC, its exceptionally rugged design reassures you that every Urban antenna we produce provides reliable, lasting service even in the most demanding environments.



Key Benefits

- Market Leading Performance
- Vertical Polarization
- Light Weight
- Reliable Lasting Service

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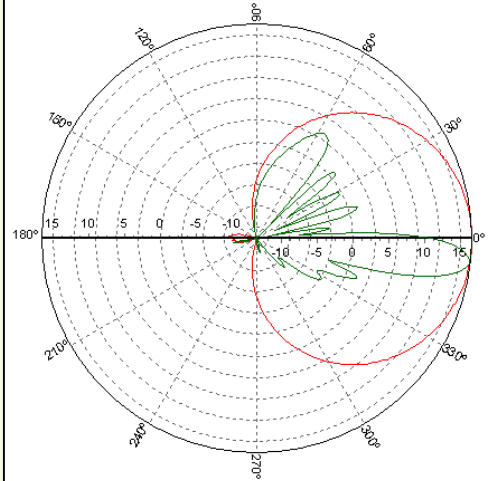
Single Band X-Urban Antenna

824-896 MHz

Electrical Specifications

Frequency Band (MHz)	824 – 896
Gain (dBi / dBd)	16.5 / 14.4
Polarization	Linear vertical
Nominal Impedance (Ohm)	50
VSWR	< 1.3:1
Isolation between inputs (dB)	> 30
Horizontal –3 dB beamwidth	65°
Horizontal tracking (dB)	< 0.5
Electrical downtilt	6°
Vertical –3 dB beamwidth	9°
First upper sidelobe suppression (dB)	> 14
Vertical beam squint	< 0.3°
Front-to-back ratio, co-polar (dB)	> 24
Cross-polar discrimination (dB)	> 20
Maximum input power (W)	500
IM3, @2x43dBm (dBC)	<-150

All specifications are subject to change without notice.
Contact your Powerwave representative for complete performance data.



Typical Horizontal and Vertical 7281.04 Patterns

Mechanical Specifications

Connector Type	7/16 DIN female
Connector Position	Bottom
Dimensions, HxWxD	1939x256x50mm (6'4"x10"x2")
Weight Including Bracket	9kg (20lbs)
Wind Load, Frontal, 42 m/s, Cd=1	547 N (123 lbf)
Survival Wind Speed	55 m/s (123 mph)
Lightning Protection	DC grounded
Radome Material	PVC
Radome Color	Light gray
Packing Size	2050x308x121mm (6'9"x1'x5')
Shipping Weight	10kg (22lbs)

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Single Band X-Urban Antenna

65° 0.7 m vertical polarized FET Antenna

Part Number: 7282.03	Horizontal Beamwidth: 65° Gain: 12.5 dBi / 10.4 dBd	Electrical Downtilt: 4° Connector Type: 7/16 DIN female
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824-896 MHz

The Powerwave® X-Urban Single Band Antenna blends inconspicuously into structural backgrounds due to its slim design. This makes it an ideal choice for built-up areas, whether domestic or commercial. State-of-the-art patch technology allows the antenna's characteristic flat design. Made from corrosion-resistant aluminum and PVC, its exceptionally rugged design reassures you that every Urban antenna we produce provides reliable, lasting service even in the most demanding environments.



Key Benefits

- Market Leading Performance
- Vertical Polarization
- Light Weight
- Reliable Lasting Service

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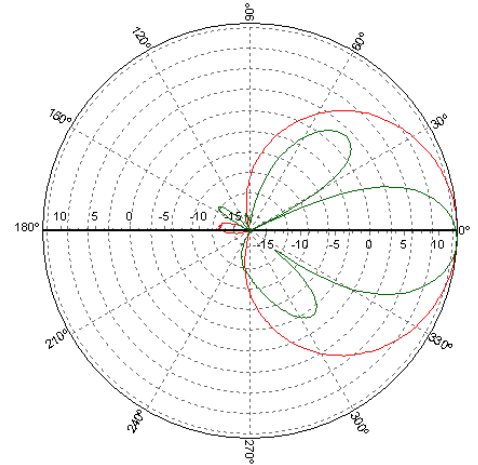
Single Band X-Urban Antenna

824-896 MHz

Electrical Specifications

Frequency Band (MHz)	824 – 896
Gain (dBi / dBd)	12.5 / 10.4
Polarization	Linear vertical
Nominal Impedance (Ohm)	50
VSWR	< 1.3:1
Isolation between inputs (dB)	> 30
Horizontal –3 dB beamwidth	65°
Horizontal tracking (dB)	< 0.5
Electrical downtilt	4°
Vertical –3 dB beamwidth	25°
First upper sidelobe suppression (dB)	> 9
Vertical beam squint	< 0.3°
Front-to-back ratio, co-polar (dB)	> 22
Cross-polar discrimination (dB)	> 20
Maximum input power (W)	250
IM3, @2x43dBm (dBc)	<-150

All specifications are subject to change without notice.
Contact your Powerwave representative for complete performance data.



Typical Horizontal and Vertical 7282.03 Patterns

Mechanical Specifications

Connector Type	7/16 DIN female
Connector Position	Bottom
Dimensions, HxWxD	659x256x50mm (2'2"x10"x2")
Weight Including Bracket	4kg (9lbs)
Wind Load, Frontal, 42 m/s, Cd=1	5186 N (42 lbf)
Survival Wind Speed	55 m/s (123 mph)
Lightning Protection	DC grounded
Radome Material	PVC
Radome Color	Light gray
Packing Size	750x308x121mm (2'6"x1'x5')
Shipping Weight	5kg (11lbs)

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QUALITY AND RELIABILITY

Broadband ALP Antenna

40° 1.4 m vertical-polarized FET Antenna

806-960 MHz

Part Number
7804.00R2A

Horizontal Beamwidth: 40°
Gain: 17 dBi / 14.9 dBd

Electrical Downtilt: 0°
Connector Type: DIN

The new Powerwave log periodic antennas have a narrower profile than our previous models. We replaced the previous 110 degree log periodic elements with a 90 degree log periodic element. The Powerwave log periodic is manufactured in a highly repeatable process that is so precise that absolutely no tuning is required. For long life and problem free performance, we use a robust mechanical design that includes high-strength plates of aircraft quality aluminum used to form an extremely rugged package. In addition, the mechanical strength is independent of the random, which acts only to physically protect and form a weather shield for the elements.



Key Benefits:

- Cutting Edge Network Performance
- Reduced Logistic Costs
- High Volume Capability

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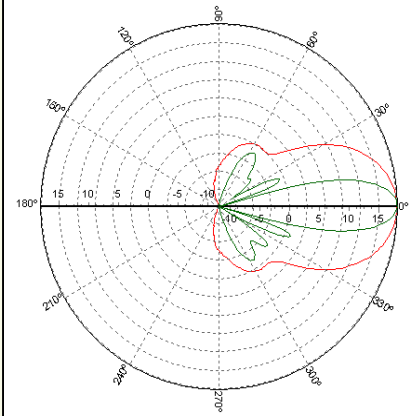
806-960 MHz

Broadband ALP Antenna

Electrical Specifications

Frequency Range (MHz)	806-960
Polarization	Linear vertical
Gain (dBi) / (dBd)	17 / 14.9
Nominal Impedence (Ohm)	50
VSWR	<1.4:1
Horizontal -3 dB beamwidth	40°
Vertical -3 dB beamwidth	14°
Electrical downtilt	0°
Front-to-back ratio (dB)	>35
First upper sidelobe suppression (dB)	>18
Maximum input power (W)	500
IM, 3rd order, @2x43dBm (dBc)	<-146

All specifications are subject to change without notice.
Contact your Powerwave representative for complete performance data.



Typical Horizontal and Vertical
7804.00R2APatterns

Mechanical Specifications

Connector Type	7/16 DIN female
Connector Position	Back
Dimensions, HxWxD	1320x590x350mm (4'4"x1'11"x1'2")
Weight without Bracket	11 kg (23.2 lbs)
Weight including Bracket	14.6 kg (31 lbs)
Wind Load, Frontal, 42 m/s	859 N (193 lbf)
Survival Wind Speed	70m/s (156 mph)
Lightning Protection	DC grounded
Radome Material	PVC
Radome Color	Light Gray
Packing Size	1389x627x394mm (4'7"x2'1"x1'4")
Shipping Weight	17.3 kg (38 lbs)

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QUALITY AND RELIABILITY

Single Band Urban Antenna

65° 0.7 m vertical polarized FET Antenna

Part Number: 7225.04	Horizontal Beamwidth: 65° Gain: 13 dBi / 10.9 dBd	Electrical Downtilt: 0° Connector Type: 7/16 DIN female
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870-960 MHz

The Powerwave® Urban Single Band Antenna blends inconspicuously into structural backgrounds due to its slim design. This makes it an ideal choice for built-up areas, whether domestic or commercial. State-of-the-art patch technology allows the antenna's characteristic flat design. Made from corrosion-resistant aluminum and PVC, its exceptionally rugged design reassures you that every Urban antenna we produce provides reliable, lasting service even in the most demanding environments.



Key Benefits

- Market Leading Performance
- Vertical Polarization
- Light Weight
- Reliable Lasting Service

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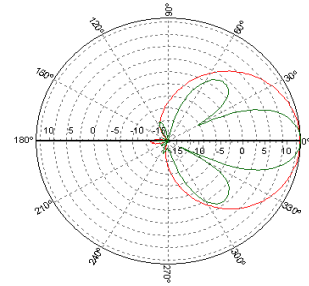
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870-960 MHz

Single Band Urban Antenna

Electrical Specifications

Frequency Band (MHz)	870 – 960
Gain (dBi / dBd)	13 / 10.9
Polarization	Linear vertical
Nominal Impedance (Ohm)	50
VSWR	< 1.3.1
Horizontal –3 dB beamwidth	65°
Electrical downtilt	0°
Vertical –3 dB beamwidth	26°
First upper sidelobe suppression (dB)	>9
Front-to-back ratio, co-polar (dB)	> 25
Maximum input power (W)	300
IM3, @2x43dBm (dBc)	<-150



Typical Horizontal and Vertical 7225.04 Patterns

All specifications are subject to change without notice.
Contact your Powerwave representative for complete performance data.

Mechanical Specifications

Connector Type	7/16 DIN female
Connector Position	Bottom
Dimensions, HxWxD	660x256x50mm (4'4"x10"x2")
Weight Including Bracket	5kg (11 lbs)
Wind Load, Frontal, 42 m/s, Cd=1	190 m/s (43 lbf)
Survival Wind Speed	55 m/s (123 mph)
Lightning Protection	DC grounded
Radome Material	PVC
Radome Color	Light gray
Packing Size	770x308x121mm (2'6"x1'x5")
Shipping Weight	6kg (13 lbs)

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QUALITY AND RELIABILITY

Single Band Urban Antenna

65° 1.3 m vertical polarized FET Antenna

Part Number:
7226.03

Horizontal Beamwidth: 65°
Gain: 15.5 dBi / 13.4 dBd

Electrical Downtilt: 6°
Connector Type: 7/16 DIN female

870-960 MHz

The Powerwave® Urban Single Band Antenna blends inconspicuously into structural backgrounds due to its slim design. This makes it an ideal choice for built-up areas, whether domestic or commercial. State-of-the-art patch technology allows the antenna's characteristic flat design. Made from corrosion-resistant aluminum and PVC, its exceptionally rugged design reassures you that every Urban antenna we produce provides reliable, lasting service even in the most demanding environments.



Key Benefits

- Market Leading Performance
- Vertical Polarization
- Light Weight
- Reliable Lasting Service

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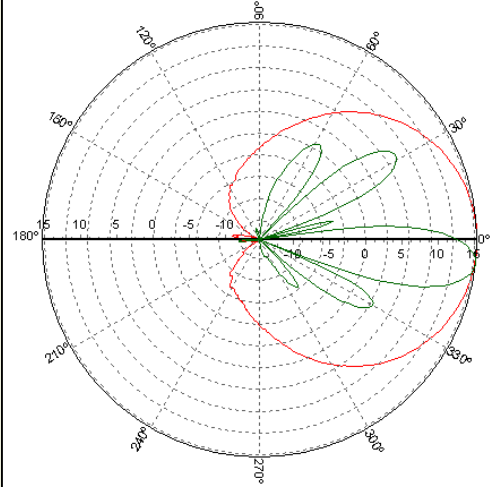
870-960 MHz

Single Band Urban Antenna

Electrical Specifications

Frequency Band (MHz)	870 – 960
Gain (dBi / dBd)	15.5 / 13.4
Polarization	Linear vertical
Nominal Impedance (Ohm)	50
VSWR	< 1.3.1
Horizontal –3 dB beamwidth	65°
Electrical downtilt	6°
Vertical –3 dB beamwidth	14°
First upper sidelobe suppression (dB)	>17
Front-to-back ratio, co-polar (dB)	> 25
Maximum input power (W)	500
IM3, @2x43dBm (dBC)	<-150

All specifications are subject to change without notice.
Contact your Powerwave representative for complete performance data.



Typical Horizontal and Vertical 7226.03 Patterns

Mechanical Specifications

Connector Type	7/16 DIN female
Connector Position	Bottom
Dimensions, HxWxD	1320x256x50mm (4'4"x10"x2")
Weight Including Bracket	7kg (15 lbs)
Wind Load, Frontal, 42 m/s, Cd=1	373 m/s (84 lbf)
Survival Wind Speed	55 m/s (123 mph)
Lightning Protection	DC grounded
Radome Material	PVC
Radome Color	Light gray
Packing Size	1430x308x121mm (4'8"x1'x5")
Shipping Weight	8.5kg (18 lbs)

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Single Band Urban Antenna

65° 1.3 m vertical polarized FET Antenna

Part Number: 7226.04	Horizontal Beamwidth: 65° Gain: 15.5 dBi / 13.4 dBd	Electrical Downtilt: 0° Connector Type: 7/16 DIN female
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870-960 MHz

The Powerwave® Urban Single Band Antenna blends inconspicuously into structural backgrounds due to its slim design. This makes it an ideal choice for built-up areas, whether domestic or commercial. State-of-the-art patch technology allows the antenna's characteristic flat design. Made from corrosion-resistant aluminum and PVC, its exceptionally rugged design reassures you that every Urban antenna we produce provides reliable, lasting service even in the most demanding environments.



Key Benefits

- Market Leading Performance
- Vertical Polarization
- Light Weight
- Reliable Lasting Service

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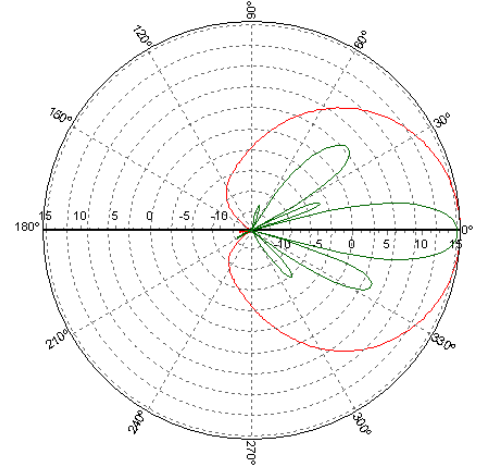
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870-960 MHz

Single Band Urban Antenna

Electrical Specifications

Frequency Band (MHz)	870 – 960
Gain (dBi / dBd)	15.5 / 13.4
Polarization	Linear vertical
Nominal Impedance (Ohm)	50
VSWR	< 1.3.1
Horizontal –3 dB beamwidth	65°
Electrical downtilt	0°
Vertical –3 dB beamwidth	14°
First upper sidelobe suppression (dB)	>17
Front-to-back ratio, co-polar (dB)	> 23
Maximum input power (W)	500
IM3, @2x43dBm (dBC)	<-150



Typical Horizontal and Vertical 7226.04 Patterns

All specifications are subject to change without notice.
Contact your Powerwave representative for complete performance data.

Mechanical Specifications

Connector Type	7/16 DIN female
Connector Position	Bottom
Dimensions, HxWxD	1320x256x50mm (4'4"x10"x2")
Weight Including Bracket	7kg (15 lbs)
Wind Load, Frontal, 42 m/s, Cd=1	373 m/s (84 lbf)
Survival Wind Speed	55 m/s (123 mph)
Lightning Protection	DC grounded
Radome Material	PVC
Radome Color	Light gray
Packing Size	1430x308x121mm (4'8"x1'x5")
Shipping Weight	8.5kg (18 lbs)

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COVERAGE AND CAPACITY

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QUALITY AND RELIABILITY

Single Band Urban Antenna

65° 1.9 m vertical polarized FET Antenna

Part Number: 7227.03, 7227.13 | Horizontal Beamwidth: 65° | Electrical Downtilt: 6°
Gain: 17.0 dBi / 14.9 dBd | Connector Type: 7/16 DIN female

870-960 MHz

The Powerwave® Urban Single Band Antenna blends inconspicuously into structural backgrounds due to its slim design. This makes it an ideal choice for built-up areas, whether domestic or commercial. State-of-the-art patch technology allows the antenna's characteristic flat design. Made from corrosion-resistant aluminum and PVC, its exceptionally rugged design reassures you that every Urban antenna we produce provides reliable, lasting service even in the most demanding environments.



Key Benefits

- Market Leading Performance
- Vertical Polarization
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- Reliable Lasting Service

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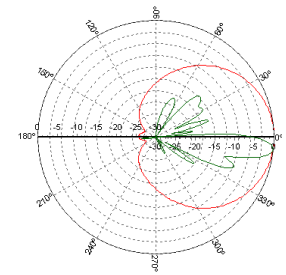
Single Band Urban Antenna

870-960 MHz

Electrical Specifications

Frequency Band (MHz)	870 – 960
Gain (dBi / dBd)	17.0 / 14.9
Polarization	Linear vertical
Nominal Impedance (Ohm)	50
VSWR	< 1.3.1
Horizontal –3 dB beamwidth	65°
Electrical downtilt	6°
Vertical –3 dB beamwidth	9°
First upper sidelobe suppression (dB)	>18
Front-to-back ratio, co-polar (dB)	> 24
First Null below horizon (dB)	>-16
Maximum input power (W)	500
IM3, @2x43dBm (dBc)	<-150

All specifications are subject to change without notice.
Contact your Powerwave representative for complete performance data.



Typical Horizontal and Vertical 7227.04 Patterns

Mechanical Specifications

Connector Type	7/16 DIN female
Connector Position	Bottom
Dimensions, HxWxD	1940x256x50mm (6'4"x10"x2")
Weight Including Bracket	11kg (24 lbs)
Wind Load, Frontal, 42 m/s, Cd=1	548 m/s (123 lbf)
Survival Wind Speed	55 m/s (123 mph)
Lightning Protection	DC grounded
Radome Material	PVC
Radome Color	Light gray
Packing Size	2050x308x121mm (6'9"x1'x5")
Shipping Weight	13kg (29 lbs)

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D031-08057 Rev A

Single Band Urban Antenna

65° 1.9 m vertical polarized FET Antenna

Part Number: 7227.04, 7227.14 | Horizontal Beamwidth: 65° | Electrical Downtilt: 0°
Gain: 17.0 dBi / 14.9 dBd | Connector Type: 7/16 DIN female

870-960 MHz

The Powerwave® Urban Single Band Antenna blends inconspicuously into structural backgrounds due to its slim design. This makes it an ideal choice for built-up areas, whether domestic or commercial. State-of-the-art patch technology allows the antenna's characteristic flat design. Made from corrosion-resistant aluminum and PVC, its exceptionally rugged design reassures you that every Urban antenna we produce provides reliable, lasting service even in the most demanding environments.



Key Benefits

- Market Leading Performance
- Vertical Polarization
- Light Weight
- Reliable Lasting Service

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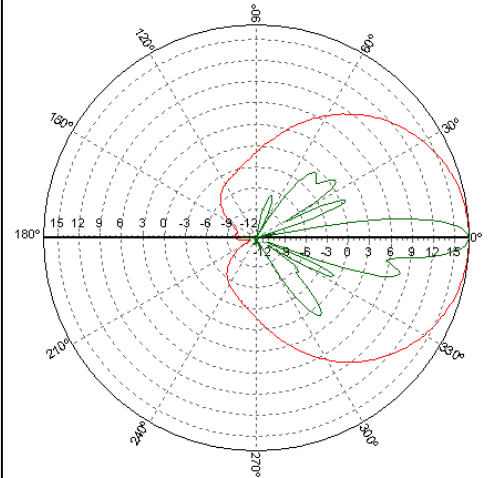
870-960 MHz

Single Band Urban Antenna

Electrical Specifications

Frequency Band (MHz)	870 – 960
Gain (dBi / dBd)	17.0 / 14.9
Polarization	Linear vertical
Nominal Impedance (Ohm)	50
VSWR	< 1.3:1
Horizontal –3 dB beamwidth	65°
Electrical downtilt	0°
Vertical –3 dB beamwidth	9°
First upper sidelobe suppression (dB)	>17
Front-to-back ratio, co-polar (dB)	> 23
First Null below horizon (dB)	>-13
Maximum input power (W)	500
IM3, @2x43dBm (dBc)	<-150

All specifications are subject to change without notice.
Contact your Powerwave representative for complete performance data.



Typical Horizontal and Vertical 7227.04 Patterns

Mechanical Specifications

Connector Type	7/16 DIN female
Connector Position	Bottom
Dimensions, HxWxD	1940x256x50mm (6'4"x10"x2")
Weight Including Bracket	11kg (24 lbs)
Wind Load, Frontal, 42 m/s, Cd=1	548 m/s (123 lbf)
Survival Wind Speed	55 m/s (123 mph)
Lightning Protection	DC grounded
Radome Material	PVC
Radome Color	Light gray
Packing Size	2050x308x121mm (6'9"x1'x5")
Shipping Weight	13kg (29 lbs)

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QUALITY AND RELIABILITY

Single Band Urban Antenna

65° 1.9 m vertical polarized FET Antenna

Part Number: 7227.06, 7227.16 | Horizontal Beamwidth: 65° | Electrical Downtilt: 4°
Gain: 17.0 dBi / 14.9 dBd | Connector Type: 7/16 DIN female

870-960 MHz

The Powerwave® Urban Single Band Antenna blends inconspicuously into structural backgrounds due to its slim design. This makes it an ideal choice for built-up areas, whether domestic or commercial. State-of-the-art patch technology allows the antenna's characteristic flat design. Made from corrosion-resistant aluminum and PVC, its exceptionally rugged design reassures you that every Urban antenna we produce provides reliable, lasting service even in the most demanding environments.



Key Benefits

- Market Leading Performance
- Vertical Polarization
- Light Weight
- Reliable Lasting Service

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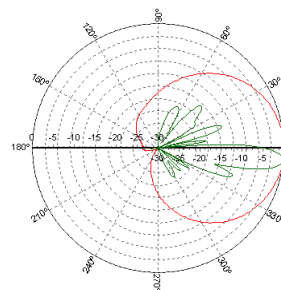
870-960 MHz

Single Band Urban Antenna

Electrical Specifications

Frequency Band (MHz)	870 – 960
Gain (dBi / dBd)	17.0 / 14.9
Polarization	Linear vertical
Nominal Impedance (Ohm)	50
VSWR	< 1.3.1
Horizontal –3 dB beamwidth	65°
Electrical downtilt	4°
Vertical –3 dB beamwidth	9°
First upper sidelobe suppression (dB)	>17
Front-to-back ratio, co-polar (dB)	> 23
First Null below horizon (dB)	>-17
Maximum input power (W)	500
IM3, @2x43dBm (dBc)	<-150

All specifications are subject to change without notice.
Contact your Powerwave representative for complete performance data.



Typical Horizontal and Vertical 7227.04 Patterns

Mechanical Specifications

Connector Type	7/16 DIN female
Connector Position	Bottom
Dimensions, HxWxD	1940x256x50mm (6'4"x10"x2")
Weight Including Bracket	11kg (24 lbs)
Wind Load, Frontal, 42 m/s, Cd=1	548 m/s (123 lbf)
Survival Wind Speed	55 m/s (123 mph)
Lightning Protection	DC grounded
Radome Material	PVC
Radome Color	Light gray
Packing Size	2050x308x121mm (6'9"x1'x5")
Shipping Weight	13kg (29 lbs)

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QUALITY AND RELIABILITY

Single Band Urban Antenna

65° 2.6 m vertical polarized FET Antenna

Part Number: 7228.03, 7228.13 | Horizontal Beamwidth: 65° | Electrical Downtilt: 0°
Gain: 18.0 dBi / 15.9 dBd | Connector Type: N female

870-960 MHz

The Powerwave® Urban Single Band Antenna blends inconspicuously into structural backgrounds due to its slim design. This makes it an ideal choice for built-up areas, whether domestic or commercial. State-of-the-art patch technology allows the antenna's characteristic flat design. Made from corrosion-resistant aluminum and PVC, its exceptionally rugged design reassures you that every Urban antenna we produce provides reliable, lasting service even in the most demanding environments.



Key Benefits

- Market Leading Performance
- Vertical Polarization
- Light Weight
- Reliable Lasting Service

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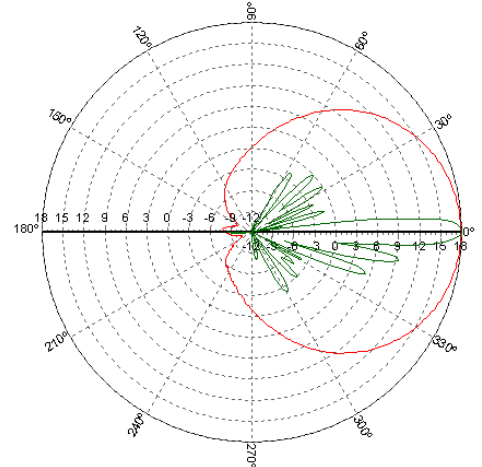
870-960 MHz

Single Band Urban Antenna

Electrical Specifications

Frequency Band (MHz)	870 – 960
Gain (dBi / dBd)	18.0 / 15.9
Polarization	Linear vertical
Nominal Impedance (Ohm)	50
VSWR	< 1.3.1
Horizontal –3 dB beamwidth	65°
Electrical downtilt	0°
Vertical –3 dB beamwidth	6.5°
First upper sidelobe suppression (dB)	>19
Front-to-back ratio, co-polar (dB)	> 23
First Null below horizon (dB)	>-20
Maximum input power (W)	500
IM3, @2x43dBm (dBc)	<-150

All specifications are subject to change without notice.
Contact your Powerwave representative for complete performance data.



Typical Horizontal and Vertical 7228.03 Patterns

Mechanical Specifications

Connector Type	N female
Connector Position	Bottom
Dimensions, HxWxD	2580x256x50mm (8'6"x10"x2")
Weight Including Bracket	14kg (31lbs)
Wind Load, Frontal, 42 m/s, Cd=1	728 m/s (164 lbf)
Survival Wind Speed	55 m/s (123 mph)
Lightning Protection	DC grounded
Radome Material	PVC
Radome Color	Light gray
Packing Size	2690x308x121mm (8'10"x1'x5")
Shipping Weight	17kg (379 lbs)

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Single Band Urban Antenna

65° 2.6 m vertical polarized FET Antenna

Part Number: 7228.04, 7228.14 | Horizontal Beamwidth: 65° | Electrical Downtilt: 0°
Gain: 18.0 dBi / 15.9 dBd | Connector Type: 7/16 DIN female

870-960 MHz

The Powerwave® Urban Single Band Antenna blends inconspicuously into structural backgrounds due to its slim design. This makes it an ideal choice for built-up areas, whether domestic or commercial. State-of-the-art patch technology allows the antenna's characteristic flat design. Made from corrosion-resistant aluminum and PVC, its exceptionally rugged design reassures you that every Urban antenna we produce provides reliable, lasting service even in the most demanding environments.



Key Benefits:

- Market Leading Performance
- Vertical Polarization
- Light Weight
- Reliable Lasting Service

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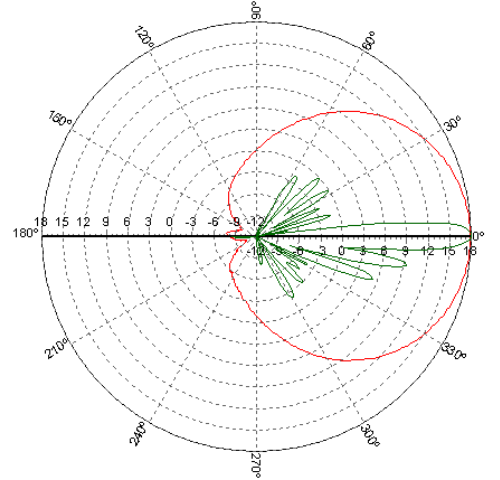
870-960 MHz

Single Band Urban Antenna

Electrical Specifications

Frequency Band (MHz)	870 – 960
Gain (dBi / dBd)	18.0 / 15.9
Polarization	Linear vertical
Nominal Impedance (Ohm)	50
VSWR	< 1.3.1
Horizontal –3 dB beamwidth	65°
Electrical downtilt	0°
Vertical –3 dB beamwidth	6.5°
First upper sidelobe suppression (dB)	>19
Front-to-back ratio, co-polar (dB)	> 23
First Null below horizon (dB)	>-20
Maximum input power (W)	500
IM3, @2x43dBm (dBc)	<-150

All specifications are subject to change without notice.
Contact your Powerwave representative for complete performance data.



Typical Horizontal and Vertical 7228.04 Patterns

Mechanical Specifications

Connector Type	7/16 DIN female
Connector Position	Bottom
Dimensions, HxWxD	2580x256x50mm (8'6"x10"x2")
Weight Including Bracket	14kg (31lbs)
Wind Load, Frontal, 42 m/s, Cd=1	728 m/s (164 lbf)
Survival Wind Speed	55 m/s (123 mph)
Lightning Protection	DC grounded
Radome Material	PVC
Radome Color	Light gray
Packing Size	2690x308x121mm (8'10"x1'x5")
Shipping Weight	17kg (379 lbs)

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Single Band Urban Antenna

65° 2.6 m vertical polarized FET Antenna

Part Number: 7228.06, 7228.16 | Horizontal Beamwidth: 65° | Electrical Downtilt: 6°
Gain: 18.0 dBi / 15.9 dBd | Connector Type: 7/16 DIN female

870-960 MHz

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Key Benefits:

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- Vertical Polarization
- Light Weight
- Reliable Lasting Service

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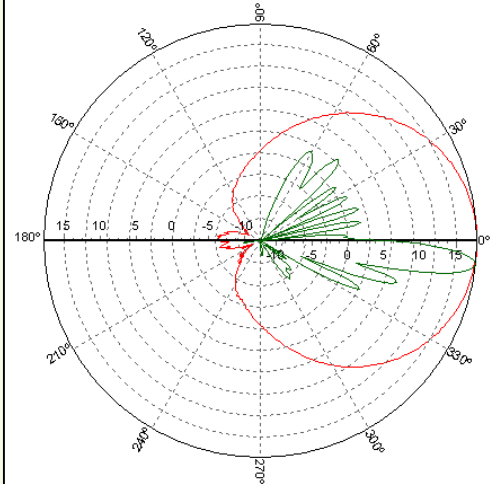
870-960 MHz

Single Band Urban Antenna

Electrical Specifications

Frequency Band (MHz)	870 – 960
Gain (dBi / dBd)	18.0 / 15.9
Polarization	Linear vertical
Nominal Impedance (Ohm)	50
VSWR	< 1.3.1
Horizontal –3 dB beamwidth	65°
Electrical downtilt	6°
Vertical –3 dB beamwidth	6.5°
First upper sidelobe suppression (dB)	>17
Front-to-back ratio, co-polar (dB)	> 25
First Null below horizon (dB)	>-20
Maximum input power (W)	500
IM3, @2x43dBm (dBc)	<-150

All specifications are subject to change without notice.
Contact your Powerwave representative for complete performance data.



Typical Horizontal and Vertical 7228.06 Patterns

Mechanical Specifications

Connector Type	7/16 DIN female
Connector Position	Bottom
Dimensions, HxWxD	2580x256x50mm (8'6"x10"x2")
Weight Including Bracket	14kg (31lbs)
Wind Load, Frontal, 42 m/s, Cd=1	728 m/s (164 lbf)
Survival Wind Speed	55 m/s (123 mph)
Lightning Protection	DC grounded
Radome Material	PVC
Radome Color	Light gray
Packing Size	2690x308x121mm (8'10"x1'x5")
Shipping Weight	17kg (379 lbs)

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QUALITY AND RELIABILITY

Single Band Urban Antenna

65° 2.6 m vertical polarized FET Antenna

Part Number: 7228.08, 7228.18 | Horizontal Beamwidth: 65° | Electrical Downtilt: 2°
Gain: 18.0 dBi / 15.9 dBd | Connector Type: 7/16 DIN female

870-960 MHz

The Powerwave® Urban Single Band Antenna blends inconspicuously into structural backgrounds due to its slim design. This makes it an ideal choice for built-up areas, whether domestic or commercial. State-of-the-art patch technology allows the antenna's characteristic flat design. Made from corrosion-resistant aluminum and PVC, its exceptionally rugged design reassures you that every Urban antenna we produce provides reliable, lasting service even in the most demanding environments.



Key Benefits:

- Market Leading Performance
- Vertical Polarization
- Light Weight
- Reliable Lasting Service

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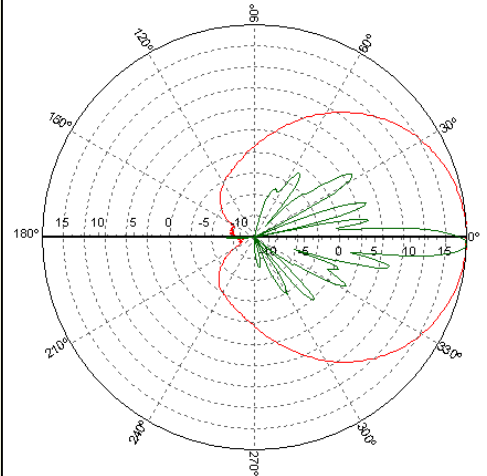
Single Band Urban Antenna

870-960 MHz

Electrical Specifications

Frequency Band (MHz)	870 – 960
Gain (dBi / dBd)	18.0 / 15.9
Polarization	Linear vertical
Nominal Impedance (Ohm)	50
VSWR	< 1.3.1
Horizontal –3 dB beamwidth	65°
Electrical downtilt	2°
Vertical –3 dB beamwidth	6.5°
First upper sidelobe suppression (dB)	>17
Front-to-back ratio, co-polar (dB)	> 25
First Null below horizon (dB)	>-20
Maximum input power (W)	500
IM3, @2x43dBm (dBc)	<-150

All specifications are subject to change without notice.
Contact your Powerwave representative for complete performance data.



Typical Horizontal and Vertical 7228.08 Patterns

Mechanical Specifications

Connector Type	7/16 DIN female
Connector Position	Bottom
Dimensions, HxWxD	2580x256x50mm (8'6"x10"x2")
Weight Including Bracket	14kg (31lbs)
Wind Load, Frontal, 42 m/s, Cd=1	728 m/s (164 lbf)
Survival Wind Speed	55 m/s (123 mph)
Lightning Protection	DC grounded
Radome Material	PVC
Radome Color	Light gray
Packing Size	2690x308x121mm (8'10"x1'x5")
Shipping Weight	17kg (379 lbs)

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COVERAGE AND CAPACITY

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Single Band Urban Antenna

90° 0.7 m vertical polarized FET Antenna

Part Number: 7230.04	Horizontal Beamwidth: 90° Gain: 12.0 dBi / 9.9 dBd	Electrical Downtilt: 0° Connector Type: 7/16 DIN female
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870-960 MHz

The Powerwave® Urban Single Band Antenna blends inconspicuously into structural backgrounds due to its slim design. This makes it an ideal choice for built-up areas, whether domestic or commercial. State-of-the-art patch technology allows the antenna's characteristic flat design. Made from corrosion-resistant aluminum and PVC, its exceptionally rugged design reassures you that every Urban antenna we produce provides reliable, lasting service even in the most demanding environments.



Key Benefits

- Market Leading Performance
- Vertical Polarization
- Light Weight
- Reliable Lasting Service

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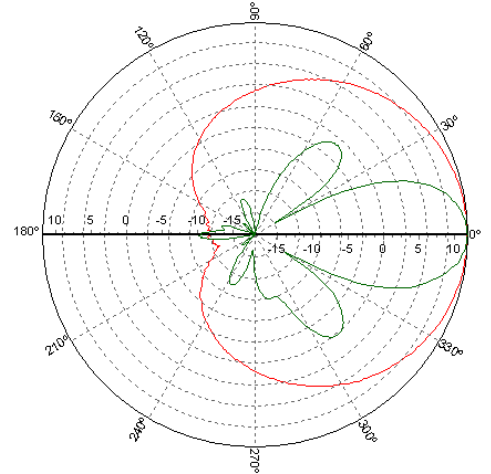
Single Band Urban Antenna

870-960 MHz

Electrical Specifications

Frequency Band (MHz)	870 – 960
Gain (dBi / dBd)	12.0 / 9.9
Polarization	Linear vertical
Nominal Impedance (Ohm)	50
VSWR	< 1.3.1
Horizontal –3 dB beamwidth	90°
Electrical downtilt	0°
Vertical –3 dB beamwidth	27°
First upper sidelobe suppression (dB)	>12
Vertical beam squint	<0.4
Front-to-back ratio, co-polar (dB)	> 20
Maximum input power (W)	300
IM3, @2x43dBm (dBc)	<-150

All specifications are subject to change without notice.
Contact your Powerwave representative for complete performance data.



Typical Horizontal and Vertical 7230.04 Patterns

Mechanical Specifications

Connector Type	7/16 DIN female
Connector Position	Bottom
Dimensions, HxWxD	695x160x55mm (2'3"x6"x2")
Weight Including Bracket	5,5kg (12 lbs)
Wind Load, Frontal, 42 m/s, Cd=1	123 m/s (28 lbf)
Survival Wind Speed	55 m/s (123 mph)
Lightning Protection	DC grounded
Radome Material	PVC
Radome Color	Light gray
Packing Size	805x216x156mm (2'8"x9'x6")
Shipping Weight	6,5kg (14.3 lbs)

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Single Band Urban Antenna

90° 1.3 m vertical polarized FET Antenna

Part Number: 7231.04	Horizontal Beamwidth: 90° Gain: 14.0 dBi / 11.9 dBd	Electrical Downtilt: 0° Connector Type: 7/16 DIN female
-------------------------	--	--

870-960 MHz

The Powerwave® Urban Single Band Antenna blends inconspicuously into structural backgrounds due to its slim design. This makes it an ideal choice for built-up areas, whether domestic or commercial. State-of-the-art patch technology allows the antenna's characteristic flat design. Made from corrosion-resistant aluminum and PVC, its exceptionally rugged design reassures you that every Urban antenna we produce provides reliable, lasting service even in the most demanding environments.



Key Benefits

- Market Leading Performance
- Vertical Polarization
- Light Weight
- Reliable Lasting Service

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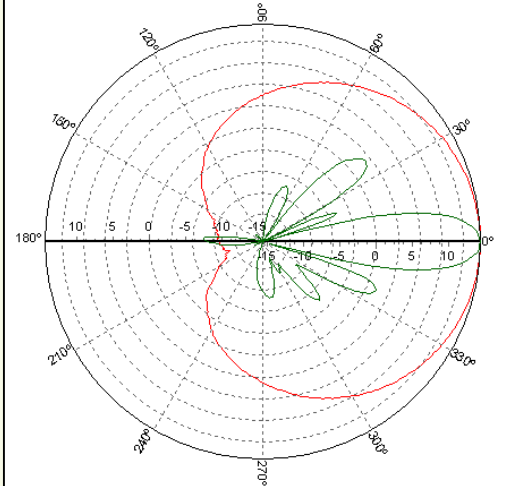
870-960 MHz

Single Band Urban Antenna

Electrical Specifications

Frequency Band (MHz)	870 – 960
Gain (dBi / dBd)	14.0 / 11.9
Polarization	Linear vertical
Nominal Impedance (Ohm)	50
VSWR	< 1.3:1
Horizontal –3 dB beamwidth	90°
Electrical downtilt	0°
Vertical –3 dB beamwidth	14°
First upper sidelobe suppression (dB)	>15
Vertical beam squint	<0.5°
Front-to-back ratio, co-polar (dB)	> 20
Maximum input power (W)	500
IM3, @2x43dBm (dBc)	<-150

All specifications are subject to change without notice.
Contact your Powerwave representative for complete performance data.



Typical Horizontal and Vertical 7231.04 Patterns

Mechanical Specifications

Connector Type	7/16 DIN female
Connector Position	Bottom
Dimensions, HxWxD	1320x160x55mm (4'4"x6"x2")
Weight Including Bracket	7,5kg (16.5 lbs)
Wind Load, Frontal, 42 m/s, Cd=1	233 m/s (52 lbf)
Survival Wind Speed	55 m/s (123 mph)
Lightning Protection	DC grounded
Radome Material	PVC
Radome Color	Light gray
Packing Size	1430x216x156mm (4'8"x9"x6")
Shipping Weight	9kg (20 lbs)

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Single Band Urban Antenna

90° 1.3 m vertical polarized FET Antenna

Part Number: 7231.06	Horizontal Beamwidth: 90° Gain: 14.0 dBi / 11.9 dBd	Electrical Downtilt: 6° Connector Type: 7/16 DIN female
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870-960 MHz

The Powerwave® Urban Single Band Antenna blends inconspicuously into structural backgrounds due to its slim design. This makes it an ideal choice for built-up areas, whether domestic or commercial. State-of-the-art patch technology allows the antenna's characteristic flat design. Made from corrosion-resistant aluminum and PVC, its exceptionally rugged design reassures you that every Urban antenna we produce provides reliable, lasting service even in the most demanding environments.



Key Benefits

- Market Leading Performance
- Vertical Polarization
- Light Weight
- Reliable Lasting Service

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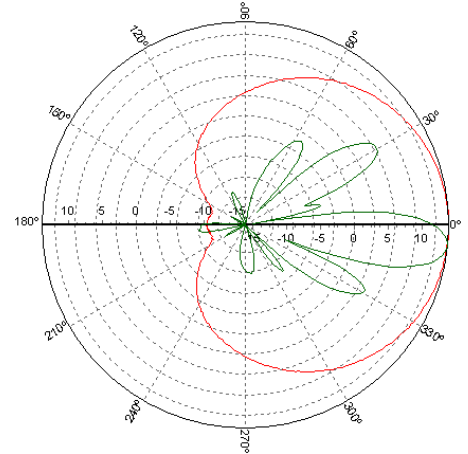
870-960 MHz

Single Band Urban Antenna

Electrical Specifications

Frequency Band (MHz)	870 – 960
Gain (dBi / dBd)	14.0 / 11.9
Polarization	Linear vertical
Nominal Impedance (Ohm)	50
VSWR	< 1.3:1
Horizontal –3 dB beamwidth	90°
Electrical downtilt	6°
Vertical –3 dB beamwidth	14°
First upper sidelobe suppression (dB)	>17
Vertical beam squint	<0.5°
Front-to-back ratio, co-polar (dB)	> 20
Maximum input power (W)	500
IM3, @2x43dBm (dBc)	<-150

All specifications are subject to change without notice.
Contact your Powerwave representative for complete performance data.



Typical Horizontal and Vertical 7231.06 Patterns

Mechanical Specifications

Connector Type	7/16 DIN female
Connector Position	Bottom
Dimensions, HxWxD	1320x160x55mm (4'4"x6"x2")
Weight Including Bracket	7,5kg (16.5 lbs)
Wind Load, Frontal, 42 m/s, Cd=1	233 m/s (52 lbf)
Survival Wind Speed	55 m/s (123 mph)
Lightning Protection	DC grounded
Radome Material	PVC
Radome Color	Light gray
Packing Size	1430x216x156mm (4'8"x9'x6")
Shipping Weight	9kg (20 lbs)

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Single Band Urban Antenna

90° 1.9 m vertical polarized FET Antenna

Part Number: 7232.04, 7232.14 | Horizontal Beamwidth: 90° | Electrical Downtilt: 0°
Gain: 15.0 dBi / 12.9 dBd | Connector Type: 7/16 DIN female

870-960 MHz

The Powerwave® Urban Single Band Antenna blends inconspicuously into structural backgrounds due to its slim design. This makes it an ideal choice for built-up areas, whether domestic or commercial. State-of-the-art patch technology allows the antenna's characteristic flat design. Made from corrosion-resistant aluminum and PVC, its exceptionally rugged design reassures you that every Urban antenna we produce provides reliable, lasting service even in the most demanding environments.



Key Benefits

- Market Leading Performance
- Vertical Polarization
- Light Weight
- Reliable Lasting Service

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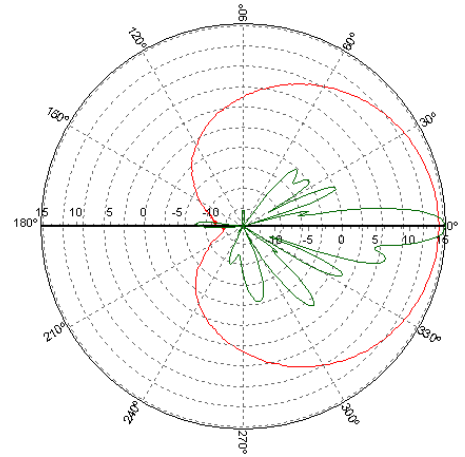
870-960 MHz

Single Band Urban Antenna

Electrical Specifications

Frequency Band (MHz)	870 – 960
Gain (dBi / dBd)	15.0 / 12.9
Polarization	Linear vertical
Nominal Impedance (Ohm)	50
VSWR	< 1.3:1
Horizontal –3 dB beamwidth	90°
Electrical downtilt	0°
Vertical –3 dB beamwidth	9°
First upper sidelobe suppression (dB)	>15
Vertical beam squint	<0.5°
Front-to-back ratio, co-polar (dB)	> 20
First Null below horizon (dB)	>-15
Maximum input power (W)	500
IM3, @2x43dBm (dBc)	<-150

All specifications are subject to change without notice.
Contact your Powerwave representative for complete performance data.



Typical Horizontal and Vertical 7232.04 Patterns

Mechanical Specifications

Connector Type	7/16 DIN female
Connector Position	Bottom
Dimensions, HxWxD	1940x160x55mm (6'4"x6"x2")
Weight Including Bracket	10kg (22 lbs)
Wind Load, Frontal, 42 m/s, Cd=1	342 m/s (77 lbf)
Survival Wind Speed	55 m/s (123 mph)
Lightning Protection	DC grounded
Radome Material	PVC
Radome Color	Light gray
Packing Size	2050x216x156mm (6'9"x9"x6")
Shipping Weight	12kg (26.5 lbs)

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Single Band Urban Antenna

90° 1.9 m vertical polarized FET Antenna

Part Number: 7232.07, 7232.17 | Horizontal Beamwidth: 90° | Electrical Downtilt: 4°
Gain: 15.0 dBi / 12.9 dBd | Connector Type: 7/16 DIN female

870-960 MHz

The Powerwave® Urban Single Band Antenna blends inconspicuously into structural backgrounds due to its slim design. This makes it an ideal choice for built-up areas, whether domestic or commercial. State-of-the-art patch technology allows the antenna's characteristic flat design. Made from corrosion-resistant aluminum and PVC, its exceptionally rugged design reassures you that every Urban antenna we produce provides reliable, lasting service even in the most demanding environments.



Key Benefits

- Market Leading Performance
- Vertical Polarization
- Light Weight
- Reliable Lasting Service

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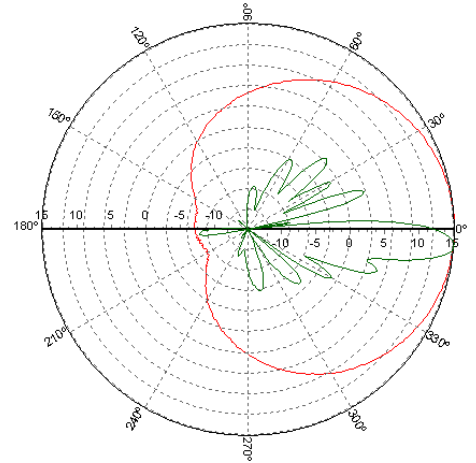
Single Band Urban Antenna

870-960 MHz

Electrical Specifications

Frequency Band (MHz)	870 – 960
Gain (dBi / dBd)	15.0 / 12.9
Polarization	Linear vertical
Nominal Impedance (Ohm)	50
VSWR	< 1.3:1
Horizontal –3 dB beamwidth	90°
Electrical downtilt	4°
Vertical –3 dB beamwidth	9°
First upper sidelobe suppression (dB)	>15
Vertical beam squint	<0.5°
Front-to-back ratio, co-polar (dB)	> 20
First Null below horizon (dB)	>-15
Maximum input power (W)	500
IM3, @2x43dBm (dBc)	<-150

All specifications are subject to change without notice.
Contact your Powerwave representative for complete performance data.



Typical Horizontal and Vertical 7232.07 Patterns

Mechanical Specifications

Connector Type	7/16 DIN female
Connector Position	Bottom
Dimensions, HxWxD	1940x160x55mm (6'4"x6"x2")
Weight Including Bracket	10kg (22 lbs)
Wind Load, Frontal, 42 m/s, Cd=1	342 m/s (77 lbf)
Survival Wind Speed	55 m/s (123 mph)
Lightning Protection	DC grounded
Radome Material	PVC
Radome Color	Light gray
Packing Size	2050x216x156mm (6'9"x9'x6")
Shipping Weight	12kg (26.5 lbs)

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Single Band Urban Antenna

90° 2.6 m vertical polarized FET Antenna

Part Number: 7233.04, 7233.14 | Horizontal Beamwidth: 90° | Electrical Downtilt: 0°
Gain: 16.5 dBi / 14.4 dBd | Connector Type: 7/16 DIN female

870-960 MHz

The Powerwave® Urban Single Band Antenna blends inconspicuously into structural backgrounds due to its slim design. This makes it an ideal choice for built-up areas, whether domestic or commercial. State-of-the-art patch technology allows the antenna's characteristic flat design. Made from corrosion-resistant aluminum and PVC, its exceptionally rugged design reassures you that every Urban antenna we produce provides reliable, lasting service even in the most demanding environments.



Key Benefits:

- Market Leading Performance
- Vertical Polarization
- Light Weight
- Reliable Lasting Service

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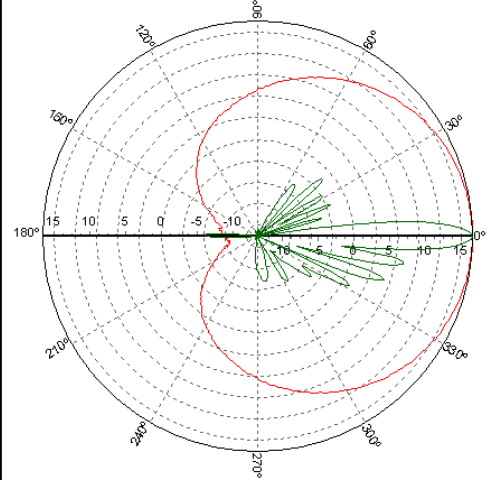
Single Band Urban Antenna

870-960 MHz

Electrical Specifications

Frequency Band (MHz)	870 – 960
Gain (dBi / dBd)	16.5 / 14.4
Polarization	Linear vertical
Nominal Impedance (Ohm)	50
VSWR	< 1.3:1
Horizontal –3 dB beamwidth	90°
Electrical downtilt	0°
Vertical –3 dB beamwidth	6.5°
First upper sidelobe suppression (dB)	>17
Vertical beam squint	<0.3°
Front-to-back ratio, co-polar (dB)	> 20
Maximum input power (W)	500
IM3, @2x43dBm (dBc)	<-150

All specifications are subject to change without notice.
Contact your Powerwave representative for complete performance data.



Typical Horizontal and Vertical 7233.04 Patterns

Mechanical Specifications

Connector Type	7/16 DIN female
Connector Position	Bottom
Dimensions, HxWxD	2580x160x55mm (8'6"x6"x2")
Weight Including Bracket	12kg (26.5 lbs)
Wind Load, Frontal, 42 m/s, Cd=1	455 m/s (102 lbf)
Survival Wind Speed	55 m/s (123 mph)
Lightning Protection	DC grounded
Radome Material	PVC
Radome Color	Light gray
Packing Size	2690x216x156mm (8'10"x9"x6")
Shipping Weight	15kg (33 lbs)

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Single Band Urban Antenna

90° 2.6 m vertical polarized FET Antenna

Part Number: 7233.06, 7233.16 | Horizontal Beamwidth: 90° | Electrical Downtilt: 6°
Gain: 16.5 dBi / 14.4 dBd | Connector Type: 7/16 DIN female

870-960 MHz

The Powerwave® Urban Single Band Antenna blends inconspicuously into structural backgrounds due to its slim design. This makes it an ideal choice for built-up areas, whether domestic or commercial. State-of-the-art patch technology allows the antenna's characteristic flat design. Made from corrosion-resistant aluminum and PVC, its exceptionally rugged design reassures you that every Urban antenna we produce provides reliable, lasting service even in the most demanding environments.



Key Benefits

- Market Leading Performance
- Vertical Polarization
- Light Weight
- Reliable Lasting Service

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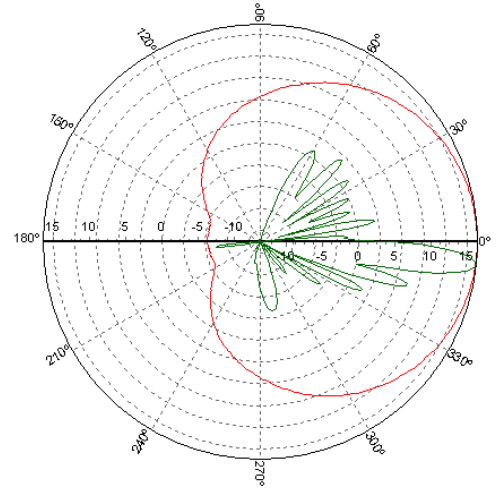
870-960 MHz

Single Band Urban Antenna

Electrical Specifications

Frequency Band (MHz)	870 – 960
Gain (dBi / dBd)	16.5 / 14.4
Polarization	Linear vertical
Nominal Impedance (Ohm)	50
VSWR	< 1.3.1
Horizontal –3 dB beamwidth	90°
Electrical downtilt	6°
Vertical –3 dB beamwidth	6.5°
First upper sidelobe suppression (dB)	>17
Vertical beam squint	<0.3°
Front-to-back ratio, co-polar (dB)	> 20
Maximum input power (W)	500
IM3, @2x43dBm (dBc)	<-150

All specifications are subject to change without notice.
Contact your Powerwave representative for complete performance data.



Typical Horizontal and Vertical 7233.06 Patterns

Mechanical Specifications

Connector Type	7/16 DIN female
Connector Position	Bottom
Dimensions, HxWxD	2580x160x55mm (8'6"x6"x2")
Weight Including Bracket	12kg (26.5 lbs)
Wind Load, Frontal, 42 m/s, Cd=1	455 m/s (102 lbf)
Survival Wind Speed	55 m/s (123 mph)
Lightning Protection	DC grounded
Radome Material	PVC
Radome Color	Light gray
Packing Size	2690x216x156mm (8'10"x9'x6")
Shipping Weight	15kg (33 lbs)

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Single Band Urban Antenna

90° 2.6 m vertical polarized FET Antenna

Part Number: 7233.08, 7233.18	Horizontal Beamwidth: 90° Gain: 16.5 dBi / 14.4 dBd	Electrical Downtilt: 2° Connector Type: 7/16 DIN female
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870-960 MHz

The Powerwave® Urban Single Band Antenna blends inconspicuously into structural backgrounds due to its slim design. This makes it an ideal choice for built-up areas, whether domestic or commercial. State-of-the-art patch technology allows the antenna's characteristic flat design. Made from corrosion-resistant aluminum and PVC, its exceptionally rugged design reassures you that every Urban antenna we produce provides reliable, lasting service even in the most demanding environments.



Key Benefits

- Market Leading Performance
- Vertical Polarization
- Light Weight
- Reliable Lasting Service

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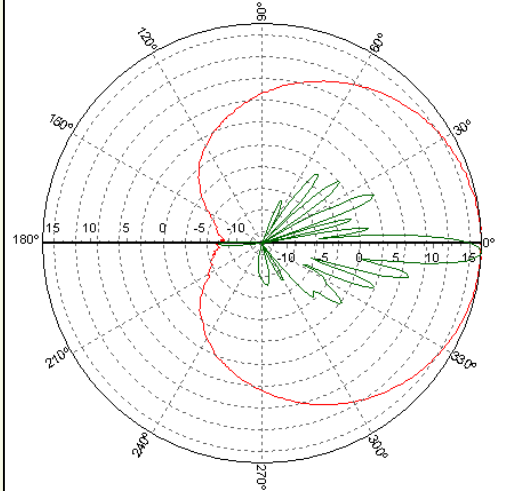
870-960 MHz

Single Band Urban Antenna

Electrical Specifications

Frequency Band (MHz)	870 – 960
Gain (dBi / dBd)	16.5 / 14.4
Polarization	Linear vertical
Nominal Impedance (Ohm)	50
VSWR	< 1.3.1
Horizontal –3 dB beamwidth	90°
Electrical downtilt	2°
Vertical –3 dB beamwidth	6.5°
First upper sidelobe suppression (dB)	>17
Vertical beam squint	<0.3°
Front-to-back ratio, co-polar (dB)	> 20
Maximum input power (W)	500
IM3, @2x43dBm (dBc)	<-150

All specifications are subject to change without notice.
Contact your Powerwave representative for complete performance data.



Typical Horizontal and Vertical 7233.08 Patterns

Mechanical Specifications

Connector Type	7/16 DIN female
Connector Position	Bottom
Dimensions, HxWxD	2580x160x55mm (8'6"x6"x2")
Weight Including Bracket	12kg (26.5 lbs)
Wind Load, Frontal, 42 m/s, Cd=1	455 m/s (102 lbf)
Survival Wind Speed	55 m/s (123 mph)
Lightning Protection	DC grounded
Radome Material	PVC
Radome Color	Light gray
Packing Size	2690x216x156mm (8'10"x9'x6")
Shipping Weight	15kg (33 lbs)

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COVERAGE AND CAPACITY

TECHNOLOGY LEADERSHIP

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QUALITY AND RELIABILITY

Broadband Antenna

65° 1.4 m x-polarized MET Antenna

Part Number: 7471.00 | Horizontal Beamwidth: 65° Gain: 14.5dBi | Electrical Downtilt: Adjustable Connector Type: 7/16 DIN

806-960 MHz

The Powerwave broadband dual polarized antenna is designed with a slant $\pm 45^\circ$ configuration having equal signal strengths on both polarizations. The design ensures the highest possible diversity gain, isolation and cross polarization discrimination. Its slim design and sophisticated electrical performance, typical of Powerwave antennas, ensures maximum efficiency as well as stable pattern over the entire frequency range. This design relies on leading-edge patch technology fed via a micro strip PCB network. Special attention has been paid to ensure antenna pattern peak performance, making this an excellent choice for optimal cell planning. Choose the optional MET function that allows you to field-adjust the electrical tilt for optimum roll-off effect.



Key Benefits:

- Market Leading Performance
- Reliable Design
- Light Weight



ANTENNA SYSTEMS

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Broadband Antenna

Electrical Specifications

Frequency band (MHz)	806-896	880-960
Gain, ± 0.5 (dBi)	14.2	14.7
Polarization	Dual linear $\pm 45^\circ$	
Nominal Impedance (Ohm)	50	
VSWR	1.5:1	
Isolation between inputs, 824-960MHz (dB)	30	
Horizontal -3 dB beamwidth	$70 \pm 4^\circ$	$67 \pm 4^\circ$
Tracking, Horizontal plane, $\pm 60^\circ$ (dB)	<2.0	
Electrical downtilt range (adjustable)	2° to 12°	
Vertical -3 dB beamwidth	$14.9 \pm 1^\circ$	$13.8 \pm 0.8^\circ$
Sidelobe suppression, Vertical 1 st upper (dB)	> 19,18,17 @2,7,12° MET	> 19,18,17 @2,7,12° MET
Vertical beam squint	1°	
First null-fill (dB)	< -25	< -25
Front-to-back ratio (dB)	>25	>27
Front-to-back ratio, total power (dB)	>24	>25
Cross-polar discrimination (XPD) $\pm 60^\circ$ (dB)	>10	>10
IM3, 2Tx@43dBm (dBc)	<-150	
Power Handling, Average per input (W)	400	300
Power Handling, Average total (W)	800	600

All specifications are subject to change without notice.
Contact your Powerwave representative for complete performance data.

Mechanical Specifications

Connector Type	7/16 DIN female
Connector Position	Bottom
Dimensions, HxWxD	1408x280x125mm (4'9"x11"x5")
Wind Load, Frontal, 42 m/s Cd=1	435 N (98 lbf)
Weight With Brackets	15.8 kg (35 lbs)
Weight Without Brackets	12.18 kg (27 lbs)
Survival Wind Speed	70 m/s (156mph)
Lightning Protection	DC grounded
Radome Material	GRP
Radome Color	Light Gray
Packing Size	1550x355x255mm (61"x1'2"x10")
Shipping Weight	19.9 kg (44lbs)

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Broadband Antenna

65° 2.0 m x-polarized MET Antenna

806-960 MHz

Part Number: 7472.00 | Horizontal Beamwidth: 65° Gain: 16.5dBi | Electrical Downtilt: Adjustable Connector Type: 7/16 female

The Powerwave broadband dual polarized antenna is designed with a slant $\pm 45^\circ$ configuration having equal signal strengths on both polarizations. The design ensures the highest possible diversity gain, isolation and cross polarization discrimination. Its slim design and sophisticated electrical performance, typical of Powerwave antennas, ensures maximum efficiency as well as stable pattern over the entire frequency range. This design relies on leading-edge patch technology fed via a micro strip PCB network. Special attention has been paid to ensure antenna pattern peak performance, making this an excellent choice for optimal cell planning. Choose the optional MET function that allows you to field-adjust the electrical tilt for optimum roll-off effect.



Key Benefits

- Excellent broad- and multi-band capabilities
- Polarization purity makes good diversity gain
- Excellent pattern performance and high gain over frequency
- High passive intermodulation performance
- Light, slim and robust design

ANTENNA SYSTEMS

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806-960 MHz

Broadband Antenna

Electrical Specifications

Frequency band (MHz)	806-896	880-960
Gain, ± 0.5 (dBi)	16.0	16.5
Polarization	Dual linear ±45°	
Nominal Impedance (Ohm)	50	
VSWR , 806-960MHz	1.4:1	
Isolation between inputs, 806-960MHz (dB)	30	
Horizontal -3 dB beamwidth	65±5°	65±5°
Tracking,Horizontal plane, ±60° (dB)	<2.0	
Electrical downtilt range (adjustable)	0° to 7.5°	
Vertical -3 dB beamwidth	9.5±0.6°	9±0.5°
Sidelobe suppression, Vertical 1 st upper (dB)	> 20,17,15 @0,4,7° MET	> 20,17,15 @0,4,7° MET
Vertical beam squint	0.5°	
First null-fill (dB)	< -18	< -18
Front-to-back ratio (dB)	>30	>30
Front-to-back ratio, total power (dB)	>25	>25
Cross-polar discrimination (XPD) ±60° (dB)	>11	>11
IM3, 2Tx@43dBm (dBc)	<-150	
Power Handling, Average per input (W)	400	300
Power Handling, Average total (W)	800	600

All specifications are subject to change without notice. Contact your Powerwave representative for complete performance data.

Mechanical Specifications

Connector Type	7/16 DIN female
Connector Position	Bottom
Dimensions, HxWxD	2033x280x125mm (6'8"x11"x5")
Wind Load, Frontal, 42 m/s Cd=1	828 N (141 lbf)
Weight With Brackets	18 kg (39,7 lbs)
Survival Wind Speed	70m/s (156mph)
Lightning Protection	DC grounded
Radome Material	GRP
Radome Color	Light Gray
Packing Size	2175x355x255mm (7'2"x1'2"x10")

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D031-08185 Rev A

Broadband Antenna

65° 2.6 m x-polarized MET Antenna

806-960 MHz

Part Number: 7473.00	Horizontal Beamwidth: 65° Gain: 18dBi	Electrical Downtilt: Adjustable Connector Type: 7/16 female
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The Powerwave broadband dual polarized antenna is designed with a slant $\pm 45^\circ$ configuration having equal signal strengths on both polarizations. The design ensures the highest possible diversity gain, isolation and cross polarization discrimination. Its slim design and sophisticated electrical performance, typical of Powerwave antennas, ensures maximum efficiency as well as stable pattern over the entire frequency range. This design relies on leading-edge patch technology fed via a micro strip PCB network. Special attention has been paid to ensure antenna pattern peak performance, making this an excellent choice for optimal cell planning. Choose the optional MET function that allows you to field-adjust the electrical tilt for optimum roll-off effect.



Key Benefits

- Excellent broad- and multi-band capabilities
- Polarization purity makes good diversity gain
- Excellent pattern performance and high gain over frequency
- High passive intermodulation performance
- Light, slim and robust design

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Broadband Antenna

806-960 MHz

Electrical Specifications

Frequency band (MHz)	806-896	880-960
Gain, ± 0.5 (dBi)	17.5	18.0
Polarization	Dual linear $\pm 45^\circ$	
Nominal Impedance (Ohm)	50	
VSWR , 806-960MHz	1.4:1	
Isolation between inputs, 806-960MHz (dB)	30	
Horizontal -3 dB beamwidth	65 \pm 5 $^\circ$	65 \pm 5 $^\circ$
Tracking, Horizontal plane, $\pm 60^\circ$ (dB)	<2.0	
Electrical downtilt range (adjustable)	0 $^\circ$ to 5.5 $^\circ$	
Vertical -3 dB beamwidth	7.3 \pm 0.4 $^\circ$	7.0 \pm 0.4 $^\circ$
Sidelobe suppression, Vertical 1 st upper (dB)	> 20,17,15 @0,2,5 $^\circ$ MET	> 20,17,15 @0,2,5 $^\circ$ MET
Vertical beam squint	0.3 $^\circ$	
First null-fill (dB)	< -18	< -18
Front-to-back ratio (dB)	>30	>30
Front-to-back ratio, total power (dB)	>25	>25
Cross-polar discrimination (XPD) $\pm 60^\circ$ (dB)	>11	>11
IM3, 2Tx@43dBm (dBc)	<-150	
Power Handling, Average per input (W)	400	300
Power Handling, Average total (W)	800	600

All specifications are subject to change without notice.
Contact factory for complete performance data.

Mechanical Specifications

Connector Type	7/16 DIN female
Connector Position	Bottom
Dimensions, HxWxD	2580x280x125mm (8'6"x11"x5")
Wind Load, Frontal, 150 m/s Cd=1 (N)	868 (195 lbf)
Weight With Brackets	21 kg (46.3 lbs)
Survival Wind Speed (m/s)	70 (156mph)
Lightning Protection	DC grounded
Radome Material	GRP
Radome Color	Light Gray
Packing Size	2725x355x255mm (8'11"x1'2"x10")

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Low Broadband Antenna

65° 1.4 m x-polarized FET Antenna

Part Number: 7476.00	Horizontal Beamwidth: Gain: 15dBi / 12.9dBd	Electrical Downtilt: 0° Connector Type: 7/16 DIN female
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806-960 MHz

The Powerwave broadband dual polarized antenna is designed with a slant $\pm 45^\circ$ configuration having equal signal strengths on both polarizations. The design ensures the highest possible diversity gain, isolation and cross polarization discrimination. Its slim design and sophisticated electrical performance, typical of Powerwave antennas, ensures maximum efficiency as well as stable pattern over the entire frequency range. This design relies on leading-edge patch technology fed via a micro strip PCB network. Special attention has been paid to ensure antenna pattern peak performance, making this an excellent choice for optimal cell planning. Choose the optional MET function that allows you to field-adjust the electrical tilt for optimum roll-off effect.



Key Benefits

- Excellent broad- and multi-band capabilities
- Polarization purity maximizes diversity gain
- Excellent pattern performance and high gain over frequency
- Guaranteed passive intermodulation performance
- Light, slim and robust design

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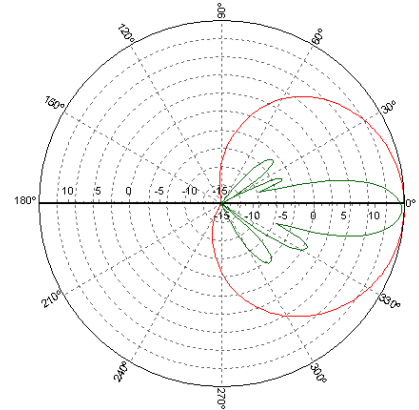
Low Broadband Antenna

806-960 MHz

Electrical Specifications

Frequency band (MHz)	806-896	880-960
Gain, ± 0.5 (dBi) / (dBd)	14.7/12.6	15.0/12.9
Polarization	Dual slant $\pm 45^\circ$	
Nominal Impedance (Ohm)	50	
VSWR	1.4:1	
Isolation between inputs, 824-960MHz (dB)	30	
Horizontal -3 dB beamwidth	66 \pm 4 $^\circ$	64 \pm 4 $^\circ$
Tracking, Horizontal plane, $\pm 60^\circ$ (dB)	<1.0	
Electrical downtilt	0 $^\circ$	
Vertical -3 dB beamwidth	14.9 \pm 1 $^\circ$	13.8 \pm 0.8 $^\circ$
Sidelobe suppression, Vertical 1 st upper (dB)	> 19	> 19
Vertical beam squint	1 $^\circ$	
First null-fill (dB)	< -25	< -25
Front-to-back ratio (dB)	>30	>30
Front-to-back ratio, total power (dB)	>25	>25
Cross-polar discrimination (XPD) $\pm 60^\circ$ (dB)	>12	>12
IM3, @2x43dBm (dBc)	<-150	
Power Handling, Average per input (W)	400	300
Power Handling, Average total (W)	800	600

All specifications are subject to change without notice.
Contact your Powerwave representative for complete performance data.



Typical Horizontal and Vertical 7476.00 Patterns

Mechanical Specifications

Connector Type	2 x 7/16 DIN female
Connector Position	Bottom
Dimensions, HxWxD	1300x280x125mm (4'3"x11"x5")
Weight with Brackets	14 kg (31 lbs)
Wind Load, Frontal, 42 m/s Cd=1	401 N (90 lbf)
Survival Wind Speed	70m/s (156 mph)
Lightning Protection	DC grounded
Radome Material	GRP
Radome Color	Light Gray
Mounting	Pre-mounted standard brackets
Packing Size	1490x355x200mm (4'11"x1'2"x8")
Shipping Weight	15 kg (33 lbs)

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Low Broadband Antenna

65° 1.4 m x-polarized FET Antenna

Part Number:
7476.02

Horizontal Beamwidth:
Gain: 15dBi / 12.9dBd

Electrical Downtilt: 2°
Connector Type: 7/16 DIN female

806-960 MHz

The Powerwave broadband dual polarized antenna is designed with a slant $\pm 45^\circ$ configuration having equal signal strengths on both polarizations. The design ensures the highest possible diversity gain, isolation and cross polarization discrimination. Its slim design and sophisticated electrical performance, typical of Powerwave antennas, ensures maximum efficiency as well as stable pattern over the entire frequency range. This design relies on leading-edge patch technology fed via a micro strip PCB network. Special attention has been paid to ensure antenna pattern peak performance, making this an excellent choice for optimal cell planning. Choose the optional MET function that allows you to field-adjust the electrical tilt for optimum roll-off effect.



Key Benefits

- Excellent broad- and multi-band capabilities
- Polarization purity maximizes diversity gain
- Excellent pattern performance and high gain over frequency
- Guaranteed passive intermodulation performance
- Light, slim and robust design

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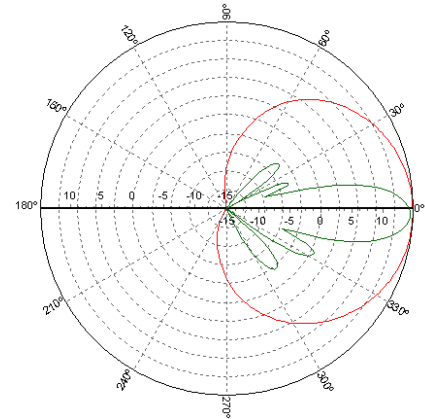
Low Broadband Antenna

806-960 MHz

Electrical Specifications

Frequency band (MHz)	806-896	880-960
Gain, ± 0.5 (dBi) / (dBd)	14.7/12.6	15.0/12.9
Polarization	Dual slant $\pm 45^\circ$	
Nominal Impedance (Ohm)	50	
VSWR	1.4:1	
Isolation between inputs, 824-960MHz (dB)	30	
Horizontal -3 dB beamwidth	66 \pm 4 $^\circ$	64 \pm 4 $^\circ$
Tracking, Horizontal plane, $\pm 60^\circ$ (dB)	<1.0	
Electrical downtilt	2 $^\circ$	
Vertical -3 dB beamwidth	14.9 \pm 1 $^\circ$	13.8 \pm 0.8 $^\circ$
Sidelobe suppression, Vertical 1 st upper (dB)	> 19,	> 19
Vertical beam squint	1 $^\circ$	
First null-fill (dB)	< -25	< -25
Front-to-back ratio (dB)	>30	>30
Front-to-back ratio, total power (dB)	>25	>25
Cross-polar discrimination (XPD) $\pm 60^\circ$ (dB)	>12	>12
IM3, @2x43dBm (dBc)	<-150	
Power Handling, Average per input (W)	400	300
Power Handling, Average total (W)	800	600

All specifications are subject to change without notice.
Contact your Powerwave representative for complete performance data.



Typical Horizontal and Vertical 7476.02 Patterns

Mechanical Specifications

Connector Type	2 x 7/16 DIN female
Connector Position	Bottom
Dimensions, HxWxD	1300x280x125mm (4'3"x11"x5")
Weight with Brackets	14 kg (31 lbs)
Wind Load, Frontal, 42 m/s Cd=1	401N (90 lbf)
Survival Wind Speed	70m/s (156 mph)
Lightning Protection	DC grounded
Radome Material	GRP
Radome Color	Light Gray
Mounting	Pre-mounted standard brackets
Packing Size	1490x355x200mm (4'11"x1'2"x8")
Shipping Weight	15 kg (33 lbs)

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Low Broadband Antenna

65° 1.4 m x-polarized FET Antenna

Part Number: 7476.06	Horizontal Beamwidth: Gain: 15dBi / 12.9dBd	Electrical Downtilt: 6° Connector Type: 7/16 DIN female
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806-960 MHz

The Powerwave broadband dual polarized antenna is designed with a slant $\pm 45^\circ$ configuration having equal signal strengths on both polarizations. The design ensures the highest possible diversity gain, isolation and cross polarization discrimination. Its slim design and sophisticated electrical performance, typical of Powerwave antennas, ensures maximum efficiency as well as stable pattern over the entire frequency range. This design relies on leading-edge patch technology fed via a micro strip PCB network. Special attention has been paid to ensure antenna pattern peak performance, making this an excellent choice for optimal cell planning. Choose the optional MET function that allows you to field-adjust the electrical tilt for optimum roll-off effect.



Key Benefits

- Excellent broad- and multi-band capabilities
- Polarization purity maximizes diversity gain
- Excellent pattern performance and high gain over frequency
- Guaranteed passive intermodulation performance
- Light, slim and robust design

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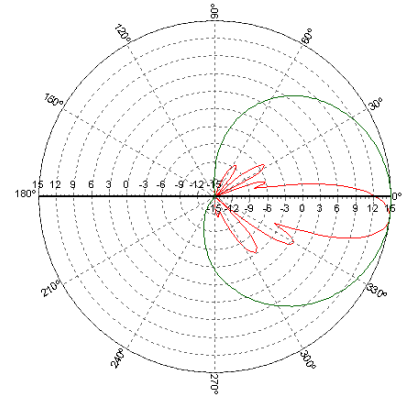
Low Broadband Antenna

806-960 MHz

Electrical Specifications

Frequency band (MHz)	806-896	880-960
Gain, ± 0.5 (dBi) / (dBd)	14.7/12.6	15.0/12.9
Polarization	Dual slant $\pm 45^\circ$	
Nominal Impedance (Ohm)	50	
VSWR	1.4:1	
Isolation between inputs, 824-960MHz (dB)	30	
Horizontal -3 dB beamwidth	66 \pm 4 $^\circ$	64 \pm 4 $^\circ$
Tracking, Horizontal plane, $\pm 60^\circ$ (dB)	<1.0	
Electrical downtilt	6 $^\circ$	
Vertical -3 dB beamwidth	14.9 \pm 1 $^\circ$	13.8 \pm 0.8 $^\circ$
Sidelobe suppression, Vertical 1 st upper (dB)	> 19,	> 19
Vertical beam squint	1 $^\circ$	
First null-fill (dB)	< -25	< -25
Front-to-back ratio (dB)	>30	>30
Front-to-back ratio, total power (dB)	>25	>25
Cross-polar discrimination (XPD) $\pm 60^\circ$ (dB)	>12	>12
IM3, @2x43dBm (dBc)	<-150	
Power Handling, Average per input (W)	400	300
Power Handling, Average total (W)	800	600

All specifications are subject to change without notice.
Contact your Powerwave representative for complete performance data.



Typical Horizontal and Vertical 7476.06 Patterns

Mechanical Specifications

Connector Type	2 x 7/16 DIN female
Connector Position	Bottom
Dimensions, HxWxD	1300x280x125mm (4'3"x11"x5")
Weight with Brackets	14 kg (31 lbs)
Wind Load, Frontal, 42 m/s Cd=1	401N (90 lbf)
Survival Wind Speed	70m/s (156 mph)
Lightning Protection	DC grounded
Radome Material	GRP
Radome Color	Light Gray
Mounting	Pre-mounted standard brackets
Packing Size	1490x355x200mm (4'11"x1'2"x8")
Shipping Weight	15 kg (33 lbs)

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Low Broadband Antenna

65° 2.0 m x-polarized FET Antenna

Part Number: 7477.00	Horizontal Beamwidth: Gain: 16.5dBi / 14.4dBd	Electrical Downtilt: 0° Connector Type: 7/16 DIN female
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806-960 MHz

The Powerwave broadband dual polarized antenna is designed with a slant $\pm 45^\circ$ configuration having equal signal strengths on both polarizations. The design ensures the highest possible diversity gain, isolation and cross polarization discrimination. Its slim design and sophisticated electrical performance, typical of Powerwave antennas, ensures maximum efficiency as well as stable pattern over the entire frequency range. This design relies on leading-edge patch technology fed via a micro strip PCB network. Special attention has been paid to ensure antenna pattern peak performance, making this an excellent choice for optimal cell planning. Choose the optional MET function that allows you to field-adjust the electrical tilt for optimum roll-off effect.



Key Benefits

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- Polarization purity maximizes diversity gain
- Excellent pattern performance and high gain over frequency
- Guaranteed passive intermodulation performance
- Light, slim and robust design

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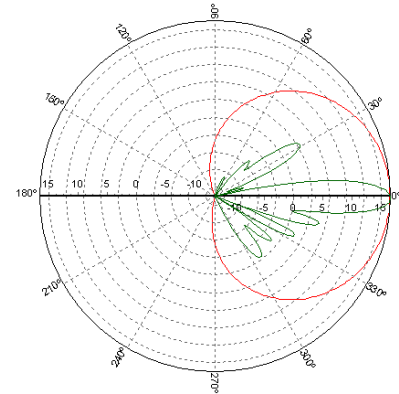
Low Broadband Antenna

806-960 MHz

Electrical Specifications

Frequency band (MHz)	806-896	880-960
Gain, ± 0.5 (dBi) / (dBd)	16.0/13.9	16.5/14.4
Polarization	Dual slant $\pm 45^\circ$	
Nominal Impedance (Ohm)	50	
VSWR	1.4:1	
Isolation between inputs, 824-960MHz (dB)	30	
Horizontal -3 dB beamwidth	66 \pm 4 $^\circ$	64 \pm 4 $^\circ$
Tracking, Horizontal plane, $\pm 60^\circ$ (dB)	<1.0	
Electrical downtilt	0 $^\circ$	
Vertical -3 dB beamwidth	9.5 \pm 0.6 $^\circ$	9 \pm 0.5 $^\circ$
Sidelobe suppression, Vertical 1 st upper (dB)	> 20,	> 20
Vertical beam squint	0.5 $^\circ$	
First null-fill (dB)	< -18	< -18
Front-to-back ratio (dB)	>30	>30
Front-to-back ratio, total power (dB)	>25	>25
Cross-polar discrimination (XPD) $\pm 60^\circ$ (dB)	>12	>12
IM3, @2x43dBm (dBc)	<-150	
Power Handling, Average per input (W)	400	300
Power Handling, Average total (W)	800	600

All specifications are subject to change without notice.
Contact your Powerwave representative for complete performance data.



Typical Horizontal and Vertical 7477.00 Patterns

Mechanical Specifications

Connector Type	2 x 7/16 DIN female
Connector Position	Bottom
Dimensions, HxWxD	2033x280x125mm (6'8"x11"x5")
Weight with Brackets	18 kg (39,7 lbs)
Wind Load, Frontal, 42 m/s Cd=1	628 N (141 lbf)
Survival Wind Speed	70m/s (156 mph)
Lightning Protection	DC grounded
Radome Material	GRP
Radome Color	Light Gray
Mounting	Pre-mounted standard brackets
Packing Size	2175x355x255mm (7'2"x1'2"x10")

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QUALITY AND RELIABILITY

Low Broadband Antenna

65° 2.0 m x-polarized FET Antenna

Part Number: 7477.02	Horizontal Beamwidth: Gain: 16.5dBi / 14.4dBd	Electrical Downtilt: 2° Connector Type: 7/16 DIN female
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806-960 MHz

The Powerwave broadband dual polarized antenna is designed with a slant $\pm 45^\circ$ configuration having equal signal strengths on both polarizations. The design ensures the highest possible diversity gain, isolation and cross polarization discrimination. Its slim design and sophisticated electrical performance, typical of Powerwave antennas, ensures maximum efficiency as well as stable pattern over the entire frequency range. This design relies on leading-edge patch technology fed via a micro strip PCB network. Special attention has been paid to ensure antenna pattern peak performance, making this an excellent choice for optimal cell planning. Choose the optional MET function that allows you to field-adjust the electrical tilt for optimum roll-off effect.



Key Benefits

- Excellent broad- and multi-band capabilities
- Polarization purity maximizes diversity gain
- Excellent pattern performance and high gain over frequency
- Guaranteed passive intermodulation performance
- Light, slim and robust design

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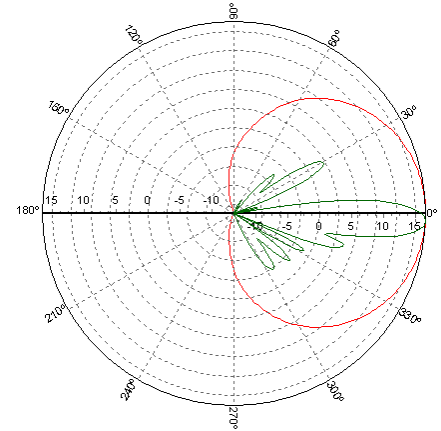
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Electrical Specifications

Frequency band (MHz)	806-896	880-960
Gain, ± 0.5 (dBi) / (dBd)	16.0/13.9	16.5/14.4
Polarization	Dual slant $\pm 45^\circ$	
Nominal Impedance (Ohm)	50	
VSWR	1.4:1	
Isolation between inputs, 824-960MHz (dB)	30	
Horizontal -3 dB beamwidth	66 \pm 4 $^\circ$	64 \pm 4 $^\circ$
Tracking, Horizontal plane, $\pm 60^\circ$ (dB)	<2.0	
Electrical downtilt	2 $^\circ$	
Vertical -3 dB beamwidth	9.5 \pm 0.6 $^\circ$	9 \pm 0.5 $^\circ$
Sidelobe suppression, Vertical 1 st upper (dB)	> 20,	> 20
Vertical beam squint	0.5 $^\circ$	
First null-fill (dB)	< -18	< -18
Front-to-back ratio (dB)	>30	>30
Front-to-back ratio, total power (dB)	>25	>25
Cross-polar discrimination (XPD) $\pm 60^\circ$ (dB)	>12	>12
IM3, @2x43dBm (dBc)	<-150	
Power Handling, Average per input (W)	400	300
Power Handling, Average total (W)	800	600

All specifications are subject to change without notice.
Contact your Powerwave representative for complete performance data.



Typical Horizontal and Vertical 7477.02 Patterns

Mechanical Specifications

Connector Type	2 x 7/16 DIN female
Connector Position	Bottom
Dimensions, HxWxD	2033x280x125mm (6'8"x11"x5")
Weight with Brackets	18 kg (39,7 lbs)
Wind Load, Frontal, 42 m/s Cd=1	628N (141 lbf)
Survival Wind Speed	70m/s (156 mph)
Lightning Protection	DC grounded
Radome Material	GRP
Radome Color	Light Gray
Mounting	Pre-mounted standard brackets
Packing Size	2175x355x255mm (7'2"x1'2"x10")

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Low Broadband Antenna

65° 2.0 m x-polarized FET Antenna

Part Number: 7477.06	Horizontal Beamwidth: Gain: 16.5dBi / 14.4dBd	Electrical Downtilt: 6° Connector Type: 7/16 DIN female
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806-960 MHz

The Powerwave broadband dual polarized antenna is designed with a slant $\pm 45^\circ$ configuration having equal signal strengths on both polarizations. The design ensures the highest possible diversity gain, isolation and cross polarization discrimination. Its slim design and sophisticated electrical performance, typical of Powerwave antennas, ensures maximum efficiency as well as stable pattern over the entire frequency range. This design relies on leading-edge patch technology fed via a micro strip PCB network. Special attention has been paid to ensure antenna pattern peak performance, making this an excellent choice for optimal cell planning. Choose the optional MET function that allows you to field-adjust the electrical tilt for optimum roll-off effect.



Key Benefits

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- Excellent pattern performance and high gain over frequency
- Guaranteed passive intermodulation performance
- Light, slim and robust design

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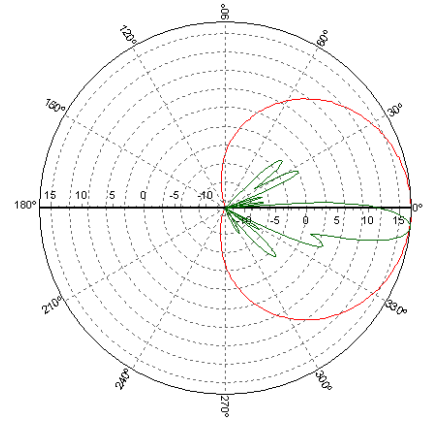
Low Broadband Antenna

806-960 MHz

Electrical Specifications

Frequency band (MHz)	806-896	880-960
Gain, ± 0.5 (dBi) / (dBd)	16.0/13.9	16.5/14.4
Polarization	Dual slant $\pm 45^\circ$	
Nominal Impedance (Ohm)	50	
VSWR	1.4:1	
Isolation between inputs, 824-960MHz (dB)	30	
Horizontal -3 dB beamwidth	66 \pm 4 $^\circ$	64 \pm 4 $^\circ$
Tracking, Horizontal plane, $\pm 60^\circ$ (dB)	<1.0	
Electrical downtilt	6 $^\circ$	
Vertical -3 dB beamwidth	9.5 \pm 0.6 $^\circ$	9 \pm 0.5 $^\circ$
Sidelobe suppression, Vertical 1 st upper (dB)	> 20,	> 20
Vertical beam squint	0.5 $^\circ$	
First null-fill (dB)	< -18	< -18
Front-to-back ratio (dB)	>30	>30
Front-to-back ratio, total power (dB)	>25	>25
Cross-polar discrimination (XPD) $\pm 60^\circ$ (dB)	>12	>12
IM3, @2x43dBm (dBc)	<-150	
Power Handling, Average per input (W)	400	300
Power Handling, Average total (W)	800	600

All specifications are subject to change without notice.
Contact your Powerwave representative for complete performance data.



Typical Horizontal and Vertical 7477.06 Patterns

Mechanical Specifications

Connector Type	2 x 7/16 DIN female
Connector Position	Bottom
Dimensions, HxWxD	2033x280x125mm (6'8"x11"x5")
Weight with Brackets	18 kg (39,7 lbs)
Wind Load, Frontal, 42 m/s Cd=1	628N (141 lbf)
Survival Wind Speed	70m/s (156 mph)
Lightning Protection	DC grounded
Radome Material	GRP
Radome Color	Light Gray
Mounting	Pre-mounted standard brackets
Packing Size	2175x355x255mm (7'2"x1'2"x10")

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Low Broadband Antenna

65° 2.6 m x-polarized FET Antenna

Part Number:
7478.00

Horizontal Beamwidth:
Gain: 18dBi / 15.9dBd

Electrical Downtilt: 0°
Connector Type: 7/16 DIN female

806-960 MHz

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Key Benefits

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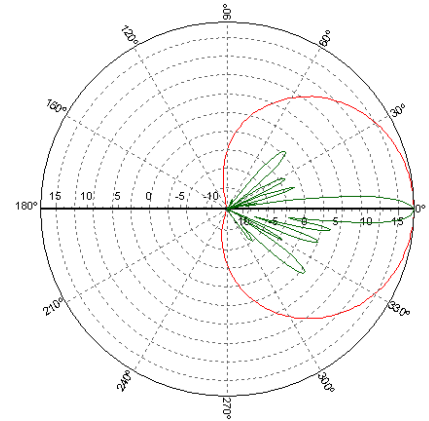
Low Broadband Antenna

806-960 MHz

Electrical Specifications

Frequency band (MHz)	806-896	880-960
Gain, ± 0.5 (dBi) / (dBd)	17.5/15.4	18/15.9
Polarization	Dual slant $\pm 45^\circ$	
Nominal Impedance (Ohm)	50	
VSWR	1.4:1	
Isolation between inputs, 824-960MHz (dB)	30	
Horizontal -3 dB beamwidth	$66 \pm 4^\circ$	$64 \pm 4^\circ$
Tracking, Horizontal plane, $\pm 60^\circ$ (dB)	< 1.0	
Electrical downtilt	0°	
Vertical -3 dB beamwidth	$7.3 \pm 0.4^\circ$	$7.0 \pm 0.4^\circ$
Sidelobe suppression, Vertical 1 st upper (dB)	> 20 ,	> 20
Vertical beam squint	0.3°	
First null-fill (dB)	< -18	< -18
Front-to-back ratio (dB)	> 30	> 30
Front-to-back ratio, total power (dB)	> 25	> 25
Cross-polar discrimination (XPD) $\pm 60^\circ$ (dB)	> 12	> 12
IM3, @2x43dBm (dBc)	< -150	
Power Handling, Average per input (W)	400	300
Power Handling, Average total (W)	800	600

All specifications are subject to change without notice.
Contact your Powerwave representative for complete performance data.



Typical Horizontal and Vertical 7478.00 Patterns

Mechanical Specifications

Connector Type	2 x 7/16 DIN female
Connector Position	Bottom
Dimensions, HxWxD	2580x280x125mm (8'6"x11"x5")
Weight with Brackets	21 kg (46.3 lbs)
Wind Load, Frontal, 42 m/s Cd=1	796N (179 lbf)
Survival Wind Speed	70m/s (156 mph)
Lightning Protection	DC grounded
Radome Material	GRP
Radome Color	Light Gray
Mounting	Pre-mounted standard brackets
Packing Size	2725x355x255mm (8'11"x1'2"x10")

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Low Broadband Antenna

65° 2.6 m x-polarized FET Antenna

Part Number: 7478.02	Horizontal Beamwidth: Gain: 18dBi / 15.9dBd	Electrical Downtilt: 2° Connector Type: 7/16 DIN female
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806-960 MHz

The Powerwave broadband dual polarized antenna is designed with a slant $\pm 45^\circ$ configuration having equal signal strengths on both polarizations. The design ensures the highest possible diversity gain, isolation and cross polarization discrimination. Its slim design and sophisticated electrical performance, typical of Powerwave antennas, ensures maximum efficiency as well as stable pattern over the entire frequency range. This design relies on leading-edge patch technology fed via a micro strip PCB network. Special attention has been paid to ensure antenna pattern peak performance, making this an excellent choice for optimal cell planning. Choose the optional MET function that allows you to field-adjust the electrical tilt for optimum roll-off effect.



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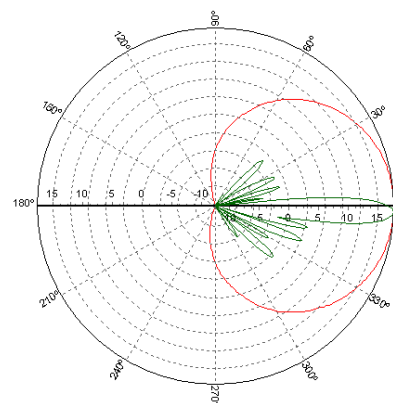
Low Broadband Antenna

806-960 MHz

Electrical Specifications

Frequency band (MHz)	806-896	880-960
Gain, ± 0.5 (dBi) / (dBd)	17.5/15.4	18/15.9
Polarization	Dual slant $\pm 45^\circ$	
Nominal Impedance (Ohm)	50	
VSWR	1.4:1	
Isolation between inputs, 824-960MHz (dB)	30	
Horizontal -3 dB beamwidth	$66 \pm 4^\circ$	$64 \pm 4^\circ$
Tracking, Horizontal plane, $\pm 60^\circ$ (dB)	< 1.0	
Electrical downtilt	2°	
Vertical -3 dB beamwidth	$7.3 \pm 0.4^\circ$	$7.0 \pm 0.4^\circ$
Sidelobe suppression, Vertical 1st upper (dB)	> 20 ,	> 20
Vertical beam squint	0.3°	
First null-fill (dB)	< -18	< -18
Front-to-back ratio (dB)	> 30	> 30
Front-to-back ratio, total power (dB)	> 25	> 25
Cross-polar discrimination (XPD) $\pm 60^\circ$ (dB)	> 12	> 12
IM3, @2x43dBm (dBc)	< -150	
Power Handling, Average per input (W)	400	300
Power Handling, Average total (W)	800	600

All specifications are subject to change without notice.
Contact your Powerwave representative for complete performance data.



Typical Horizontal and Vertical 7478.02 Patterns

Mechanical Specifications

Connector Type	2 x 7/16 DIN female
Connector Position	Bottom
Dimensions, HxWxD	2580x280x125mm (8'6"x11"x5")
Weight with Brackets	21 kg (46.3 lbs)
Wind Load, Frontal, 42 m/s Cd=1	796N (179 lbf)
Survival Wind Speed	70m/s (156 mph)
Lightning Protection	DC grounded
Radome Material	GRP
Radome Color	Light Gray
Mounting	Pre-mounted standard brackets
Packing Size	2725x355x255mm (8'11"x1'2"x10")

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Low Broadband Antenna

65° 2.6 m x-polarized FET Antenna

Part Number: 7478.06	Horizontal Beamwidth: Gain: 18dBi / 15.9dBd	Electrical Downtilt: 6° Connector Type: 7/16 DIN female
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806-960 MHz

The Powerwave broadband dual polarized antenna is designed with a slant $\pm 45^\circ$ configuration having equal signal strengths on both polarizations. The design ensures the highest possible diversity gain, isolation and cross polarization discrimination. Its slim design and sophisticated electrical performance, typical of Powerwave antennas, ensures maximum efficiency as well as stable pattern over the entire frequency range. This design relies on leading-edge patch technology fed via a micro strip PCB network. Special attention has been paid to ensure antenna pattern peak performance, making this an excellent choice for optimal cell planning. Choose the optional MET function that allows you to field-adjust the electrical tilt for optimum roll-off effect.



Key Benefits

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- Light, slim and robust design

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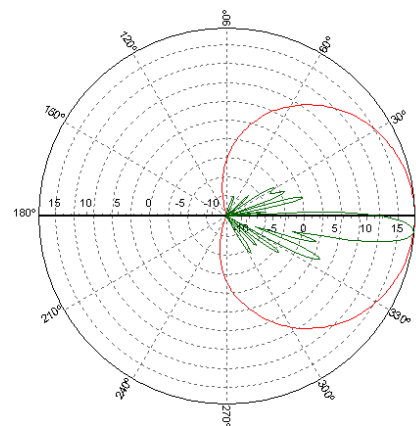
Low Broadband Antenna

806-960 MHz

Electrical Specifications

Frequency band (MHz)	806-896	880-960
Gain, ± 0.5 (dBi) / (dBd)	17.5/15.4	18/15.9
Polarization	Dual slant $\pm 45^\circ$	
Nominal Impedance (Ohm)	50	
VSWR	1.4:1	
Isolation between inputs, 824-960MHz (dB)	30	
Horizontal -3 dB beamwidth	$66 \pm 4^\circ$	$64 \pm 4^\circ$
Tracking, Horizontal plane, $\pm 60^\circ$ (dB)	< 1.0	
Electrical downtilt	6°	
Vertical -3 dB beamwidth	$7.3 \pm 0.4^\circ$	$7.0 \pm 0.4^\circ$
Sidelobe suppression, Vertical 1st upper (dB)	> 20 ,	> 20
Vertical beam squint	0.3°	
First null-fill (dB)	< -18	< -18
Front-to-back ratio (dB)	> 30	> 30
Front-to-back ratio, total power (dB)	> 25	> 25
Cross-polar discrimination (XPD) $\pm 60^\circ$ (dB)	> 12	> 12
IM3, @2x43dBm (dBc)	< -150	
Power Handling, Average per input (W)	400	300
Power Handling, Average total (W)	800	600

All specifications are subject to change without notice.
Contact factory for complete performance data.



Typical Horizontal and Vertical 7478.06 Patterns

Mechanical Specifications

Connector Type	2 x 7/16 DIN female
Connector Position	Bottom
Dimensions, HxWxD	2580x280x125mm (8'6"x11"x5")
Weight with Brackets	21 kg (46.3 lbs)
Wind Load, Frontal, 42 m/s Cd=1	796N (179 lbf)
Survival Wind Speed	70m/s (156 mph)
Lightning Protection	DC grounded
Radome Material	GRP
Radome Color	Light Gray
Mounting	Pre-mounted standard brackets
Packing Size	2725x355x255mm (8'11"x1'2"x10")

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Broadband Antenna

90° 1.3 m x-polarized MET Antenna

Part Number: 7481.00	Horizontal Beamwidth: 90° Gain: 13.5 dBi	Electrical Downtilt: Adjustable Connector Type: 7/16 DIN female
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806 – 960 MHz

The Powerwave broadband dual polarized antenna is designed with a slant $\pm 45^\circ$ configuration having equal signal strengths on both polarizations. The design ensures the highest possible diversity gain, isolation and cross polarization discrimination. Its slim design and sophisticated electrical performance, typical of Powerwave antennas, ensures maximum efficiency as well as stable pattern over the entire frequency range. This design relies on leading-edge patch technology fed via a micro strip PCB network. Special attention has been paid to ensure antenna pattern peak performance, making this an excellent choice for optimal cell planning. Choose the optional MET function that allows you to field-adjust the electrical tilt from 0° to the first null at horizon (16°) for optimum roll-off effect.



Key Benefits

- Excellent broad- and multi-band capabilities
- Polarization purity makes good diversity gain
- Excellent pattern performance and high gain over frequency
- High passive intermodulation performance
- Light, slim and robust design

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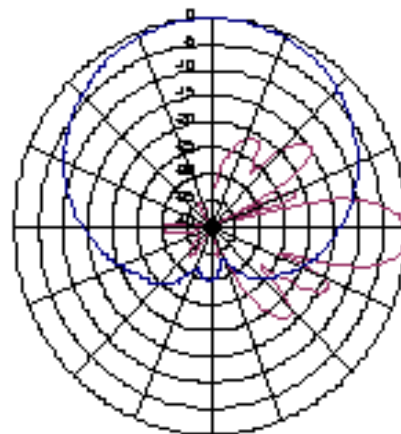
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Electrical Specifications

Frequency Range (MHz)	806 - 960
Polarization	Dual linear $\pm 45^\circ$
Gain (dBi)	13.5
Nominal Impedance (Ohm)	50
VSWR (824-960 MHz)	< 1.4:1
Isolation	> 30
Horizontal -3 dB beamwidth	90°
Vertical -3 dB beamwidth	15°
Electrical downtilt	2° to 12°
Front-to-back ratio, co-polar (dB)	>27
First upper sidelobe suppression (dB)	>18
Maximum input power (W)	600
IM, 3rd order, 2Tx@43dBm (dBc)	-150

All specifications are subject to change without notice.
Contact your Powerwave representative for complete performance data.



Typical Horizontal and Vertical 7481.00 Patterns

Mechanical Specifications

Connector Type	2 x 7/16 DIN female
Connector Position	Bottom
Dimensions, HxWxD	1300x280x125mm (4'3"x11"x5")
Weight with Brackets	14 kg (31 lbs)
Wind Load, Frontal, 42 m/s mph Cd=1	476 N (107 lbf)
Survival Wind Speed	70m/s (156 mph)
Lightning Protection	DC grounded
Radome Material	GRP
Radome Color	Light Gray
Mounting	Pre-mounted standard brackets
Packing Size	1490x355x200mm (4'11"x1'2"x8")
Shipping Weight	15 kg (33 lbs)

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Broadband Antenna

90° 2.0 m x-polarized MET Antenna

806 – 960 MHz

Part Number:
7482.00

Horizontal Beamwidth: 90°
Gain: 15dBi

Electrical Downtilt: Adjustable
Connector Type: 7/16 DIN female

The Powerwave broadband dual polarized antenna is designed with a slant $\pm 45^\circ$ configuration having equal signal strengths on both polarizations. The design ensures the highest possible diversity gain, isolation and cross polarization discrimination. Its slim design and sophisticated electrical performance, typical of Powerwave antennas, ensures maximum efficiency as well as stable pattern over the entire frequency range. This design relies on leading-edge patch technology fed via a micro strip PCB network. Special attention has been paid to ensure antenna pattern peak performance, making this an excellent choice for optimal cell planning. Choose the optional MET function that allows you to field-adjust the electrical tilt from 0° to the first null at horizon (10°) for optimum roll-off effect.



Key Benefits

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- Polarization purity makes good diversity gain
- Excellent pattern performance and high gain over frequency
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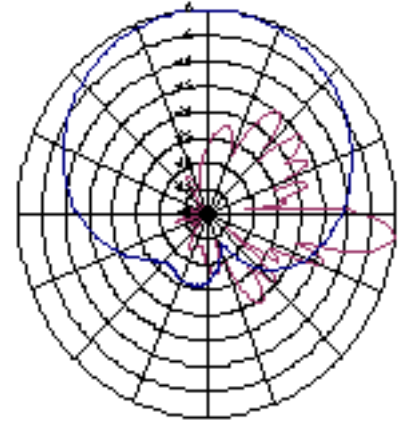
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Electrical Specifications (Preliminary)

Frequency Range (MHz)	806 - 960
Polarization	Dual linear $\pm 45^\circ$
Gain (dBi)	15
Nominal Impedence (Ohm)	50
VSWR (824-960 MHz)	< 1.4:1
Isolation	> 30
Horizontal -3 dB beamwidth	90°
Vertical -3 dB beamwidth	10°
Electrical downtilt	0° to 7.5°
Front-to-back ratio, co-polar (dB)	>27
First upper sidelobe suppression (dB)	>18
Maximum input power (W)	600
IM, 3rd order, 2Tx@43dBm (dBi)	-150

All specifications are subject to change without notice.
Contact factory for complete performance data.



Typical Horizontal and Vertical 7482.00 Patterns

Mechanical Specifications

Connector Type	2 x 7/16 DIN female
Connector Position	Bottom
Dimensions, HxWxD	2000x280x125mm (6'7"x11"x5")
Weight With Brackets	15 kg (33 lbs)
Wind Load, Frontal, 100 mph (44.7m/s) Cd=1	476 N (107 lbf)
Survival Wind Speed	70m/s (156 mph)
Lightning Protection	DC grounded
Radome Material	GRP
Radome Color	Light Gray
Packing Size	2225mmx355mmx255mm (7'4"x14"x10")
Shipping Weight	16 kg (35 lbs)

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Low Broadband Antenna

90° 2.6 m x-polarized MET Antenna

806-960 MHz

Part Number:
7483.00

Horizontal Beamwidth: 90°
Gain: 16.5dBi

Electrical Downtilt: Adjustable
Connector Type: 7/16 DIN female

The Powerwave broadband dual polarized antenna is designed with a slant $\pm 45^\circ$ configuration having equal signal strengths on both polarizations. The design ensures the highest possible diversity gain, isolation and cross polarization discrimination. Its slim design and sophisticated electrical performance, typical of Powerwave antennas, ensures maximum efficiency as well as stable pattern over the entire frequency range. This design relies on leading-edge patch technology fed via a micro strip PCB network. Special attention has been paid to ensure antenna pattern peak performance, making this an excellent choice for optimal cell planning. Choose the optional MET function that allows you to field-adjust the electrical tilt from 0° to the first null at horizon (7°) for optimum roll-off effect.



Key Benefits

- Excellent broad- and multi-band capabilities
- Polarization purity makes good diversity gain
- Excellent pattern performance and high gain over frequency
- High passive intermodulation performance
- Light, slim and robust design

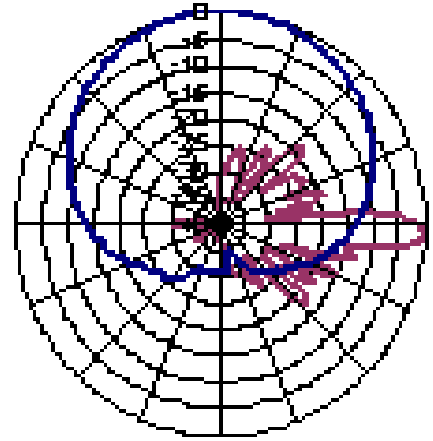
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Electrical Specifications

Frequency Range (MHz)	806 - 960
Polarization	Dual linear $\pm 45^\circ$
Gain (dBi)	16.5
Nominal Impedance (Ohm)	50
VSWR (824-960 MHz)	< 1.4:1
Isolation	> 30
Horizontal -3 dB beamwidth	90°
Vertical -3 dB beamwidth	7°
Electrical downtilt	0° to 5.5°
Front-to-back ratio, co-polar (dB)	>30
First upper sidelobe suppression (dB)	>18
Maximum input power (W)	600
IM, 3rd order, 2Tx@43dBm (dBc)	<-150



Typical Horizontal and Vertical 7483.00 Patterns

All specifications are subject to change without notice.
Contact your Powerwave representative for complete performance data.

Mechanical Specifications

Connector Type	2 x 7/16 DIN female
Connector Position	Bottom
Dimensions, HxWxD	2630x280x125mm (8'8"x11"x5")
Weight With Brackets	20.6 kg (45.3 lbs)
Wind Load, Frontal, 100 Mph(44,7m/s) Cd=1	476 N (107 lbf)
Survival Wind Speed	70m/s (156 mph)
Lightning Protection	DC grounded
Radome Material	GRP
Radome Color	Light Gray
Packing Size	2830x355x255mm (9'4"x1'2"x10")
Shipping Weight	21.6 kg (47.5 lbs)

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Low Broadband Antenna

90° 1.4 m x-polarized FET Antenna

Part Number:
7486.00

Horizontal Beamwidth: 90°
Gain: 13.5dBi / 11.4dBd

Electrical Downtilt: 0°
Connector Type: 7/16 DIN female

806-960 MHz

The Powerwave broadband dual polarized antenna is designed with a slant $\pm 45^\circ$ configuration having equal signal strengths on both polarizations. The design ensures the highest possible diversity gain, isolation and cross polarization discrimination. Its slim design and sophisticated electrical performance, typical of Powerwave antennas, ensures maximum efficiency as well as stable pattern over the entire frequency range. This design relies on leading-edge patch technology fed via a micro strip PCB network. Special attention has been paid to ensure antenna pattern peak performance, making this an excellent choice for optimal cell planning.



Key Benefits

- Excellent broad- and multi-band capabilities
- Polarization purity maximizes diversity gain
- Excellent pattern performance and high gain over frequency
- Guaranteed passive intermodulation performance
- Light, slim and robust design

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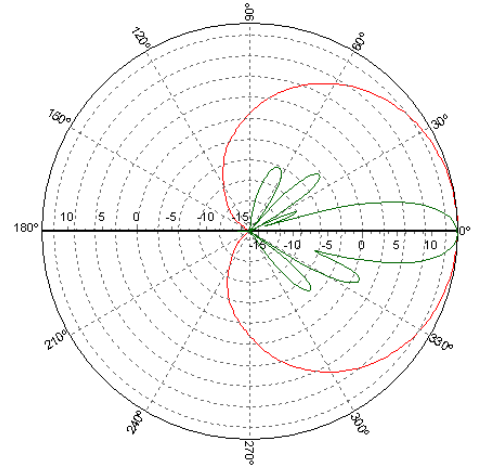
Low Broadband Antenna

806-960 MHz

Electrical Specifications

Frequency Range (MHz)	806 - 960
Polarization	Dual slant $\pm 45^\circ$
Gain (dBi) / (dBd)	13.5 / 11.4
Nominal Impedance (Ohm)	50
VSWR (824-960 MHz)	< 1.4:1
Isolation	> 30
Horizontal -3 dB beamwidth	90°
Vertical -3 dB beamwidth	16°
Electrical downtilt	0°
Front-to-back ratio, co-polar (dB)	>30
First upper sidelobe suppression (dB)	>20
Maximum input power (W)	600
IM, 3rd order, @2x43dBm (dBc)	<-150

All specifications are subject to change without notice.
Contact your Powerwave representative for complete performance data.



Typical Horizontal and Vertical 7486.00 Patterns

Mechanical Specifications

Connector Type	2 x 7/16 DIN female
Connector Position	Bottom
Dimensions, HxWxD	1330x280x125mm (8'8"x11"x5")
Weight Brackets	14 kg
Wind Load, Frontal, 42m/s Cd=1	411 N (92 lbf)
Survival Wind Speed	70m/s (156 mph)
Lightning Protection	DC grounded
Radome Material	GRP
Radome Color	Light Gray
Packing Size	1530x355x255mm (9'4"x1'2"x10")
Shipping Weight	15 kg

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Low Broadband Antenna

90° 1.4 m x-polarized FET Antenna

Part Number: 7486.02	Horizontal Beamwidth: 90° Gain: 13.5dBi / 11.4dBd	Electrical Downtilt: 2° Connector Type: 7/16 DIN female
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806-960 MHz

The Powerwave broadband dual polarized antenna is designed with a slant $\pm 45^\circ$ configuration having equal signal strengths on both polarizations. The design ensures the highest possible diversity gain, isolation and cross polarization discrimination. Its slim design and sophisticated electrical performance, typical of Powerwave antennas, ensures maximum efficiency as well as stable pattern over the entire frequency range. This design relies on leading-edge patch technology fed via a micro strip PCB network. Special attention has been paid to ensure antenna pattern peak performance, making this an excellent choice for optimal cell planning.



Key Benefits

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- Polarization purity maximizes diversity gain
- Excellent pattern performance and high gain over frequency
- Guaranteed passive intermodulation performance
- Light, slim and robust design

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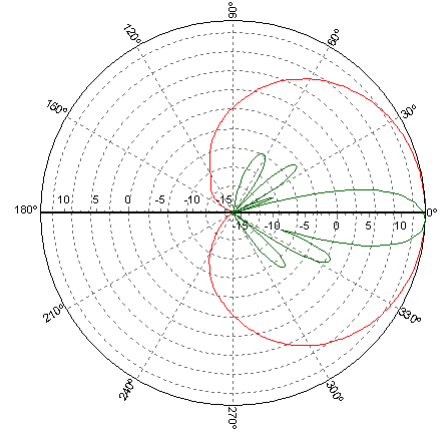
806-960 MHz

Low Broadband Antenna

Electrical Specifications

Frequency Range (MHz)	806 - 960
Polarization	Dual slant $\pm 45^\circ$
Gain (dBi) / (dBd)	13.5 / 11.4
Nominal Impedance (Ohm)	50
VSWR (824-960 MHz)	< 1.4:1
Isolation	> 30
Horizontal -3 dB beamwidth	90°
Vertical -3 dB beamwidth	15°
Electrical downtilt	2°
Front-to-back ratio, co-polar (dB)	>30
First upper sidelobe suppression (dB)	>20
Maximum input power (W)	600
IM, 3rd order, @2x43dBm (dBc)	<-150

All specifications are subject to change without notice.
Contact your Powerwave representative for complete performance data.



Typical Horizontal and Vertical 7486.02 Patterns

Mechanical Specifications

Connector Type	2 x 7/16 DIN female
Connector Position	Bottom
Dimensions, HxWxD	1330x280x125mm (8'8"x11"x5")
Weight Brackets	14 kg
Wind Load, Frontal, 42m/s Cd=1	411 N (92 lbf)
Survival Wind Speed	70m/s (156 mph)
Lightning Protection	DC grounded
Radome Material	GRP
Radome Color	Light Gray
Packing Size	1530x355x255mm (9'4"x1'2"x10")
Shipping Weight	15 kg

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QUALITY AND RELIABILITY

Low Broadband Antenna

90° 1.4 m x-polarized FET Antenna

Part Number: 7486.06	Horizontal Beamwidth: 90° Gain: 13.5dBi / 11.4dBd	Electrical Downtilt: 6° Connector Type: 7/16 DIN female
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806-960 MHz

The Powerwave broadband dual polarized antenna is designed with a slant $\pm 45^\circ$ configuration having equal signal strengths on both polarizations. The design ensures the highest possible diversity gain, isolation and cross polarization discrimination. Its slim design and sophisticated electrical performance, typical of Powerwave antennas, ensures maximum efficiency as well as stable pattern over the entire frequency range. This design relies on leading-edge patch technology fed via a micro strip PCB network. Special attention has been paid to ensure antenna pattern peak performance, making this an excellent choice for optimal cell planning.



Key Benefits

- Excellent broad- and multi-band capabilities
- Polarization purity maximizes diversity gain
- Excellent pattern performance and high gain over frequency
- Guaranteed passive intermodulation performance
- Light, slim and robust design

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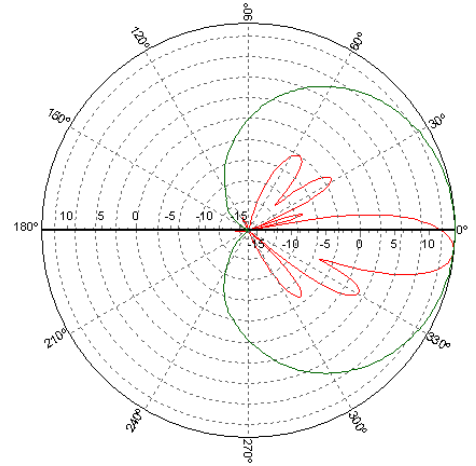
806-960 MHz

Low Broadband Antenna

Electrical Specifications

Frequency Range (MHz)	806 - 960
Polarization	Dual slant $\pm 45^\circ$
Gain (dBi) / (dBd)	13.5 / 11.4
Nominal Impedance (Ohm)	50
VSWR (824-960 MHz)	< 1.4:1
Isolation	> 30
Horizontal -3 dB beamwidth	90°
Vertical -3 dB beamwidth	16°
Electrical downtilt	6°
Front-to-back ratio, co-polar (dB)	>30
First upper sidelobe suppression (dB)	>20
Maximum input power (W)	600
IM, 3rd order, @2x43dBm (dBc)	<-150

All specifications are subject to change without notice.
Contact your Powerwave representative for complete performance data.



Typical Horizontal and Vertical 7487.06 Patterns

Mechanical Specifications

Connector Type	2 x 7/16 DIN female
Connector Position	Bottom
Dimensions, HxWxD	1330x280x125mm (8'8"x11"x5")
Weight Brackets	14 kg
Wind Load, Frontal, 42m/s Cd=1	411 N (92 lbf)
Survival Wind Speed	70m/s (156 mph)
Lightning Protection	DC grounded
Radome Material	GRP
Radome Color	Light Gray
Packing Size	1530x355x255mm (9'4"x1'2"x10")
Shipping Weight	15 kg

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Low Broadband Antenna

90° 2.0 m x-polarized FET Antenna

Part Number:
7487.00

Horizontal Beamwidth: 90°
Gain: 15dBi / 12.9dBd

Electrical Downtilt: 0°
Connector Type: 7/16 DIN female

806-960 MHz

The Powerwave broadband dual polarized antenna is designed with a slant $\pm 45^\circ$ configuration having equal signal strengths on both polarizations. The design ensures the highest possible diversity gain, isolation and cross polarization discrimination. Its slim design and sophisticated electrical performance, typical of Powerwave antennas, ensures maximum efficiency as well as stable pattern over the entire frequency range. This design relies on leading-edge patch technology fed via a micro strip PCB network. Special attention has been paid to ensure antenna pattern peak performance, making this an excellent choice for optimal cell planning.



Key Benefits

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- Polarization purity maximizes diversity gain
- Excellent pattern performance and high gain over frequency
- Guaranteed passive intermodulation performance
- Light, slim and robust design

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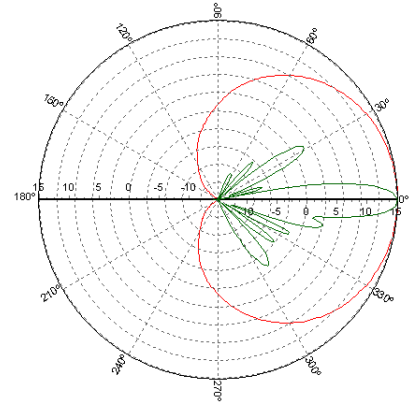
806-960 MHz

Low Broadband Antenna

Electrical Specifications

Frequency Range (MHz)	806 - 960
Polarization	Dual slant $\pm 45^\circ$
Gain (dBi) / (dBd)	15 / 12.9
Nominal Impedance (Ohm)	50
VSWR (824-960 MHz)	< 1.4:1
Isolation	> 30
Horizontal -3 dB beamwidth	90°
Vertical -3 dB beamwidth	10°
Electrical downtilt	0°
Front-to-back ratio, co-polar (dB)	>30
First upper sidelobe suppression (dB)	>21
Maximum input power (W)	600
IM, 3rd order, @2x43dBm (dBc)	<-150

All specifications are subject to change without notice.
Contact your Powerwave representative for complete performance data.



Typical Horizontal and Vertical 7487.00 Patterns

Mechanical Specifications

Connector Type	2 x 7/16 DIN female
Connector Position	Bottom
Dimensions, HxWxD	2080x280x125mm (8'8"x11"x5")
Weight Brackets	16 kg
Wind Load, Frontal, 42m/s Cd=1	642 N (144 lbf)
Survival Wind Speed	70m/s (156 mph)
Lightning Protection	DC grounded
Radome Material	GRP
Radome Color	Light Gray
Packing Size	2280x355x255mm (9'4"x1'2"x10")
Shipping Weight	17 kg

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Low Broadband Antenna

90° 2.0 m x-polarized FET Antenna

Part Number:
7487.02

Horizontal Beamwidth: 90°
Gain: 15dBi / 12.9dBd

Electrical Downtilt: 2°
Connector Type: 7/16 DIN female

806-960 MHz

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Key Benefits

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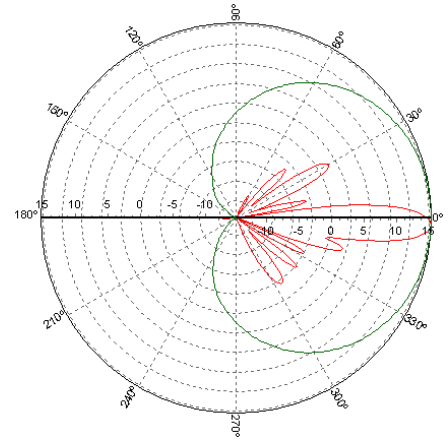
806-960 MHz

Low Broadband Antenna

Electrical Specifications

Frequency Range (MHz)	806 - 960
Polarization	Dual slant $\pm 45^\circ$
Gain (dBi) / (dBd)	15 / 12.9
Nominal Impedance (Ohm)	50
VSWR (824-960 MHz)	< 1.4:1
Isolation	> 30
Horizontal -3 dB beamwidth	90°
Vertical -3 dB beamwidth	10°
Electrical downtilt	2°
Front-to-back ratio, co-polar (dB)	>30
First upper sidelobe suppression (dB)	>21
Maximum input power (W)	600
IM, 3rd order, @2x43dBm (dBc)	<-150

All specifications are subject to change without notice.
Contact your Powerwave representative for complete performance data.



Typical Horizontal and Vertical 7487.02 Patterns

Mechanical Specifications

Connector Type	2 x 7/16 DIN female
Connector Position	Bottom
Dimensions, HxWxD	2080x280x125mm (8'8"x11"x5")
Weight Brackets	16 kg
Wind Load, Frontal, 42m/s Cd=1	642 N (144 lbf)
Survival Wind Speed	70m/s (156 mph)
Lightning Protection	DC grounded
Radome Material	GRP
Radome Color	Light Gray
Packing Size	2280x355x255mm (9'4"x1'2"x10")
Shipping Weight	17 kg

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Low Broadband Antenna

90° 2.0 m x-polarized FET Antenna

Part Number:
7487.06

Horizontal Beamwidth: 90°
Gain: 15dBi / 12.9dBd

Electrical Downtilt: 6°
Connector Type: 7/16 DIN female

806-960 MHz

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Key Benefits

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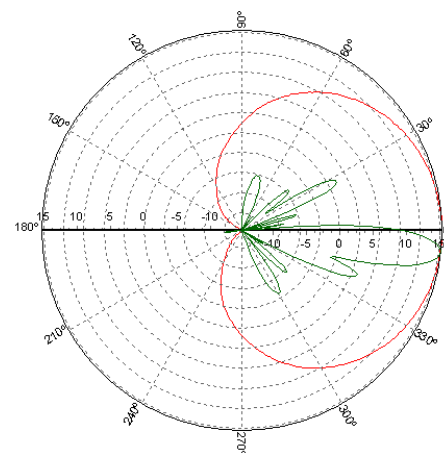
Low Broadband Antenna

806-960 MHz

Electrical Specifications

Frequency Range (MHz)	806 - 960
Polarization	Dual slant $\pm 45^\circ$
Gain (dBi) / (dBd)	15 / 12.9
Nominal Impedance (Ohm)	50
VSWR (824-960 MHz)	< 1.4:1
Isolation	> 30
Horizontal -3 dB beamwidth	90°
Vertical -3 dB beamwidth	10°
Electrical downtilt	6°
Front-to-back ratio, co-polar (dB)	>30
First upper sidelobe suppression (dB)	>21
Maximum input power (W)	600
IM, 3rd order, @2x43dBm (dBc)	<-150

All specifications are subject to change without notice.
Contact your Powerwave representative for complete performance data.



Typical Horizontal and Vertical 7487.06 Patterns

Mechanical Specifications

Connector Type	2 x 7/16 DIN female
Connector Position	Bottom
Dimensions, HxWxD	2080x280x125mm (8'8"x11"x5")
Weight Brackets	16 kg
Wind Load, Frontal, 42m/s Cd=1	642 N (144 lbf)
Survival Wind Speed	70m/s (156 mph)
Lightning Protection	DC grounded
Radome Material	GRP
Radome Color	Light Gray
Packing Size	2280x355x255mm (9'4"x1'2"x10")
Shipping Weight	17 kg

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Low Broadband Antenna

90° 2.6 m x-polarized FET Antenna

Part Number:
7488.00

Horizontal Beamwidth: 90°
Gain: 16.5dBi / 14.4dBd

Electrical Downtilt: 0°
Connector Type: 7/16 DIN female

806-960 MHz

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Key Benefits

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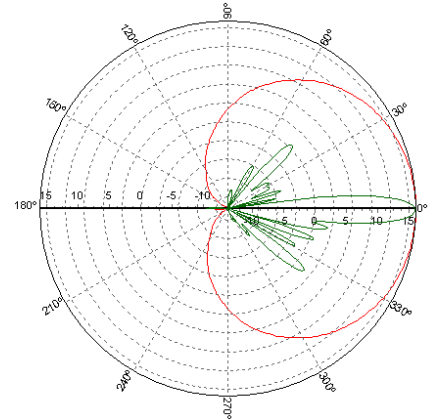
806-960 MHz

Low Broadband Antenna

Electrical Specifications

Frequency Range (MHz)	806 - 960
Polarization	Dual slant $\pm 45^\circ$
Gain (dBi) / (dBd)	16.5 / 14.4
Nominal Impedance (Ohm)	50
VSWR (824-960 MHz)	< 1.4:1
Isolation	> 30
Horizontal -3 dB beamwidth	90°
Vertical -3 dB beamwidth	8°
Electrical downtilt	0°
Front-to-back ratio, co-polar (dB)	>30
First upper sidelobe suppression (dB)	>20
Maximum input power (W)	600
IM, 3rd order, @2x43dBm (dBc)	<-150

All specifications are subject to change without notice.
Contact your Powerwave representative for complete performance data.



Typical Horizontal and Vertical 7488.00 Patterns

Mechanical Specifications

Connector Type	2 x 7/16 DIN female
Connector Position	Bottom
Dimensions, HxWxD	2600x280x125mm (8'8"x11"x5")
Weight Brackets	19 kg
Wind Load, Frontal, 42m/s Cd=1	636 N (143 lbf)
Survival Wind Speed	70m/s (156 mph)
Lightning Protection	DC grounded
Radome Material	GRP
Radome Color	Light Gray
Packing Size	2800x355x255mm (9'4"x1'2"x10")
Shipping Weight	20 kg

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QUALITY AND RELIABILITY

Low Broadband Antenna

90° 2.6 m x-polarized FET Antenna

Part Number:
7488.02

Horizontal Beamwidth: 90°
Gain: 16.5dBi / 14.4dBd

Electrical Downtilt: 2°
Connector Type: 7/16 DIN female

806-960 MHz

The Powerwave broadband dual polarized antenna is designed with a slant $\pm 45^\circ$ configuration having equal signal strengths on both polarizations. The design ensures the highest possible diversity gain, isolation and cross polarization discrimination. Its slim design and sophisticated electrical performance, typical of Powerwave antennas, ensures maximum efficiency as well as stable pattern over the entire frequency range. This design relies on leading-edge patch technology fed via a micro strip PCB network. Special attention has been paid to ensure antenna pattern peak performance, making this an excellent choice for optimal cell planning.



Key Benefits

- Excellent broad- and multi-band capabilities
- Polarization purity maximizes diversity gain
- Excellent pattern performance and high gain over frequency
- Guaranteed passive intermodulation performance
- Light, slim and robust design

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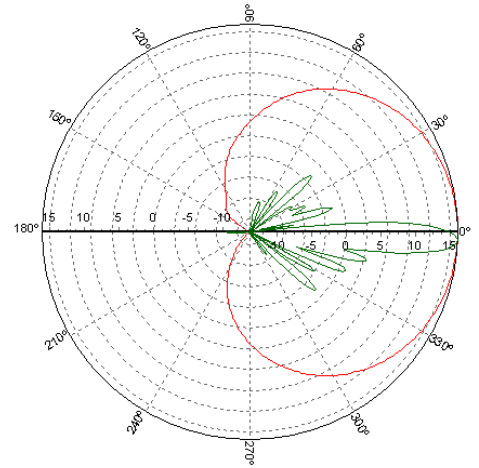
806-960 MHz

Low Broadband Antenna

Electrical Specifications

Frequency Range (MHz)	806 - 960
Polarization	Dual slant $\pm 45^\circ$
Gain (dBi) / (dBd)	16.5 / 14.4
Nominal Impedance (Ohm)	50
VSWR (824-960 MHz)	< 1.4:1
Isolation	> 30
Horizontal -3 dB beamwidth	90°
Vertical -3 dB beamwidth	8°
Electrical downtilt	2°
Front-to-back ratio, co-polar (dB)	>30
First upper sidelobe suppression (dB)	>20
Maximum input power (W)	600
IM, 3rd order, @2x43dBm (dBc)	<-150

All specifications are subject to change without notice.
Contact your Powerwave representative for complete performance data.



Typical Horizontal and Vertical 7488.02 Patterns

Mechanical Specifications

Connector Type	2 x 7/16 DIN female
Connector Position	Bottom
Dimensions, HxWxD	2600x280x125mm (8'8"x11"x5")
Weight Brackets	19 kg
Wind Load, Frontal, 42m/s Cd=1	636 N (143 lbf)
Survival Wind Speed	70m/s (156 mph)
Lightning Protection	DC grounded
Radome Material	GRP
Radome Color	Light Gray
Packing Size	2800x355x255mm (9'4"x1'2"x10")
Shipping Weight	20 kg

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Low Broadband Antenna

90° 2.6 m x-polarized FET Antenna

Part Number: 7488.06	Horizontal Beamwidth: 90° Gain: 16.5dBi / 14.4dBd	Electrical Downtilt: 6° Connector Type: 7/16 DIN female
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806-960 MHz

The Powerwave broadband dual polarized antenna is designed with a slant $\pm 45^\circ$ configuration having equal signal strengths on both polarizations. The design ensures the highest possible diversity gain, isolation and cross polarization discrimination. Its slim design and sophisticated electrical performance, typical of Powerwave antennas, ensures maximum efficiency as well as stable pattern over the entire frequency range. This design relies on leading-edge patch technology fed via a micro strip PCB network. Special attention has been paid to ensure antenna pattern peak performance, making this an excellent choice for optimal cell planning.



Key Benefits

- Excellent broad- and multi-band capabilities
- Polarization purity maximizes diversity gain
- Excellent pattern performance and high gain over frequency
- Guaranteed passive intermodulation performance
- Light, slim and robust design

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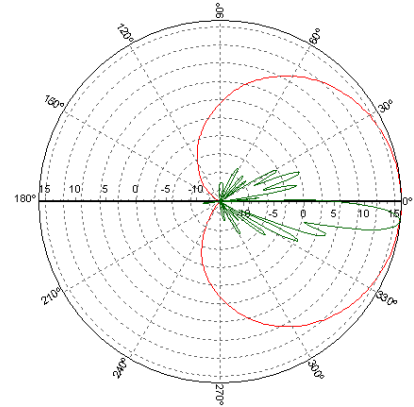
Low Broadband Antenna

806-960 MHz

Electrical Specifications

Frequency Range (MHz)	806 - 960
Polarization	Dual slant $\pm 45^\circ$
Gain (dBi) / (dBd)	16.5 / 14.4
Nominal Impedance (Ohm)	50
VSWR (824-960 MHz)	< 1.4:1
Isolation	> 30
Horizontal -3 dB beamwidth	90°
Vertical -3 dB beamwidth	7°
Electrical downtilt	6°
Front-to-back ratio, co-polar (dB)	>30
First upper sidelobe suppression (dB)	>20
Maximum input power (W)	600
IM, 3rd order, @2x43dBm (dBc)	<-150

All specifications are subject to change without notice.
Contact your Powerwave representative for complete performance data.



Typical Horizontal and Vertical 7488.06 Patterns

Mechanical Specifications

Connector Type	2 x 7/16 DIN female
Connector Position	Bottom
Dimensions, HxWxD	2600x280x125mm (8'8"x11"x5")
Weight Brackets	19 kg
Wind Load, Frontal, 42m/s Cd=1	636 N (143 lbf)
Survival Wind Speed	70m/s (156 mph)
Lightning Protection	DC grounded
Radome Material	GRP
Radome Color	Light Gray
Packing Size	2800x355x255mm (9'4"x1'2"x10")
Shipping Weight	20 kg

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COVERAGE AND CAPACITY

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QUALITY AND RELIABILITY

Single Band X-Urban Antenna

65° 0.7 m X-polarized FET Antenna

Part Number: 7216.03	Horizontal Beamwidth: 65° Gain: 12.5 dBi / 10.4 dBd	Electrical Downtilt: 0° Connector Type: 7/16 DIN female
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880-960 MHz

The Powerwave® X-Urban Single Band Antenna shares its characteristically slim design with the Urban antenna. Its outstanding performance in the field derives from excellent VSWR (Voltage Standing Wave Ratio), isolation beam squint and tracking. This design ensures minimized intermodulation products, thus substantially enhancing system benefits.

The Powerwave® polarization diversity systems use one antenna with two orthogonal polarizations slanted at $\pm 45^\circ$ to provide the independently fading signals needed for achieving top-quality coverage. As a result of thorough, in-depth research and testing, Powerwave® has produced a variety of designs that ensure the isolation, cross polarization discrimination and orthogonality between inputs needed to achieve the highest possible diversity gain, hence the most efficient system performance.



Key Benefits

- High gain performance
- Light and slim design
- Robust and reliable
- Pre-mounted brackets
- Guaranteed passive intermodulation performance

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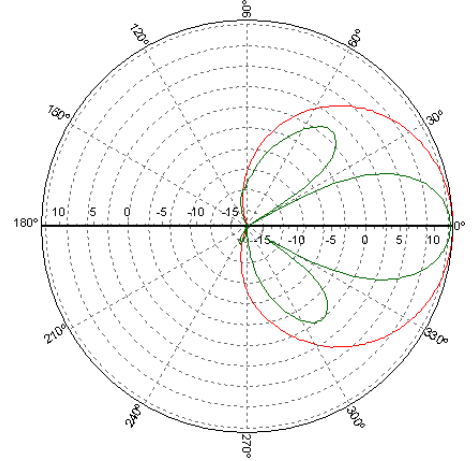
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Single Band X-Urban Antenna

Electrical Specifications

Frequency Band (MHz)	880 – 960
Gain (dBi / dBd)	12.5 / 10.4
Polarization	Linear slanted
Nominal Impedance (Ohm)	50°
VSWR	< 1.3:1
Isolation between inputs (dB)	> 30
Horizontal –3 dB beamwidth	65°
Tracking, Horizontal plane (dB)	< 1
Electrical downtilt	0°
Vertical –3 dB beamwidth	26 °
First upper sidelobe suppression (dB)	> 10
Vertical beam squint	< 0.3°
Front-to-back ratio, co-polar (dB)	>24
Front-to-back ratio, total power (dB)	>20
Cross-polar discrimination (dB)	>20
Maximum input power (W)	250
IM3, @2x43dBm (dBc)	<-150



Typical Horizontal and Vertical 7216.03 Patterns

All specifications are subject to change without notice.
Contact your Powerwave representative for complete performance data.

Mechanical Specifications

Connector Type	7/16 DIN female
Connector Position	Bottom
Dimensions, HxWxD	660x256x50mm (2'2"x10"x2")
Weight Including Bracket	4 kg (8.8 lbs)
Wind Load, Frontal, 42 m/s, Cd=1	190N (57 lbf)
Survival Wind Speed	55m/s (123 mph)
Lightning Protection	DC grounded
Radome Material	PVC
Radome Color	Light gray
Packing Size	770x308x121mm (2'6"x1"x5")
Shipping Weight	5.5kg (12 lbs)

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Single Band X-Urban Antenna

65° 1.3 m X-polarized FET Antenna

Part Number: 7217.03	Horizontal Beamwidth: 65° Gain: 15.0 dBi / 12.9 dBd	Electrical Downtilt: 7° Connector Type: 7/16 DIN female
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880-960 MHz

The Powerwave® X-Urban Single Band Antenna shares its characteristically slim design with the Urban antenna. Its outstanding performance in the field derives from excellent VSWR (Voltage Standing Wave Ratio), isolation beam squint and tracking. This design ensures minimized intermodulation products, thus substantially enhancing system benefits.

The Powerwave® polarization diversity systems use one antenna with two orthogonal polarizations slanted at $\pm 45^\circ$ to provide the independently fading signals needed for achieving top-quality coverage. As a result of thorough, in-depth research and testing, Powerwave® has produced a variety of designs that ensure the isolation, cross polarization discrimination and orthogonality between inputs needed to achieve the highest possible diversity gain, hence the most efficient system performance.



Key Benefits

- Dual Polarization
- Market Leading Performance
- Light and slim design
- Robust and reliable
- Guaranteed passive intermodulation performance

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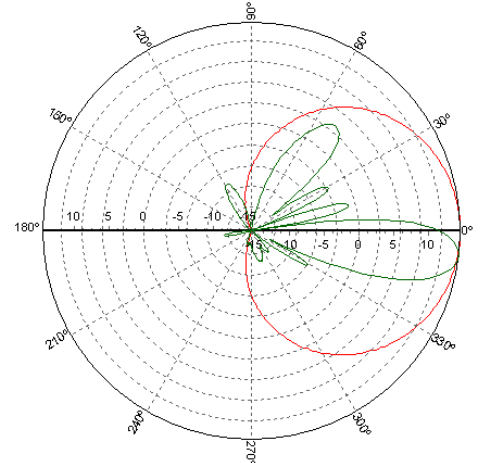
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Single Band X-Urban Antenna

880-960 MHz

Electrical Specifications

Frequency Band (MHz)	880 – 960
Gain (dBi / dBd)	15.0 / 12.9
Polarization	Linear slanted $\pm 45^\circ$
Nominal Impedance (Ohm)	50
VSWR	< 1.3:1
Isolation between inputs (dB)	> 30
Horizontal -3 dB beamwidth	65°
Tracking, Horizontal plane (dB)	< 1
Electrical downtilt	7°
Vertical -3 dB beamwidth	13°
First upper sidelobe suppression (dB)	> 14
Vertical beam squint	< 0.3°
Front-to-back ratio, co-polar (dB)	>24
Front-to-back ratio, total power (dB)	>20
Cross-polar discrimination (dB)	>19
Maximum input power (W)	500
IM3, @2x43dBm (dBc)	<-150



Typical Horizontal and Vertical 7217.03 Patterns

All specifications are subject to change without notice.
Contact your Powerwave representative for complete performance data.

Mechanical Specifications

Connector Type	7/16 DIN female
Connector Position	Bottom
Dimensions, HxWxD	1320x256x50mm (4'4"x10"x2")
Weight Including Bracket	8.5kg (18.7 lbs)
Wind Load, Frontal, 42 m/s, Cd=1	1320 N (256 lbf)
Survival Wind Speed	55 m/s (123 mph)
Lightning Protection	DC grounded
Radome Material	PVC
Radome Color	Light gray
Packing Size	1430x308x121mm (4'8"x1'x5")
Shipping Weight	10kg (22 lbs)

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Single Band X-Urban Antenna

65° 1.3 m X-polarized FET Antenna

Part Number: 7217.04	Horizontal Beamwidth: 65° Gain: 15.5 dBi / 13.4 dBd	Electrical Downtilt: 0° Connector Type: 7/16 DIN female
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880-960 MHz

The Powerwave® X-Urban Single Band Antenna shares its characteristically slim design with the Urban antenna. Its outstanding performance in the field derives from excellent VSWR (Voltage Standing Wave Ratio), isolation beam squint and tracking. This design ensures minimized intermodulation products, thus substantially enhancing system benefits.

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Key Benefits

- Dual Polarization
- Market Leading Performance
- Light and slim design
- Robust and reliable
- Guaranteed passive intermodulation performance

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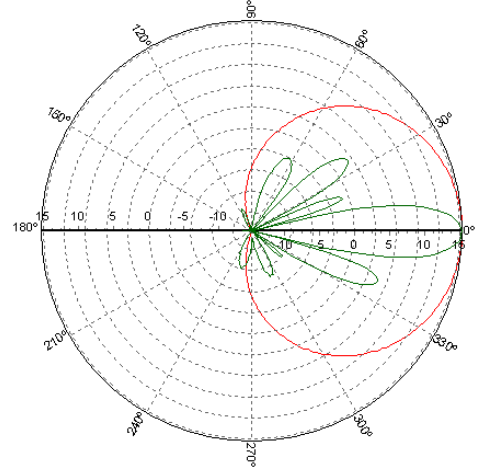
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880-960 MHz

Single Band X-Urban Antenna

Electrical Specifications

Frequency Band (MHz)	880 – 960
Gain (dBi / dBd)	15.5 / 13.4
Polarization	Linear slanted $\pm 45^\circ$
Nominal Impedance (Ohm)	50
VSWR	< 1.3:1
Isolation between inputs (dB)	> 30
Horizontal -3 dB beamwidth	65°
Tracking, Horizontal plane (dB)	< 1
Electrical downtilt	0°
Vertical -3 dB beamwidth	13°
First upper sidelobe suppression (dB)	> 14
Vertical beam squint	< 0.3°
Front-to-back ratio, co-polar (dB)	>24
Front-to-back ratio, total power (dB)	>20
Cross-polar discrimination (dB)	>19
Maximum input power (W)	500
IM3, @2x43dBm (dBc)	<-150



Typical Horizontal and Vertical 7217.04 Patterns

All specifications are subject to change without notice.
Contact your Powerwave representative for complete performance data.

Mechanical Specifications

Connector Type	7/16 DIN female
Connector Position	Bottom
Dimensions, HxWxD	1320x256x50mm (4'4"x10"x2")
Weight Including Bracket	8.5kg (18.7 lbs)
Wind Load, Frontal, 42 m/s, Cd=1	1320 N (256 lbf)
Survival Wind Speed	55 m/s (123 mph)
Lightning Protection	DC grounded
Radome Material	PVC
Radome Color	Light gray
Packing Size	1430x308x121mm (4'8"x1'x5")
Shipping Weight	10kg (22 lbs)

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D031-08071 Rev A

Single Band X-Urban Antenna

65° 1.3 m X-polarized FET Antenna

Part Number: 7217.01, 7217.11 | Horizontal Beamwidth: 65° | Electrical Downtilt: 9°
Gain: 14.5 dBi / 12.4 dBd | Connector Type: 7/16 DIN female

880-960 MHz

The Powerwave® X-Urban Single Band Antenna shares its characteristically slim design with the Urban antenna. Its outstanding performance in the field derives from excellent VSWR (Voltage Standing Wave Ratio), isolation beam squint and tracking. This design ensures minimized intermodulation products, thus substantially enhancing system benefits.

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Key Benefits

- Dual Polarization
- Market Leading Performance
- Light and slim design
- Robust and reliable
- Guaranteed passive intermodulation performance

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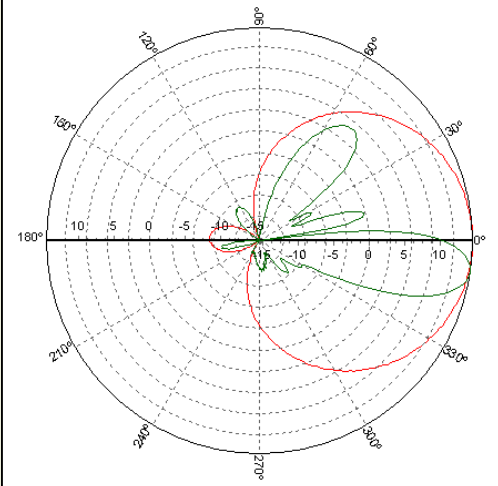
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880-960 MHz

Single Band X-Urban Antenna

Electrical Specifications

Frequency Band (MHz)	880 – 960
Gain (dBi / dBd)	14.5 / 12.4
Polarization	Linear slanted $\pm 45^\circ$
Nominal Impedance (Ohm)	50
VSWR	< 1.3:1
Isolation between inputs (dB)	> 30
Horizontal -3 dB beamwidth	65°
Tracking, Horizontal plane (dB)	< 1
Electrical downtilt	9°
Vertical -3 dB beamwidth	13°
First upper sidelobe suppression (dB)	> 14
Vertical beam squint	< 0.3°
Front-to-back ratio, co-polar (dB)	>23
Front-to-back ratio, total power (dB)	>19
Cross-polar discrimination (dB)	>19
Maximum input power (W)	500
IM3, @2x43dBm (dBC)	<-150



Typical Horizontal and Vertical 7217.11 Patterns

All specifications are subject to change without notice.
Contact your Powerwave representative for complete performance data.

Mechanical Specifications

Connector Type	7/16 DIN female
Connector Position	Bottom
Dimensions, HxWxD	1320x256x50mm (4'4"x10"x2")
Weight Including Bracket	8.5kg (18.7 lbs)
Wind Load, Frontal, 42 m/s, Cd=1	1320 N (256 lbf)
Survival Wind Speed	55 m/s (123 mph)
Lightning Protection	DC grounded
Radome Material	PVC
Radome Color	Light gray
Packing Size	1430x308x121mm (4'8"x1'x5")
Shipping Weight	10kg (22 lbs)

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D031-08072 Rev A

Single Band X-Urban Antenna

65° 2.6 m X-polarized FET Antenna

Part Number: 7218.03, 7218.13 | Horizontal Beamwidth: 65° | Electrical Downtilt: 6°
Gain: 17.5 dBi / 15.4 dBd | Connector Type: 7/16 DIN female

880-960 MHz

The Powerwave® X-Urban Single Band Antenna shares its characteristically slim design with the Urban antenna. Its outstanding performance in the field derives from excellent VSWR (Voltage Standing Wave Ratio), isolation beam squint and tracking. This design ensures minimized intermodulation products, thus substantially enhancing system benefits.

The Powerwave® polarization diversity systems use one antenna with two orthogonal polarizations slanted at $\pm 45^\circ$ to provide the independently fading signals needed for achieving top-quality coverage. As a result of thorough, in-depth research and testing, Powerwave® has produced a variety of designs that ensure the isolation, cross polarization discrimination and orthogonality between inputs needed to achieve the highest possible diversity gain, hence the most efficient system performance.



Key Benefits

- Dual Polarization
- Market Leading Performance
- Light and slim design
- Robust and reliable
- Guaranteed passive intermodulation performance

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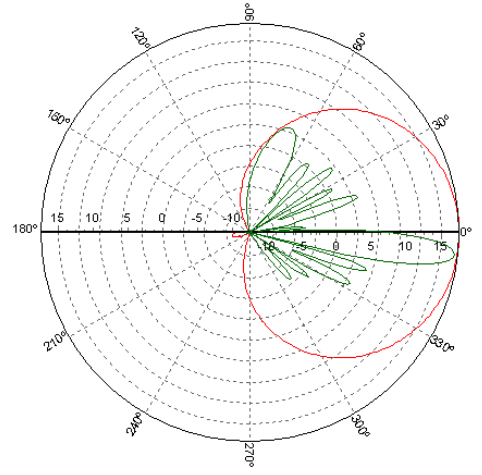
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880-960 MHz

Single Band X-Urban Antenna

Electrical Specifications

Frequency Band (MHz)	880 – 960
Gain (dBi / dBd)	17.5 / 15.4
Polarization	Linear slanted $\pm 45^\circ$
Nominal Impedance (Ohm)	50
VSWR	< 1.3:1
Isolation between inputs (dB)	> 30
Horizontal -3 dB beamwidth	65°
Tracking, Horizontal plane (dB)	< 1
Electrical downtilt	6°
Vertical -3 dB beamwidth	6.5°
First upper sidelobe suppression (dB)	>18
Vertical beam squint	<0.5°
Front-to-back ratio, co-polar (dB)	>24
Front-to-back ratio, total power (dB)	>20
Cross-polar discrimination (dB)	>18
Maximum input power (W)	500
IM3, @2x43dBm (dBc)	<-150



Typical Horizontal and Vertical 7218.13 Patterns

All specifications are subject to change without notice.
Contact your Powerwave representative for complete performance data.

Mechanical Specifications

Connector Type	7/16 DIN female
Connector Position	Bottom
Dimensions, HxWxD	2580x256x50mm (8'6"x10"x2")
Weight Including Bracket	14kg (31 lbs)
Wind Load, Frontal, 42 m/s, Cd=1	728 m/s (164 lbf)
Survival Wind Speed	55 m/s (123 mph)
Lightning Protection	DC grounded
Radome Material	PVC
Radome Color	Light gray
Packing Size	2690x308x121mm (8'10"x1'x5")
Shipping Weight	18kg (39.7 lbs)

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D031-08077 Rev A

Single Band X-Urban Antenna

65° 2.6 m X-polarized FET Antenna

Part Number: 7218.04, 7218.14 | Horizontal Beamwidth: 65° | Electrical Downtilt: 4°
Gain: 17.5 dBi / 15.4 dBd | Connector Type: 7/16 DIN female

880-960 MHz

The Powerwave® X-Urban Single Band Antenna shares its characteristically slim design with the Urban antenna. Its outstanding performance in the field derives from excellent VSWR (Voltage Standing Wave Ratio), isolation beam squint and tracking. This design ensures minimized intermodulation products, thus substantially enhancing system benefits.

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Key Benefits

- Dual Polarization
- Market Leading Performance
- Light and slim design
- Robust and reliable
- Guaranteed passive intermodulation performance

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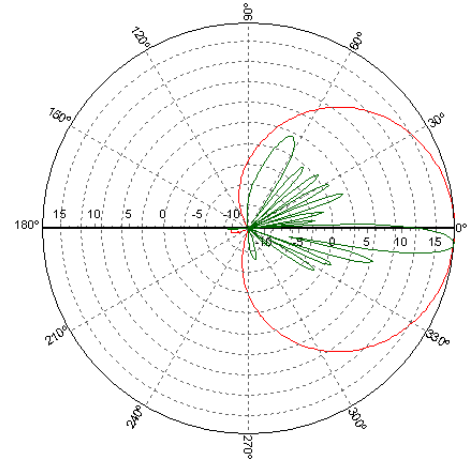
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Single Band X-Urban Antenna

880-960 MHz

Electrical Specifications

Frequency Band (MHz)	880 – 960
Gain (dBi / dBd)	17.5 / 15.4
Polarization	Linear slanted $\pm 45^\circ$
Nominal Impedance (Ohm)	50
VSWR	< 1.3:1
Isolation between inputs (dB)	> 30
Horizontal -3 dB beamwidth	65°
Tracking, Horizontal plane (dB)	< 1
Electrical downtilt	4°
Vertical -3 dB beamwidth	6.5°
First upper sidelobe suppression (dB)	>18
Vertical beam squint	<0.5°
Front-to-back ratio, co-polar (dB)	>24
Front-to-back ratio, total power (dB)	>20
Cross-polar discrimination (dB)	>17
Maximum input power (W)	500
IM3, @2x43dBm (dBc)	<-150



Typical Horizontal and Vertical 7218.14 Patterns

All specifications are subject to change without notice.
Contact your Powerwave representative for complete performance data.

Mechanical Specifications

Connector Type	7/16 DIN female
Connector Position	Bottom
Dimensions, HxWxD	2580x256x50mm (8'6"x10"x2")
Weight Including Bracket	14kg (31 lbs)
Wind Load, Frontal, 42 m/s, Cd=1	728 m/s (164 lbf)
Survival Wind Speed	55 m/s (123 mph)
Lightning Protection	DC grounded
Radome Material	PVC
Radome Color	Light gray
Packing Size	2690x308x121mm (8'10"x1'x5")
Shipping Weight	18kg (39.7 lbs)

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Single Band X-Urban Antenna

65° 2.6 m X-polarized FET Antenna

Part Number: 7218.05, 7218.15 | Horizontal Beamwidth: 65° | Electrical Downtilt: 0°
Gain: 18.0 dBi / 15.9 dBd | Connector Type: 7/16 DIN female

880-960 MHz

The Powerwave® X-Urban Single Band Antenna shares its characteristically slim design with the Urban antenna. Its outstanding performance in the field derives from excellent VSWR (Voltage Standing Wave Ratio), isolation beam squint and tracking. This design ensures minimized intermodulation products, thus substantially enhancing system benefits.

The Powerwave® polarization diversity systems use one antenna with two orthogonal polarizations slanted at $\pm 45^\circ$ to provide the independently fading signals needed for achieving top-quality coverage. As a result of thorough, in-depth research and testing, Powerwave® has produced a variety of designs that ensure the isolation, cross polarization discrimination and orthogonality between inputs needed to achieve the highest possible diversity gain, hence the most efficient system performance.



Key Benefits

- Dual Polarization
- Market Leading Performance
- Light and slim design
- Robust and reliable
- Guaranteed passive intermodulation performance

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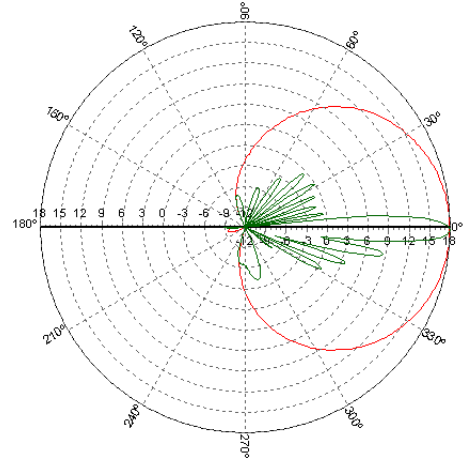
COVERAGE
SYSTEMS

Single Band X-Urban Antenna

880-960 MHz

Electrical Specifications

Frequency Band (MHz)	880 – 960
Gain (dBi / dBd)	18.0 / 15.9
Polarization	Linear slanted $\pm 45^\circ$
Nominal Impedance (Ohm)	50
VSWR	< 1.3:1
Isolation between inputs (dB)	> 30
Horizontal -3 dB beamwidth	65°
Tracking, Horizontal plane (dB)	< 1
Electrical downtilt	0°
Vertical -3 dB beamwidth	6.5°
First upper sidelobe suppression (dB)	>18
Vertical beam squint	<0.3°
Front-to-back ratio, co-polar (dB)	>24
Front-to-back ratio, total power (dB)	>20
Cross-polar discrimination (dB)	>18
Maximum input power (W)	500
IM3, @2x43dBm (dBc)	<-150



Typical Horizontal and Vertical 7218.15 Patterns

All specifications are subject to change without notice.
Contact your Powerwave representative for complete performance data.

Mechanical Specifications

Connector Type	7/16 DIN female
Connector Position	Bottom
Dimensions, HxWxD	2580x256x50mm (8'6"x10"x2")
Weight Including Bracket	14kg (31 lbs)
Wind Load, Frontal, 42 m/s, Cd=1	728 m/s (164 lbf)
Survival Wind Speed	55 m/s (123 mph)
Lightning Protection	DC grounded
Radome Material	PVC
Radome Color	Light gray
Packing Size	2690x308x121mm (8'10"x1'x5")
Shipping Weight	18kg (39.7 lbs)

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Single Band X-Urban Antenna

65° 2.6 m X-polarized FET Antenna

Part Number: 7218.09, 7218.19 | Horizontal Beamwidth: 65° | Electrical Downtilt: 2°
Gain: 18.0 dBi / 15.9 dBd | Connector Type: 7/16 DIN female

880-960 MHz

The Powerwave® X-Urban Single Band Antenna shares its characteristically slim design with the Urban antenna. Its outstanding performance in the field derives from excellent VSWR (Voltage Standing Wave Ratio), isolation beam squint and tracking. This design ensures minimized intermodulation products, thus substantially enhancing system benefits.

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Key Benefits

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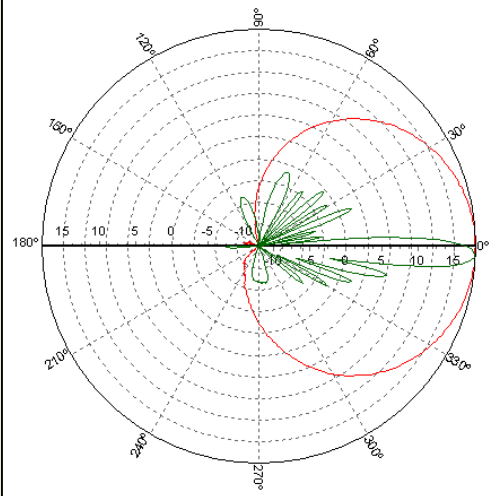
COVERAGE
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880-960 MHz

Single Band X-Urban Antenna

Electrical Specifications

Frequency Band (MHz)	880 – 960
Gain (dBi / dBd)	18.0 / 15.9
Polarization	Linear slanted $\pm 45^\circ$
Nominal Impedance (Ohm)	50
VSWR	< 1.3:1
Isolation between inputs (dB)	> 30
Horizontal -3 dB beamwidth	65°
Tracking, Horizontal plane (dB)	< 1
Electrical downtilt	2°
Vertical -3 dB beamwidth	6.5°
First upper sidelobe suppression (dB)	>18
Vertical beam squint	<0.4°
Front-to-back ratio, co-polar (dB)	>24
Front-to-back ratio, total power (dB)	>20
Cross-polar discrimination (dB)	>18
Maximum input power (W)	500
IM3, @2x43dBm (dBc)	<-150



Typical Horizontal and Vertical 7218.19 Patterns

All specifications are subject to change without notice.
Contact your Powerwave representative for complete performance data.

Mechanical Specifications

Connector Type	7/16 DIN female
Connector Position	Bottom
Dimensions, HxWxD	2580x256x50mm (8'6"x10"x2")
Weight Including Bracket	14kg (31 lbs)
Wind Load, Frontal, 42 m/s, Cd=1	728 m/s (164 lbf)
Survival Wind Speed	55 m/s (123 mph)
Lightning Protection	DC grounded
Radome Material	PVC
Radome Color	Light gray
Packing Size	2690x308x121mm (8'10"x1'x5")
Shipping Weight	18kg (39.7 lbs)

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D031-08080 Rev A

Single Band X-Urban Antenna

65° 1.9 m X-polarized FET Antenna

Part Number: 7255.03, 7255.13 | Horizontal Beamwidth: 65° | Electrical Downtilt: 6°
Gain: 16.5 dBi / 14.4 dBd | Connector Type: 7/16 DIN female

880-960 MHz

The Powerwave® X-Urban Single Band Antenna shares its characteristically slim design with the Urban antenna. Its outstanding performance in the field derives from excellent VSWR (Voltage Standing Wave Ratio), isolation beam squint and tracking. This design ensures minimized intermodulation products, thus substantially enhancing system benefits.

The Powerwave® polarization diversity systems use one antenna with two orthogonal polarizations slanted at $\pm 45^\circ$ to provide the independently fading signals needed for achieving top-quality coverage. As a result of thorough, in-depth research and testing, Powerwave® has produced a variety of designs that ensure the isolation, cross polarization discrimination and orthogonality between inputs needed to achieve the highest possible diversity gain, hence the most efficient system performance.



Key Benefits

- Dual Polarization
- Market Leading Performance
- Light and slim design
- Robust and reliable
- Guaranteed passive intermodulation performance

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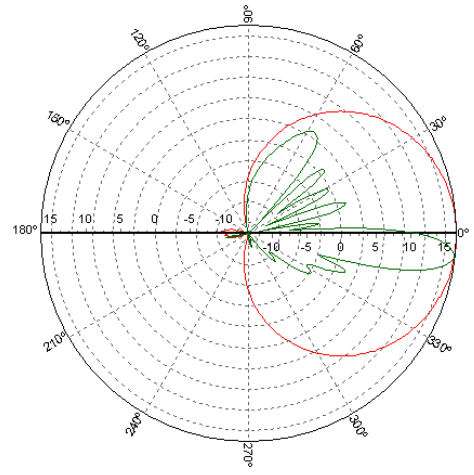
COVERAGE
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880-960 MHz

Single Band X-Urban Antenna

Electrical Specifications

Frequency Band (MHz)	880 – 960
Gain (dBi / dBd)	16.5 / 14.4
Polarization	Linear slanted $\pm 45^\circ$
Nominal Impedance (Ohm)	50
VSWR	< 1.4:1
Isolation between inputs (dB)	> 30
Horizontal -3 dB beamwidth	65°
Tracking, Horizontal plane (dB)	< 1
Electrical downtilt	6°
Vertical -3 dB beamwidth	9°
First upper sidelobe suppression (dB)	> 15
Vertical beam squint	< 0.3°
Front-to-back ratio, co-polar (dB)	>24
Front-to-back ratio, total power (dB)	>20
Cross-polar discrimination (dB)	>20
Maximum input power (W)	500
IM3, @2x43dBm (dBc)	<-150



Typical Horizontal and Vertical 7255.03 Patterns

All specifications are subject to change without notice.
Contact your Powerwave representative for complete performance data.

Mechanical Specifications

Connector Type	7/16 DIN female
Connector Position	Bottom
Dimensions, HxWxD	1940x256x50mm (6'4"x10"x2")
Weight Including Bracket	9kg (20 lbs)
Wind Load, Frontal, 42 m/s, Cd=1	550 N (256 lbf)
Survival Wind Speed	55 m/s (123 mph)
Lightning Protection	DC grounded
Radome Material	PVC
Radome Color	Light gray
Packing Size	2050x308x121mm (6'9"x1'x5")
Shipping Weight	12kg (26.5 lbs)

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D031-08081 Rev A

Single Band X-Urban Antenna

65° 1.9 m X-polarized FET Antenna

Part Number: 7255.04, 7255.14 | Horizontal Beamwidth: 65° | Electrical Downtilt: 0°
Gain: 17 dBi / 14.9 dBd | Connector Type: 7/16 DIN female

880-960 MHz

The Powerwave® X-Urban Single Band Antenna shares its characteristically slim design with the Urban antenna. Its outstanding performance in the field derives from excellent VSWR (Voltage Standing Wave Ratio), isolation beam squint and tracking. This design ensures minimized intermodulation products, thus substantially enhancing system benefits.

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Key Benefits

- Dual Polarization
- Market Leading Performance
- Light and slim design
- Robust and reliable
- Guaranteed passive intermodulation performance

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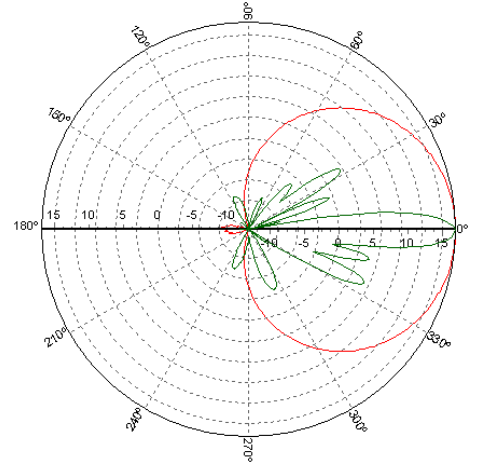
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Single Band X-Urban Antenna

880-960 MHz

Electrical Specifications

Frequency Band (MHz)	880 – 960
Gain (dBi / dBd)	17 / 14.9
Polarization	Linear slanted $\pm 45^\circ$
Nominal Impedance (Ohm)	50
VSWR	< 1.4:1
Isolation between inputs (dB)	> 30
Horizontal –3 dB beamwidth	65° +/- 3
Tracking, Horizontal plane (dB)	< 1
Electrical downtilt	0°
Vertical –3 dB beamwidth	9°
First upper sidelobe suppression (dB)	> 17
Vertical beam squint	< 0.3°
Front-to-back ratio, co-polar (dB)	>24
Front-to-back ratio, total power (dB)	>20
Cross-polar discrimination (dB)	>20
Maximum input power (W)	500
IM3, @2x43dBm (dBc)	<-150



Typical Horizontal and Vertical 7255.04 Patterns

All specifications are subject to change without notice.
Contact your Powerwave representative for complete performance data.

Mechanical Specifications

Connector Type	7/16 DIN female
Connector Position	Bottom
Dimensions, HxWxD	1940x256x50mm (6'4"x10"x2")
Weight Including Bracket	9kg (20 lbs)
Wind Load, Frontal, 42 m/s, Cd=1	550 N (256 lbf)
Survival Wind Speed	55 m/s (123 mph)
Lightning Protection	DC grounded
Radome Material	PVC
Radome Color	Light gray
Packing Size	2050x308x121mm (6'9"x1'x5")
Shipping Weight	12kg (26.5 lbs)

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QUALITY AND RELIABILITY

High Broadband Antenna

65° 0.7 m x-polarized FET Antenna

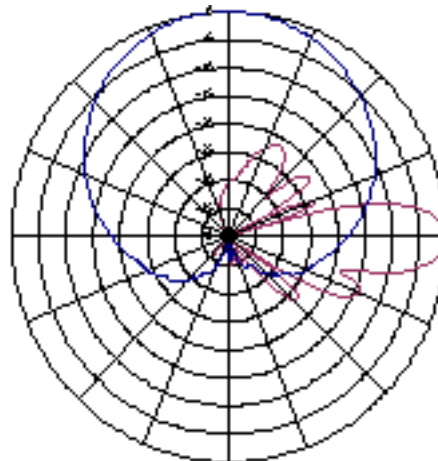
Part Number
7700.00

Horizontal Beamwidth: 65°
Gain: 15.5 dBi

Electrical Downtilt: 0°
Connector Type: 7/16 DIN

1710-2170 MHz

The Powerwave broadband antenna design is based on a patented stacked aperture-coupled patch technology, which provides high isolation performance and a wide VSWR bandwidth. The antennas have superior radiation patterns due to a unique reflector design that provides a very small variation of the -3dB horizontal beam width over the frequency band as well as a high front-to-back ratio. Powerwave broadband antennas come with manually adjustable electrical tilt (MET) for tuning flexibility of tilt angles. This design ensures the highest possible cross-polar discrimination value.



Typical Horizontal and Vertical 7700.00 Patterns

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1710-2170 MHz

High Broadband Antenna

Electrical Specifications

Frequency band (MHz)	1710-1880	1850-1990	1900-2025, 2110-2170
Gain, ± 0.5 (dBi)	15.1	15.6	15.8
Polarization	Dual linear $\pm 45^\circ$		
Nominal Impedance (Ohms)	50		
VSWR	1.3:1		
Isolation between inputs, 824-960MHz (dB)	>30		
Horizontal -3 dB beamwidth	67 \pm 3 $^\circ$	66 \pm 2 $^\circ$	64 \pm 3 $^\circ$
Tracking, Horizontal plane, $\pm 60^\circ$ (dB)	<1.0		
Electrical downtilt	0 $^\circ$		
Vertical - 3dB Beamwidth	14.7 \pm 0.8 $^\circ$	13.8 \pm 0.6 $^\circ$	12.8 \pm 1.1 $^\circ$
Sidelobe suppression, Vertical 1st upper (dB)	>19		
Vertical beam squint	0.6 $^\circ$		
First null-fill (dB)	>-20, typical >-18		
Front-to-back ratio (dB)	>30		
Front-to-back ratio, total power (dB)	>26		
Cross-polar discrimination (XPD) 0 $^\circ$ (dB)	>17	>19	>19
Cross-polar discrimination $\pm 60^\circ$ (dB)	>17	>15	>11
IM3, 2Tx @ 43dBm (dBc)	<-153	<-153	
IM7, 2Tx @ 43dBm (dBc)			<-160
Power Handling, Average per input (W)	250		
Power Handling, Average total (W)	500		

All specifications are subject to change without notice.
Contact factory for complete performance data.

Mechanical Specifications

Connector Type	7/16 DIN female
Dimensions, HxWxD	709x167x89.5mm (2'4"x7"x4")
Weight with Brackets	7.3 kg (16 lbs)
Wind Load, Frontal, 100 mph(44,7m/s) Cd=1	35 lbf (156N)
Survival Wind Speed (mph)	70m/s (156 mph)
Lightning Protection	DC Grounded
Radome Material	ASA
Radome Color	Light Gray (RAL 7035 on all visible plastic parts)
Packing Size	880x200x200mm (2'11"x8"x8")
Shipping Weight	8.2kg (18 lbs)

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COVERAGE AND CAPACITY

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High Broadband Antenna

65° 0.7 m x-polarized FET Antenna

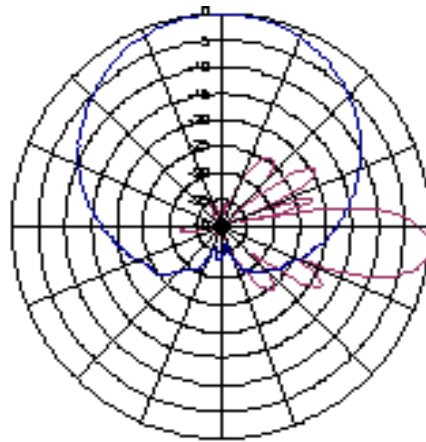
Part Number
7700.06

Horizontal Beamwidth: 65°
Gain: 15.5 dBi

Electrical Downtilt: 6°
Connector Type: 7/16 DIN

1710-2170 MHz

The Powerwave broadband antenna design is based on a patented stacked aperture-coupled patch technology, which provides high isolation performance and a wide VSWR bandwidth. The antennas have superior radiation patterns due to a unique reflector design that provides a very small variation of the -3dB horizontal beam width over the frequency band as well as a high front-to-back ratio. Powerwave broadband antennas come with manually adjustable electrical tilt (MET) for tuning flexibility of tilt angles. This design ensures the highest possible cross-polar discrimination value.



Typical Horizontal and Vertical 7700.06 Patterns

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High Broadband Antenna

1710-2170 MHz

Electrical Specifications

Electrical Specifications

Frequency band (MHz)	1710-1880	1850-1990	1900-2025, 2110-2170
Gain, ± 0.5 (dBi)	15.1	15.6	15.8
Polarization	Dual linear $\pm 45^\circ$		
Nominal Impedance (Ohm)	50		
VSWR	1.3:1		
Isolation between inputs (dB)	>30		
Horizontal -3 dB beamwidth	67 \pm 3 $^\circ$	65 \pm 3 $^\circ$	64 \pm 3 $^\circ$
Tracking, Horizontal plane, $\pm 60^\circ$ (dB)	<1.0		
Electrical downtilt	6 $^\circ$		
Vertical -3dB Beamwidth	14.7 \pm 0.8 $^\circ$	13.8 \pm 0.8 $^\circ$	12.8 \pm 1.1 $^\circ$
Sidelobe suppression, Vertical 1st upper (dB)	>17		
Vertical beam squint	0.6		
First null-fill (dB)	>-26, typical >-20		
Front-to-back ratio (dB)	>30		
Front-to-back ratio, total power (dB)	>26		
Cross-polar discrimination (XPD) 0 $^\circ$ (dB)	>17	>19	>19
Cross-polar discrimination $\pm 60^\circ$ (dB)	>17	>15	>11
IM3, 2Tx @ 43dBm (dBc)	<-153	<-153	
IM7, 2Tx @ 43dBm (dBc)			<-160
Power Handling, Average per input (W)	250		
Power Handling, Average total (W)	500		

All specifications are subject to change without notice.
Contact your Powerwave representative for complete performance data.

Mechanical Specifications

Connector Type	7/16 DIN female
Dimensions, HxWxD	709x167x89.5mm (2'4"x7"x4")
Weight with Brackets	7.3 kg (16 lbs)
Wind Load, Frontal, 100 mph(44.7m/s) Cd=1	35 lbf (156N)
Survival Wind Speed	70m/s (156 mph)
Lightning Protection	DC Grounded
Radome Material	ASA
Radome Color	Light gray RAL 7035 on all visible plastic parts
Packing Size	880x200x200mm (2'11"x8"x8")
Shipping Weight	8.2kg (18 lbs)

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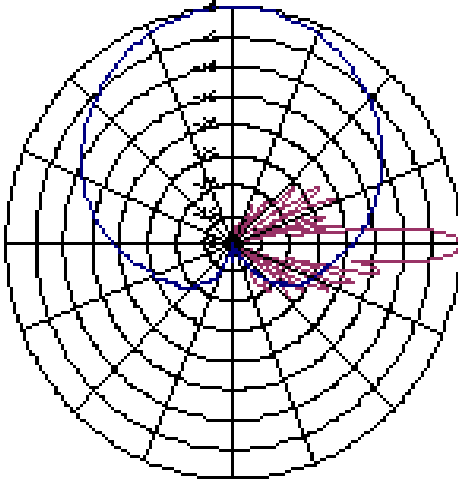
High Broadband Antenna

65° 1.3 m x-polarized FET Antenna

Part Number 7701.00	Horizontal Beamwidth: 65° Gain: 18 dBi	Electrical Downtilt: 0° Connector Type: 7/16 DIN
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1710-2170 MHz

The Powerwave broadband antenna design is based on a patented stacked aperture-coupled patch technology, which provides high isolation performance and a wide VSWR bandwidth. The antennas have superior radiation patterns due to a unique reflector design that provides a very small variation of the -3dB horizontal beam width over the frequency band as well as a high front-to-back ratio. Powerwave broadband antennas come with manually adjustable electrical tilt (MET) for tuning flexibility of tilt angles. This design ensures the highest possible cross-polar discrimination value.



Typical Horizontal and Vertical 7701.00 Patterns

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High Broadband Antenna

Electrical Specifications

Frequency band (MHz)	1710-1880	1850-1990	1900-2025,2110-2170
Gain, ± 0.5 (dBi)	17.5	18	18.3
Polarization		Dual linear $\pm 45^\circ$	
Nominal Impedance (Ohm)		50	
VSWR		1.3:1	
Isolation between inputs (dB)		>30	
Horizontal -3 dB beam width	$67 \pm 3^\circ$	$66 \pm 2^\circ$	$64 \pm 3^\circ$
Tracking, Horizontal plane, $\pm 60^\circ$ (dB)		<1.0	
Electrical downtilt		0°	
Vertical -3dB Beam width	$7.2 \pm 0.4^\circ$	$6.7 \pm 0.3^\circ$	$6.4 \pm 0.5^\circ$
Sidelobe suppression, Vertical 1st upper (dB)		>20	
Vertical beam squint		0.5°	
First null-fill (dB)		>-20, typical >-18	
Front-to-back ratio (dB)		>30	
Front-to-back ratio, total power (dB)		>27	
Cross-polar discrimination (XPD) 0° (dB)	>17	>19	>20
Cross-polar discrimination $\pm 60^\circ$ (dB)	>17	>14	>11
IM3, 2Tx @ 43dBm (dBc)	<-153	<-150	
IM7, 2Tx @ 43dBm (dBc)			<-160
Power Handling, Average per input (W)		250	
Power Handling, Average total (W)		500	

All specifications are subject to change without notice.
Contact factory for complete performance data.

Mechanical Specifications

Connector Type	7/16 DIN female
Dimensions, HxWxD	1309x167x89.5mm (4'4"x7"x4")
Weight With Brackets	10.1 kg (22 lbs)
Wind Load, Frontal, 100 mph(44.7m/s) Cd=1	70 lbf (310N)
Survival Wind Speed	70m/s (156 mph)
Lightning Protection	DC Grounded
Radome Material	ASA
Radome Color	Light gray RAL 7035 on all visible plastic parts
Packing Size	1480x200x200mm (4'10"x8"x8")
Shipping Weight	11kg (24.2 lbs)

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COVERAGE AND CAPACITY

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QUALITY AND RELIABILITY

1710-2170 MHz

High Broadband Antenna

65° 1.3 m x-polarized FET Antenna

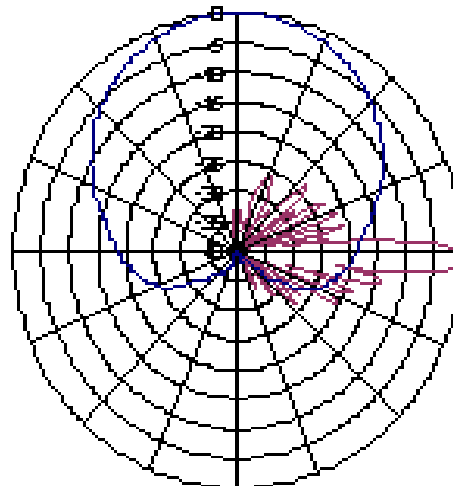
Part Number
7701.02

Horizontal Beamwidth: 65°
Gain: 18 dBi

Electrical Downtilt: 2°
Connector Type: 7/16 DIN

1710-2170 MHz

The Powerwave broadband antenna design is based on a patented stacked aperture-coupled patch technology, which provides high isolation performance and a wide VSWR bandwidth. The antennas have superior radiation patterns due to a unique reflector design that provides a very small variation of the -3dB horizontal beam width over the frequency band as well as a high front-to-back ratio. Powerwave broadband antennas come with manually adjustable electrical tilt (MET) for tuning flexibility of tilt angles. This design ensures the highest possible cross-polar discrimination value.



Typical Horizontal and Vertical 7701.02 Patterns

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High Broadband Antenna

1710-2170 MHz

Electrical Specifications

Frequency band (MHz)	1710-1880	1850-1990	1900-2025,2110-2170
Gain, ± 0.5 (dBi)	17.5	18	18.3
Polarization		Dual linear $\pm 45^\circ$	
Nominal Impedance (Ohms)		50	
VSWR		1.3:1	
Isolation betw een inputs (dB)		>30	
Horizontal -3 dB beamw idth	$67\pm 3^\circ$	$66\pm 2^\circ$	$64\pm 3^\circ$
Tracking,Horizontal plane, $\pm 60^\circ$ (dB)		<1.0	
Electrical dow ntilt		2°	
Vertical -3dB Beam w idth	$7.2\pm 0.4^\circ$	$6.7\pm 0.3^\circ$	$6.4\pm 0.5^\circ$
Sidelobe suppression, Vertical 1 st upper (dB)		>19	
Vertical beam squint		0.5°	
First null-fill (dB)		>-22 , typical >-18	
Front-to-back ratio (dB)		>30	
Front-to-back ratio, total pow er (dB)		>26	
Cross-polar discrimination (XPD) 0° (dB)	>17	>19	>20
Cross-polar discrimination $\pm 60^\circ$ (dB)	>17	>14	>11
IM3, 2Tx @43dBm (dBc)	<-153	<-150	
IM7, 2Tx @43dBm (dBc)			<-160
Pow er Handling, Average per input (W)		250	
Pow er Handling, Average total (W)		500	

All specifications are subject to change without notice.
Contact your Powerwave representative for complete performance data.

Mechanical Specifications

Connector Type	7/16 DIN female
Dimensions, HxWxD	1309x167x89.5mm (4'4"x7"x4")
Weight with Brackets	10.1 kg (22 lbs)
Wind Load, Frontal, 100 Mph Cd=1	310N (70 lbf)
Survival Wind Speed	70m/s (156 mph)
Lightning Protection	DC Grounded
Radome Material	ASA
Radome Color	Light Gray RAL 7035 on all visible plastic parts
Packing Size	1480x200x200mm (4'10"x8"x8")
Shipping Weight	11kg (24.2 lbs)

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High Broadband Antenna

65° 1.3 m x-polarized FET Antenna

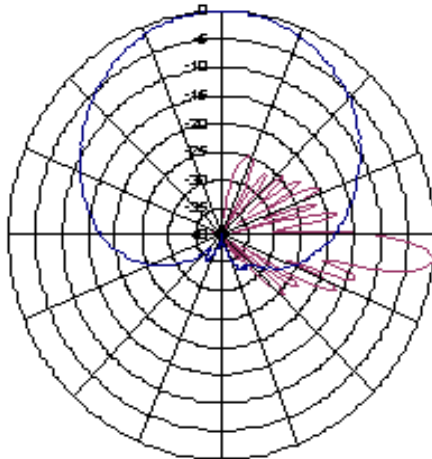
1710-2170 MHz

Part Number
7701.06

Horizontal Beamwidth: 65°
Gain: 18dBi

Electrical Downtilt: 6°
Connector Type: 7/16 DIN

The Powerwave broadband antenna design is based on a patented stacked aperture-coupled patch technology, which provides high isolation performance and a wide VSWR bandwidth. The antennas have superior radiation patterns due to a unique reflector design that provides a very small variation of the -3dB horizontal beam width over the frequency band as well as a high front-to-back ratio. Powerwave broadband antennas come with manually adjustable electrical tilt (MET) for tuning flexibility of tilt angles. This design ensures the highest possible cross-polar discrimination value.



Typical Horizontal and Vertical 7701.06 Patterns

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1710-2170 MHz

High Broadband Antenna

Electrical Specifications

Frequency band (MHz)	1710-1880	1850-1990	1900-2025,2110-2170
Gain, ± 0.5 (dBi)	17.5	18	18.3
Polarization	Dual linear ±45°		
Nominal Impedance (Ohms)	50		
VSWR	1.3:1		
Isolation between inputs (dB)	>30		
Horizontal -3 dB beamwidth	67±3°	65±3°	64±3°
Tracking, Horizontal plane, ±60° (dB)	<1.0		
Electrical down tilt	6°		
Vertical -3dB Beam width	7.2±0.4°	6.7±0.3°	6.4±0.5°
Sidelobe suppression, Vertical 1 st upper (dB)	>18		
Vertical beam squint	0.5°		
First null-fill (dB)	>-26 , typical >-20		
Front-to-back ratio (dB)	>29		
Front-to-back ratio, total power (dB)	>25		
Cross-polar discrimination (XPD) 0° (dB)	>17	>19	>20
Cross-polar discrimination ±60° (dB)	>17	>14	>11
IM3, 2Tx @43dBm (dBc)	<-153	<-153	
IM7, 2Tx @43dBm (dBc)			<-160
Power Handling, Average per input (W)	250		
Power Handling, Average total (W)	500		

All specifications are subject to change without notice.
Contact factory for complete performance data.

Mechanical Specifications

Connector Type	7/16 DIN female
Dimensions, HxWxD	1309x167x89.5mm (4'4"x7"x4")
Weight With Brackets	10.1 kg (22 lbs)
Wind Load, Frontal, 100 mph(44.7m/s) Cd=1	310N (70 lbf)
Survival Wind Speed	70m/s (156 mph)
Lightning Protection	DC Grounded
Radome Material	ASA
Radome Color	Light gray RAL 7035 on all visible plastic parts
Packing Size	1480x200x200mm (4'10"x8"x8")
Shipping Weight	11kg (24.2 lbs)

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High Broadband Antenna

65° 0.7 m x-polarized MET Antenna

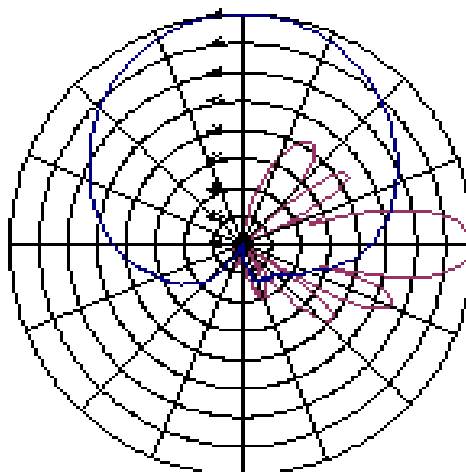
Part Number
7720.x0

Horizontal Beamwidth: 65°
Gain: 15.5 dBi

Electrical Downtilt: Adjustable
Connector Type: 7/16 DIN

1710-2170 MHz

The Powerwave broadband antenna design is based on a patented stacked aperture-coupled patch technology, which provides high isolation performance and a wide VSWR bandwidth. The antennas have superior radiation patterns due to a unique reflector design that provides a very small variation of the -3dB horizontal beam width over the frequency band as well as a high front-to-back ratio. Powerwave broadband antennas come with manually adjustable electrical tilt (MET) for tuning flexibility of tilt angles. This design ensures the highest possible cross-polar discrimination value.



Typical Horizontal and Vertical 7720.00 Patterns

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High Broadband Antenna

1710-2170 MHz

Electrical Specifications

Frequency band (MHz)	1710-1880	1850-1990	1900-2025,2110-2170
Gain, ± 0.5 (dBd)	15	15.3	15.6
Polarization	Dual linear $\pm 45^\circ$		
Nominal Impedance (Ohm)	50		
VSWR	1.4:1		
Isolation between inputs (dB)	>30		
Horizontal -3 dB beam width	$67 \pm 4^\circ$	$65 \pm 3^\circ$	$64 \pm 3^\circ$
Tracking, Horizontal plane, $\pm 60^\circ$ (dB)	<1.5		
Electrical down tilt range (adjustable)	0° to 16°		
Vertical -3dB Beam width	$14.1^\circ \pm 0.8^\circ$	$13.5^\circ \pm 0.5^\circ$	$12.5^\circ \pm 0.9^\circ$
Sidelobe suppression, Vertical 1st upper (dB)	>17, 16, 16, 15, 15 @ 0, 4, 8, 12, 16° MET		
Vertical beam squint	0.5°		
First null-fill (dB)	>-29, typical >-25		
Front-to-back ratio (dB)	>30		
Front-to-back ratio, total power (dB)	>25		
Cross-polar discrimination (XPD) 0° (dB)	>15	>18	>18
Cross-polar discrimination $\pm 60^\circ$ (dB)	>15	>15	>13
IM3, 2Tx @ 43dBm (dBc)	<-153	<-153	
IM7, 2Tx @ 43dBm (dBc)			<-160
Power Handling, Average per input (W)	250		
Power Handling, Average total (W)	500		

All specifications are subject to change without notice.
Contact your Powerwave representative for complete performance data.

Mechanical Specifications

Connector Type	7/16 DIN female, 7720.00 - bottom, 7720.40 - top
Dimensions, HxWxD	709x167x89.5mm (2'4"x7"x4")
Weight with Brackets	7.3 kg (16 lbs)
Wind Load, Frontal, @100 mph(44,7m/s)	35 lbf (156 N)
Survival Wind Speed	70m/s (156 mph)
Lightning Protection	DC Grounded
Radome Material	ASA
Radome Color	Light gray RAL 7035 on all visible plastic parts
Packing Size	2'11"x8"x8" (880x200x200mm)
Shipping Weight	8.2kg (18 lbs)

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High Broadband Antenna

65° 1.3 m x-polarized MET Antenna

1710-2170 MHz

Part Number:
7721.x0

Horizontal Beamwidth: 65°
Gain: 18 dBi

Electrical Downtilt: Adjustable
Connector Type: 7/16 DIN

The Powerwave broadband antenna design is based on a patented stacked aperture-coupled patch technology, which provides high isolation performance and a wide VSWR bandwidth. The antennas have superior radiation patterns due to a unique reflector design that provides a very small variation of the -3dB horizontal beamwidth over the frequency band, as well as a high front-to-back ratio. Powerwave broadband antennas come with Manually adjustable Electrical Tilt (MET) which offers operators flexibility in turning of tilt angles, as well as logistical advantages, and is Remote Electrical Tilt (RET) upgradeable. This design ensures the highest possible cross-polar discrimination value.



Key Benefits

- Excellent broad- and multi-band capabilities
- Polarization purity makes good diversity gain
- Excellent pattern performance and high gain over frequency
- High passive intermodulation performance
- Light, slim and robust design

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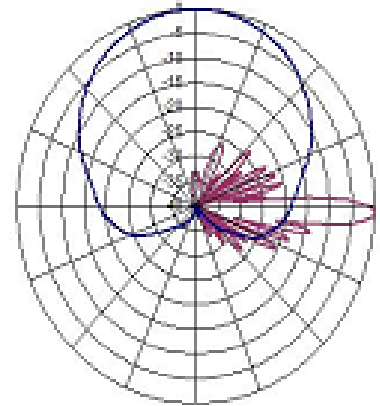
BASE STATION
SYSTEMS

COVERAGE
SYSTEMS

Electrical Specifications

Frequency band (MHz)	1710-1880	1850-1990	1900-2025, 2110-2170
Gain, ± 0.5 (dBi)	17.5	18	18.3
Polarization	Dual linear $\pm 45^\circ$		
Nominal Impedance (Ohm)	50		
VSWR	1.4:1		
Isolation between inputs (dB)	30		
Horizontal -3 dB Beam width	$67 \pm 3^\circ$	$66 \pm 2^\circ$	$64 \pm 3^\circ$
Tracking, horizontal plane, $\pm 60^\circ$ (dB)	<1.0		
Electrical downtilt range (adjustable)	0° to 8°		
Vertical -3dB Beam width	$7 \pm 0.4^\circ$	$6.6 \pm 0.4^\circ$	$6.3 \pm 0.6^\circ$
Sidelobe suppression, vertical 1st upper (dB)	>18,18,16,16,14 @ 0,2,4,6,8° MET		
Vertical beam squint	0.5°		
First null-fill (dB)	>-24 , typical >-18		
Front-to-back ratio (dB)	>30		
Front-to-back ratio, total power (dB)	>27		
Cross-polar discrimination (XPD) 0° (dB)	>17	>19	>20
Cross-polar discrimination $\pm 60^\circ$ (dB)	>18	>14	>12
Power Handling, Average Per Input (W)	250		
Power Handling, Average Total (W)	500		
IM3, 2Tx@43dBm (dBc)	<-153	<-153	
IM7, 2Tx@43dBm (dBc)			<-160

All specifications are subject to change without notice.
Contact your Powerwave representative for complete performance data.



Typical Horizontal and Vertical 7721.00 Patterns

Mechanical Specifications

Connector Type	7/16 DIN female, 7721.00 - bottom, 7721.40 - top
Dimensions, HxWxD	1309x167x89.5mm (4'4"x7"x4")
Weight with Brackets	10.1 kg (22 lbs)
Wind Load, Frontal, 100 mph(44.7m/s) Cd=1	310N (70 lbf)
Survival Wind Speed	70m/s (156 mph)
Lightning Protection	DC grounded
Radome Material	ASA
Radome Color	Light Gray (RAL 7035 on all visible plastic parts)
Packing Size	1480x200x200mm (4'10"x8"x8")
Shipping Weight	11kg (24.2 lbs)

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High Broadband Antenna

65° 1.3 m x-polarized MET Antenna

1710-2170 MHZ

Part Number:
7721.10

Horizontal Beamwidth: 65°
Gain: 18 dBi

Electrical Downtilt: Adjustable
Connector Type: 7/16 DIN

The Powerwave broadband antenna design is based on a patented stacked aperture-coupled patch technology, which provides high isolation performance and a wide VSWR bandwidth. The antennas have superior radiation patterns due to a unique reflector design that provides a very small variation of the -3dB horizontal beamwidth over the frequency band, as well as a high front-to-back ratio. Powerwave broadband antennas come with Manually adjustable Electrical Tilt (MET) which offers operators flexibility in turning of tilt angles, as well as logistical advantages, and is Remote Electrical Tilt (RET) upgradeable. This design ensures the highest possible cross-polar discrimination value.



Key Benefits

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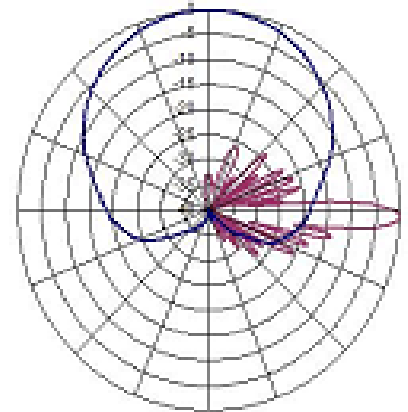
BASE STATION
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Electrical Specifications

Frequency band (MHz)	1710-1880	1850-1990	1900-2025, 2110-2170
Gain, ± 0.5 (dBi)	17.5	18	18.3
Polarization	Dual linear $\pm 45^\circ$		
Nominal Impedance (Ohm)	50		
VSWR	1.4:1		
Isolation between inputs (dB)	30		
Horizontal -3 dB Beam width	$67 \pm 3^\circ$	$66 \pm 2^\circ$	$64 \pm 3^\circ$
Tracking, horizontal plane, $\pm 60^\circ$ (dB)	<1.0		
Electrical downtilt range (adjustable)	2° to 10°		
Vertical -3dB Beam width	$7 \pm 0.4^\circ$	$6.6 \pm 0.4^\circ$	$6.3 \pm 0.6^\circ$
Sidelobe suppression, vertical 1st upper (dB)	>18,16,16,14,13 @ 2,4,6,8,10° MET		
Vertical beam squint	0.5°		
First null-fill (dB)	>-24, typical >-18		
Front-to-back ratio (dB)	>30		
Front-to-back ratio, total power (dB)	>27		
Cross-polar discrimination (XPD) 0° (dB)	>17	>19	>20
Cross-polar discrimination $\pm 60^\circ$ (dB)	>18	>14	>12
Power Handling, Average Per Input (W)	250		
Power Handling, Average Total (W)	500		
IM3, 2Tx@43dBm (dBc)	<-153	<-153	
IM7, 2Tx@43dBm (dBc)			<-160

All specifications are subject to change without notice.
Contact your Powerwave representative for complete performance data.



Typical Horizontal and Vertical 7721.10 Patterns

Mechanical Specifications

Connector Type	7/16 DIN female
Dimensions, HxWxD	1309x167x89.5mm (4'4"x7"x4")
Weight with Brackets	10.1 kg (22 lbs)
Wind Load, Frontal, 100 mph(44.7m/s) Cd=1	310N (70 lbf)
Survival Wind Speed	70m/s (156 mph)
Lightning Protection	DC grounded
Radome Material	ASA
Radome Color	Light Gray (RAL 7035 on all visible plastic parts)
Packing Size	1480x200x200mm (4'10"x8"x8")
Shipping Weight	11kg (24.2 lbs)

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High Broadband Antenna

65° 2.0 m x-polarized MET Antenna

1710-2170 MHz

Part Number: 7722.x0	Horizontal Beamwidth: 65° Gain: 19.5 dBi	Electrical Downtilt: Adjustable Connector Type: 7/16 DIN
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The Powerwave broadband antenna design is based on a patented stacked aperture-coupled patch technology, which provides high isolation performance and a wide VSWR bandwidth. The antennas have superior radiation patterns due to a unique reflector design that provides a very small variation of the -3dB horizontal beam width over the frequency band as well as a high front-to-back ratio. Powerwave broadband antennas come with manually adjustable electrical tilt (MET) for tuning flexibility of tilt angles. This design ensures the highest possible cross-polar discrimination value.



Key Benefits

- Excellent broad- and multi-band capabilities
- Polarization purity makes good diversity gain
- Excellent pattern performance and high gain over frequency
- High passive intermodulation performance
- Light, slim and robust design

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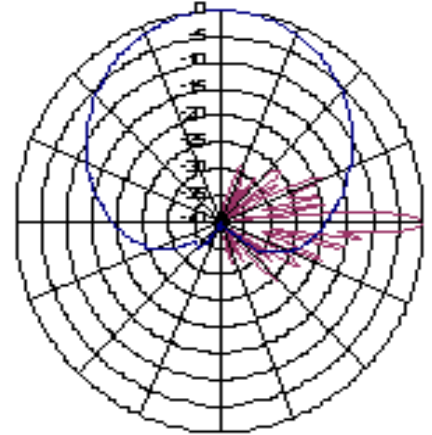
High Broadband Antenna

1710-2170 MHz

Electrical Specifications

Frequency band (MHz)	1710-1880	1850-1990	1900-2025, 2110-2170
Gain, ± 0.5 (dBi)	19	19.2	19.7
Polarization	Dual slant $\pm 45^\circ$		
Nominal Impedance (Ohm)	50		
VSWR	1.4:1		
Isolation between inputs (dB)	>30		
Horizontal -3 dB beamwidth	$67 \pm 3^\circ$	$66 \pm 2^\circ$	$65 \pm 3^\circ$
Tracking, Horizontal plane, $\pm 60^\circ$ (dB)	<1.0		
Electrical downtilt range (adjustable)	0° to 5.5°		
Vertical -3 dB Beam width	$4.7 \pm 0.3^\circ$	$4.4 \pm 0.2^\circ$	$4.2 \pm 0.3^\circ$
Sidelobe suppression, 1st upper (dB)	>18,18,18,16,16,14 @ 0,1,2,3,4,5°		
Vertical beam squint	0.4°		
First null-fill (dB)	>-20 , typical >-16		
Front-to-back ratio (dB)	>30		
Front-to-back ratio, total power (dB)	>27		
Cross-polar discrimination (XPD) 0° (dB)	>18	>20	>21
Cross-polar discrimination $\pm 60^\circ$ (dB)	>20	>17	>12
Power Handling, Average per input (W)	250		
Power Handling, Average total (W)	500		
IM3, 2Tx@43dBm	<-153	<-153	
IM7, 2Tx@43dBm	< -160		

All specifications are subject to change without notice.
Contact your Powerwave representative for complete performance data.



Typical Horizontal and Vertical 7722.00 Patterns

Mechanical Specifications

Connector Type	7/16 DIN female, 7722.00 - bottom, 7722.40 - top
Dimensions, HxWxD	1934x167x89.5mm (6'4"x6.6"x3.5")
Weight Including Brackets	12.6 kg (27.7 lbs)
Wind Load, Frontal, 100 mph Cd=1	412 N (92.6 lbf)
Survival Wind Speed	70m/s (156 mph)
Lightning Protection	DC Grounded
Radome Material	ASA
Radome Color	Grey (RAL 7035 on all visible plastic part)
Packing Size	2105x200x200mm (6'11"x8"x8")
Mounting	Pole Clamps, Panning Mechanism

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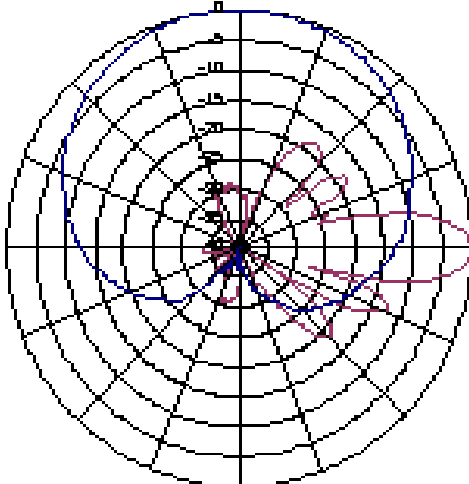
High Broadband Antenna

90° 0.7 m x-polarized MET Antenna

Part Number 7735.x0	Horizontal Beamwidth: 90° Gain: 13.5 dBi	Electrical Downtilt: Adjustable Connector Type: 7/16 DIN
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1710-2170 MHz

The Powerwave broadband antenna design is based on a patented stacked aperture-coupled patch technology, which provides high isolation performance and a wide VSWR bandwidth. The antennas have superior radiation patterns due to a unique reflector design that provides a very small variation of the -3dB horizontal beam width over the frequency band as well as a high front-to-back ratio. Powerwave broadband antennas come with manually adjustable electrical tilt (MET) for tuning flexibility of tilt angles. This design ensures the highest possible cross-polar discrimination value.



Typical Horizontal and Vertical 7735.00 Patterns

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BASE STATION
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1710-2170 MHz

High Broadband Antenna

Electrical Specifications

Frequency band (MHz)	1710-1880	1850-1990	1900-2025,2110-2170
Gain, ± 0.5 (dBi)	13.5	13.5	13.7
Polarization		Dual linear ±45°	
Nominal Impedance (Ohms)		50	
VSWR		1.4:1	
Isolation between inputs (dB)		>30	
Horizontal -3 dB beamwidth	86±3°	86±3°	87±4°
Tracking, Horizontal plane, ±60° (dB)		<1.0	
Electrical downtilt range (adjustable)		0° to 16°	
Vertical -3dB Beamwidth	14.7°±1°	13.4°±1°	12.2°±1°
Sidelobe suppression, 1st upper (dB)		>18,17,16,15,14@ 0, 4, 8, 12, 16° MET	
Vertical beam squint		0.8°	
First null-fill (dB)		>24, typical >18	
Front-to-back ratio (dB)		>25	
Front-to-back ratio, total power (dB)		>23	
Cross-polar discrimination (XPD) 0°(dB)	>13	>13	>12
Cross-polar discrimination ±60° (dB)	>10	>10	>10
IM3, 2Tx @43dBm (dBc)	-153	-153	
IM7, 2Tx @43dBm (dBc)			-160
Power Handling, Average per input (W)		250	
Power Handling, Average total (W)		500	

All specifications are subject to change without notice.
Contact your Powerwave representative for complete performance data.

Mechanical Specifications

Connector Type	7/16 DIN female, 7735.00 - bottom, 7735.40 - top
Connector Position	Bottom
Dimensions, HxWxD	709x167x89mm (2'4"x7"x4")
Wind Load, Frontal, 100 mph Cd=1	35 lbf (156 N)
Weight With Brackets	8.2 kg (18 lbs)
Survival Wind Speed	70 m/s (156 mph)
Lightning Protection	DC grounded
Radome Material	PVC
Radome Color	Light Gray
Packing Size	880x200x200mm (2'11"x8"x8")
Shipping Weight	9.1 kg (20 lbs)

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D031-08198 Rev A

High Broadband Antenna

90° 1.3 m x-polarized MET Antenna

1710 - 2170 MHz

Part Number:
7740.x0

Horizontal Beamwidth: 90°
Gain: 16.5 dBi

Electrical Downtilt: Adjustable
Connector Type: 7/16 DIN

The Powerwave broadband antenna design is based on a patented stacked aperture-coupled patch technology, which provides high isolation performance and a wide VSWR bandwidth. The antennas have superior radiation patterns due to a unique reflector design that provides a very small variation of the -3dB horizontal beam width over the frequency band as well as a high front-to-back ratio. Powerwave broadband antennas come with manually adjustable electrical tilt (MET) for tuning flexibility of tilt angles. This design ensures the highest possible cross-polar discrimination value.



Key Benefits

- Excellent broad- and multi-band capabilities
- Polarization purity makes good diversity gain
- Excellent pattern performance and high gain over frequency
- High passive intermodulation performance
- Light, slim and robust design

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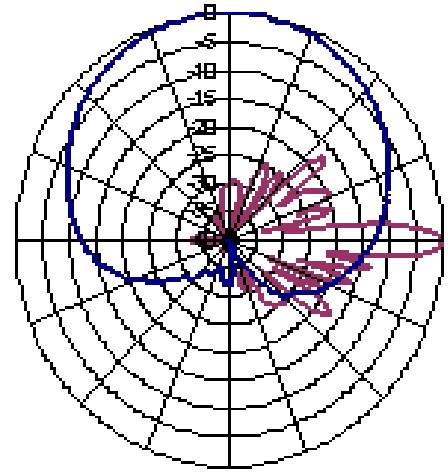
High Broadband Antenna

1710-2170 MHz

Electrical Specifications

Frequency band (MHz)	1710-1880	1850-1990	1900-2025, 2110-2170
Gain, ± 0.5 (dBi)	16.3	16.5	16.5
Polarization	Dual linear $\pm 45^\circ$		
Nominal Impedance (Ohm)	50		
VSWR	1.4:1		
Isolation between inputs, 824-960MHz (dB)	30		
Horizontal -3 dB beamwidth	86 \pm 3°		
Tracking, Horizontal plane, $\pm 60^\circ$ (dB)	<1.0		
Electrical downtilt range (adjustable)	0° to 8°		
Vertical Beam width -3dB	7.1 \pm 0.5°	6.6 \pm 0.5°	6.3 \pm 0.8°
Sidelobe suppression, 1st upper (dB)	>18,17,15,15,14 @ 0,2,4,6,8° MET		
Vertical beam squint	0.4°		
First null-fill (dB)	>-24 , typical >-18		
Front-to-back ratio (dB)	>29		
Front-to-back ratio, total power (dB)	>23		
Cross-polar discrimination (XPD) 0° (dB)	>14	>13	>12
Cross-polar discrimination $\pm 60^\circ$ (dB)	>10	>10	>10
IM3, 2Tx@43dBm (dBc)	<-153	<-153	
IM7, 2Tx@43dBm (dBc)			< -160
Power Handling, Average per input (W)	250		
Power Handling, Average total (W)	500		

All specifications are subject to change without notice.
Contact your Powerwave representative for complete performance data.



Typical Horizontal and Vertical 7740.00 Patterns

Mechanical Specifications

Connector Type	7/16 DIN female, 7740.00 - bottom, 7740.40 - top
Connector Position	Bottom
Dimensions, HxWxD	1309x167x89mm (51.5"x6.6"x3.5")
Wind Load, Frontal, 100 mph Cd=1	356 N (80 lbf)
Wind Deflection 78 mph	< 1°
Survival Wind Speed	70m/s (156 mph)
Lightning Protection	DC grounded
Radome Material	PVC
Radome Color	Light Gray
Packing Size	1480x200x200mm (58.3"x8"x8")
Shipping Weight	13kg (28,6 lbs)

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QUALITY AND RELIABILITY

High Broadband Antenna

90° 2.0 m x-polarized MET Antenna

1710-2170 MHz

Part Number:
7745.x0

Horizontal Beamwidth: 90°
Gain: 17.8 dBi

Electrical Downtilt: Adjustable
Connector Type: 7/16 DIN

The Powerwave broadband antenna design is based on a patented stacked aperture-coupled patch technology, which provides high isolation performance and a wide VSWR bandwidth. The antennas have superior radiation patterns due to a unique reflector design that provides a very small variation of the -3dB horizontal beam width over the frequency band as well as a high front-to-back ratio. Powerwave broadband antennas come with manually adjustable electrical tilt (MET) for flexibility of tilt angles, while ensuring the highest possible cross-polar discrimination value.



Key Benefits

- Excellent broad- and multi-band capabilities
- Polarization purity makes good diversity gain
- Excellent pattern performance and high gain over frequency
- High passive intermodulation performance
- Light, slim and robust design

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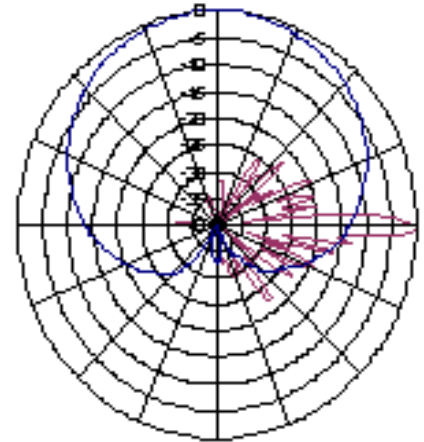
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High Broadband Antenna

Electrical Specifications

Frequency band (MHz)	1710-1880	1850-1990	1900-2025, 2110-2170
Gain, ± 0.5 (dBi)	17.5	17.7	17.9
Polarization	Dual linear $\pm 45^\circ$		
Nominal Impedance (Ohm)	50		
VSWR	1.4:1		
Isolation between inputs, 824-960MHz (dB)	>30		
Horizontal -3 dB beamwidth	$86 \pm 3^\circ$		
Tracking, Horizontal plane, $\pm 60^\circ$ (dB)	<1.0		
Electrical downtilt range (adjustable)	0° to 5.5°		
Vertical Beam width -3dB	$4.7 \pm 0.4^\circ$	$4.5 \pm 0.3^\circ$	$4.2 \pm 0.4^\circ$
Sidelobe suppression, Vertical 1 st upper (dB)	>18,18,16,16,14,14 @ 0,1,2,3,4,5° MET		
Vertical beam squint	0.3°		
First null-fill (dB)	>-24, typical >-18		
Front-to-back ratio (dB)	>29		
Front-to-back ratio, total power (dB)	>23		
Cross-polar discrimination (XPD) 0° (dB)	>14	>13	>12
Cross-polar discrimination $\pm 60^\circ$ (dB)	>10	>10	>10
IM3, 2Tx@43dBm (dBc)	<-153	<-153	
IM7, 2Tx@43dBm (dBc)			< -160
Power Handling, Average per input (W)	250		
Power Handling, Average total (W)	500		



Typical Horizontal and Vertical 7745.00 Patterns

All specifications are subject to change without notice.

Contact your Powerwave representative for complete performance data.

Mechanical Specifications

Connector Type	7/16 DIN female, 7745.00 - bottom, 7745.40 - top
Connector Position	Bottom
Dimensions, HxWxD	1934x167x89mm (6'4"x6.6"x3.5")
Wind Load, Frontal, 100 mph Cd=1	412 N (92.6 lbf)
Wind Deflection 78 mph	< 1°
Survival Wind Speed	70m/s (156 mph)
Lightning Protection	DC grounded
Radome Material	PVC
Radome Color	Light Gray
Packing Size	2105x200x200mm (6'11"x8"x8")
Shipping Weight	15.8 kg (34.8 lbs)

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QUALITY AND RELIABILITY

Dual High Broadband Antenna

65° 1.3 m xx-polarized MET Antenna

1710-2170 MHz

Part Number:
7760.x0

Horizontal Beamwidth: 65°
Gain: 18 dBi

Electrical Downtilt: Adjustable
Connector Type: 7/16 DIN

The Powerwave broadband antenna design is based on a patented stacked aperture-coupled patch technology, which provides high isolation performance and a wide VSWR bandwidth. The antennas have superior radiation patterns due to a unique reflector design that provides a very small variation of the -3dB horizontal beam width over the frequency band as well as a high front-to-back ratio. Powerwave broadband antennas come with manually adjustable electrical tilt (MET) for tuning flexibility of tilt angles. This design ensures the highest possible cross-polar discrimination value.



Key Benefits

- Excellent broad- and multi-band capabilities
- Polarization purity makes good diversity gain
- Excellent pattern performance and high gain over frequency
- High passive intermodulation performance
- Light, slim and robust design

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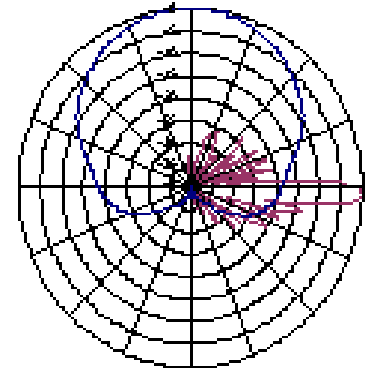
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Dual High Broadband Antenna

Electrical Specifications

Frequency Range (MHz)	2 x 1710 - 2170		
Frequency Band (MHz)	1710 – 1880	1850 – 1990	1900 – 2025, 2110 – 2170
Gain, ±0.5(dBi)	17.5	18	18.5
Polarization	Dual linear ±45°		
Nominal impedance (Ohm)	50		
VSWR, RX	< 1.4:1		
Isolation between inputs (dB)	> 30		
Horizontal -3 dB beamwidth	67° ± 4°	65° ± 4°	63° ± 4°
Horizontal tracking (dB)	< 2.0		
Cross-polar discrimination (XPD) 0° (dB)	> 16	> 18	> 20
Cross-polar discrimination ± 60° (dB)	> 16	> 13	> 10
Vertical -3 dB beamwidth	7.1 ± 0.4°	6.8 ± 0.4°	6.2 ± 0.6°
Electrical downtilt	0° to 8°		
Vertical beam squint	< 0.5°		
Front-to-back ratio, total power (dB)	> 28		
Front-to-back ratio, co-polar (dB)	> 28		
First upper sidelobe suppression (dB)	> 22, 20, 18, 16, 14 @ 0, 2, 4, 6, 8° edt		
First null below horizon (dB)	> -24 (typical >-18)		
Power Handling, Average Per Input (W)	250		
Power Handling, Average Total (W)	1000		
IM, 3rd order, 2Tx@43dBm (dBc)	< -153		
IM, 7th order, 2Tx@43dBm (dBc)	< -160		

All specifications are subject to change without notice.
Contact your Powerwave representative for complete performance data.



Typical Horizontal and Vertical
7760.00 Patterns

Mechanical Specifications

Connector Type	4x 7/16 DIN female, 7760.00 - bottom, 7760.40 - top
Connector Position	Bottom
Dimensions, HxWxD	1320x343x100mm (4'4"x1'2"x4")
Wind load, frontal, 42 m/s Cd=1 (N)	499 N (112 lbf)
Wind Deflection 78 mph	< 1°
Survival Wind Speed	70m/s (156 mph)
Lightning Protection	DC grounded
Radome Material	ASA
Radome Color	Light Gray
Packing Size	1480x400x200mm (4'10"x1'4"x8")
Shipping Weight	20 kg (44 lbs)

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QUALITY AND RELIABILITY

Dual High Broadband Antenna

65° 2.0 m xx-polarized MET Antenna

1710-2170 MHz

Part Number:
7765.x0

Horizontal Beamwidth: 65°
Gain: 19.5 dBi

Electrical Downtilt: Adjustable
Connector Type: 7/16 DIN

The Powerwave broadband antenna design is based on a patented stacked aperture-coupled patch technology, which provides high isolation performance and a wide VSWR bandwidth. The antennas have superior radiation patterns due to a unique reflector design that provides a very small variation of the -3dB horizontal beam width over the frequency band as well as a high front-to-back ratio. Powerwave broadband antennas come with manually adjustable electrical tilt (MET) for tuning flexibility of tilt angles. This design ensures the highest possible cross-polar discrimination value.



Key Benefits

- Excellent broad- and multi-band capabilities
- Polarization purity makes good diversity gain
- Excellent pattern performance and high gain over frequency
- High passive intermodulation performance
- Light, slim and robust design

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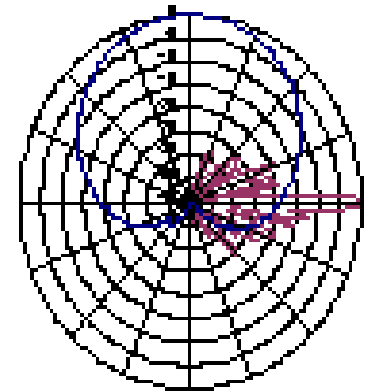
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Dual High Broadband Antenna

Electrical Specifications

Frequency Range (MHz)	2 x 1710 - 2170		
Frequency Band (MHz)	1710 – 1880	1850 – 1990	1900 – 2025, 2110 – 2170
Gain, ± 0.5 (dBi)	18.8	19.2	19.7
Polarization	Dual linear $\pm 45^\circ$		
Nominal impedance (Ohm)	50		
VSWR, RX	< 1.4:1		
Isolation between inputs (dB)	> 30		
Horizontal -3 dB beamwidth	$67^\circ \pm 4^\circ$	$65^\circ \pm 4^\circ$	$63^\circ \pm 4^\circ$
Horizontal tracking (dB)	< 2.0		
Cross-polar discrimination (XPD) 0° (dB)	> 18		
Cross-polar discrimination $\pm 60^\circ$ (dB)	> 10		
Vertical -3 dB beamwidth	$4.7 \pm 0.4^\circ$	$4.4 \pm 0.4^\circ$	$4.2 \pm 0.6^\circ$
Electrical downtilt	0° to 5.5°		
Vertical beam squint	< 0.5°		
Front-to-back ratio, total power (dB)	> 28		
Front-to-back ratio, co-polar (dB)	> 28		
First upper sidelobe suppression (dB)	> 22, 20, 18, 16, 15, 14 @ 0, 1, 2, 3, 4, 5° edt		
First null below horizon (dB)	> -22 (typical > -18)		
Power Handling, Average Per Input (W)	250		
Power Handling, Average Total (W)	1000		
IM, 3rd order, 2Tx@43dBm (dBc)	< -153		
IM, 7th order, 2Tx@43dBm (dBc)	< -160		

All specifications are subject to change without notice.
Contact your Powerwave representative for complete performance data.



Typical Horizontal and Vertical
7765.00 Patterns

Mechanical Specifications

Connector Type	4x 7/16 DIN female, 7765.00 - bottom, 7765.40 - top
Connector Position	Bottom
Dimensions, HxWxD	1934x343x100mm (6'4"x1'2"x4")
Wind load, frontal, 42 m/s Cd=1 (N)	868 N (195 lbf)
Wind Deflection 78 mph	< 1°
Survival Wind Speed	70m/s (156 mph)
Lightning Protection	DC grounded
Radome Material	ASA
Radome Color	Light Gray
Packing Size	2105x400x200mm (6'11"x1'4"x8")
Shipping Weight	24 kg (55 lbs)

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QUALITY AND RELIABILITY

Dual High Broadband Antenna

90° 1.3 m xx-polarized MET Antenna

1710-2170 MHz

Part Number:
7762.x0

Horizontal Beamwidth: 90°
Gain: 16.5 dBi

Electrical Downtilt: Adjustable
Connector Type: 7/16 DIN

The Powerwave broadband antenna design is based on a patented stacked aperture-coupled patch technology, which provides high isolation performance and a wide VSWR bandwidth. The antennas have superior radiation patterns due to a unique reflector design that provides a very small variation of the -3dB horizontal beam width over the frequency band as well as a high front-to-back ratio. Powerwave broadband antennas come with manually adjustable electrical tilt (MET) for tuning flexibility of tilt angles. This design ensures the highest possible cross-polar discrimination value.



Key Benefits

- Excellent broad- and multi-band capabilities
- Polarization purity makes good diversity gain
- Excellent pattern performance and high gain over frequency
- High passive intermodulation performance
- Light, slim and robust design

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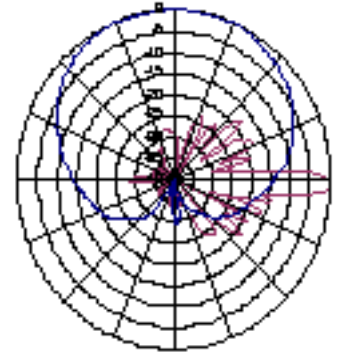
1710-2170 MHz

Dual High Broadband Antenna

Electrical Specifications

Frequency Range	2 x 1710 - 2170		
Frequency Band (MHz)	1710 – 1880	1850 – 1990	1900 – 2025 2110 – 2170
Gain, ± 0.5 (dBi)	16.3	16.5	16.7
Polarization	Dual linear ±45°		
Nominal impedance (Ohm)	50		
VSWR, RX	< 1.4:1		
Isolation between inputs (dB)	> 30		
Horizontal -3 dB beamwidth	89° ± 9°	93° ± 5°	90° ± 7°
Horizontal tracking (dB)	< 2.0		
Cross-polar discrimination (XPD) 0° (dB)	> 16	> 16	> 16
Cross-polar discrimination ± 60° (dB)	> 8	> 8	> 8
Vertical -3 dB beamwidth	7.0 ± 0.5°	6.7 ± 0.5°	6.3 ± 0.9°
Electrical downtilt	0° to 8°		
Vertical beam squint	< 0.5°		
Front-to-back ratio, co-polar (dB)	> 27 dB		
Front-to-back ratio, total power (dB)	> 23 dB		
First upper sidelobe suppression (dB)	> 22, 20, 18, 16, 14 @ 0, 2, 4, 6, 8° EDT		
First null below horizon (dB)	> -25 (typical > -18)		
Power Handling, Average Per Input (W)	> 250		
Power Handling, Average Total (W)	1000		
IM, 3rd order, 2Txa@43 dBc	< -153		
IM, 7th order, 2Txa@43 dBc	< -160		

All specifications are subject to change without notice.
Contact your Powerwave representative for complete performance data.



Typical Horizontal and Vertical
7762.00 Patterns

Mechanical Specifications

Connector Type	4 X 7/16 DIN female, 7762.00 - bottom, 7762.40 - top
Connector Position	Bottom
Dimensions, HxWxD	1320x343x100mm (4'4"x1'2"x4")
Wind Load, Frontal, 42m/s Cd=1	499N (112 lbf)
Wind Deflection 78 mph	< 1°
Survival Wind Speed	70m/s (156 mph)
Lightning Protection	DC grounded
Radome Material	ASA
Radome Color	Light Gray
Packing Size	1480x400x200mm (4'10"x1'4"x8")
Shipping Weight	22 kg (49 lbs)

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QUALITY AND RELIABILITY

Dual High Broadband Antenna

90° 2.0 m x-polarized MET Antenna

1710-2170 MHz

Part Number:
7766.x0

Horizontal Beamwidth: 90°
Gain: 18 dBi

Electrical Downtilt: Adjustable
Connector Type: 7/16 DIN

The Powerwave broadband antenna design is based on a patented stacked aperture-coupled patch technology, which provides high isolation performance and a wide VSWR bandwidth. The antennas have superior radiation patterns due to a unique reflector design that provides a very small variation of the -3dB horizontal beam width over the frequency band as well as a high front-to-back ratio. Powerwave broadband antennas come with manually adjustable electrical tilt (MET) for tuning flexibility of tilt angles. This design ensures the highest possible cross-polar discrimination value.



Key Benefits

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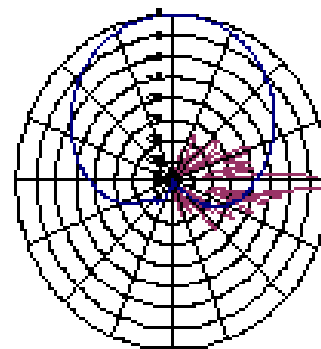
1710-2170 MHz

Dual High Broadband Antenna

Electrical Specifications

Frequency Range	2 x 1710 - 2170		
Frequency Band (MHz)	1710 – 1880	1850 – 1990	1900 – 2025 2110 – 2170
Gain, ± 0.5 (dBi)	17.4	17.6	17.8
Polarization	Dual linear ±45°		
Nominal impedance (Ohm)	50		
VSWR, RX	< 1.4:1		
Isolation between inputs (dB)	> 30		
Horizontal -3 dB beamwidth	89° ± 9°	93° ± 5°	90° ± 7°
Horizontal tracking (dB)	< 2.0		
Cross-polar discrimination (XPD) 0° (dB)	> 16	> 16	> 16
Cross-polar discrimination ± 60° (dB)	> 8	> 8	> 8
Vertical -3 dB beamwidth	4.7 ± 0.5°	4.4 ± 0.5°	4.2 ± 0.9°
Electrical downtilt	0° to 5.5°		
Vertical beam squint	< 0.5°		
Front-to-back ratio, co-polar (dB)	> 27 dB		
Front-to-back ratio, total power (dB)	> 23 dB		
First upper sidelobe suppression (dB)	> 22, 20, 18, 16, 15, 14 @ 0, 1, 2, 3, 4, 5° EDT		
First null below horizon (dB)	> -25 (typical >-18)		
Power Handling, Average Per Input (W)	250		
Power Handling, Average Total (W)	1000		
IM, 3rd order, 2Txa@43 dBc	< -153		
IM, 7th order, 2Txa@43 dBc	< -160		

All specifications are subject to change without notice.
Contact your Powerwave representative for complete performance data.



Typical Horizontal and Vertical
7766.00 Patterns

Mechanical Specifications

Connector Type	4 X 7/16 DIN female, 7766.00 - bottom, 7766.40 - top
Connector Position	Bottom
Dimensions, HxWxD	1934x343x100mm (6'4"x1'2"x4")
Wind Load, Frontal, 42m/s Cd=1	868N (195 lbf)
Wind Deflection 78 mph	< 1°
Survival Wind Speed	70m/s (156 mph)
Lightning Protection	DC grounded
Radome Material	ASA
Radome Color	Light Gray
Packing Size	2105x400x200mm (6'11"x1'4"x8")
Shipping Weight	26 kg (57 lbs)

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COVERAGE AND CAPACITY

TECHNOLOGY LEADERSHIP

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INTEGRATED SOLUTIONS

QUALITY AND RELIABILITY

ALXC Dualband Antenna

65° 1.5 m X-polarized FET Antenna

870-960/1710-1880 MHz

Part Number: 7329.00	Horizontal Beamwidth: 65° Gain: 15.5/15 dBi (13.4/12.9 dBd)	Electrical Downtilt: 0 ° Connector Type: 7/16 DIN female
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The Powerwave® ALXC is a dual-polarized dualband 900/1800 MHz antenna with outstanding performance characteristics. Its outer radome is made of glass-fiber reinforced polyester (GRP), while the inner RF-module utilizes sophisticated patch technology for covering the two frequencies. ALXC radiating elements are based on a patented dualband function that allowed designing an antenna matched for two or several frequency bands, with no need for diplex filters. This technique minimizes intermodular distortion, while generating less loss and ensuring higher gain, maximum efficiency, for each set of beamwidths. The ALXC is available in a number of variants, to provide the widest range of solutions for specific individual cell-planning strategies implemented by Powerwave clients. Research and field studies conducted in cooperation with system suppliers and operators establish the Powerwave dualband concept as an outstanding technique for enhancing system performance and cutting costs.



Key Benefits

- High gain performance
- Light and slim design
- Robust and reliable
- Pre-mounted brackets
- Guaranteed passive intermodulation performance

ANTENNA
SYSTEMS

BASE STATION
SYSTEMS

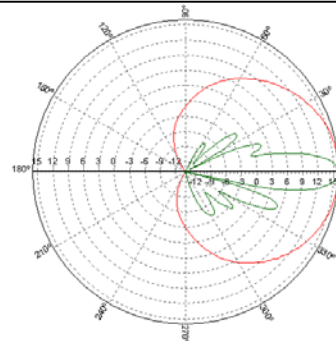
COVERAGE
SYSTEMS

ALXC Dual Band Antenna

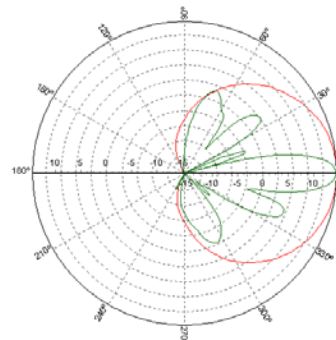
Electrical Specifications

Frequency band (MHz)	870-960 / 1710-1880
Gain, ± 0.5 (dBi, dBd)	15.5/15.0, 13.4/12.9
Polarization	Dual linear slanted
Nominal Impedance (Ohm)	50
VSWR	<1.5:1
Isolation between inputs (dB)	>30
Horizontal -3 dB beamwidth	65° +/-5
Electrical downtilt	0°
Vertical -3dB Beam width	13/13°
Sidelobe suppression, Vertical 1 st upper (dB)	>13 / 15
First null-fill (dB)	>-20
Front-to-back ratio (dB)	>26
Front-to-back ratio, total power (dB)	>22
Cross-polar discrimination (dB)	>11
IM3, 2Tx@43dBm (dBc)	>-150
Power Handling, Average per input (W)	300
Power Handling, Average total (W)	600

All specifications are subject to change without notice.
Contact your Powerwave representative for complete performance data.



Typical Horizontal and Vertical 7329.00 Patterns
925 MHz



Typical Horizontal and Vertical 7329.00 Patterns
1805 MHz

Mechanical Specifications

Connector Type	7/16 DIN female
Dimensions, HxWxD	1450x280x125mm (4'9"x11"x5")
Weight with Brackets	10.8kg (24 lbs)
Wind Load, Frontal, 42 m/s Cd=1 (N)	450
Survival Wind Speed	70m/s (156 mph)
Lightning Protection	DC Grounded
Radome Material	GRP
Radome Color	Light gray RAL 7035 on all visible plastic parts
Packing Size	1620x355x255mm (5'4"x1'2"x10")
Shipping weight	13.5kg (30 lbs)

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COVERAGE AND CAPACITY

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ALXC Dualband Antenna

65° 1.5 m X-polarized FET Antenna

870-960/1710-1880 MHz

Part Number: 7329.06	Horizontal Beamwidth: 65° Gain: 15.5/15 dBi (13.4/12.9 dBd)	Electrical Downtilt: 6 ° Connector Type: 7/16 DIN female
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The Powerwave® ALXC is a dual-polarized dualband 900/1800 MHz antenna with outstanding performance characteristics. Its outer radome is made of glass-fiber reinforced polyester (GRP), while the inner RF-module utilizes sophisticated patch technology for covering the two frequencies. ALXC radiating elements are based on a patented dualband function that allowed designing an antenna matched for two or several frequency bands, with no need for diplex filters. This technique minimizes intermodular distortion, while generating less loss and ensuring higher gain, maximum efficiency, for each set of beamwidths. The ALXC is available in a number of variants, to provide the widest range of solutions for specific individual cell-planning strategies implemented by Powerwave clients. Research and field studies conducted in cooperation with system suppliers and operators establish the Powerwave dualband concept as an outstanding technique for enhancing system performance and cutting costs.



Key Benefits

- High gain performance
- Light and slim design
- Robust and reliable
- Pre-mounted brackets
- Guaranteed passive intermodulation performance

ANTENNA
SYSTEMS

BASE STATION
SYSTEMS

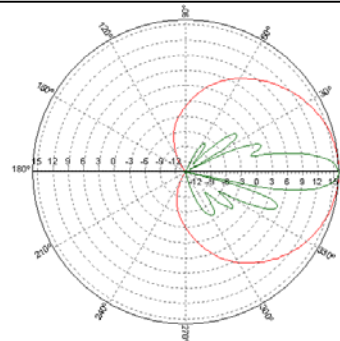
COVERAGE
SYSTEMS

ALXC Dual Band Antenna

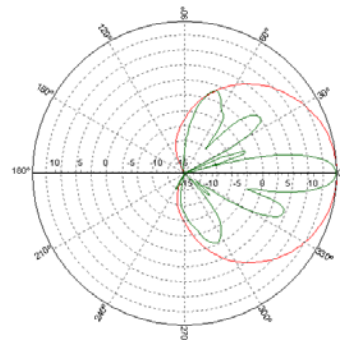
Electrical Specifications

Frequency band (MHz)	870-960 / 1710-1880
Gain, \pm 0.5 (dBi, dBd)	15.5/15.0, 13.4/12.9
Polarization	Dual linear slanted
Nominal Impedance (Ohm)	50
VSWR	<1.5:1
Isolation between inputs (dB)	>30
Horizontal -3 dB beamwidth	65° +/-5
Electrical downtilt	6°
Vertical -3dB Beam width	13/13°
Sidelobe suppression, Vertical 1 st upper (dB)	>13 / 15
First null-fill (dB)	>-20
Front-to-back ratio (dB)	>26
Front-to-back ratio, total power (dB)	>22
Cross-polar discrimination (dB)	>11
IM3, 2Tx@43dBm (dBc)	>-150
Power Handling, Average per input (W)	300
Power Handling, Average total (W)	600

All specifications are subject to change without notice.
Contact your Powerwave representative for complete performance data.



Typical Horizontal and Vertical 7329.00 Patterns
925 MHz



Typical Horizontal and Vertical 7329.00 Patterns
1805 MHz

Mechanical Specifications

Connector Type	7/16 DIN female
Dimensions, HxWxD	1450x280x125mm (4'9"x11"x5")
Weight with Brackets	10.8kg (24 lbs)
Wind Load, Frontal, 42 m/s Cd=1 (N)	450
Survival Wind Speed	70m/s (156 mph)
Lightning Protection	DC Grounded
Radome Material	GRP
Radome Color	Light gray RAL 7035 on all visible plastic parts
Packing Size	1620x355x255mm (5'4"x1'2"x10")
Shipping weight	13.5kg (30 lbs)

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ALXC Dualband Antenna

65° 1.5 m X-polarized FET Antenna

870-960/1710-1880 MHz

Part Number: 7330.00	Horizontal Beamwidth: 65° Gain: 15.5/17.5 dBi (13.4/15.4 dBd)	Electrical Downtilt: 0° Connector Type: 7/16 DIN female
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The Powerwave® ALXC is a dual-polarized dualband 900/1800 MHz antenna with outstanding performance characteristics. Its outer radome is made of glass-fiber reinforced polyester (GRP), while the inner RF-module utilizes sophisticated patch technology for covering the two frequencies. ALXC radiating elements are based on a patented dualband function that allowed designing an antenna matched for two or several frequency bands, with no need for diplex filters. This technique minimizes intermodular distortion, while generating less loss and ensuring higher gain, maximum efficiency, for each set of beamwidths. The ALXC is available in a number of variants, to provide the widest range of solutions for specific individual cell-planning strategies implemented by Powerwave clients. Research and field studies conducted in cooperation with system suppliers and operators establish the Powerwave dualband concept as an outstanding technique for enhancing system performance and cutting costs.



Key Benefits

- High gain performance
- Light and slim design
- Robust and reliable
- Pre-mounted brackets
- Guaranteed passive intermodulation performance

ANTENNA
SYSTEMS

BASE STATION
SYSTEMS

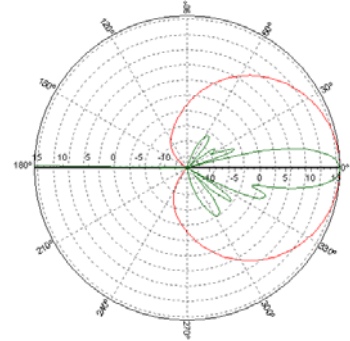
COVERAGE
SYSTEMS

ALXC Dualband Antenna

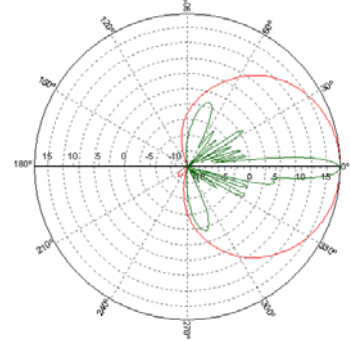
Electrical Specifications

Frequency band (MHz)	870-960 / 1710-1880
Gain, ± 0.5 (dBi, dBd)	15.5/17.5, 13.4/15.4
Polarization	Dual linear slanted
Nominal Impedance (Ohm)	50
VSWR	<1.5:1
Isolation between inputs (dB)	>30
Horizontal tracking (dB)	<2
Cross-polar discrimination (dB)	>11
Horizontal -3 dB beamwidth	65° +/-5
Electrical downtilt	0°
Vertical -3dB Beam width	13/7°
Vertical beam squint	<0.5°
Sidelobe suppression, Vertical 1 st upper (dB)	>16
First null-fill (dB)	>-20/-18
Front-to-back ratio (dB)	>26
Front-to-back ratio, total power (dB)	>22
IM3, 2Tx@43dBm (dBc)	>-150
Power Handling, Average per input (W)	300
Power Handling, Average total (W)	600

All specifications are subject to change without notice.
Contact your Powerwave representative for complete performance data.



Typical Horizontal and Vertical 7330.00 Patterns
925 MHz



Typical Horizontal and Vertical 7330.00 Patterns
1805 MHz

Mechanical Specifications

Connector Type	7/16 DIN female
Dimensions, HxWxD	1450x280x125mm (4'9"x11"x5")
Weight with Brackets	10.8kg (24 lbs)
Wind Load, Frontal, 42 m/s Cd=1 (N)	450
Survival Wind Speed	70m/s (156 mph)
Lightning Protection	DC Grounded
Radome Material	GRP
Radome Color	Light gray RAL 7035 on all visible plastic parts
Packing Size	1620x355x255mm (5'4"x1'2"x10")
Shipping weight	13.5kg (30 lbs)

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Dual Band ALXC Antenna

65° 1.5 m X-polarized FET Antenna

870-960/1710-1880 MHz

Part Number: 7330.02	Horizontal Beamwidth: 65° Gain: 15.5/17.5 dBi /13.4/15.4 dBd	Electrical Downtilt: 2° Connector Type: 7/16 DIN female
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The Powerwave® ALXC is a dual-polarized dualband 900/1800 MHz antenna with outstanding performance characteristics. Its outer radome is made of glass-fiber reinforced polyester (GRP), while the inner RF-module utilizes sophisticated patch technology for covering the two frequencies. ALXC radiating elements are based on a patented dualband function that allowed designing an antenna matched for two or several frequency bands, with no need for diplex filters. This technique minimizes intermodular distortion, while generating less loss and ensuring higher gain, maximum efficiency, for each set of beamwidths. The ALXC is available in a number of variants, to provide the widest range of solutions for specific individual cell-planning strategies implemented by Powerwave clients. Research and field studies conducted in cooperation with system suppliers and operators establish the Powerwave dualband concept as an outstanding technique for enhancing system performance and cutting costs.



Key Benefits

- High gain performance
- Light and slim design
- Robust and reliable
- Pre-mounted brackets
- Guaranteed passive intermodulation performance

ANTENNA
SYSTEMS

BASE STATION
SYSTEMS

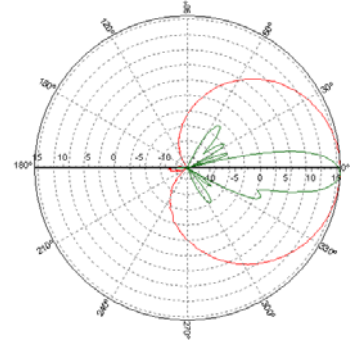
COVERAGE
SYSTEMS

Dual Band ALXC Antenna

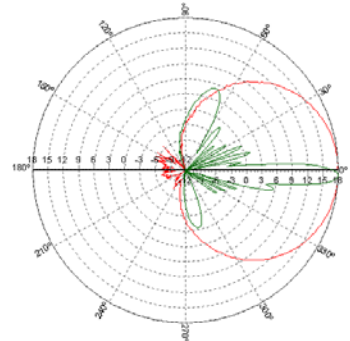
Electrical Specifications

Frequency band (MHz)	870-960 / 1710-1880
Gain, ± 0.5 (dBi, dBd)	15.5/17.5, 13.4/15.4
Polarization	Dual linear slanted
Nominal Impedance (Ohm)	50
VSWR	<1.5:1
Isolation between inputs(dB)	>30
Horizontal tracking (dB)	<2
Cross-polar discrimination (dB)	>11
Horizontal -3 dB beamwidth	65° +/-5
Electrical downtilt	2°
Vertical -3dB Beam width	13/7°
Vertical beam squint	<0.5°
Sidelobe suppression, Vertical 1 st upper (dB)	>16
First null-fill (dB)	>-20/-18
Front-to-back ratio (dB)	>26
Front-to-back ratio, total power (dB)	>22
IM3, 2Tx@43dBm (dBc)	>-150
Power Handling, Average per input (W)	300
Power Handling, Average total (W)	600

All specifications are subject to change without notice.
Contact your Powerwave representative for complete performance data.



Typical Horizontal and Vertical 7330.02 Patterns
925 MHz



Typical Horizontal and Vertical 7330.02 Patterns
1805 MHz

Mechanical Specifications

Connector Type	7/16 DIN female
Dimensions, HxWxD	1450x280x125mm (4'9"x11"x5")
Weight with Brackets	10.8kg (24 lbs)
Wind Load, Frontal, 42 m/s Cd=1 (N)	450
Survival Wind Speed	70m/s (156 mph)
Lightning Protection	DC Grounded
Radome Material	GRP
Radome Color	Light gray RAL 7035 on all visible plastic parts
Packing Size	1620x355x255mm (5'4"x1'2"x10")
Shipping weight	13.5kg (30 lbs)

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Dual Band ALXC Antenna

65° 1.5 m X-polarized FET Antenna

870-960/1710-1880 MHz

Part Number: 7330.04	Horizontal Beamwidth: 65° Gain: 15.5/17.5 dBi / 13.4/15.4 dBd	Electrical Downtilt: 4 ° Connector Type: 7/16 DIN female
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The Powerwave® ALXC is a dual-polarized dualband 900/1800 MHz antenna with outstanding performance characteristics. Its outer radome is made of glass-fiber reinforced polyester (GRP), while the inner RF-module utilizes sophisticated patch technology for covering the two frequencies. ALXC radiating elements are based on a patented dualband function that allowed designing an antenna matched for two or several frequency bands, with no need for diplex filters. This technique minimizes intermodular distortion, while generating less loss and ensuring higher gain, maximum efficiency, for each set of beamwidths. The ALXC is available in a number of variants, to provide the widest range of solutions for specific individual cell-planning strategies implemented by Powerwave clients. Research and field studies conducted in cooperation with system suppliers and operators establish the Powerwave dualband concept as an outstanding technique for enhancing system performance and cutting costs.



Key Benefits

- High gain performance
- Light and slim design
- Robust and reliable
- Pre-mounted brackets
- Guaranteed passive intermodulation performance

ANTENNA
SYSTEMS

BASE STATION
SYSTEMS

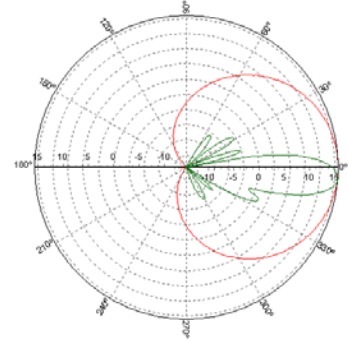
COVERAGE
SYSTEMS

ALXC Dualband Antenna

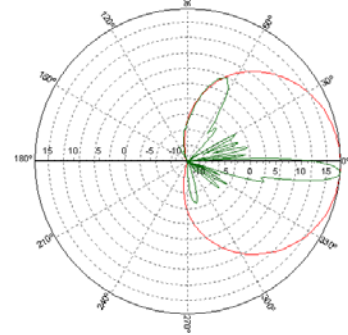
Electrical Specifications

Frequency band (MHz)	870-960 / 1710-1880
Gain, ± 0.5 (dBi, dBd)	15.5/17.5, 13.4/15.4
Polarization	Dual linear slanted
Nominal Impedance (Ohm)	50
VSWR	<1.5:1
Isolation between inputs (dB)	>30
Horizontal tracking (dB)	<2
Cross-polar discrimination (dB)	>11
Horizontal -3 dB beamwidth	65° +/-5
Electrical downtilt	4°
Vertical -3dB Beam width	13/7°
Vertical beam squint	<0.5°
Sidelobe suppression, Vertical 1 st upper (dB)	>16
First null-fill (dB)	>-20/-18
Front-to-back ratio (dB)	>26
Front-to-back ratio, total power (dB)	>22
IM3, 2Tx @43dBm (dBc)	>-150
Power Handling, Average per input (W)	300
Power Handling, Average total (W)	600

All specifications are subject to change without notice.
Contact your Powerwave representative for complete performance data.



Typical Horizontal and Vertical 7330.04 Patterns
925 MHz



Typical Horizontal and Vertical 7330.04 Patterns
1805 MHz

Mechanical Specifications

Connector Type	7/16 DIN female
Dimensions, HxWxD	1450x280x125mm (4'9"x11"x5")
Weight with Brackets	10.8kg (24 lbs)
Wind Load, Frontal, 42 m/s Cd=1 (N)	450
Survival Wind Speed	70m/s (156 mph)
Lightning Protection	DC Grounded
Radome Material	GRP
Radome Color	Light gray RAL 7035 on all visible plastic parts
Packing Size	1620x355x255mm (5'4"x1'2"x10")
Shipping weight	13.5kg (30 lbs)

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Dual Band ALXC Antenna

65° 1.5 m X-polarized FET Antenna

870-960/1710-1880 MHz

Part Number: 7330.06	Horizontal Beamwidth: 65° Gain: 15.5/17.5 dBi / 13.4/15.4 dBd	Electrical Downtilt: 6 ° Connector Type: 7/16 DIN female
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The Powerwave® ALXC is a dual-polarized dualband 900/1800 MHz antenna with outstanding performance characteristics. Its outer radome is made of glass-fiber reinforced polyester (GRP), while the inner RF-module utilizes sophisticated patch technology for covering the two frequencies. ALXC radiating elements are based on a patented dualband function that allowed designing an antenna matched for two or several frequency bands, with no need for diplex filters. This technique minimizes intermodular distortion, while generating less loss and ensuring higher gain, maximum efficiency, for each set of beamwidths. The ALXC is available in a number of variants, to provide the widest range of solutions for specific individual cell-planning strategies implemented by Powerwave clients. Research and field studies conducted in cooperation with system suppliers and operators establish the Powerwave dualband concept as an outstanding technique for enhancing system performance and cutting costs.



Key Benefits

- High gain performance
- Light and slim design
- Robust and reliable
- Pre-mounted brackets
- Guaranteed passive intermodulation performance

ANTENNA
SYSTEMS

BASE STATION
SYSTEMS

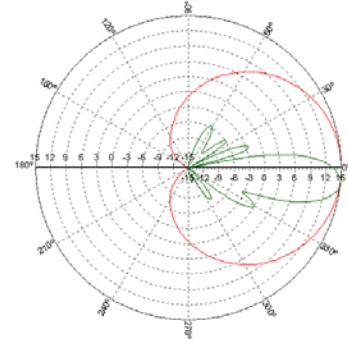
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Dual Band ALXC Antenna

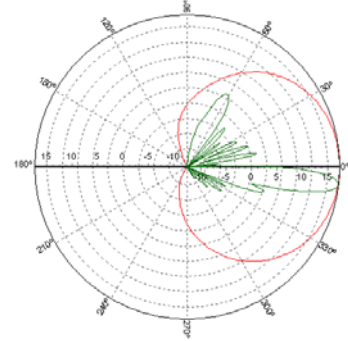
Electrical Specifications

Frequency band (MHz)	870-960 / 1710-1880
Gain, ± 0.5 (dBi, dBd)	15.5/17.5, 13.4/15.4
Polarization	Dual linear slanted
Nominal Impedance (Ohm)	50
VSWR	<1.5:1
Isolation between inputs (dB)	>30
Horizontal tracking (dB)	<2
Cross-polar discrimination (dB)	>11
Horizontal -3 dB beamwidth	65° +/-5
Electrical downtilt	6°
Vertical -3dB Beam width	13/7°
Vertical beam squint	<0.5°
Sidelobe suppression, Vertical 1 st upper (dB)	>16
First null-fill (dB)	>-20/-18
Front-to-back ratio (dB)	>26
Front-to-back ratio, total power (dB)	>22
IM3, 2Tx@43dBm (dBc)	>-150
Power Handling, Average per input (W)	300
Power Handling, Average total (W)	600

All specifications are subject to change without notice.
Contact your Powerwave representative for complete performance data.



Typical Horizontal and Vertical 7330.06 Patterns
925 MHz



Typical Horizontal and Vertical 7330.06 Patterns
1805 MHz

Mechanical Specifications

Connector Type	7/16 DIN female
Dimensions, HxWxD	1450x280x125mm (4'9"x11"x5")
Weight with Brackets	10.8kg (24 lbs)
Wind Load, Frontal, 42 m/s Cd=1 (N)	450
Survival Wind Speed	70m/s (156 mph)
Lightning Protection	DC Grounded
Radome Material	GRP
Radome Color	Light gray RAL 7035 on all visible plastic parts
Packing Size	1620x355x255mm (5'4"x1'2"x10")
Shipping weight	13.5kg (30 lbs)

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QUALITY AND RELIABILITY

Dual Band ALXC Antenna

65° 2.0 m X-polarized FET Antenna

870-960/1710-1880 MHz

Part Number: 7331.00	Horizontal Beamwidth: 65° Gain: 16.5/16 dBi / 14.4/13.9 dBd	Electrical Downtilt: 0 ° Connector Type: 7/16 DIN female
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The Powerwave® ALXC is a dual-polarized dualband 900/1800 MHz antenna with outstanding performance characteristics. Its outer radome is made of glass-fiber reinforced polyester (GRP), while the inner RF-module utilizes sophisticated patch technology for covering the two frequencies. ALXC radiating elements are based on a patented dualband function that allowed designing an antenna matched for two or several frequency bands, with no need for diplex filters. This technique minimizes intermodular distortion, while generating less loss and ensuring higher gain, maximum efficiency, for each set of beamwidths. The ALXC is available in a number of variants, to provide the widest range of solutions for specific individual cell-planning strategies implemented by Powerwave clients. Research and field studies conducted in cooperation with system suppliers and operators establish the Powerwave dualband concept as an outstanding technique for enhancing system performance and cutting costs.



Key Benefits

- High gain performance
- Light and slim design
- Robust and reliable
- Pre-mounted brackets
- Guaranteed passive intermodulation performance

ANTENNA
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BASE STATION
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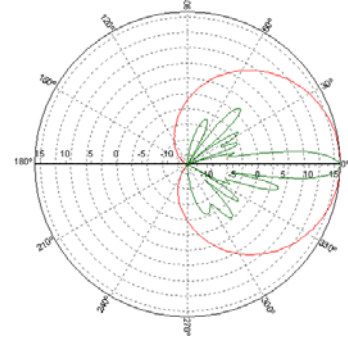
COVERAGE
SYSTEMS

Dual Band ALXC Antenna

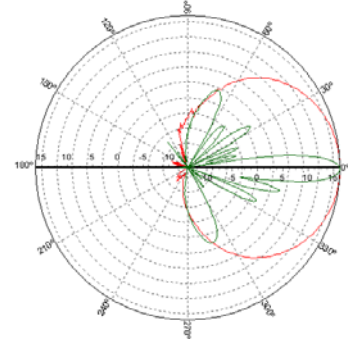
Electrical Specifications

Frequency band (MHz)	870-960 / 1710-1880
Gain, ± 0.5 (dBi, dBd)	16.5/16 14.4/13.9
Polarization	Dual linear slanted
Nominal Impedance (Ohm)	50
VSWR	<1.5:1
Isolation between inputs(dB)	>30
Horizontal tracking (dB)	<2
Cross-polar discrimination (dB)	>11
Horizontal -3 dB beamwidth	65° +/-5
Electrical downtilt	0°
Vertical -3dB Beam width	9°/9°
Vertical beam squint	<0.5°
Sidelobe suppression, Vertical 1 st upper (dB)	>16
First null-fill (dB)	>-22/-22
Front-to-back ratio (dB)	>25
Front-to-back ratio, total power (dB)	>21
IM3, 2Tx@43dBm (dBc)	>-150
Power Handling, Average per input (W)	300
Power Handling, Average total (W)	600

All specifications are subject to change without notice.
Contact your Powerwave representative for complete performance data.



Typical Horizontal and Vertical 7331.00 Patterns
925 MHz



Typical Horizontal and Vertical 7331.00 Patterns
1805 MHz

Mechanical Specifications

Connector Type	7/16 DIN female
Dimensions, HxWxD	1990x280x125mm (6'6"x11"x5")
Weight with Brackets	13.5kg (30 lbs)
Wind Load, Frontal, 42 m/s Cd=1 (N)	610
Survival Wind Speed	70m/s (156 mph)
Lightning Protection	DC Grounded
Radome Material	GRP
Radome Color	Light gray RAL 7035 on all visible plastic parts
Packing Size	2160x355x255mm (7'1"x1'2"x10")
Shipping weight	16.5kg (36.4 lbs)

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Dual Band ALXC Antenna

65° 2.0 m X-polarized FET Antenna

870-960/1710-1880 MHz

Part Number:
7331.02

Horizontal Beamwidth: 65°
Gain: 16.5/16 dBi / 14.4/13.9 dBd

Electrical Downtilt: 2°
Connector Type: 7/16 DIN female

The Powerwave® ALXC is a dual-polarized dualband 900/1800 MHz antenna with outstanding performance characteristics. Its outer radome is made of glass-fiber reinforced polyester (GRP), while the inner RF-module utilizes sophisticated patch technology for covering the two frequencies. ALXC radiating elements are based on a patented dualband function that allowed designing an antenna matched for two or several frequency bands, with no need for diplex filters. This technique minimizes intermodular distortion, while generating less loss and ensuring higher gain, maximum efficiency, for each set of beamwidths. The ALXC is available in a number of variants, to provide the widest range of solutions for specific individual cell-planning strategies implemented by Powerwave clients. Research and field studies conducted in cooperation with system suppliers and operators establish the Powerwave dualband concept as an outstanding technique for enhancing system performance and cutting costs.



Key Benefits

- High gain performance
- Light and slim design
- Robust and reliable
- Pre-mounted brackets
- Guaranteed passive intermodulation performance

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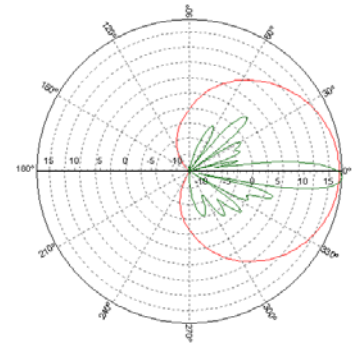
COVERAGE
SYSTEMS

Dual Band ALXC Antenna

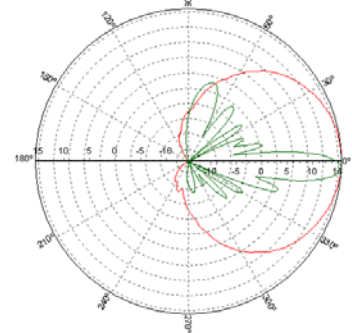
Electrical Specifications

Frequency band (MHz)	870-960 / 1710-1880
Gain, ± 0.5 (dBi, dBd)	16.5/16 14.4/13.9
Polarization	Dual linear slanted
Nominal Impedance (Ohm)	50
VSWR	<1.5:1
Isolation between inputs(dB)	>30
Horizontal tracking (dB)	<2
Cross-polar discrimination (dB)	>11
Horizontal -3 dB beamwidth	65° +/-5
Electrical downtilt	2°
Vertical -3dB Beam width	9°/9°
Vertical beam squint	<0.5°
Sidelobe suppression, Vertical 1 st upper (dB)	>16
First null-fill (dB)	>-22/-22
Front-to-back ratio (dB)	>25
Front-to-back ratio, total power (dB)	>21
IM3, 2Tx@43dBm (dBc)	>-150
Power Handling, Average per input (W)	300
Power Handling, Average total (W)	600

All specifications are subject to change without notice.
Contact your Powerwave representative for complete performance data.



Typical Horizontal and Vertical 7331.02 Patterns
925 MHz



Typical Horizontal and Vertical 7331.02 Patterns
1805 MHz

Mechanical Specifications

Connector Type	7/16 DIN female
Dimensions, HxWxD	1990x280x125mm (6'6"x11"x5")
Weight with Brackets	13.5kg (30 lbs)
Wind Load, Frontal, 42 m/s Cd=1 (N)	610
Survival Wind Speed	70m/s (156 mph)
Lightning Protection	DC Grounded
Radome Material	GRP
Radome Color	Light gray RAL 7035 on all visible plastic parts
Packing Size	2160x355x255mm (7'1"x1'2"x10")
Shipping weight	16.5kg (36.4 lbs)

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Dual Band ALXC Antenna

65° 2.0 m X-polarized FET Antenna

870-960/1710-1880 MHz

Part Number: 7331.04	Horizontal Beamwidth: 65° Gain: 16.5/16 dBi / 14.4/13.9 dBd	Electrical Downtilt: 4° Connector Type: 7/16 DIN female
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The Powerwave® ALXC is a dual-polarized dual band 900/1800 MHz antenna with outstanding performance characteristics. Its outer radome is made of glass-fiber reinforced polyester (GRP), while the inner RF-module utilizes sophisticated patch technology for covering the two frequencies. ALXC radiating elements are based on a patented dual band function that allowed designing an antenna matched for two or several frequency bands, with no need for diplex filters. This technique minimizes intermodular distortion, while generating less loss and ensuring higher gain, maximum efficiency, for each set of beamwidths. The ALXC is available in a number of variants, to provide the widest range of solutions for specific individual cell-planning strategies implemented by Powerwave clients. Research and field studies conducted in cooperation with system suppliers and operators establish the Powerwave dual band concept as an outstanding technique for enhancing system performance and cutting costs.



Key Benefits

- High gain performance
- Light and slim design
- Robust and reliable
- Pre-mounted brackets
- Guaranteed passive intermodulation performance

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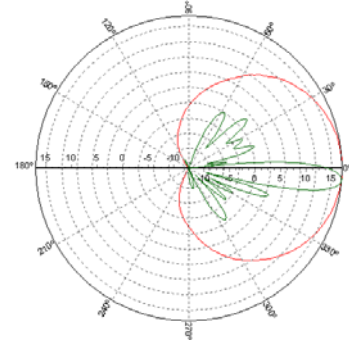
COVERAGE
SYSTEMS

Dual Band ALXC Antenna

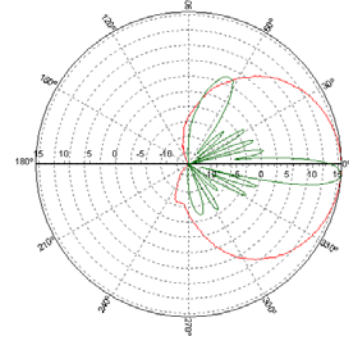
Electrical Specifications

Frequency band (MHz)	870-960 / 1710-1880
Gain, ± 0.5 (dBi, dBd)	16.5/16 14.4/13.9
Polarization	Dual linear slanted
Nominal Impedance (Ohm)	50
VSWR	<1.5:1
Isolation between inputs(dB)	>30
Horizontal tracking (dB)	<2
Cross-polar discrimination (dB)	>11
Horizontal -3 dB beamwidth	65° +/-5
Electrical downtilt	4°
Vertical -3dB Beam width	9°/9°
Vertical beam squint	<0.5°
Sidelobe suppression, Vertical 1 st upper (dB)	>16
First null-fill (dB)	>-22/-22
Front-to-back ratio (dB)	>25
Front-to-back ratio, total power (dB)	>21
IM3, 2Tx@43dBm (dBc)	>-150
Power Handling, Average per input (W)	300
Power Handling, Average total (W)	600

All specifications are subject to change without notice.
Contact your Powerwave representative for complete performance data.



Typical Horizontal and Vertical 7331.04 Patterns
925 MHz



Typical Horizontal and Vertical 7331.04 Patterns
1805 MHz

Mechanical Specifications

Connector Type	7/16 DIN female
Dimensions, HxWxD	1990x280x125mm (6'6"x11"x5")
Weight with Brackets	13.5kg (30 lbs)
Wind Load, Frontal, 42 m/s Cd=1 (N)	610
Survival Wind Speed	70m/s (156 mph)
Lightning Protection	DC Grounded
Radome Material	GRP
Radome Color	Light gray RAL 7035 on all visible plastic parts
Packing Size	2160x355x255mm (7'1"x1'2"x10")
Shipping weight	16.5kg (36.4 lbs)

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Dual Band ALXC Antenna

65° 2.0 m X-polarized FET Antenna

870-960/1710-1880 MHz

Part Number: 7331.06	Horizontal Beamwidth: 65° Gain: 16.5/16 dBi/14.4/13.9 dBd	Electrical Downtilt: 6° Connector Type: 7/16 DIN female
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The Powerwave® ALXC is a dual-polarized dual band 900/1800 MHz antenna with outstanding performance characteristics. Its outer radome is made of glass-fiber reinforced polyester (GRP), while the inner RF-module utilizes sophisticated patch technology for covering the two frequencies. ALXC radiating elements are based on a patented dual band function that allowed designing an antenna matched for two or several frequency bands, with no need for diplex filters. This technique minimizes intermodular distortion, while generating less loss and ensuring higher gain, maximum efficiency, for each set of beamwidths. The ALXC is available in a number of variants, to provide the widest range of solutions for specific individual cell-planning strategies implemented by Powerwave clients. Research and field studies conducted in cooperation with system suppliers and operators establish the Powerwave dual band concept as an outstanding technique for enhancing system performance and cutting costs.



Key Benefits

- High gain performance
- Light and slim design
- Robust and reliable
- Pre-mounted brackets
- Guaranteed passive intermodulation performance

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BASE STATION
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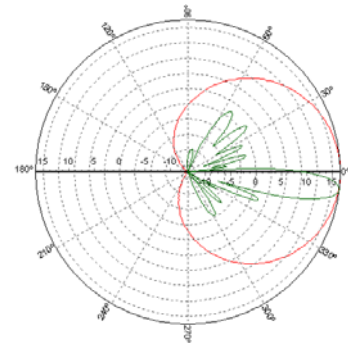
COVERAGE
SYSTEMS

Dual Band ALXC Antenna

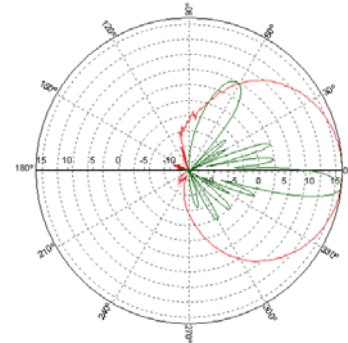
Electrical Specifications

Frequency band (MHz)	870-960 / 1710-1880
Gain, ± 0.5 (dBi, dBd)	16.5/16 14.4/13.9
Polarization	Dual linear slanted
Nominal Impedance (Ohm)	50
VSWR	<1.5:1
Isolation between inputs (dB)	>30
Horizontal tracking (dB)	<2
Cross-polar discrimination (dB)	>11
Horizontal -3 dB beamwidth	65° +/-5
Electrical downtilt	6°
Vertical -3dB Beam width	9°/9°
Vertical beam squint	<0.5°
Sidelobe suppression, Vertical 1 st upper (dB)	>16
First null-fill (dB)	>-22/-22
Front-to-back ratio (dB)	>25
Front-to-back ratio, total power (dB)	>21
IM3, 2Tx@43dBm (dBc)	>-150
Power Handling, Average per input (W)	300
Power Handling, Average total (W)	600

All specifications are subject to change without notice.
Contact your Powerwave representative for complete performance data.



Typical Horizontal and Vertical 7331.06 Patterns
925 MHz



Typical Horizontal and Vertical 7331.06 Patterns
1805 MHz

Mechanical Specifications

Connector Type	7/16 DIN female
Dimensions, HxWxD	1990x280x125mm (6'6"x11"x5")
Weight with Brackets	13.5kg (30 lbs)
Wind Load, Frontal, 42 m/s Cd=1 (N)	610
Survival Wind Speed	70m/s (156 mph)
Lightning Protection	DC Grounded
Radome Material	GRP
Radome Color	Light gray RAL 7035 on all visible plastic parts
Packing Size	2160x355x255mm (7'1"x1'2"x10")
Shipping weight	16.5kg (36.4 lbs)

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Dual Broadband Antenna

65° 1.4 m X-polarized MET Antenna

824-960/1710-2170 MHz

Part Number: 7750.x0 | Horizontal Beamwidth: 65° | Gain: 14.2/17.5 dBi/12.1/15.4 dBd | Electrical Downtilt: Adjustable | Connector Type: 7/16 DIN female

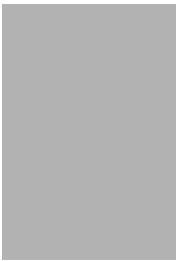
The Powerwave broadband antenna design is based on a patented stacked aperture-coupled patch technology, which provides high isolation performance and a wide VSWR bandwidth. The antennas have superior radiation patterns due to a unique reflector design that provides a very small variation of the -3dB horizontal beam width over the frequency band as well as a high front-to-back ratio. Powerwave broadband antennas come with manually adjustable electrical tilt (MET) for tuning flexibility of tilt angles. This design ensures the highest possible cross-polar discrimination value.

Available with Powerwave's pre-mounted RET solution and upgradeable in field.



Key Benefits

- Excellent broad- and multi-band capabilities
- Polarization purity maximizes diversity gain
- Excellent pattern performance and high gain over frequency
- Guaranteed passive intermodulation performance
- Light, slim and robust design

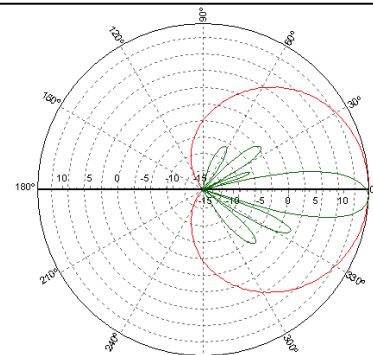


Dual Broadband Antenna

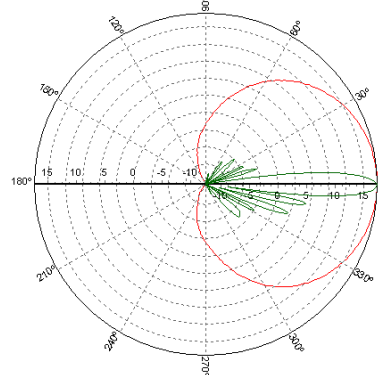
Electrical Specifications

Frequency band (MHz)	824-960	1710-2170
Gain, ± 0.5 dB (dBi)/(dBd)	14.2/12.1	17.5/15.4
Polarization	Dual linear $\pm 45^\circ$	
Nominal Impedance (Ohm)	50	
VSWR	1.5:1	1.5:1
VSWR		1.5:1
Isolation between inputs (dB)	30	
Isolation between inputs (dB)		30
Inter band isolation (dB)	40	
Horizontal -3 dB beamwidth	$69 \pm 6^\circ$	$63 \pm 7^\circ$
Tracking, Horizontal plane, $\pm 60^\circ$ (dB)	<1.0	
Tracking, Horizontal plane, $\pm 60^\circ$ (dB)		<2.0
Electrical downtilt range (adjustable)	2° to 12°	0° to 8°
Vertical -3 dB beamwidth	$14.3 \pm 2.0^\circ$	$6.6 \pm 1^\circ$
Sidelobe suppression,	> 18,17,16,16,15,15	> 18,18,16,15,14
Vertical 1 st upper (dB)	x=2, 4, 6, 8,10,12° MET	x=0, 2, 4, 6, 8° MET
Vertical beam squint	1.5°	0.8°
First null-fill (dB)	<-25	<-25
Front-to-back ratio (dB)	>27	>27
Front-to-back ratio, total power (dB)	>24	>24
IM3, @2x43dBm (dBc)	<-153	
IM3, @2x43dBm (dBc)		<-153
Average IM7, 2Tx@43dBm (dBc)		<-160
Power Handling, Average per input (W)	300	250
Power Handling, Average total (W)	600	500

All specifications are subject to change without notice.
Contact factory for complete performance data.



Typical 800 MHz Horizontal and Vertical



Typical 1900 MHz Horizontal and Vertical

Mechanical Specifications

Connector Type	7/16 DIN female, 7750.00 - bottom, 7750.40 - top
Connector Position	Bottom
Dimensions, HxWxD	1408mm x 280mm x 125mm (4'7"x11"x5")
Weight Including Brackets	15.8 kg (35 lbs)
Wind Load, Frontal, 42m/s Cd=1	435N (98 lbf)
Survival Wind Speed	70m/s (156 mph)
Lightning Protection	DC grounded
Radome Material	GRP
Radome Color	Grey (RAL 7035 on all visible plastic part)
Mounting	Pre-mounted Standard Brackets
Packing Size	1550mm x 355mm x 255mm (61"x14"x10")

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Dual Broadband Antenna

65° 2.0 m X-polarized MET Antenna

824-960/1710-2170 MHz

Part Number:
7752.x0

Horizontal Beamwidth: 65°
Gain: 15.9/17.5 dBi

Electrical Downtilt: Adjustable
Connector Type: 7/16 DIN female

The Powerwave dual band dual polarized broadband antenna has individual adjustable electrical downtilt per band. Four connector ports allow separate tilts on each frequency band and ensure the use of diversity concepts. The phase shifter technology, based on a patented sliding dielectric, minimizes intermodulation distortion and maximizes efficiency. The slant +/- 45° dual polarization system provides the independent fading signals needed for achieving top-quality coverage via diversity concepts. The Powerwave Broadband antenna design is based on a patented stacked aperture-coupled patch technology, which provides high isolation performance and a wide VSWR bandwidth. The antennas have superior radiation patterns due to a unique reflector design which provides a very small variation of the -3dB horizontal beam width over the frequency band as well as a high front-to-back ratio.



Key Benefits

- Excellent broad- and multi-band capabilities
- Polarization purity makes good diversity gain
- Excellent pattern performance and high gain over frequency
- High passive intermodulation performance
- Light, slim and robust design

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SYSTEMS

BASE STATION
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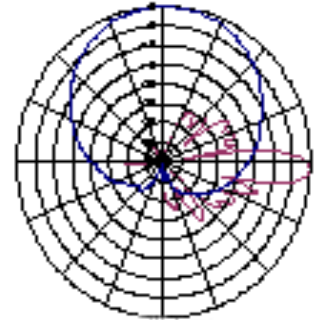
COVERAGE
SYSTEMS

Dual Broadband Antenna

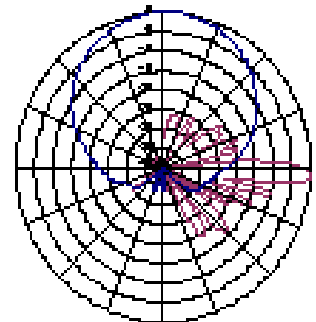
Electrical Specifications

Frequency band (MHz)	824-960	1710-2170
Gain, ± 0.5 (dBi)	15.9	17.5
Polarization	Dual linear $\pm 45^\circ$	
Nominal Impedance (OHM)	50	
VSWR, 824-960MHz	1.5:1	1.5:1
VSWR, 1710-2170MHz		1.5:1
Isolation between inputs, 824-960MHz (dB)	30	
Isolation between inputs, 1710-2170MHz (dB)		30
Inter band isolation, MHz (dB)	40	
Horizontal -3 dB beamwidth	$69 \pm 6^\circ$	$63 \pm 7^\circ$
Tracking, Horizontal plane, 824-960MHz, $\pm 60^\circ$ (dB)	<1.0	
Tracking, Horizontal plane, 1710-2170MHz, $\pm 60^\circ$ (dB)		<2.0
Electrical downtilt range (adjustable)	2° to 9°	0° to 8°
Vertical -3 dB beamwidth	$9.2 \pm 1.0^\circ$	$6.6 \pm 1.0^\circ$
Sidelobe suppression, Vertical 1 st upper (dB)	> 17, 16, 15, 14 x=2, 4, 6, 8° MET	> 17, 16, 15, 14, 13 dB x=0, 2, 4, 6, 8° MET
Vertical beam squint	0.8°	
First null-fill (dB)	< -25	< -25
Front-to-back ratio (dB)	>27	>27
Front-to-back ratio, total power (dB)	>24	>24
Average IM3, 2Tx@43dBm (dBc)	< -153	
Average IM3, 2Tx@43dBm (dBc)		< -153
Average IM7, 2Tx@43dBm (dBc)		< -160
Power Handling, Average per input (W)	300	250
Power Handling, Average total (W)	600	500

All specifications are subject to change without notice.
Contact your Powerwave representative for complete performance data.



Typical 800 MHz Horizontal and Vertical
7752.00 Patterns



Typical 1900 MHz Horizontal and Vertical
7752.00 Patterns

Mechanical Specifications

Connector Type	7/16 DIN female, 7752.00 - bottom, 7752.40 - top
Connector Position	Bottom
Dimensions, HxWxD	2033mm x 280mm x 125mm (6'7" x 11" x 5")
Weight Including Brackets	19.7kg (44lbs)
Weight Excluding Brackets	16kg (35lbs)
Wind Load, Frontal, 42m/s Cd=1	628N (141lbf)
Survival Wind Speed	70m/s (156mph)
Lightning Protection	DC grounded
Radome Material	GRP
Radome Color	Light Gray
Packing Size	2175mm x 355mm x 255mm (7'4"x14"x10")

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QUALITY AND RELIABILITY

Dual Broadband Antenna

65° 2.6 m X-polarized MET Antenna

824-960/1710-2170 MHz

Part Number:
7755.x0

Horizontal Beamwidth: 65°
Gain: 17.5/ 17.5dBi

Electrical Downtilt: Adjustable
Connector Type: 7/16 DIN female

The Powerwave dual band dual polarized broadband antenna has individual adjustable electrical downtilt per band. Four connector ports allow separate tilts on each frequency band and ensure the use of diversity concepts. The phase shifter technology, based on a patented sliding dielectric, minimizes intermodulation distortion and maximizes efficiency. The slant +/- 45° dual polarization system provides the independent fading signals needed for achieving top-quality coverage via diversity concepts. The Powerwave Broadband antenna design is based on a patented stacked aperture-coupled patch technology, which provides high isolation performance and a wide VSWR bandwidth. The antennas have superior radiation patterns due to a unique reflector design which provides a very small variation of the -3dB horizontal beam width over the frequency band as well as a high front-to-back ratio.



Key Benefits

- Excellent broad- and multi-band capabilities
- Polarization purity makes good diversity gain
- Excellent pattern performance and high gain over frequency
- High passive intermodulation performance
- Light, slim and robust design

ANTENNA
SYSTEMS

BASE STATION
SYSTEMS

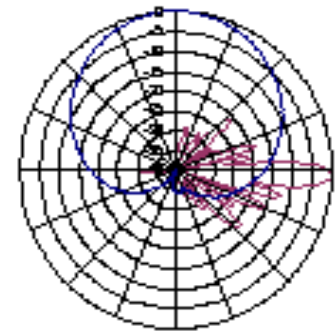
COVERAGE
SYSTEMS

Dual Broadband Antenna

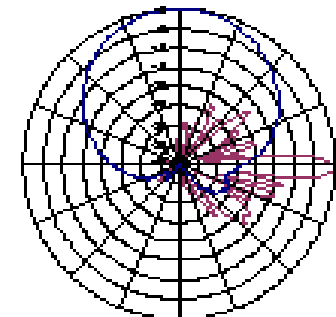
Electrical Specifications

Frequency band (MHz)	824-960	1710-2170
Gain, ± 0.5 (dBi)	17.5	17.5
Polarization	Dual linear $\pm 45^\circ$	
Nominal Impedance (Ohm)	50	
VSWR, 824-960MHz	1.5:1	
VSWR, 1710-2170MHz		1.5:1
Isolation between inputs, 824-960MHz (dB)	30	
Isolation between inputs, 1710-2170MHz (dB)		30
Inter band isolation, MHz (dB)	38	
Horizontal -3 dB beamwidth	65°	65°
Tracking, Horizontal plane, 824-960MHz, $\pm 60^\circ$	<2.0dB	
Tracking, Horizontal plane, 1710-2170MHz, $\pm 60^\circ$		<1.5dB
Electrical downtilt range (adjustable)	2° to 8°	0° to 8°
Vertical -3 dB beamwidth	6°	6°
Sidelobe suppression, Vertical 1 st upper (dB)	> 17	> 17
	@2° MET	@2° MET
Vertical beam squint	0.8°	0.8°
First null-fill (dB)	< -25	< -25
Front-to-back ratio (dB)	> 28	>30
Front-to-back ratio, total power (dB)	>25	>25
Cross-polar discrimination (XPD) $\pm 60^\circ$ (dB)	>11	>11
Average IM3, 2Tx@43dBm (dB)	-150	
Average IM3, 2Tx@43dBm (dB)		-153
Average IM7, 2Tx@43dBm (dB)		-160
Power Handling, Average per input (W)	300	250
Power Handling, Average total (W)	600	500

All specifications are subject to change without notice.
Contact your Powerwave representative for complete performance data.



Typical Horizontal and Vertical 7755.00
850 MHz Band Patterns



Typical Horizontal and Vertical 7755.00
1900 MHz Band Patterns

Mechanical Specifications

Connector Type	7/16 DIN female, 7755.00 - bottom, 7755.40 - top
Connector Position	Bottom
Dimensions, HxWxD	2630x280x125mm (8'8"x11"x5")
Wind Load, Frontal, 100 mph Cd=1 (N)	868N (195 lbf)
Weight With Brackets	19.6 kg (43 lbs)
Survival Wind Speed	70m/s (156 mph)
Lightning Protection	DC grounded
Radome Material	PVC
Radome Color	Light Gray
Packing Size	2830x355x255mm (9'4"x1'2"x10")
Shipping Weight	23.3 kg (52 lbs)

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COVERAGE AND CAPACITY

TECHNOLOGY LEADERSHIP

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INTEGRATED SOLUTIONS

QUALITY AND RELIABILITY

7770.00A DBB90 Broadband Cross Polarized

POLARIZATION: X-Pol
 FREQUENCY (MHz): 824-960, 1710-2170
 HORIZONTAL BEAM WIDTH (°): 90
 GAIN (dBi/dBd): 13.5/11.4, 15.5/13.4
 TILT: MET
 LENGTH: 1.4m (4'7")

PRELIMINARY

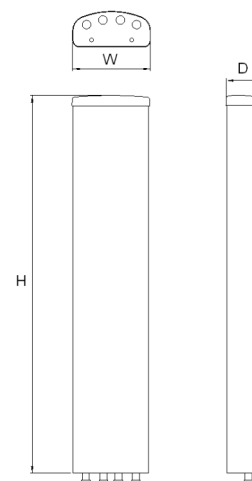
ELECTRICAL SPECIFICATIONS*

Frequency range (MHz)	824-960		1710-2170		
	824-896	880-960	1710-1880	1850-1990	1900-2170
Frequency band (MHz)	824-896	880-960	1710-1880	1850-1990	1900-2170
Gain (dBi/dBd)	13.5/11.4	13.5/11.4	15.5/13.4	15.5/13.4	15.5/13.4
Polarization	Dual linear $\pm 45^\circ$		Dual linear $\pm 45^\circ$		
VSWR	<1.5:1		<1.5:1		
Horizontal beam width, -3 dB (°)	90	90	90	90	90
Vertical beam width, -3 dB (°)	15	15	7	7	9.5
Electrical down tilt (°)	0 to 10		0 to 8		
Side lobe suppression, vertical 1st upper (dB)	>18,17,17x@0.5,10°	>18,17,17x@0.5,10°	>18,16,15x@0.4,8°	>18,16,15x@0.4,8°	>18,16,15x@0.4,8°
Isolation between inputs (dB)	30	30	30	30	30
Inter band Isolation (dB)	40		40		
Tracking, horizontal plane $\pm 60^\circ$ (dB)	<-2.0	<-2.0	<-2.0	<-2.0	<-2.0
First null fill (dB)	<-25	<-25	<-25	<-25	<-25
Vertical beam squint (°)	0.5	0.5	0.5	0.5	0.5
Front to back ratio (dB)	>25	>25	>25	>25	>25
Front to back ratio, total power (dB)	>25	>25	>25	>25	>25
Cross polar discrimination (XPD) 0° (dB)	15	15	15	15	15
Cross polar discrimination (XPD) $\pm 60^\circ$ (dB)	>10	>10	>10	>10	>10
Far field coupling	NA	NA	NA	NA	NA
IM3, 2xTx@43dBm (dBc)	<-153		<-153		
IM7, 2xTx@43dBm (dBc)	NA		<-160		
Power handling, average per input (W)	300		250		
Power handling, average total (W)	600		600		

MECHANICAL SPECIFICATIONS*

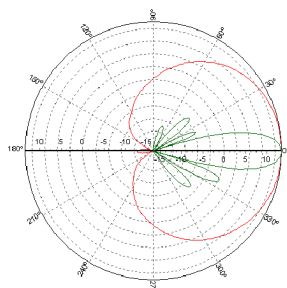
Connector	7/16 DIN Female
Connector position	Bottom
Dimensions, HxWxD, mm (ft)	1408x280x125mm
Mounting	Pre-mounted heavy duty brackets
Weight, with brackets, kg (lbs)	17.6 (39)
Weight, without brackets, kg (lbs)	12.1 (27)
Wind load, frontal/lateral/rear side 42 m/s Cd=1.6 (N)	952
Maximum operational wind speed, m/s (mph)	42 (93)
Survival wind speed, m/s (mph)	55 (123)
Lightning protection	DC grounded
Radome material	GRP
Packet size, HxWxD, mm (ft)	1550x355x255 (61"x12"x10")
Radome colour	Light Grey
Shipping weight, kg (lbs)	21.5 (47.4)
RET	7020.00, 7031.00, 7032.00, 7033.00
Brackets	7256.00, 7454.00, 2210.10

*All specifications subject to change without notice. Please contact your Powerwave representative for complete performance data.

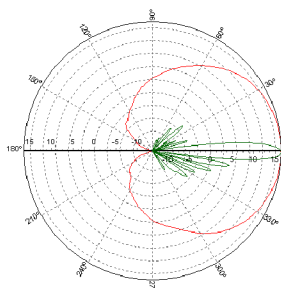


ANTENNA PATTERNS*

For detailed patterns visit www.powerwave.com/antennapatterns.asp.



824 - 960 MHz



1710 - 2170 MHz

7772.00A DBB90 Broadband Cross Polarized

POLARIZATION: X-Pol
 FREQUENCY (MHz): 824-960, 1710-2170
 HORIZONTAL BEAM WIDTH (°): 90
 GAIN (dBi/dBd): 15/12.9, 16/13.9
 TILT: MET
 LENGTH: 2.0m (6'6")

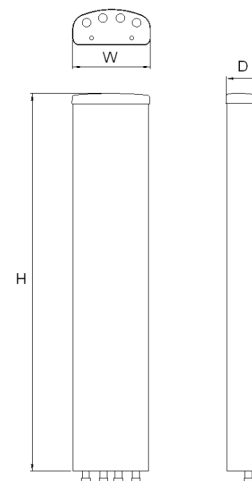
PRELIMINARY

ELECTRICAL SPECIFICATIONS*

Frequency range (MHz)	824-960		1710-2170		
	824-896	880-960	1710-1880	1850-1990	1900-2170
Frequency band (MHz)	824-896	880-960	1710-1880	1850-1990	1900-2170
Gain (dBi/dBd)	15/12.9	15/12.9	16/13.9	16/13.9	16/13.9
Polarization	Dual linear $\pm 45^\circ$		Dual linear $\pm 45^\circ$		
SWR	50		50		
VSWR	<1.5:1		<1.5:1		
Horizontal beam width, -3 dB (°)	90	90	90	90	90
Vertical beam width, -3 dB (°)	9.5	8.9	7	7	7
Electrical down tilt (°)	0 to 7		0 to 8		
Side lobe suppression, vertical 1st upper (dB)	>17,16,15x@0.4,8°	>17,16,15x@0.4,8°	>15,14,13x@0.4,8°	>15,14,13x@0.4,8°	>15,14,13x@0.4,8°
Isolation between inputs (dB)	30	30	30	30	30
Inter band Isolation (dB)	40		40		
Tracking, horizontal plane $\pm 60^\circ$ (dB)	<-2.0	<-2.0	<-2.0	<-2.0	<-2.0
First null fill (dB)	<-25	<-25	<-25	<-25	<-25
Vertical beam squint (°)	0.5	0.5	0.5	0.5	0.5
Front to back ratio (dB)	>25	>25	>25	>25	>25
Front to back ratio, total power (dB)	>25	>25	>25	>25	>25
Cross polar discrimination (XPD) 0° (dB)	15	15	15	15	15
Cross polar discrimination (XPD) $\pm 60^\circ$ (dB)	>10	>10	>10	>10	>10
Far field coupling	NA	NA	NA	NA	NA
IM3, 2xTx@43dBm (dBc)	<-153		<-153		
IM7, 2xTx@43dBm (dBc)	NA		<-160		
Power handling, average per input (W)	300		250		
Power handling, average total (W)	600		500		

MECHANICAL SPECIFICATIONS*

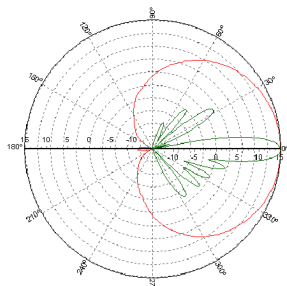
Connector	4 x 7/16 DIN Female
Connector position	Bottom
Dimensions, HxWxD, mm (ft)	2033x280x125mm
Mounting	Pre-mounted heavy duty brackets
Weight, with brackets, kg (lbs)	19.8 (44)
Weight, without brackets, kg (lbs)	16.0 (35)
Wind load, frontal/lateral/rear side 42 m/s Cd=1.6 (N)	1375
Maximum operational wind speed, m/s (mph)	42 (93)
Survival wind speed, m/s (mph)	55 (123)
Lightning protection	DC grounded
Radome material	GRP
Packet size, HxWxD, mm (ft)	2175x355x255 (7'2"x14"x10")
Radome colour	Light Grey
Shipping weight, kg (lbs)	27 (59.5)
RET	7020.00, 7031.00, 7032.00, 7033.00
Brackets	7256.00, 7454.00, 2210.10



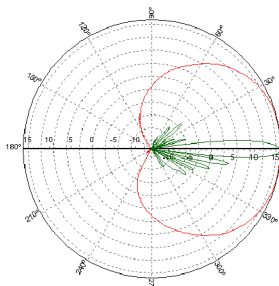
*All specifications subject to change without notice. Please contact your Powerwave representative for complete performance data.

ANTENNA PATTERNS*

For detailed patterns visit www.powerwave.com/antennapatterns.asp.



824 - 960 MHz



1710 - 2170 MHz

7775.00A DBB90 Broadband Cross Polarized

POLARIZATION: X-Pol
 FREQUENCY (MHz): 824-960, 1710-2170
 HORIZONTAL BEAM WIDTH (°): 90
 GAIN (dBi/dBd): 16/13.9, 16/13.9
 TILT: MET
 LENGTH: 2.6m (8'6")

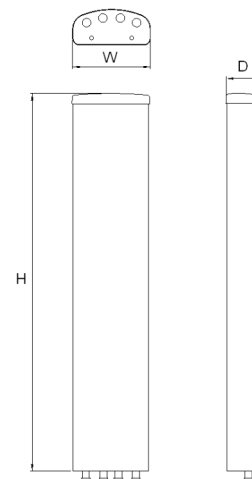
PRELIMINARY

ELECTRICAL SPECIFICATIONS*

Frequency range (MHz)	824-960		1710-2170		
	824-896	880-960	1710-1880	1850-1990	1900-2170
Frequency band (MHz)	824-896	880-960	1710-1880	1850-1990	1900-2170
Gain (dBi/dBd)	16/13.9	16/13.9	16/13.9	16/13.9	16/13.9
Polarization	Dual linear ±45°		Dual linear ±45°		
SWR	50		50		
VSWR	<1.5:1		<1.5:1		
Horizontal beam width, -3 dB (°)	90	90	90	90	90
Vertical beam width, -3 dB (°)	7	7	7	7	7
Electrical down tilt (°)	0 to 6		0 to 8		
Side lobe suppression, vertical 1st upper (dB)	>17,16,15x@0.3,6°	>17,16,15x@0.3,6°	>16,15,13x@0.4,8°	>16,15,13x@0.4,8°	>16,15,13x@0.4,8°
Isolation between inputs (dB)	30	30	30	30	30
Inter band Isolation (dB)	40		40		
Tracking, horizontal plane ±60° (dB)	<-2.0	<-2.0	<-2.0	<-2.0	<-2.0
First null fill (dB)	<-25	<-25	<-25	<-25	<-25
Vertical beam squint (°)	0.5	0.5	0.5	0.5	0.5
Front to back ratio (dB)	>25	>25	>25	>25	>25
Front to back ratio, total power (dB)	>25	>25	>25	>25	>25
Cross polar discrimination (XPD) 0° (dB)	15	15	15	15	15
Cross polar discrimination (XPD) ±60° (dB)	>10	>10	>10	>10	>10
Far field coupling	NA	NA	NA	NA	NA
IM3, 2xTx@43dBm (dBc)	<-150		<-150		
IM7, 2xTx@43dBm (dBc)	NA		<-160		
Power handling, average per input (W)	300		250		
Power handling, average total (W)	600		500		

MECHANICAL SPECIFICATIONS*

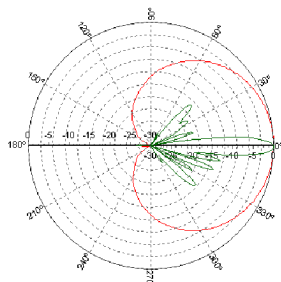
Connector	4 x 7/16 DIN Female
Connector position	Bottom
Dimensions, HxWxD, mm (ft)	2658x280x125mm
Mounting	Pre-mounted heavy duty brackets
Weight, with brackets, kg (lbs)	25.1 (55)
Weight, without brackets, kg (lbs)	19.6 (43)
Wind load, frontal/lateral/rear side 42 m/s Cd=1.6 (N)	1797
Maximum operational wind speed, m/s (mph)	42 (93)
Survival wind speed, m/s (mph)	55 (123)
Lightning protection	DC grounded
Radome material	GRP
Packet size, HxWxD, mm (ft)	2800x355x255 (9'2"x1'2"x10")
Radome colour	Light Grey
Shipping weight, kg (lbs)	32.5 (71.6)
RET	7020.00, 7031.00, 7032.00, 7033.10
Brackets	7256.00, 7454.00, 2210.10



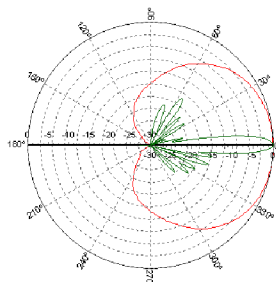
*All specifications subject to change without notice. Please contact your Powerwave representative for complete performance data.

ANTENNA PATTERNS*

For detailed patterns visit www.powerwave.com/antennapatterns.asp.



824 - 960 MHz



1710 - 2170 MHz

Triple Broadband Antenna

65° 1.4 m XXX-polarized MET Antenna

824-960/2x1710-2170 MHz

Part Number:
7780.00

Horizontal Beamwidth: 65°
Gain: 14.5 / 14.8 dBi

Electrical Downtilt: Adjustable
Connector Type: 7/16 female

The triple band solution from Powerwave offers a flexible antenna option for operators seeking excellent RF-performance as well as fast and successful roll-out of their next-generation networks. Designed to overcome UMTS deployment challenges, such as space and installation issues as well as those of co-siting in demanding radio environments, these antennas include the Powerwave patented Manually-adjustable Electrical Tilt (MET) function, which offers operators flexibility in tuning antenna systems as well as logistical advantages. The Powerwave Triband antenna design is based on a patented stacked aperture-coupled patch technology for GSM 900-, GSM1800- and UMTS 2100 MHz-bands. Finally, the advanced reflector and element structure in combination with a superior feeding network minimizes the weight and maximizes the overall performance of the antenna.



Mechanical Specifications

Connector type (6 pcs)	7/16 female
Connector position	Bottom
Dimensions, HxWxD	1400 x 280 x 125mm (4' 7"x 11"x 5")
Weight, excluding brackets	15kg (33lbs)
Wind load, frontal, 150 km/h, Cd=1, (N)	428
Operating wind speed (m/s)	55
Survival wind speed (m/s)	70
Weatherproofing	According to T1102
Radome material	GRP
Radome colour	RAL 7035 on all visible plastic parts
Packing size HxWxD (mm)	1650 x 355 x 200mm (5' 5"x1' 2"x 8")
Shipping weight including bracket kit	20kg (44lbs)
Mounting	Pre-mounted standard brackets

ANTENNA
SYSTEMS

BASE STATION
SYSTEMS

COVERAGE
SYSTEMS

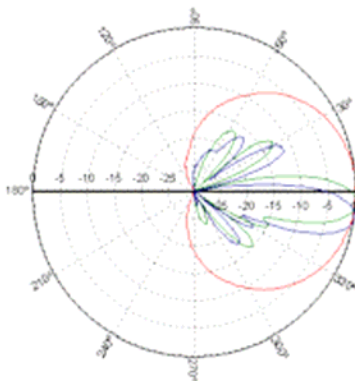
Triple Broadband Antenna

Electrical Specifications

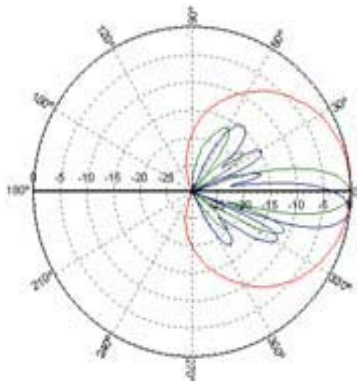
Frequency band, MHz	824-960	1710-1880	1900-2170
Gain ± 0.5(dBi)	14.5	14.4	14.8
Polarization	dual linear ±45°	dual linear ±45°	dual linear ±45°
Nominal impedance (W)	50	50	50
VSWR, 824-960 MHz	1.5:1		
VSWR, 1710-1880 MHz		1.5:1	
VSWR, 1900-2025MHz			1.5:1
VSWR, 2110-2170MHz			1.5:1
Isolation between inputs (dB), 824-960 MHz	30		
Isolation between inputs (dB), 1710-1880 MHz		30	
Isolation between inputs (dB), 1900-2025 MHz			>30
Isolation between inputs (dB), 2110-2170 MHz			>30
Inter band isolation, all bands (dB)		38	
Horizontal -3dB beam width	68° ± 5°	65° ± 5°	62° ± 5°
Tracking, Horizontal plane, 824-896 MHz, ±60°	<2.0dB		
Tracking, Horizontal plane, 880-960 MHz, ±60°	<2.0dB		
Tracking, Horizontal plane, 1710-1880 MHz, ±60°		<1.5dB	
Tracking, Horizontal plane, 1900-2025 MHz, ±60°			<1.5dB
Tracking, Horizontal plane, 2110-2170 MHz, ±60°			<1.5dB
Electrical down tilt range (adjustable)	2° to12°	0° to12°	0° to12°
Vertical Beam width -3dB MHz	14°±2°	14°±1°	13°±1°
Side lobe suppression, Vertical 1stupper (dB)	>17, 16, 15, 14 X= 2, 4, 8, 12° MET	>17, 16, 15, 14 X=0, 4, 8, 12° MET	>17, 16, 15, 14 X=0, 4, 8, 12° MET
Side lobe suppression, Vertical Upper (dB)	>10	>10	>10
Vertical beam squint	1°	1°	1°
Front-to-back Ratio (dB)	>28	>30	>30
Front-to-back Ratio, Total Power (dB)	>25	>25	>25
Cross-polar discrimination (XPD) ±60° (dB)	>11	>11	>10
IM3, 2Tx@43dBm (dBm) (dBc)	-153		
IM3, 2Tx@43dBm (dBm) (dBc)		-153	
IM7, 2Tx@43dBm (dBm) (dBc)			-160
Power Handling, Average per input (W)	300	250	250
Power Handling, Average total (W)	600	500	500

All specifications are subject to change without notice. Contact your Powerwave representative for complete performance data.

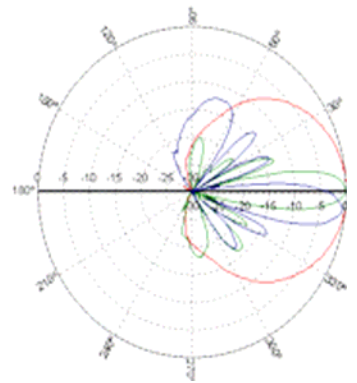
900MHz



1800MHz



2100MHz



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COVERAGE AND CAPACITY

TECHNOLOGY LEADERSHIP

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QUALITY AND RELIABILITY

Triple Band Antenna

65° 2.0 m XXX-polarized MET Antenna

824-960/2x1710-2170 MHz

Part Number:
7782.00

Horizontal Beamwidth: 65°
Gain: 16.5 / 16.8 dBi

Electrical Downtilt: Adjustable
Connector Type: 7/16 DIN female

The triple band solution from Powerwave offers a flexible antenna option for operators seeking excellent RF-performance as well as fast and successful roll-out of their next-generation networks. Designed to overcome UMTS deployment challenges, such as space and installation issues as well as those of co-siting in demanding radio environments, these antennas include the Powerwave patented Manually-adjustable Electrical Tilt (MET) function, which offers operators flexibility in tuning antenna systems as well as logistical advantages. The Powerwave Triband antenna design is based on a patented stacked aperture-coupled patch technology for cellular 800, GSM 900-, GSM1800, PCS 1900 and UMTS 2100 MHz-bands. Finally, the advanced reflector and element structure in combination with a superior feeding network minimizes the weight and maximizes the overall performance of the antenna.

ANTENNA
SYSTEMS

BASE STATION
SYSTEMS

COVERAGE
SYSTEMS



Mechanical Specifications

Connector Type (6 Pcs)	7/16 DIN female
Connector Position	Bottom
Dimensions, HxWxD	2033 x 280 x 125mm (7' 1"x 11"x 5")
Weight, Excluding Brackets	18kg (40lbs)
Brackets	3.5kg
Weight including Brackets	21.5kg (47 lbs with brackets)
Wind Load, Frontal, 150 km/h, Cd=1, (N)	628
Operating Wind Speed (M/s)	55 (123 mph)
Survival Wind Speed (M/s)	70 (156 mph)
Lightning Protection	DC-grounded
Weatherproofing	According to T1102
Radome Material	GRP
Radome Color	RAL 7035 on all visible plastic parts
Packing Size Hxwx d (Mm)	2175x355x255
Shipping Weight Including Bracket Kit Mounting	23.5kg (51 lbs)
	Pre-mounted standard brackets

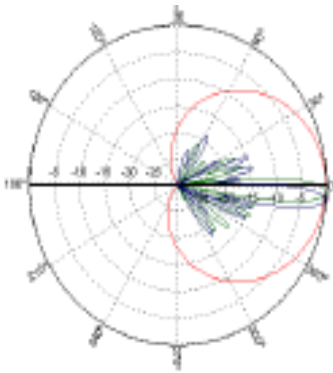
Triple Band Antenna

Electrical Specifications

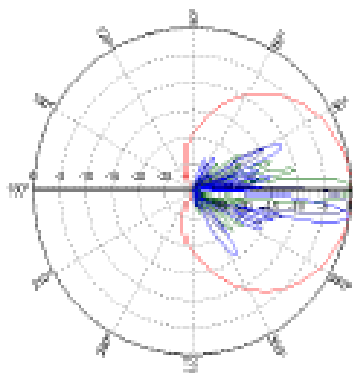
Frequency Band, MHz	824-960	1710-1880;1850-1990	1990-2025, 2110-2170
Gain \pm 0.5dBi	16.5	16.5	16.8
Polarization	dual linear $\pm 45^\circ$	dual linear $\pm 45^\circ$	dual linear $\pm 45^\circ$
Nominal impedance (Ohm)	50	50	50
VSWR, 824-960 MHz	1.5:1		
VSWR, 1710-1880 MHz		1.5:1	
VSWR, 1900-2025MHz			1.5:1
VSWR, 2110-2170MHz			1.5:1
Isolation between inputs (dB), 824-960 MHz	> 30		
Isolation between inputs (dB), 1710-1880 MHz		> 30	
Isolation between inputs (dB), 1900-2025 MHz			> 30
Isolation between inputs (dB), 2110-2170 MHz			> 30
Inter band isolation, all bands (dB)		> 34	
Horizontal -3dB beam width	67°	65°	64°
Tracking, Horizontal plane, 824-896 MHz, $\pm 60^\circ$	< 1.0dB		
Tracking, Horizontal plane, 880-960 MHz, $\pm 60^\circ$	< 1.0dB		
Tracking, Horizontal plane, 1710-1880 MHz, $\pm 60^\circ$		< 1.5dB	
Tracking, Horizontal plane, 1900-2025 MHz, $\pm 60^\circ$			< 1.5dB
Tracking, Horizontal plane, 2110-2170 MHz, $\pm 60^\circ$			< 2.0dB
Electrical down tilt range (adjustable)	2° to 9°	0° to 10°	0° to 10°
Vertical Beam width -3dB MHz	9° \pm 1°	10° \pm 1°	9° \pm 1°
Side lobe suppression, Vertical 1 st upper (dB)	>17, 13 @ 2,9° MET	>15, 13 @ 0,10° MET	> 18, 15 @ 0, 10° MET
Side lobe suppression, Vertical Upper (dB)	> 11	> 12	> 10
Vertical beam squint	< 0.8°	< 0.8°	< 0.8°
Front-to-back Ratio (dB)	> 30	> 30	> 30
Front-to-back Ratio, Total Power (dB)	> 27	> 27	> 27
Cross-polar discrimination (XPD) $\pm 60^\circ$ (dB)	> 11	> 10	> 10
IM3, 2Tx@43dBm (dBc)	< -153		
IM3, 2Tx@43dBm (dBc)		< -153	
IM7, 2Tx@43dBm (dBc)			< -160
Power Handling, Average per input (W)	300	250	250
Power Handling, Average total (W)	600	500	500

All specifications are subject to change without notice. Contact your Powerwave representative for complete performance data.

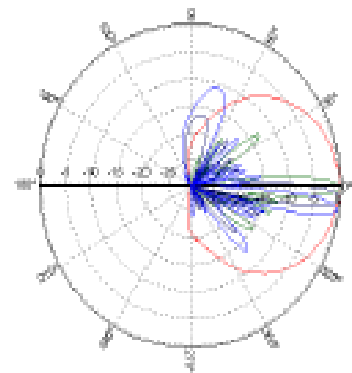
850MHz & 900MHz



1800MHz & 1900MHz



2100MHz



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COVERAGE AND CAPACITY

TECHNOLOGY LEADERSHIP

GLOBAL PARTNER

INTEGRATED SOLUTIONS

QUALITY AND RELIABILITY

Triple Broadband Antenna

65° 2.6 m XXX-polarized MET Antenna

824-960/2x1710-2170 MHz

Part Number:
7785.00

Horizontal Beamwidth: 65°
Gain: 17.4 / 17.5 dBi

Electrical Downtilt: Adjustable
Connector Type: 7/16 DIN female

The triple band solution from Powerwave offers a flexible antenna option for operators seeking excellent RF-performance as well as fast and successful roll-out of their next-generation networks. Designed to overcome UMTS deployment challenges, such as space and installation issues as well as those of co-siting in demanding radio environments, these antennas include the Powerwave patented Manually-adjustable Electrical Tilt (MET) function, which offers operators flexibility in tuning antenna systems as well as logistical advantages. The Powerwave Triband antenna design is based on a patented stacked aperture-coupled patch technology for cellular 800, GSM 900-, GSM1800, PCS 1900 and UMTS 2100 MHz-bands. Finally, the advanced reflector and element structure in combination with a superior feeding network minimizes the weight and maximizes the overall performance of the antenna.

ANTENNA
SYSTEMS

BASE STATION
SYSTEMS

COVERAGE
SYSTEMS



Mechanical Specifications

Connector Type (6 Pcs)	7/16 DIN female
Connector Position	Bottom
Dimensions, HxWxD	2650 x 280 x 125mm (8' 8"x 11"x 5")
Weight, Excluding Brackets	24kg (53lbs)
Brackets	3.5kg
Wind Load, Frontal, 150 km/h, Cd=1, (N)	27,5kg (60.5 lbs with brackets)
Operating Wind Speed	820
Survival Wind Speed	55m/s (123 mph)
Lightning Protection	70m/s (156 mph)
Weatherproofing	DC-grounded
Radome Material	According to T1102
Radome Color	GRP
Packing Size Hxwx d (Mm)	RAL 7035 on all visible plastic parts
Shipping Weight Including Bracket Kit	2790 x 355 x 200mm (9' 2"x1' 2"x 8")
Mounting	29kg (64lbs)
	Pre-mounted standard brackets

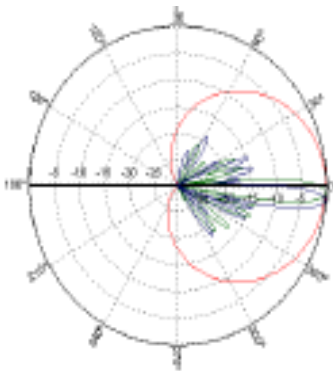
Triple Broadband Antenna

Electrical Specifications

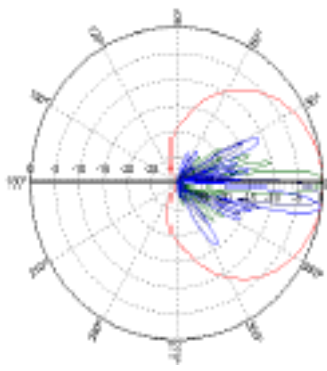
Frequency Band, MHz	824-960	1710-1880;1850-1990	1990-2170
Gain ± 0.5dBi	17.4	17.2	17.5
Polarization	dual linear ±45°	dual linear ±45°	dual linear ±45°
Nominal impedance (Ohms)	50	50	50
VSWR, 824-960 MHz	1.5:1		
VSWR, 1710-1880 MHz		1.5:1	
VSWR, 1900-2025MHz			1.5:1
VSWR, 2110-2170MHz			1.5:1
Isolation between inputs (dB), 824-960 MHz	30		
Isolation between inputs (dB), 1710-1880 MHz		30	
Isolation between inputs (dB), 1900-2025 MHz			>30
Isolation between inputs (dB), 2110-2170 MHz			>30
Inter band isolation, all bands (dB)		38	
Horizontal -3dB beam width	65°	65°	62°
Tracking, Horizontal plane, 824-896 MHz, ±60°	<2.0dB		
Tracking, Horizontal plane, 880-960 MHz, ±60°	<2.0dB		
Tracking, Horizontal plane, 1710-1880 MHz, ±60°		<1.5dB	
Tracking, Horizontal plane, 1900-2025 MHz, ±60°			<1.5dB
Tracking, Horizontal plane, 2110-2170 MHz, ±60°			<1.5dB
Electrical down tilt range (adjustable)	2° to 8°	0° to 8°	0° to 8°
Vertical Beam width -3dB MHz	7°	7°	6°
Side lobe suppression, Vertical 1 st upper (dB)	>17 @ 2° MET	>17 @ 0° MET	>17 @ 0° MET
Side lobe suppression, Vertical Upper (dB)	>10	>10	>10
Vertical beam squint	0.5	0.5	0.5
Front-to-back Ratio (dB)	>25	>30	>30
Front-to-back Ratio, Total Power (dB)	>20	>25	>25
Cross-polar discrimination (XPD) ±60° (dB)	>11	>11	>10
IM3, 2Tx@43dBm (dBm) (dBc)	-153		
IM3, 2Tx@43dBm (dBm) (dBc)		-153	
IM7, 2Tx@43dBm (dBm) (dBc)			-160
Power Handling, Average per input (W)	300	250	250
Power Handling, Average total (W)	600	500	500

All specifications are subject to change without notice. Contact your Powerwave representative for complete performance data.

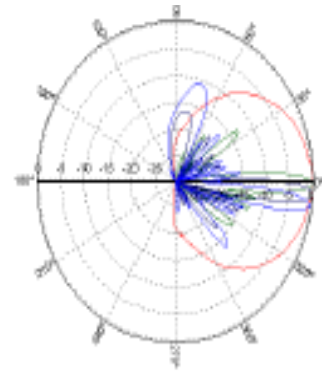
850MHz & 900MHz



1800MHz & 1900MHz



2100MHz



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COVERAGE AND CAPACITY

TECHNOLOGY LEADERSHIP

GLOBAL PARTNER

INTEGRATED SOLUTIONS

QUALITY AND RELIABILITY

Omni Antenna

360° 3.0 m vertical-polarized FET Antenna

Part Number:
4168.11.33.00

Horizontal Beamwidth: 360°
Gain: 11 dBi / 8.9 dBd

Electrical Downtilt: 0°
Connector Type: 7/16 DIN female

872-960 MHz

The Powerwave Omni-directional antenna consists of sleeve dipole elements welded to a thick-walled one-piece aluminum tube. This technique makes for an exceptionally stable structure that keeps tip deflections to a minimum even in gale-force winds. The cabling inside the tube combines with sophisticated, compact technology to ensure stable, well-controlled radiation patterns throughout the system's entire frequency band.



Key Benefits:

- High gain performance
- Light and slim design
- Robust and reliable
- Pre-mounted brackets
- Guaranteed passive intermodulation performance

ANTENNA
SYSTEMS

BASE STATION
SYSTEMS

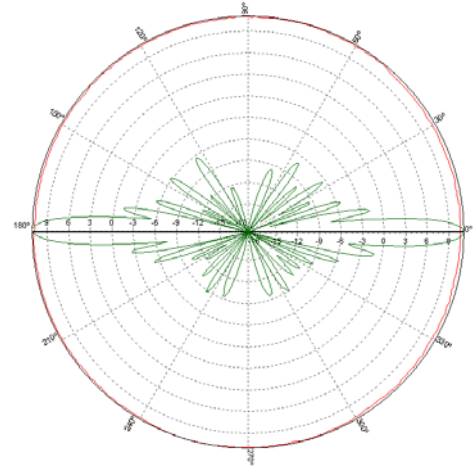
COVERAGE
SYSTEMS

Omni Antenna

872-960 MHz

Electrical Specifications

Frequency band (MHz)	872-960
Gain, ± 0.5 (dBi)	11
(dBd)	8.9
Polarization	Linear vertical
Nominal Impedance (Ohms)	50
VSWR	<1.4:1
Horizontal -3 dB beamwidth	360°
Electrical downtilt	0°
Vertical - 3dB Beamwidth	6.5
Vertical beam squint	0.5°
IM3, 2Tx@43dBm (dBc)	<-146



Typical Horizontal and Vertical
4168.11.33.00 Patterns

All specifications are subject to change without notice.
Contact your Powerwave representative for complete performance data.

Mechanical Specifications

Connector Type	7/16 DIN female
Connector Position	Bottom
Dimensions, HxWxD	3000x78mm (9'10"x3")
Wind Load, Frontal, 42 m/s Cd=1 (N)	300N
Survival Wind Speed	70 m/s (156 mph)
Wind Deflection 35 m/s	< 1°
Lightning Protection	DC grounded
Radome Material	PVC
Radome Color	Light Gray
Packing Size	3300x150x170mm (10'10"x6"x7")
Shipping Weight	16kg (35lbs)

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COVERAGE AND CAPACITY

TECHNOLOGY LEADERSHIP

GLOBAL PARTNER

INTEGRATED SOLUTIONS

QUALITY AND RELIABILITY

Omni Antenna

360° 3.0 m vertical-polarized FET Antenna

Part Number:
4168.11.33.02

Horizontal Beamwidth: 360°
Gain: 11 dBi / 8.9 dBd

Electrical Downtilt: 2°
Connector Type: 7/16 DIN female

872-960 MHz

The Powerwave Omni-directional antenna consists of sleeve dipole elements welded to a thick-walled one-piece aluminum tube. This technique makes for an exceptionally stable structure that keeps tip deflections to a minimum even in gale-force winds. The cabling inside the tube combines with sophisticated, compact technology to ensure stable, well-controlled radiation patterns throughout the system's entire frequency band.



Key Benefits:

- High gain performance
- Light and slim design
- Robust and reliable
- Pre-mounted brackets
- Guaranteed passive intermodulation performance

ANTENNA
SYSTEMS

BASE STATION
SYSTEMS

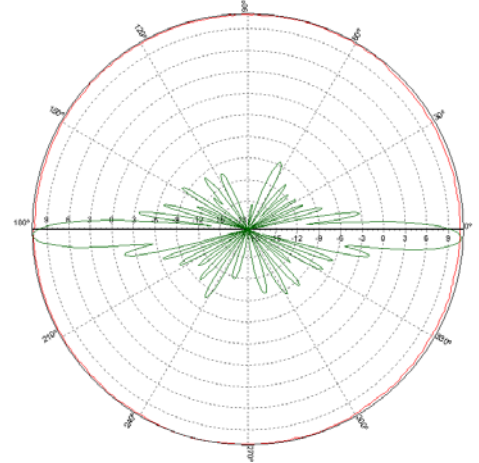
COVERAGE
SYSTEMS

Omni Antenna

872-960 MHz

Electrical Specifications

Frequency band (MHz)	872-960
Gain, ± 0.5 (dBi)	11
(dBd)	8.9
Polarization	Linear vertical
Nominal Impedance (Ohms)	50
VSWR	<1.4:1
Horizontal -3 dB beamwidth	360°
Electrical downtilt	2°
Vertical - 3dB Beamwidth	6.5
Vertical beam squint	0.5°
IM3, 2Tx@43dBm (dBc)	<-146



Typical Horizontal and Vertical
4168.11.33.02 Patterns

All specifications are subject to change without notice.
Contact your Powerwave representative for complete performance data.

Mechanical Specifications

Connector Type	7/16 DIN female
Connector Position	Bottom
Dimensions, HxWxD	3000x78mm (9'10"x3")
Wind Load, Frontal, 42 m/s Cd=1 (N)	300N
Survival Wind Speed	70 m/s (156 mph)
Wind Deflection 35 m/s	< 1°
Lightning Protection	DC grounded
Radome Material	PVC
Radome Color	Light Gray
Packing Size	3300x150x170mm (10'10"x6"x7")
Shipping Weight	16kg (35lbs)

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COVERAGE AND CAPACITY

TECHNOLOGY LEADERSHIP

GLOBAL PARTNER

INTEGRATED SOLUTIONS

QUALITY AND RELIABILITY

Omni Antenna

360° 3.0 m vertical-polarized FET Antenna

Part Number:
4168.11.33.03

Horizontal Beamwidth: 360°
Gain: 11 dBi / 8.9 dBd

Electrical Downtilt: 3°
Connector Type: 7/16 DIN female

872-960 MHz

The Powerwave Omni-directional antenna consists of sleeve dipole elements welded to a thick-walled one-piece aluminum tube. This technique makes for an exceptionally stable structure that keeps tip deflections to a minimum even in gale-force winds. The cabling inside the tube combines with sophisticated, compact technology to ensure stable, well-controlled radiation patterns throughout the system's entire frequency band.



Key Benefits:

- High gain performance
- Light and slim design
- Robust and reliable
- Pre-mounted brackets
- Guaranteed passive intermodulation performance

ANTENNA
SYSTEMS

BASE STATION
SYSTEMS

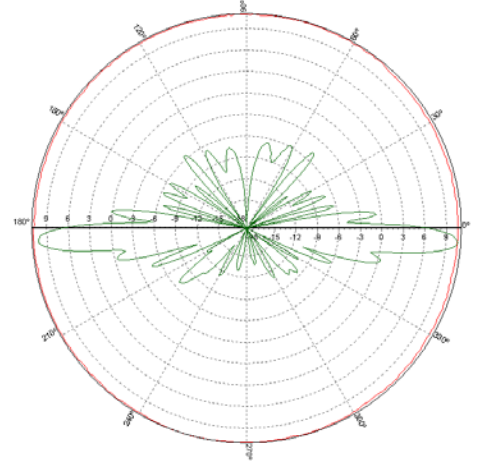
COVERAGE
SYSTEMS

872-960 MHz

Omni Antenna

Electrical Specifications

Frequency band (MHz)	872-960
Gain, ± 0.5 (dBi)	11
(dBd)	8.9
Polarization	Linear vertical
Nominal Impedance (Ohms)	50
VSWR	<1.4:1
Horizontal -3 dB beamwidth	360°
Electrical downtilt	3°
Vertical - 3dB Beamwidth	6.5
Vertical beam squint	0.5°
IM3, 2Tx @43dBm (dBc)	<-146



Typical Horizontal and Vertical
4168.11.33.03 Patterns

All specifications are subject to change without notice.
Contact your Powerwave representative for complete performance data.

Mechanical Specifications

Connector Type	7/16 DIN female
Connector Position	Bottom
Dimensions, HxWxD	3000x78mm (9'10"x3")
Wind Load, Frontal, 42 m/s Cd=1 (N)	300N
Survival Wind Speed	70 m/s (156 mph)
Wind Deflection 35 m/s	< 1°
Lightning Protection	DC grounded
Radome Material	PVC
Radome Color	Light Gray
Packing Size	3300x150x170mm (10'10"x6"x7")
Shipping Weight	16kg (35lbs)

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COVERAGE AND CAPACITY

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INTEGRATED SOLUTIONS

QUALITY AND RELIABILITY

900 MHz Omni Antenna

360° 3.0 m vertical-polarized FET Antenna

Part Number
4168.11.33.06

Horizontal Beamwidth: 360°
Gain: 11 dBi

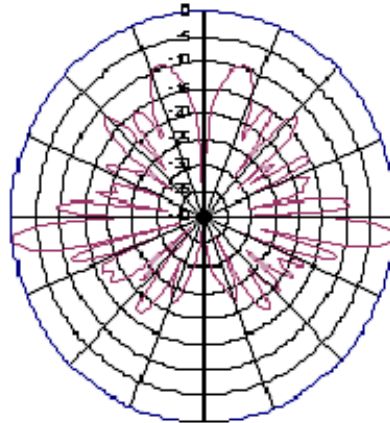
Electrical Downtilt: 6°
Connector Type: DIN

900 MHz

Powerwave Technologies' Omni directional antenna consists of sleeve dipole elements welded to a thick-walled one-piece aluminum tube. This technique makes for an exceptionally stable structure that keeps tip deflections to a minimum even in gale-force winds. The cabling inside the tube combines with sophisticated, compact technology to ensure stable, well-controlled radiation patterns throughout the system's entire frequency band.



900 MHz Omni Antenna



Typical Horizontal and Vertical 4168.11.33.06 Patterns

ANTENNA
SYSTEMS

BASE STATION
SYSTEMS

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SYSTEMS

900 MHz Omni Antenna

900 MHz

Electrical Specifications

Frequency Range (MHz)	872-960
Polarization	Linear vertical
Gain, \pm 0.5 (dBi)	11
Nominal Impedance (Ohm)	50
VSWR	<1.4:1
Horizontal -3 dB beamwidth	360°
Vertical -3 dB beamwidth	6.5°
Electrical downtilt	6°
Vertical beam squint	0.5°
Maximum input power (W)	500
IM, 3rd order, 2Tx@43 dBm (dBc)	< -146

All specifications are subject to change without notice.
Contact factory for complete performance data.

Mechanical Specifications

Connector Type	7/16 DIN female
Connector Position	Bottom
Dimensions, HxWxD	3000x78mm (9'10"x3")
Wind Load, Frontal, 42 m/s Cd=1 (N)	300
Survival Wind Speed	70 m/s (156 mph)
Wind Deflection 35 m/s	< 1°
Lightning Protection	DC grounded
Radome Material	PVC
Radome Color	Light Gray
Packing Size	3300x150x170mm (10'10"x6"x7")
Shipping Weight	16kg (35lbs)

Comments:

Gain is typical within frequency band.
Radiation patterns are typical for the antenna.
Shipping weight including tilt brackets.
Antenna is delivered with brackets pre-mounted*
Radome color is NCS 2502-B (RAL 7035).

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COVERAGE AND CAPACITY

TECHNOLOGY LEADERSHIP

GLOBAL PARTNER

INTEGRATED SOLUTIONS

QUALITY AND RELIABILITY

Omni Antenna

360° 3.0 m vertical-polarized FET Antenna

Part Number:
4168.11.33.52

Horizontal Beamwidth: 360°
Gain: 11 dBi / 8.9 dBd

Electrical Downtilt: 2° upside down
Connector Type: 7/16 DIN female

872-960 MHz

The Powerwave Omni-directional antenna consists of sleeve dipole elements welded to a thick-walled one-piece aluminum tube. This technique makes for an exceptionally stable structure that keeps tip deflections to a minimum even in gale-force winds. The cabling inside the tube combines with sophisticated, compact technology to ensure stable, well-controlled radiation patterns throughout the system's entire frequency band.



Key Benefits:

- High gain performance
- Light and slim design
- Robust and reliable
- Pre-mounted brackets
- Guaranteed passive intermodulation performance

ANTENNA
SYSTEMS

BASE STATION
SYSTEMS

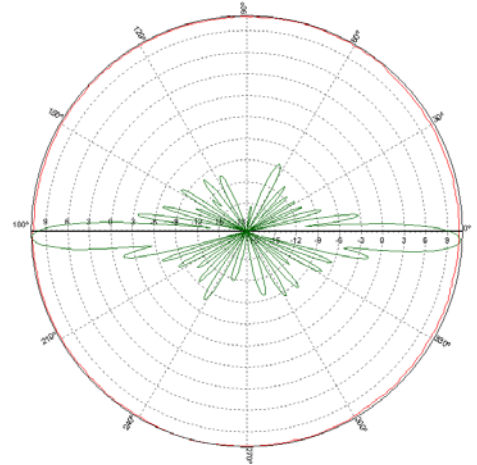
COVERAGE
SYSTEMS

Omni Antenna

872-960 MHz

Electrical Specifications

Frequency band (MHz)	872-960
Gain, ± 0.5 (dBi)	11
(dBd)	8.9
Polarization	Linear vertical
Nominal Impedance (Ohms)	50
VSWR	<1.4:1
Horizontal -3 dB beamwidth	360°
Electrical downtilt	2° upside down
Vertical - 3dB Beamwidth	6.5
Vertical beam squint	0.5°
IM3, 2Tx@43dBm (dBc)	<-146



Typical Horizontal and Vertical
4168.11.33.52 Patterns

All specifications are subject to change without notice.
Contact your Powerwave representative for complete performance data.

Mechanical Specifications

Connector Type	7/16 DIN female
Connector Position	Bottom
Dimensions, HxWxD	3000x78mm (9'10"x3")
Wind Load, Frontal, 42 m/s Cd=1 (N)	300N
Survival Wind Speed	70 m/s (156 mph)
Wind Deflection 35 m/s	< 1°
Lightning Protection	DC grounded
Radome Material	PVC
Radome Color	Light Gray
Packing Size	3300x150x170mm (10'10"x6"x7")
Shipping Weight	16kg (35lbs)

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COVERAGE AND CAPACITY

TECHNOLOGY LEADERSHIP

GLOBAL PARTNER

INTEGRATED SOLUTIONS

QUALITY AND RELIABILITY

Multi-band Indoor Antenna

Omni Vertical polarized Antenna

800-2500 MHz

Part Number:
7336.00

Horizontal Beamwidth: 360°
Gain: 3 dBi/ 0.9 dBd

Electrical Downtilt: 0°
Connector Type: N female

Powerwave multi-band solutions provide substantial savings in overall cost because they require less equipment and maintenance and shorter installation times while offering lower site costs. Considering multi-band network potential, what you're really doing is preparing for the future, today. Easy-to-install multi-band antennas from Powerwave are deployed in numerous wireless networks worldwide. All have endured extensive field trials in close collaboration with cell planners and other communications providers to ensure Powerwave multi-band antennas perform to expectations. Using fewer antennas of discreetly functional design beats using numerous antennas of provocative size and appearance especially with today's aesthetic concerns.



Key Benefits:

- Light and slim design
- Robust and reliable
- Guaranteed passive intermodulation performance

ANTENNA
SYSTEMS

BASE STATION
SYSTEMS

COVERAGE
SYSTEMS

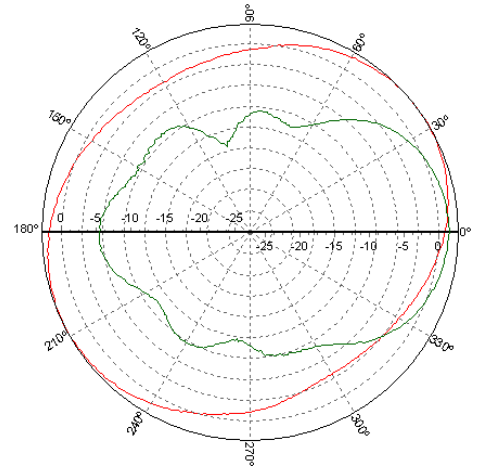
Multi-band Indoor Antenna

800-2500 MHz

Electrical Specifications

Frequency band (MHz)	800-2500
Gain, \pm 0.5 (dBi/dBd)	3/0.9
Polarization	Vertical
Nominal Impedance (Ohm)	50
VSWR	<1.5:1
Beam width: Ceiling Mounted	360°
Beam width: Wall Mounted	70°
Electrical downtilt	0°
IM3, 2Tx@43dBm (dBc)	<-150
Power Handling, Average total (W)	40

All specifications are subject to change without notice.
Contact your Powerwave representative for complete performance data.



Typical Horizontal 7336.00 Pattern

Mechanical Specifications

Connector Type	N female
Depth	65 mm (2,5")
Diameter/Width (mm)	185 mm (7")
Weight	0.2 kg (0.44lbs)
Radome Color	White
Packing Size	210 x 200 x 115mm (8"x8"x5")
Shipping weight	0.36 kg (0.8lbs)

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COVERAGE AND CAPACITY

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GLOBAL PARTNER

INTEGRATED SOLUTIONS

QUALITY AND RELIABILITY

Multi-band Indoor Antenna

Vertical polarized Antenna

800-2500 MHz

Part Number: 7336.10	Horizontal Beamwidth: 90°/70° Gain: 6/9 dBi/ 3.9/6.9 dBd	Electrical Downtilt: 0° Connector Type: N female
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Powerwave multi-band solutions provide substantial savings in overall cost because they require less equipment and maintenance and shorter installation times while offering lower site costs. Considering multi-band network potential, what you're really doing is preparing for the future, today. Easy-to-install multi-band antennas from Powerwave are deployed in numerous wireless networks worldwide. All have endured extensive field trials in close collaboration with cell planners and other communications providers to ensure Powerwave multi-band antennas perform to expectations. Using fewer antennas of discreetly functional design beats using numerous antennas of provocative size and appearance especially with today's aesthetic concerns.



Key Benefits:

- Light and slim design
- Robust and reliable
- Guaranteed passive intermodulation performance

ANTENNA
SYSTEMS

BASE STATION
SYSTEMS

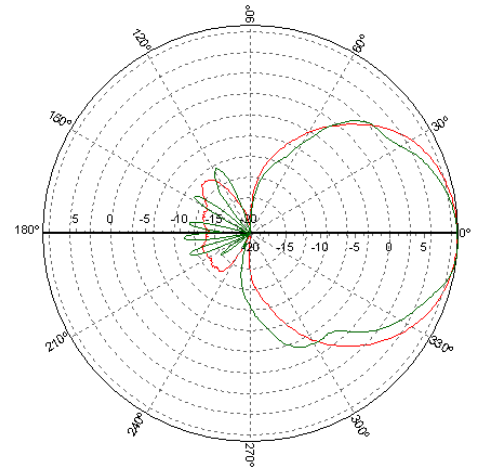
COVERAGE
SYSTEMS

800-2500 MHz

Multi-band Indoor Antenna

Electrical Specifications

Frequency band (MHz)	800-2500			
Frequency range (MHz)	806-890	890-960	1710-2100	2100-2500
VSWR	<1.9:1	<1.5:1	<1.9:1	<1.8:1
Gain, ± 0.5 (dBi/dBd)	6/3.9	6/3.9	9/6.9	9/6.9
Beam width: Ceiling Mounted	-	-	-	-
Beam width: Wall Mounted	90°	90°	70°	65°
Electrical downtilt	0°			
Polarization	Vertical			
Power Handling, Average total (W)	50			
Nominal Impedance (Ohm)	50			
IM3, 2Tx@43dBm (dBc)	<-150			



Typical Horizontal and Vertical 7336.10 Pattern

All specifications are subject to change without notice.
Contact your Powerwave representative for complete performance data.

Mechanical Specifications

Connector Type	N female
Dimensions (LxWxD)	210 x 180 x 42 mm (8"x7"x2")
Weight	1.0 kg (2.2lbs)
Radome Color	White
Packing Size	240 x 280 x 45 mm (9"x11"x2")
Shipping weight	1.2 kg (2.6lbs)

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COVERAGE AND CAPACITY

TECHNOLOGY LEADERSHIP

GLOBAL PARTNER

INTEGRATED SOLUTIONS

QUALITY AND RELIABILITY

Single Band RET Module

Single Band Remote Controlled Electrical Down-Tilt (RET)

RET Technology

Part Number:
7010.00

Easy configuration
AISG Compatible

Outdoor Usage

The Single Band RET Unit is part of the Powerwave RET Technology and consists of a stepping motor that can be connected to the positioning rod used for adjusting the electrical down tilt of Powerwave MET antennas. Upon command from the MCU, the stepping motor moves the positioning rod up or down to achieve the desired antenna tilt angle.

The unit has dual RS-485 connectors for easy daisy chaining without the need for an external splitter. The unit can be mounted on site on an antenna that is already in place or can be delivered already mounted on a Powerwave antenna.



Single Band Module

Key Benefits:

- Field upgradeable with installed MET antennas
- Optional factory pre-mounting on MET antennas
- Integrated RS-485 splitter for easy daisy chaining
- Field proven vented design

ANTENNA
SYSTEMS

BASE STATION
SYSTEMS

COVERAGE
SYSTEMS

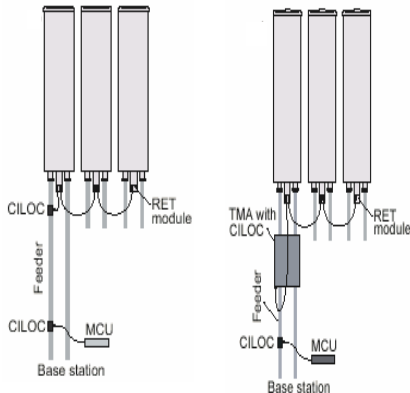
Single Band RET Module

Technical Specifications

Product Number	7010.00
Power supply	+9 to+30V
Current consumption	
Start up surge	< 1mC
Current draw during Antenna tilting	< 500 mA at Vin <10V < 400 mA at Vin <19V < 250 mA at Vin >19V
All other operational states	< 100 mA at Vin <19V < 50 mA at Vin >19V
AISG Data Rate	9.6 kbps, 38.4kbps
Rod positioning accuracy	<± 0.8 mm
Weight	1 kg
Dimensions (W,L,H) (mm)	< 62 X 78 X 216
Connectors	
AISG output/ input	IEC 60130-9 (Ed. 3.0)
Protection Ground	M6 screw
Operation temperature range	-40 to +65C
Type Approvals	Conformity with the relevant provision(s) of the directives RTTE 99/5/EG and LVD 73/23/EEG.
MTBF	>500.000 hrs.
Ingress protection	IP65
Environmental	ETSI 300 019



All specifications subject to change without notice. Please contact your Powerwave representative for complete performance data.



The Powerwave RET system is designed to meet the high requirements for reliability, flexibility and efficiency in remote control of tower mounted telecommunication equipment.

The system consists of a Master Control Unit (MCU) that controls the Antenna Line Devices (ALDs) and supplies DC power to them via a common bus. ALDs are connected to the MCU using a separate ALD system cable or by using the existing RF feeders in your system.

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COVERAGE AND CAPACITY

TECHNOLOGY LEADERSHIP

GLOBAL PARTNER

INTEGRATED SOLUTIONS

QUALITY AND RELIABILITY

Dual Band RET Module

Dual Band Remote Controlled Electrical Down-Tilt (RET)

RET Technology

Part Number:
7020.00

Easy configuration
AISG Compatible

Outdoor Usage

The Dual Band RET Unit is part of the Powerwave RET Technology and consists of a stepping motor that can be connected to the positioning rod used for adjusting the electrical down tilt of Powerwave MET antennas. Upon command from the MCU, the stepping motor moves the positioning rod up or down to achieve the desired antenna tilt angle.

The unit has dual RS-485 connectors for easy daisy chaining without the need for an external splitter. The unit can be mounted on site on an antenna that is already in place or can be delivered already mounted on a Powerwave antenna.



Dual Band Module

Key Benefits:

- Field upgradeable with installed MET antennas
- Optional factory pre-mounting on MET antennas
- Integrated RS-485 splitter for easy daisy chaining
- Field proven vented design
- Fully integrated dual RET motor housing

ANTENNA
SYSTEMS

BASE STATION
SYSTEMS

COVERAGE
SYSTEMS

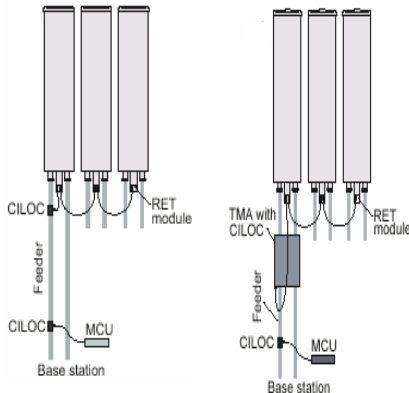
Dual Band RET Module

Technical Specifications

Product Number	7020.00
Power supply	+9 to 30V
Current consumption	
Start up surge	< 1mC
Current draw during Antenna tilting	< 500 mA at $V_{in} < 10V$ < 400 mA at $V_{in} < 19V$ < 250 mA at $V_{in} > 19V$
All other operational states	< 100 mA at $V_{in} < 19V$ < 50 mA at $V_{in} > 19V$
AISG Data Rate	9.6 kbps, 38.4kbps
Rod positioning accuracy	$\pm 0.3mm$
Weight	1 kg
Dimensions (W,L,H) (mm)	< 125 X 213 X 62 (excl mounting screws)
Connectors	
AISG output/ input	IEC 60130-9 (Ed. 3.0)
Protection Ground	M6 screw
Operation temperature range	-40 to +65C
Type Approvals	Conformity with the relevant provision(s) of the directives RTTE 99/5/EG and LVD 73/23/EEG.
MTBF	>500.000 hrs.
Ingress protection	IP55
Environmental	ETSI 300 019



All specifications subject to change without notice. Please contact your Powerwave representative for complete performance data.



Powerwave RET system is designed to meet the high requirements for reliability, flexibility and efficiency in remote control of tower-mounted telecommunication equipment.

The system consists of a Master Control Unit (MCU) that controls the Antenna Line Devices (ALDs) and supplies DC power to them via a common bus. ALDs are connected to the MCU using a separate ALD system cable or by using the existing RF feeders in your system.

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COVERAGE AND CAPACITY

TECHNOLOGY LEADERSHIP

GLOBAL PARTNER

INTEGRATED SOLUTIONS

QUALITY AND RELIABILITY

Triple Band RET Module

Triple Band Remote Controlled Electrical Down-Tilt (RET)

RET Technology

Part Number:
7030.00

Easy configuration
AISG Compatible

Outdoor Usage

The Triple Band RET Unit is part of the Powerwave RET Technology and consists of a stepping motor that can be connected to the positioning rod used for adjusting the electrical down tilt of Powerwave MET antennas. Upon command from the MCU, the stepping motor moves the positioning rod up or down to achieve the desired antenna tilt angle.

The unit has dual RS-485 connectors for easy daisy chaining without the need for an external splitter. The unit can be mounted on site on an antenna that is already in place or can be delivered already mounted on a Powerwave antenna.



Triple Band Module

Key Benefits:

- Field upgradeable with installed MET antennas
- Optional factory pre-mounting on MET antennas
- Integrated RS-485 splitter for easy daisy chaining
- Field proven vented design
- Fully integrated triple RET motor housing

ANTENNA
SYSTEMS

BASE STATION
SYSTEMS

COVERAGE
SYSTEMS

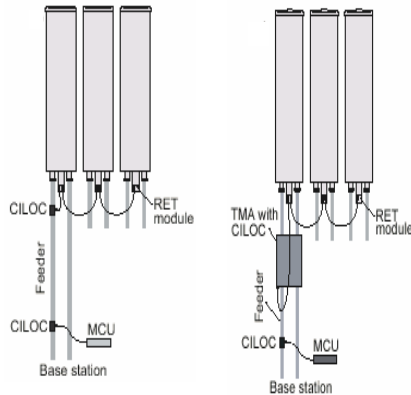
Triple Band RET Module

Technical Specifications

Product Number	7030.00
Power supply	+9 to 30V
Current consumption	
Start up surge	< 1mC
Current draw during Antenna tilting	< 500 mA at Vin <10V < 400 mA at Vin <19V < 250 mA at Vin >19V
All other operational states	< 100 mA at Vin <19V < 50 mA at Vin >19V
AISG Data Rate	9.6 kbps, 38.4kbps
Rod positioning accuracy	<± 0.3mm
Weight	1 kg
Dimensions (W,L,H) (mm)	< 125 X 213 X 62 (excl mounting screws)
Connectors	
AISG output/ input	IEC 60130-9 (Ed. 3.0)
Protection Ground	M6 screw
Operation temperature range	-40 to +65C
Type Approvals	Conformity with the relevant provision(s) of the directives RTTE 99/5/EG and LVD 73/23/EEG.
MTBF	> 500.000 hrs.
Ingress protection	IP55
Environmental	ETSI 300 019



All specifications subject to change without notice. Please contact your Powerwave representative for complete performance data.



Powerwave RET system is designed to meet the high requirements for reliability, flexibility and efficiency in remote control of tower-mounted telecommunication equipment.

The system consists of a Master Control Unit (MCU) that controls the Antenna Line Devices (ALDs) and supplies DC power to them via a common bus. ALDs are connected to the MCU using a separate ALD system cable or by using the existing RF feeders in your system.

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COVERAGE AND CAPACITY

TECHNOLOGY LEADERSHIP

GLOBAL PARTNER

INTEGRATED SOLUTIONS

QUALITY AND RELIABILITY

7011.00 Single Band E-RET

ELECTRICAL SPECIFICATIONS*

Product Number	7011.00
Standard	Ericsson
Power supply	+12 to +30V
Power consumption during tilting	<10 W
Power consumption idle	<1.5 W
Data protocol	ISO/IEC 8482 and 1056-ASC/RET interface
Rod positioning accuracy	<+/-0.3 mm
Operation temperature range	-40 to +65° C
MTBF	>1500.000 hrs.

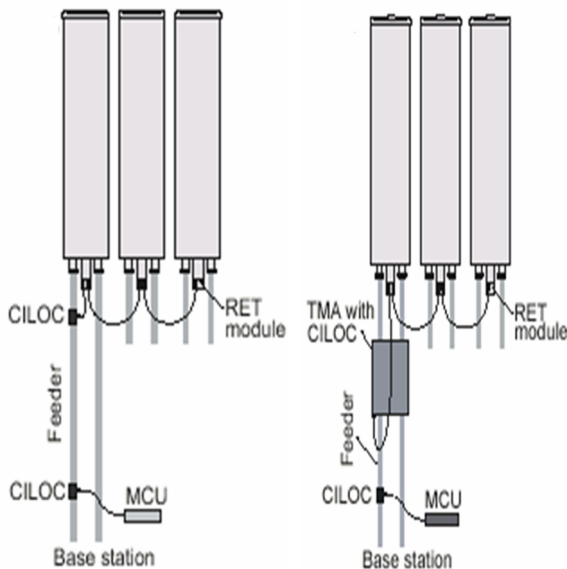
MECHANICAL SPECIFICATIONS*

Weight	1 kg
Dimensions (W,L,H) (mm)	<62 x 78 x 216
Connector Protection Ground	M6 screw
Connectors output / input	DIN 45 326
Ingress protection	IP65
Environmental	ETSI 300 019

*All specifications subject to change without notice. Please contact your Powerwave representative for complete performance data.



RET SYSTEM*



Powerwave RET system is designed to meet the high requirements for reliability, flexibility and efficiency in remote control of tower-mounted telecommunication equipment.

This system consists of a Master Control Unit (MCU) that controls the Antenna Line Devices (ALDs) and supplies DC power to them via a common bus, ALDs are connected to the MCU using a separate ALD system cable or by using the existing RF feeders in your system.

7031.00 Single Band E-RET for Multiband Antennas

ELECTRICAL SPECIFICATIONS*

Product Number	7031.00
Standard	Ericsson
Power supply	+12 to +30V
Power consumption during tilting	<10 W
Power consumption idle	<1.5 W
Data protocol	ISO/IEC 8482 and 1056-ASC/RET interface
Rod positioning accuracy	<+/-0.3 mm
Operation temperature range	-40 to +65° C
MTBF	>1500.000 hrs.

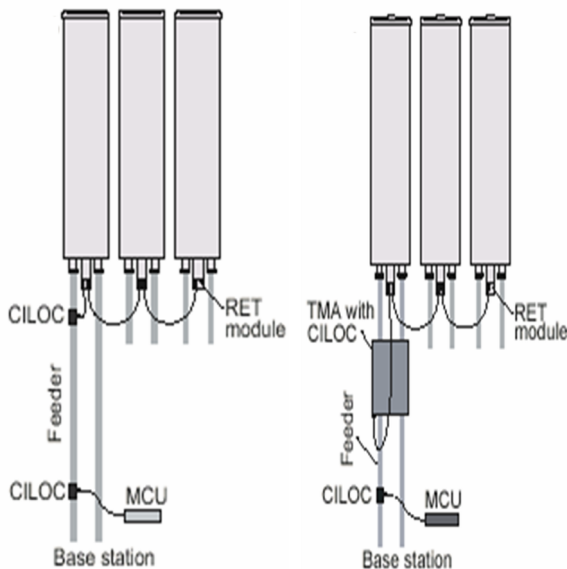
MECHANICAL SPECIFICATIONS*

Weight	1 kg
Dimensions (W,L,H) (mm)	<125 x 213 x 62 (excluding mounting screws)
Connector Protection Ground	M6 screw
Connectors output / input	DIN 45 326
Ingress protection	IP65
Environmental	ETSI 300 019

*All specifications subject to change without notice. Please contact your Powerwave representative for complete performance data.



RET SYSTEM*



Powerwave RET system is designed to meet the high requirements for reliability, flexibility and efficiency in remote control of tower-mounted telecommunication equipment.

This system consists of a Master Control Unit (MCU) that controls the Antenna Line Devices (ALDs) and supplies DC power to them via a common bus, ALDs are connected to the MCU using a separate ALD system cable or by using the existing RF feeders in your system.

Master Control Unit

The Master Control Unit (MCU) controls and supervises the Powerwave RET System

RET Technology

Part Number:
7070.xx

AISG Compatible
WEB Server

SNMP Agent

The MCU is a part of the Powerwave Remote Control Electrical Down-Tilt (RET) System and controls, supervises and provides DC power to the RET System via a common bus. Electrical tilting of antennas and setting of TMA gain can be performed from a remote location such as the NOC (Network Operating Centre) using web or SNMP interface. Local management at the base station is also possible by connecting a computer directly to the MCU.

The MCU is fully compatible with the generic Powerwave network management platform NetWay Manager™ (NWM) for advanced network management with features such as fleet software download.

ANTENNA
SYSTEMS

BASE STATION
SYSTEMS

COVERAGE
SYSTEMS



Master Control Unit

Key benefits:

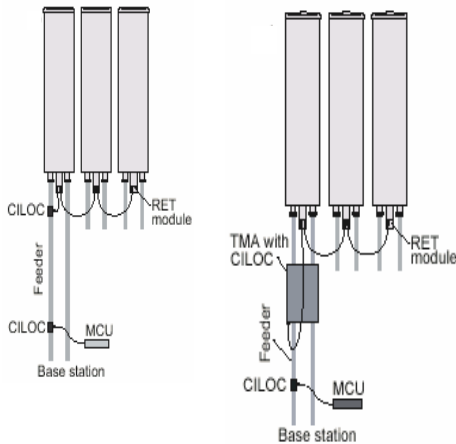
- User friendly interface for configuration and tuning of Antenna Line Devices
- Remote or local configurable via web interface (embedded element manager)
- Two Ethernet ports: one local port for connection to a computer, and one port for connection to a site LAN
- One RS-232 port for serial communication
- Eight alarm input ports for surveillance of external equipment
- Two configurable external alarm output ports for connection to base station
- Integrated SNMP agent
- Compatible with Powerwave NWM for advanced network management

Specifications

Product Number	7070.10 (AC) 7070.30 (24 V) 7070.50 (-48V)
Power supply	AC / 24V / -48V
DC / Current consumption	-48V / < 2.5A
AC / Current consumption	115/230 VAC 1.7 / 1.0A
ALD supply voltage	+24 V DC
Max current draw per connector	1.16 A
Total current draw all connectors	3.48 A
Surge at start up all connectors	54 mC during <10 ms
Local alarm ports (IN port)	
Output voltage at open	5 ±1 V
Output current at closed	5 ± 2mA
Local control ports (Out ports, 3-pole relays)	
Max input Voltage	30 V DC
Max input current	0.5 A
AISG data rate	9.6 kbps, 38.4 kbps
Weight	< 2,5 kg
Dimensions	Width 19" rack, Height 44mm, Depth 207mm
Connectors	
DC power supply	CAP 2 Circuit universal MATE-N-LOK 350778-1
AC power supply	IEC/EB60320-1 Male
RET 1 to 3	IEC 60130-9 (Ed. 3.0)
Site LAN	4-pole RJ45 MDI
Local (Ethernet port)	4-pole RJ45 MDI
RS-232	9-pin d-SUB male
Local alarm	Connector panel
Type Approvals	Conformity with the relevant provision(s) of the directives RTTE 99/5/EG and LVD 73/23/EEG.
MTBF	>250.000 hrs.
Operating temperature	-5C to 60C
Environmental	ETSI 300 019 * Weather-protected locations*



All specifications subject to change without notice. Please contact your Powerwave Representative for complete performance data.



Powerwave RET system is designed to meet the high requirements for reliability, flexibility and efficiency in remote control of tower mounted telecommunication equipment.

The system consists of a Master Control Unit (MCU) that controls the Antenna Line Devices (ALDs) and supplies DC power to them via a common bus. ALDs are connected to the MCU using a separate ALD system cable or by using the existing RF feeders in your system.

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Current Injector Layer One Converter

CILOC for communication and DC supply over the RF feeder to the ALDs

RET Technology

Part Number:
7060.00 ANT
7060.10 BTS

AISG Compatible

Outdoor Usage

The CILOC is part of the Powerwave RET System and makes it possible to connect antenna line devices (ALDs) to a Master Control Unit by using the RF feeder. The CILOC is used for transferring DC supply and data signals to the ALDs.

The external DC supply and RS-485 signals on the CILOC unit are applied through a multi-pole connector. The DC supply and RS-485 signal interface is implemented in accordance to the AISG specification.



Current Injector Layer 1 Converter

Key Benefits:

- Easy configuration and tuning of new equipment
- Power control and cell breathing by varying antenna coverage footprints
- Fine tuning of soft handover situation during live operation

ANTENNA
SYSTEMS

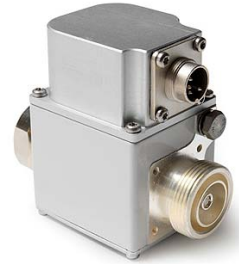
BASE STATION
SYSTEMS

COVERAGE
SYSTEMS

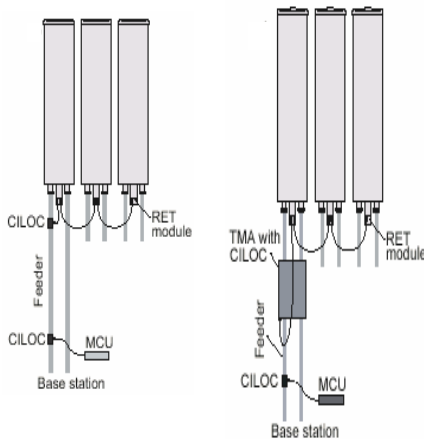
Current Injector Layer One Converter

Technical Specifications

Product Number	7060.00 (ANT) 7060.10 (BTS)
Frequency range	806-960 MHz and 1710-2180 MHz
Insertion Loss	<0.2 dB
Return Loss ANT port	>20 dB
Return Loss BTS port	>20dB
Passive intermodulation at 2X43dBm	<-116 dBm
Power handling	Average (RMS) 55 dBm Peak (pulse duration < 0.1ms) 68 dBm
Power supply	+9 to+31V
Current consumption	< 50 mA
Current handling	≤ 1.3 A
AISG data rate	9.6 kbps,38.4 kbps
Weight	< 750 g
Dimensions (W,L,H) (mm)	< 48 X 92 X 80
RF connectors	DIN 7/16 female/male
AISG output	IEC 60130-9 (Ed. 3.0)
Protection Ground	M8 screw
Operation temperature range	-40 to +65C
Type Approvals	Conformity with the relevant provision(s)of the directives RTTE 99/5/EG and LVD 73/23/EEG.
MTBF	>500.000 hrs.
Ingress protection	IP65
Environmental	ETSI 300 019



All specifications subject to change without notice. Please contact your Powerwave Representative for complete performance data.



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Diplex Filter

Diplex Filter for 800/900 MHz and 1800/1900/2100 MHz with DC Transparency

800 – 2100 MHz

Part Number: LGP219nn	Frequency Range: 824-960 MHz 1710 – 2170 MHz	Return Loss: >20 dB Insertion Loss: <0.1 dB - <0.2 dB
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The Powerwave® Diplex Filter DCT is available both as a single and double unit. Each diplexer has one port for 800/900 MHz systems, one port for 1800/1900/2100 MHz systems and a common port. It is designed for outdoor use and intended for co-location of base stations to enable sharing of the feeder, TMA system and Antenna. The unit can be used both at the BTS end for combining frequency bands to a common port and at the Antenna end for splitting the frequency bands to separate antennas.

The unit comprises of high Q band-pass filters, DC traps and lightning protection circuits. The Diplex Filter enables TMA systems to be implemented into the antenna line by allowing DC to be fed through the diplexer on the RF cable. Different DC path options are available in order to support single or dual band TMA solutions.

A patented mechanical design is utilized where all circuits are integrated within the filter body. By this, the size and weight of the Diplex Filter is reduced considerably. The Powerwave unique design ensures superior power handling capability, CW and peak power, as well as low loss. A vented enclosure design is employed to prevent the affects of condensation, thereby guaranteeing long, reliable, maintenance free service in all environmental conditions.

The Powerwave TMA product line offers an easy to install, cost effective solution for coverage enhancement and increased quality in mobile communication networks.



Diplex Filter

Key Benefits:

- Superior Power Handling Capability, CW and Peak Power
- Negligible Transmit Band Loss
- High Experienced MTBF
- DC Transparency

ANTENNA
SYSTEMS

BASE STATION
SYSTEMS

COVERAGE
SYSTEMS



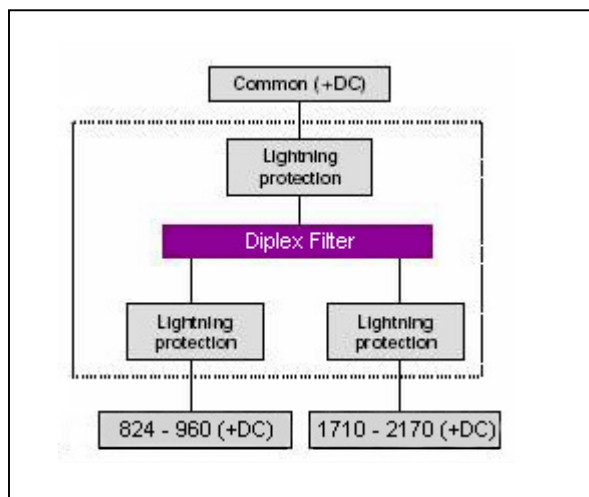
Diplex Filter with DC Transparency

800 – 2100 MHz

Technical Specifications

824-960 port	Frequency range Insertion loss* Return loss Rejection (1710-1990 MHz) Max power 800 AMPS Max power 900 MHz Intermodulation products, max.	824-960 MHz <0.1 dB >20 dB >52 dB 400W average, 10 kW peak power 200 W average, 1600 kW peak power -110 dBm (-153dBc) (two 43 dBm carriers in the Tx band)
1710-2100 port	Frequency range Insertion loss* Return loss Rejection (824-960 MHz) Max power 1800 MHz Max power 1900 MHz Intermodulation products, max.	1710-2170 MHz <0.2 dB >20 dB >52 dB 200 W average, 1600 kW peak power 200 W average, 5 kW peak power -110 dBm (-153dBc) (two 43 dBm carriers in the Tx band)
Common port	TMA supply voltage, fed via the RF cable	<31 V, 2 A
Lightning protection	According to IEC 61312-1	3 kA 10/350 µs; center pin (any port)-shield
Mechanical data	Size-W x H x D (without mounting plate) Weight (single unit) Volume Color Connectors Mounting kit for poles	112 x 158 x 74 mm (4.4 x 6.3 x 3.0 in) single unit <2,5 kg (single unit) 1,3 liter (single unit) Off white (NCS 1502-R) DIN 7/16 female. Hose clamps in stainless steel
Environmental data	Temperature range MTBF	-40 °C to +65 °C (-40°F to +149°F) 10 million hours
Approvals and tests	Safety Ingress protection, IP65 Environmental EMC	EN 609 50, UL 1950, ETL EN 60 529 ETS 300 019 ETS 300 342-3

*Typical. All specifications are subject to change without notice. Contact your Powerwave representative for complete performance data.



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COVERAGE AND CAPACITY

TECHNOLOGY LEADERSHIP

GLOBAL PARTNER

INTEGRATED SOLUTIONS

QUALITY AND RELIABILITY

900/1800 Diplexer UMTS Co-Location

Diplexer 900/1800 MHz for UMTS Co-Location with DC Transparency Configurable

Part Number:
LGP144nn

Frequency Range:
880-960 MHz / 1710-1880 MHz

Return Loss: >20
Insertion Loss: <0.2 / <0.25 / <0.4

900/1800 MHz

The Powerwave® Diplexer 900/1800 with UMTS rejection is used to combine GSM 900 and GSM 1800 signals to a common feeder. Rejection between the GSM and UMTS systems is provided to suppress wide band noise and spurious signals between the systems. The filter has configurable DC transparency and integrated lightning protection on all ports to make it easy using TMAs in the antenna system. This unit is intended for indoor or outdoor installation. The Powerwave® Diplexer is available both as a single and double unit. Each diplexer has one 880-960 port and one 1710-1880 port as well as a common port.



900/1800 MHz Diplexer for
UMTS Co-Location with
DC Transparency Configurable

Key Benefits:

- Compact Design
- Inbuilt DC Bypass
- Excellent Power Handling
- Negligible RF Loss
- Lightning Protected

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900/1800 Diplexer UMTS Co-Location

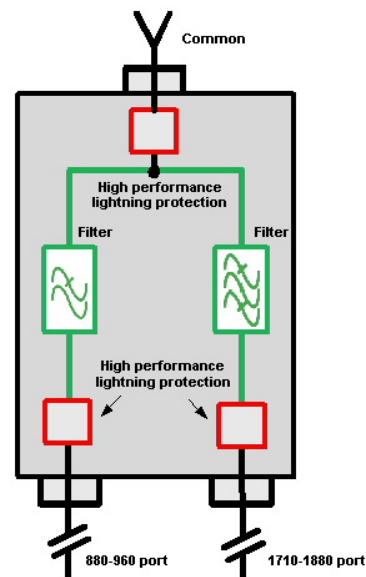
Electrical Specifications

880-960 Port	Frequency range (MHz)	880-960
	Insertion Loss (dB)	<0.2
	Return Loss (dB)	>20
	Rejection GSM 1800 (dB)	>55
	Rejection UMTS UL (dB)	>64
	Rejection UMTS DL (dB)	>44
	Average Power Handling (dBm)	>80 W (>49)
	Peak Power Handling (dBm)	>320 W (>55)
	IM 2Tx@43dBm (dBc)	-153
1710-1880 Port	Frequency range (MHz)	1710-1880
	Insertion Loss (dB)	<0.25 dB in Rx, <0.4 dB in Tx
	Return Loss (dB)	>20
	Rejection GSM 1800 (dB)	>63
	Rejection UMTS UL (dB)	>64
	Rejection UMTS DL (dB)	>44
	Average Power Handling (dBm)	>80 W (>49)
	Peak Power Handling (dBm)	>320 W (>55)
	IM 2Tx@43dBm (dBc)	-153

All specifications are subject to change without notice. Contact your Powerwave representative for complete performance data.

Mechanical Specifications

Size, WxHxD (without mounting plate)	136 x166 x63mm (5.5 x 6.5 x 2.51 in)
Weight	<3 kg (6.6 lbs)
Color	Off White (NCS 1502-R)
Housing	Aluminum, IP 65
RF-connectors	DIN 7/16 female
Mounting Kit	Hose Clamps in Stainless Steel
Temperature Range	-40 °C to +65 °C
MTBF	>10 Million Hours
Lightning Protection	On all ports, even DC isolated
Safety	EN 60 950
Ingress Protection	EN 60 529
Environmental	ETS 300 019



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1800/2100 Diplexer

Diplexer for 1800/2100 with Configurable DC Transparency

Part Number:
LGP145nn

Frequency Range:
1710-1880 MHz / 1920-2170 MHz

Low Insertion Loss

1800/2100

The Powerwave® Diplexer 1800/2100 is to be used for combining GSM 1800 and UMTS 2100 signals to a common feeder. Rejection between the GSM and UMTS systems is provided to suppress wide band noise and spurious signals between the systems. The diplexer has a configurable DC path to provide both DC and modulated subcarrier communication to TMA and RET systems over the feeder cable. This unit is intended for indoor or outdoor installations.

Powerwave vented enclosure design is deployed to prevent the effect of condensation thereby guaranteeing long reliable, maintenance free service in all environmental conditions.



1800/UMTS Diplexer

Key Benefits:

- Compact Design
- Inbuilt DC Transparency and Subcarrier Support for Data Communication
- Negligible Transmit Band Loss
- Lightning Protected on All Ports
- Full Band

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1800/2100 Diplexer

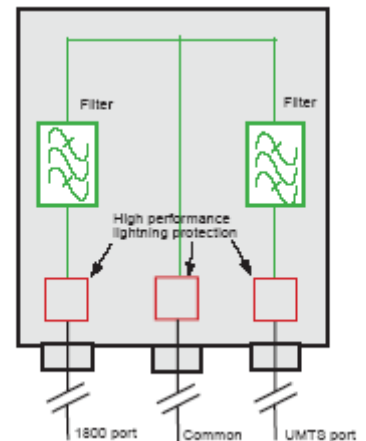
Electrical Specifications

1800 Ports	Frequency Range, Full Band (MHz)	1710-1880
	Insertion Loss (dB)	0.3 in Rx, 0.6 in Tx
	Return Loss (dB)	>18
	Rejection UMTS UL	>74
	Rejection UMTS DL	>59
	Average Power Handling	>240 W (>53.8 dBm)
	Peak Power	>1440 W (>61 dBm)
	IM, 2Tx@43dBm (dBc)	<-161
UMTS Ports	Frequency Range, Full Band (MHz)	1920-2170
	Insertion Loss (dB)	0.5 in Rx, 0.3 in Tx
	Return Loss	>18
	Rejection 1800 UL	>60
	Rejection 1800 DL	>60
	Average Power Handling	>80 W (>49 dBm)
	Peak Power	>1600 W (>62 dBm)
	IM, 2Tx@43dBm (dBc)	<-161

All specifications are subject to change without notice. Contact your Powerwave representative for complete performance data.

Mechanical Specifications

Size, WxHxD (without mounting plate)	180 x 162 x 61mm (7.1 x 6.3 x 2.4 in)
Weight	3.6 kg (7.9 lbs)
Color	Off White (NCS 1502-R)
Housing	Aluminum, IP 65
RF-connectors	DIN 7/16 female
Mounting Kit	Hose Clamps in Stainless Steel
Temperature Range	-40 °C to +65 °C
MTBF	10 Million Hours
Safety	EN 60 950
Ingress Protection IP 65	EN 60 529
Environmental	ETS 300 019



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Triplexer Fullband

Triplex Filter for 900, 1800 MHz and UMTS with DC Transparency

900/1800/2100 MHz

Part Number:
LGP141m

Frequency Range: 880-960 MHz /
1710-1880 MHz / 1920-2170 MHz

Return Loss: >20 dB
Insertion Loss: <0.2 / <0.3 / <0.5

Powerwave® offers a variety of multiband filters for installation in 3G networks. The filters enable re-use of existing feeders in order to reduce cost of new installations and simplifies the process of getting necessary site permissions for the new installations. It is designed for outdoor use and intended for co-siting of base stations to enable sharing of feeder, TMA system and antenna. The unit can be used both at the BTS end for combining frequency bands to a common port and at the antenna end for splitting the frequency bands to separate antennas. The filter has configurable DC transparency and integrated lightning protection on all ports to make it easy using TMAs in the antenna system.

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Triplex Filter for 900, 1800 MHz
and UMTS with DC Transparency

Key Benefits:

- Compact Design
- Inbuilt DC Transparency and Subcarrier Support
- Superior Power Handling
- Negligible Transmit Band Loss
- Lightning Protected
- Full Band

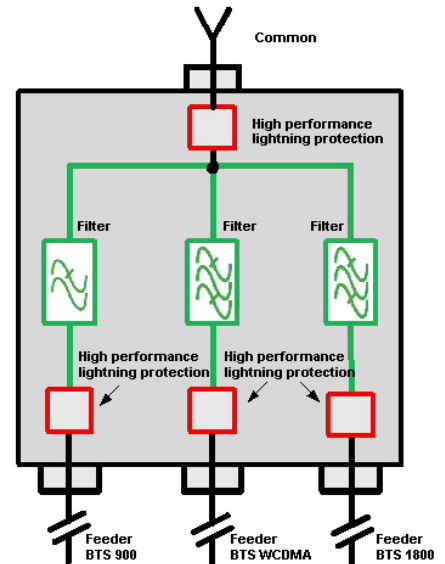
Technical Specifications

Product number	LGP141nn	
900 Port	Frequency range, full band (MHz)	880-960
	Insertion Loss (dB)	<0.2
	Return Loss (dB)	>20
	Average Power Handling (dBm)	>200 W (>53)
	Peak Power (dBm)	>1600 W (>62)
	Intermodulation Products, Max	<-116 dBm @2x43 dBm in Tx-band
1800 Port	Frequency range,full band (MHz)	1710-1880
	Insertion loss (dB)	<0.3 dB in Rx, <0.6 dB in Tx
	Return loss (dB)	>20
	Average Power Handling	>200 W (>53 dBm)
	Peak Power	>1600 W (>62 dBm)
	Intermodulation Products, Max	<-116 dBm @2x43 dBm Tx-band
UMTS Port	Frequency Range, Full Band (MHz)	1920-2170
	Insertion Loss (dB)	<0.5 dB in Rx, <0.3 dB in Tx
	Return Loss (dB)	>20 dB
	Average Power Handling (dBm)	>80 W (>-49 dBm)
	Peak Power (dBm)	>1600 W (>62 dBm)
	Intermoducation Products, Max	<-116 dBm @2Tx43 dBm in Tx-band
Common Port	Peak Power	>6400 W (>68 dBm)
Isolation Between Ports	Rejection Between Ports (except common)	>50 dB

All specifications are subject to change without notice. Contact your Powerwave representative for complete performance data.

Mechanical Specifications

Size, WxHxD (without mounting plate)	169 x 228 x 68mm (6.7 x 9.0 x 2.7 in)
Weight	<3.0 kg (6.5 lbs)
Color	Off White (NCS 1502-R)
Housing	Aluminum, IP 65 (Option IP 68)
RF-connectors	DIN 7/16 female
Mounting Kit	Hose Clamps in Stainless Steel
Temperature Range	-40 °C to +65 °C
MTBF	>10 Million Hours
Safety	EN 60 950, UL 60 950, ETL
Ingress Protection, IP 65	EN 60 529
Environmental	ETS 300 019



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Co-Location Filter 900

Co-Location Filter GSM900

890-960 MHz

Part Number:
LGP195nn

Frequency Range:
890-915 MHz / 896-915 MHz

Return Loss: >18 dB
Insertion Loss: <1.5dB/ <1.0 / <0.5dB

The Powerwave® Co-location filter for GSM900 provides attenuation of 800MHz transmitters in order not to degrade the GSM900 uplink. The unit comes in three different versions depending on carrier allocations.

The duplexed design enables external installation on Rx/Tx systems.

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Co-Location Filter 900 MHz

Key Benefits:

- Compact Design
- Excellent Power Handling
- Duplexed Design for Rx/Tx

Co-Location Filter 900

Electrical Specifications

Receive	Frequency Range -01 & -02 (MHz)	890-915
	Frequency Range -03 (MHz)	896-915
	Insertion Loss -01 & -03 (dB)	<1.5
	Insertion Loss -02 (dB)	<1.0
	Return Loss (dB)	>18
Transmit	Frequency Range -01 & -02 (MHz)	935-960
	Frequency Range -03 (MHz)	941-960
	Insertion Loss (dB)	<0.5
	Return Loss (dB)	>18
	Average Power Handling (dBm)	>+53
	Peak Power (dBm)	>+62
Rejection:	-01: 869-889 (MHz)	>30
	-02: 869-888 (MHz)	>37
	-03: 869-895 (MHz)	>30
Intermodulation	2Tx@43dBm (dBc)	-153

All specifications are subject to change without notice. Contact your Powerwave representative for complete performance data.

Mechanical Specifications

Size, WxHxD	169 x 228 x 68 mm (6.7 x 9.0 x 2.7 in)
Weight	<3.8 kg (<8.4 lbs)
Color	Off White (NCS 1502-R)
Housing	Aluminum
RF-connectors	DIN 7/16 female
Mounting Kit	Hose Clamps in Stainless Steel
Temperature Range	-5 °C to +55 °C
MTBF	>10 Million Hours
Ingress Protection	IP44

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900/1800 MHz Band Pass Filter

Band Pass Filter 900/1800 MHz, UMTS Rejection with DC Transparency

Part Number:
LGP164nn

Frequency Range:
880-960 / 1710-1880

Return Loss: <18
Insertion Loss: <0.2 / <0.5

900/1800 MHz

The Powerwave® Band Pass Filter for 900 and 1800 MHz with UMTS rejection is used to suppress wide band noise and spurious signals from GSM systems into the UMTS receiver band. The primary use of the filter is in applications where UMTS is co-located with GSM. The filter can be used when GSM900 and GSM1800 share the same feeder or for either system alone. The filter, transparent to DC and subcarrier, enables use of TMA and RET in the antenna system.



Band Pass Filter 900/1800 MHz,
UMTS Rejection with DC Transparency

Key Benefits:

- Compact Design
- Inbuilt DC Transparency and Subcarrier Support
- Negligible RF Loss
- Lightning Protected

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900/1800 MHz

900/1800 Band Pass Filter

Electrical Specifications

Frequency Range (MHz)	880-960 / 1710-1880
Insertion Loss (800-960 MHz) (dB)	<0.2
Insertion Loss (1710-1880 MHz) (dB)	<0.5
Return Loss (dB)	>18
Rejection UMTS (dB)	>60
Average Power Handling (dBm)	>80 W (>49)
Peak Power (dBm)	>320 W (>55)
IM 2Tx@43dBm (dBc)	-161

All specifications are subject to change without notice. Contact your Powerwave representative for complete performance data.

Mechanical Specifications

Size, WxHxD	255 x 75 x 50mm (10.0 x 3.0 x 2.0 in)
Weight	<1.4 kg (3.1 lbs)
Color	Off White (NCS 1502-R)
Housing	Aluminum, IP 65
RF-connectors	DIN 7/16 female
Mounting Kit	Hose Clamps in Stainless Steel
Temperature Range	-40 °C to +65 °C
MTBF	>10 Million Hours
Safety	EN 60 950
Ingress Protection	EN 60 529
Environmental	ETS 300 019

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COVERAGE AND CAPACITY	TECHNOLOGY LEADERSHIP	GLOBAL PARTNER	INTEGRATED SOLUTIONS	QUALITY AND RELIABILITY
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PNLGP164mm

900 MHz Tower Mounted Amplifier

Tower Mounted Amplifier, Dual Duplex 900 MHz

Part Number:
LGP 104nn

Low Tx Insertion Loss
Low Rx Noise Figure

Full Band

900 MHz

The Powerwave® TMA-DD 900 is a full band Tower Mounted Amplifier (TMA) to be installed near the antenna. The deployment of the TMA System will provide enhanced coverage and improved up-link signal quality. Appropriate for new rollouts by optimizing coverage with a reduced number of BTSs or as an upgrade to existing BTSs for enhancing the existing coverage. Full Band TMA facilitates simplified logistics, especially when the frequency bands are scattered. The unit comprises of high Q band-pass filters, dual balanced low noise amplifiers with circuits for active bias, supervision, alarms and lightning protection circuit. The Powerwave patented design with all active components integrated within the filter body provides an extremely reliable, compact and lightweight TMA solution. The vented enclosure design is employed to prevent the effect of condensation, thereby guaranteeing long, reliable, maintenance-free service in all environmental conditions. These TMAs offer an easy to install, maintenance free, cost effective solution for coverage enhancement and increased quality in mobile communication networks.



TMA-DD 900 MHz

Key Benefits:

- Improved Network Quality
- Increased Coverage
- State of the Art Performance
- Excellent Power Handling
- Low Tx Loss
- Exceptional Reliability

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900 MHz Tower Mounted Amplifier

900 MHz

Technical Specifications

Product Number	LGP104nn	
Up-link	Frequency range, full band (25 MHz)	890-915
	Nominal gain (dB)	12
	Return Loss (dB)	>16
	Noise figure* (dB)	<1.7
	Output 3rd order Intercept Point (OIP3)* dBm	>+25
Down-link	Frequency range, full band (25 MHz)	935-960
	Insertion loss* (dB)	0.35
	Return loss (dB)	>18
	Intermodulation	2 Tx@x43 dBm (dBc)
Alarm Functionality	Two levels, individually supervised LNAs	
Power Consumption	@12 VDC	1.5 W per LNA

* Typical

All specifications subject to change without notice. Contact your Powerwave representative for complete performance data.

Mechanical Specifications

Size, W x H x D (without mounting plate)	109 x 284 x 127 mm (4.3 x 11.2 x 5.0 in)
Weight	<5.6 kg (12.3 lbs)
Color	Off white (NCS 1502-R)
Housing	Aluminum
RF-connectors	DIN 7/16 female.
Mounting kit	Mounting kit for pole and wall is included.
Temperature range	-40 °C to +65 °C (-40 °F to +149 °F)
MTBF	>1 million hours
Safety	EN 60 950
Ingress protection, IP 65	EN 60 529
Environmental	ETS 300 019
EMC	ETS 300 342-3

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D031-08214 Rev A

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900 MHz Tower Mounted Amplifier

Dual Duplex GSM 900 MHz Extended Band

GSM 900 MHz

Part Number:
LGP 166nn

Up-link: 887-915 MHz
Down-link: 932-960 MHz

Gain: 12 dB
Noise Figure: < 1.7 dB

The Powerwave® TMA-DD GSM 900 is a extended band Tower Mounted Amplifier (TMA) to be installed near the antenna. Deployed in a GSM, GPRS and EDGE network it will increase capacity and coverage as well as extend the battery life time for the handsets. TMA System will provide enhanced coverage and improved up-link signal quality. Appropriate for new rollouts by optimizing coverage with a reduced number of BTSs or as an upgrade to existing BTSs for enhancing the existing coverage.

Extended Band TMA facilitates simplified logistics, especially when the frequency bands are scattered. The unit comprises of high Q band-pass filters, dual balanced low noise amplifiers with circuits for active bias, supervision, alarms and lightning protection circuit. The Powerwave patented design with all active components integrated within the filter body provides an extremely reliable, compact and lightweight TMA solution. The vented enclosure design is employed to prevent the effect of condensation, thereby guaranteeing long, reliable, maintenance-free service in all environmental conditions. These TMAs offer an easy to install, maintenance free, cost effective solution for coverage enhancement and increased quality in mobile communication networks.

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Key Benefits:

- Improved Network Quality
- Increased Coverage
- Compact Design
- State of the Art Performance
- Excellent Power Handling
- Low Tx Loss
- Exceptional Reliability

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Tower Mounted Amplifier

Technical Specifications

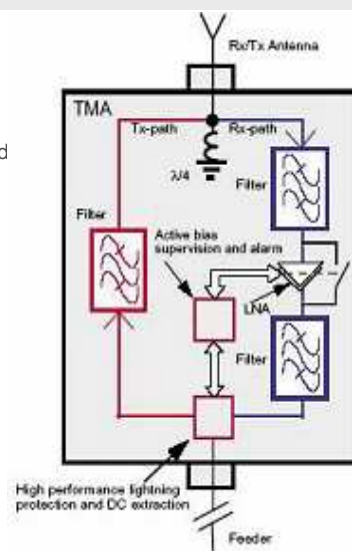
Product Number	LGP166nn	
Up-link	Frequency range, Extended band (28 MHz)	887-915
	Nominal gain (dB)	12
	Return loss* (dB)	> 20
	Noise figure* (dB)	< 1.7
	Output 3rd order Intercept Point* (dBm)	> +23
Down-link	Frequency range, full band (28 MHz)	932-960
	Insertion loss* (dB)	< 0.7
	Return loss* (dB)	> 20
Intermodulation	2 Tx@x43 dBm (dBc)	<-158
Alarm Functionality	Two levels, individually supervised LNAs	
Power Consumption	@12 VDC	1.2 W per LNA

* Typical

All specifications subject to change without notice. Contact your Powerwave representative for complete performance data.

Mechanical Specifications

Size, W x H x D (without mounting plate)	169 x 228 x 66 mm (6.6 x 9 x 2.6 in)
Weight	5.7 kg (12.3 lbs)
Color	Off white (NCS 1502-R)
Housing	Aluminum
RF-connectors	DIN 7/16 female.
Mounting kit	Mounting kit for pole and wall is included
Temperature range	-40 °C to +65 °C (-40 °F to +149 °F)
MTBF	>1 million hours
Safety	EN 60 950
Ingress protection, IP 65	EN 60 529
Environmental	ETS 300 019
EMC	ETS 300 342-3



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900 MHz Tower Mounted Amplifier

Dual Duplex EGSM 900 MHz Full Band

EGSM 900 MHz

Part Number:
LGP 192nn

Up-link: 880-915 MHz
Down-link: 925-960 MHz

Gain: 12 dB
Noise Figure: < 1.7 dB

The Powerwave® TMA-DD EGSM 900 is a full band Tower Mounted Amplifier (TMA) to be installed near the antenna. Deployed in a GSM, GPRS and EDGE network it will increase capacity and coverage as well as extend the battery life time for the handsets. TMA System will provide enhanced coverage and improved up-link signal quality. Appropriate for new rollouts by optimizing coverage with a reduced number of BTSs or as an upgrade to existing BTSs for enhancing the existing coverage.

Full Band TMA facilitates simplified logistics, especially when the frequency bands are scattered. The unit comprises of high Q band-pass filters, dual balanced low noise amplifiers with circuits for active bias, supervision, alarms and lightning protection circuit. The Powerwave patented design with all active components integrated within the filter body provides an extremely reliable, compact and lightweight TMA solution. The vented enclosure design is employed to prevent the effect of condensation, thereby guaranteeing long, reliable, maintenance-free service in all environmental conditions. These TMAs offer an easy to install, maintenance free, cost effective solution for coverage enhancement and increased quality in mobile communication networks.



Key Benefits:

- Improved Network Quality
- Increased Coverage
- Compact Design
- State of the Art Performance
- Excellent Power Handling
- Low Tx Loss
- Exceptional Reliability

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Tower Mounted Amplifier

Technical Specifications		
Product Number	LGP192nn	
Up-link	Frequency range, full band (35 MHz)	880-915
	Nominal gain (dB)	12
	Return loss* (dB)	> 20
	Noise figure* (dB)	< 1.7
	Output 3rd order Intercept Point* (dBm)	> +23
Down-link	Frequency range,full band (35 MHz)	925-960
	Insertion loss* (dB)	< 0.7
	Return loss* (dB)	> 20
Intermodulation	2 Tx@x43 dBm (dBc)	<-158
Alarm Functionality	Two levels,individually supervised LNAs	
Power Consumption	@12 VDC	1.2 W per LNA

* Typical

All specifications subject to change without notice. Contact your Powerwave representative for complete performance data.

Mechanical Specifications	
Size,W x H x D (without mounting plate)	169 x 272 x 89 mm (6.6 x 10.7 x 3.5 in)
Weight	5.7 kg (12.3 lbs)
Color	Off white (NCS 1502-R)
Housing	Aluminum
RF-connectors	DIN 7/16 female.
Mounting kit	Mounting kit for pole and wall is included
Temperature range	-40 °C to +65 °C (-40 °F to +149 °F)
MTBF	>1 million hours
Safety	EN 60 950
Ingress protection, IP 65	EN 60 529
Environmental	ETS 300 019
EMC	ETS 300 342-3

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Twin Tower Mounted Amplifier

Twin Dual Duplex 1800 MHz Full Band

Part Number: LGP 185nn	Up-link: 1710-1785 MHz Down-link: 1805-1880 MHz	Gain: 12 dB Noise Figure: 1.5 dB
---------------------------	--	-------------------------------------

The Powerwave® Twin TMA-DD 1800 consists of two full band Tower Mounted Amplifiers (TMA) to be installed near the antenna. The Twin contains TMAs for both main and diversity paths and fits perfectly with cross-pole antennas. With a volume of only 2.9 litres it is extremely small and compact.

Deployed in a GSM, EDGE, CDMA or WCDMA (CDMA 2000 or UMTS) network it will increase capacity and coverage as well as extend the battery life time for the handsets.

Full Band TMA facilitates simplified logistics, especially when the frequency bands are scattered. The unit comprises of high Q band-pass filters, dual balanced low noise amplifiers with circuits for active bias, supervision, alarms and lightning protection circuit. The Powerwave patented design with all active components integrated within the filter body provides an extremely reliable, compact and lightweight TMA solution.

The Powerwave® unique field proven reliability secures a long maintenance free service in all environmental conditions.

1800 MHz

ANTENNA
SYSTEMS

BASE STATION
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Key Benefits:

- World Leading Compact Design, two TMAs in One Unit
- Full Band Design for Scattered Blocks of Frequencies
- Low Noise Figure for Increased Coverage and Improved Network Quality
- Low Tx Insertion Loss
- Exceptional Reliability

1800 MHz

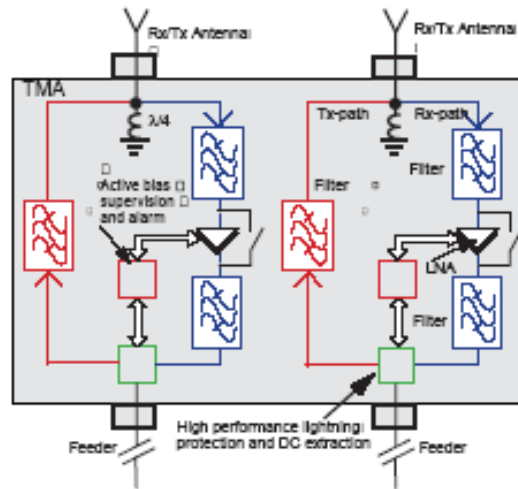
Twin Tower Mounted Amplifier

Technical Specifications

Product number	LGP185nn	
Up-link	Frequency range, full band (75 MHz)	1710-1880 MHz
	Nominal gain (dB)	12
	Noise figure* (dB)	1.5
	Output 3rd order Intercept Point* (dBm)	+26
	Bypass functionality	Optional
Down-link	Frequency range, full band (75 MHz)	1805-1880 MHz
	Insertion loss* (dB)	0.4
	Return loss (dB)	>18
Intermodulation	@ 2 x 43 dBm Tx carriers	In receive band <-116 dBm, referred to Antenna port
Alarm functionality	Two levels, individually supervised LNAs	
Power consumption	@ 12 VDC	1.5 W per LNA
Mechanical data	Size, W x H x D (without mounting plate)	169 x 272.5 x 67.7 mm (6.7 x 10.7 x 2.7 in)
	Weight	<4.5 kg (9.9 lbs)
	Colour	Off white (NCS 1502-R)
	Housing	Aluminium
	RF-connectors	DIN 7/16 female.
	Mounting kit	Mounting kit for pole and wall is included.
Environmental data	Temperature range	-40 °C to +65 °C
Approvals and tests	MTBF	>1 million hours
	Safety	EN 60 950
	Ingress protection, IP 65	EN 60 529
	Environmental	ETS 300 019
	EMC	ETS 301 489
Optional AISG compatibility	AISG 1.1	

* Typical

All specifications subject to change without notice. Contact your Powerwave representative for complete performance data.



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COVERAGE AND CAPACITY

TECHNOLOGY LEADERSHIP

GLOBAL PARTNER

INTEGRATED SOLUTIONS

QUALITY AND RELIABILITY

Micro Twin™ TMA

Micro Twin™ Tower Mounted Amplifier Dual Duplex 2100 MHz Full Band

Part Number:
LGP215nn

Up-link: 1920-1980 MHz
Down-link: 2110-2170 MHz

Gain: 12 dB, fixed or 23-32 dB variable gain
Noise Figure: 1.4 dB

2100 MHz

The new Powerwave Micro Twin™ 2100 is less than half the size than present conventional designs. With a volume of only 1.4 liters, it is extremely small and compact. It consists of two full band Tower Mounted Amplifiers (TMA) in one housing to be installed near the antenna. The Twin contains TMAs for both the main and diversity branch and fits perfectly with cross-pole antennas. Deployed in a 2100 network it will increase capacity and coverage as well as extend battery-life for handsets. The Micro Twin™ is AISG compatible with automatic current alarm fall back to support installations with current alarm supervision.

Full Band TMA facilitates simplified logistics, especially when the frequency bands are scattered. The unit comprises of high Q band-pass filters, dual balanced low noise amplifiers with circuits for active bias, supervision, alarms and lightning protection circuit. The Powerwave patented design with all active components integrated within the filter body provides an extremely reliable, compact and lightweight TMA solution

The Powerwave unique field proven reliability secures a long maintenance-free service in all environmental conditions



Micro Twin™
Tower Mounted Amplifier
Dual Duplex 2100 MHz Full Band

Key Benefits:

- World Leading Compact Design, two TMAs in One Unit
- Low Noise Figure for Increased Coverage and Improved Network Quality
- Low Tx Insertion Loss
- Exceptional Reliability
- Compatible With Most Node B Systems
- AISG Compatible

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2100 MHz

Technical Specifications

Product number	LGP215nn	
Up-link	Frequency range, full band (60 MHz)	1920-1980 MHz
	Nominal gain (dB)	12 dB, fixed or 23-32 dB variable gain
	Noise figure* (dB)	1.4
	Output 3rd order Intercept Point (dBm)*	+25
	Bypass loss* (dB)	<2.0 dB (12 dB variant)
Down-link	Frequency range,full band (60 MHz)	2110-2170 MHz
	Insertion loss*	0.3 dB
	Return loss	>20 dB
Intermodulation	@ 2 x 43 dBm Tx carriers	
	In receive band	<-125 dBm, referred to Antenna port
Alarm functionality	AISG Compatible	
Power consumption	@12 VDC	1.5 W per LNA



Powerwave is an active member of the 3GPP and Antenna interface Standard Group

*Typical

All specifications are subject to change without notice. Contact your Powerwave representative for complete performance data.

Mechanical Specifications

Size,W x H x D (without mounting plate)	154 x 192 x 50 mm (6.0 x 7.5 x 2.0 in)
Weight	<3.5 kg (7.7 lbs)
Color	Off white (NCS 1502-R)
RF-connectors	DIN 7/16 female.
Mounting kit	Mounting kit for pole and wall is included.
Temperature range	-40 °C to +65 °C
MTBF	>1 million hours (over 100 years)
Safety	EN 60 950
Ingress protection, IP 65 and IP 67	EN 60 529
Environmental	ETS 300 019
EMC	ETSI 125 113

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COVERAGE AND CAPACITY

TECHNOLOGY LEADERSHIP

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QUALITY AND RELIABILITY

Current Injector Broadband

Indoor Current Injector

Part Number:
LGP233nn

Frequency Range:
806-960 and 1710-2170 MHz

Return Loss: >20dB
Insertion Loss: <0.1dB

The Powerwave® CIN ID is a Current Injector for indoor use. The CIN is to be mounted indoor close to the base station antenna ports and provides the ability to apply DC power to, and convey alarm conditions from, a Tower Mounted Amplifier via the coaxial feeder cable. It also supports AISG/3GPP data communication.

The unit features advanced lightning protection circuits acting as surge protection for the BTS. This eliminates the need for traditional lightning arresters in the BTS. DC supply cables are available in standard lengths with various connectors according to requirements.

The broadband design covers 800/900/1800/1900/2100 MHz frequency bands. Standard connector gender configuration is male to the BTS port and female to the antenna port. A version with reversed gender configuration is also available.



Key Benefits:

- Broadband design
- Negligible insertion loss
- Integrated lightning protection
- Robust design
- AISG/3GPP compatible

ANTENNA
SYSTEMS

BASE STATION
SYSTEMS

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SYSTEMS



Current Injector Broadband

806-960\1710-2170 MHZ

Electrical Specifications

Product number	LGP233nn
Frequency range (MHz)	806-960 and 1710-2170
Return Loss (dB)	>20
Insertion Loss* (dB)	<0.1
DC Current, max	1.5 A
Intermodulation: @ 2 x 43 dBm TX Carriers (dBc)	<-116 dBm (<-159)
Temperature range	-5 °C to +55 °C (23° F to +131° F)
MTBF	>1 000 000 hours (over 100 years)
Safety	EN 609 50, UL 609 50, ETL
Ingress Protection, IP54	EN 605 29
Environmental	ETS 300 019
Lightning Protection	IEC 61312-1

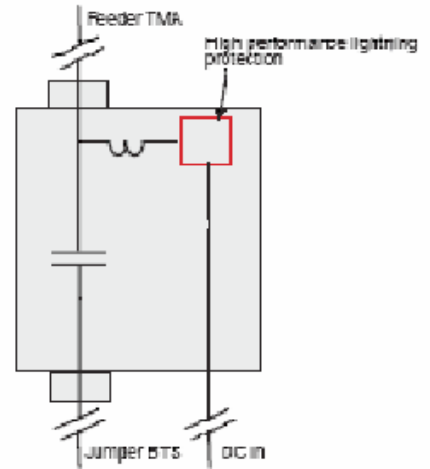
*Typical

All specifications are subject to change without notice. Contact your Powerwave representative for complete performance data.

Mechanical Specifications

Size, W x H x D (incl. 7/16 connectors)	87 x 41 x 51 mm (3.4 x 1.6 x 2.0 inch)	
Weight	0.32 kg (0.71 lbs)	
Color	Silver plating	
Housing	Zink Alloy	
RF-connectors	DIN 7/16 female and male	
DC Supply Connector	SMB male	

<u>Product numbers</u>	<u>BTS/NodeB Connector</u>	<u>ANT Connector</u>
LGP23301	Male	Female
LGP23302	Female	Male



D031-08407 Rev. A Pg 2 of 2

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COVERAGE AND CAPACITY

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Current Injector Broadband

Outdoor Current Injector

Part Number:
LGP213nn

Frequency Range:
806-960 and 1710-2170 MHz

Return Loss: >20 dB
Insertion Loss: <0.1 dB

The Powerwave® CIN OD is a Current Injector for outdoor use. The Current Injector provides the ability to apply DC power to, and convey alarm conditions from, a Tower Mounted Amplifier via the coaxial feeder cable. It also supports AISG / 3GPP data communication.

The unit features advanced lightning protection circuits acting as surge protection for the BTS. This eliminates the need for traditional lightning arresters in the BTS. DC supply cables are available in standard lengths with various connectors according to requirements.

The broadband design covers 800/900/1800/1900/2100 MHz frequency bands. Standard connector gender configuration is male to the BTS port and female to the antenna port. A version with reversed gender configuration is also available.



Key Benefits:

- Broadband design
- Negligible Insertion Loss
- Integrated Lightning Protection
- Robust Design
- AISG/3GPP compatible

ANTENNA
SYSTEMS

BASE STATION
SYSTEMS

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SYSTEMS



Current Injector Broadband

806-960/1710-2170 MHz

Electrical Specifications

Product Number	LGP213nn
Frequency range, 2 variants (MHz)	806 - 960MHz and 1710-2170
Return Loss (dB)	>20
Insertion Loss* (dB)	< 0.1
DC Current, max	1.5 A
Intermodulation: @ 2x 43 dBm Tx carriers (dBc)	<-116 dBm (<-159)
Temperature range	-40 °C to +65 °C (-40° F to +149° F)
MTBF	>1 000 000 hours
Safety	EN 609 50, UL 60950, ETL
Ingress protection, IP 68	EN 60 529
Environmental	ETS 300 019
Lightning Protection	IEC 61312-1

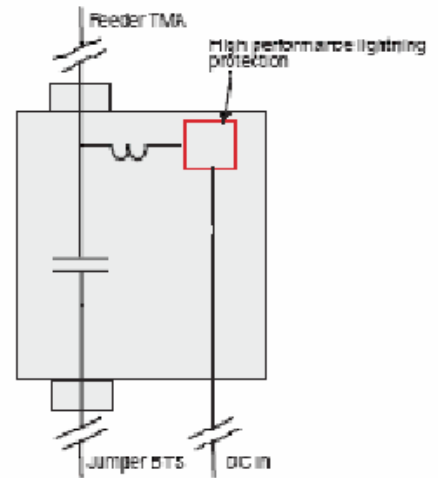
*Typical

All specifications are subject to change without notice. Contact your Powerwave representative for complete performance data.

Mechanical Specifications

Size, W x H x D (incl. 7/16 connectors)	87 x 41 x 51 mm (3.4 x 1.6 x 2.0 in)
Weight	0.32 kg (0.71 lbs)
Color	Off-white, NCS 1502R
Housing	Aluminum
RF-connectors	DIN 7/16 female and male
DC-connector	SMA female

Product number	BTS/NodeB Connector	ANT Connector
LGP21301	Male	Female
LGP21302	Female	Male



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Power Distribution Unit (PDU)

PDU Lite™ – Indoor

Part Number:
LGP121nn

Input Current: Max 1A
Output Current: Max 375 mA/port

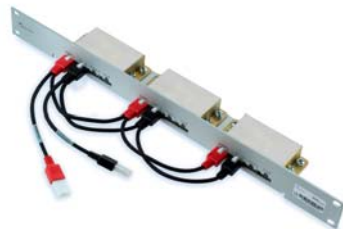
Input Voltage:
20-60 V DC, positive or negative

PDU Lite

The Powerwave Power Distribution Unit (PDU Lite) is intended for indoor use and supplies power to the Tower Mounted Amplifier (TMA) via the Current Injectors.

The PDU Lite is a truly modular unit, each module supplying two TMAs. This unit enables TMA installations to be carried out on a per sector basis and can be easily combined to provide solutions for all common site configurations.

PDU Lite is available as a stand alone unit or as a 1 to 3 module 19" panel and has isolated input and output ports that can cater to both positive and negative DC supplies.



Power Distribution Unit

Key Benefits:

- Operates regardless of +24 or - 48 VDC
- Compact design for cramped BTS cabinets
- Easy upgrade for BTS expansion

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SYSTEMS

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SYSTEMS

Power Distribution Unit



PDU Lite

Electrical Specifications

Input Voltage	20-60 V DC, positive or negative
Input Current, Max	1 A
Input Protection and Polarity	Automatic Polarity Agile
No. of TMA Output Ports	2
Output Voltage	12 V DC +/- 1 V
Output Current, Max	375 mA/port
Output Protection	Automatic short-circuit protection, auto recovery
Alarm Functionality	Low Current/High Current Open Circuit/Short Circuit
Sum Alarm Output Port	Relay Normally Open and Normally Closed

All specifications are subject to change without notice. Please contact your Powerwave representative for complete performance data.

Mechanical Specifications

Size, WxHxD	100 x 20 x 60 mm (3.9 x 0.8 x 2.4 in)
Weight	120g (0.3 lbs)
Housing	Aluminum
Input Voltage Connector	3 Pole Connector, Molex
Output Connector	2 x 3 Pole Connector, Molex
Alarm Output Connector	3 Pole Connector, Molex
Output Voltage Indicator	Green when OK
Output Port Current Indicator, One Per Port	Green when OK
Temperature Range	-40 °C to +65 °C (-40° F to +149° F)
Humidity	5-95% RH non condensing
MTBF	>1 000 000 hours (over 100 years)
Rack Mounting Kit:	
Housing	Aluminum
Weight	300 g
No. of Modules	1.3
Dimensions, 19"	1U x 70 mm (1.75 x 2.8 in)
Safety	EN 60 950, UL 1950
Environmental	ETS 300 019
EMC	ETS 300 342-3

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COVERAGE AND CAPACITY

TECHNOLOGY LEADERSHIP

GLOBAL PARTNER

INTEGRATED SOLUTIONS

QUALITY AND RELIABILITY

PN LQP121nn

Clean Site™ Solution

Single Sector

Single Sector

Multi Band Solutions
Antenna / TMA / RET

Simpler Logistics
Easier Installation

Lower Noise Figure
0.3 to 0.5 dB less TX loss

As a part of Powerwave's CleanSite solutions the Single sector offers a flexible way of integrating products from Powerwave's extensive range of antenna system products in one single radome. The Single sector solution offers maximum sector coverage with minimum visual impact.

The Powerwave Clean Site Program integrates a full range of multi-band solutions to make the most of tower space. High-volume production in several countries ensures a rapid delivery.

Our products provide design and installation flexibility that answers any needs, such as enabling co-siting of networks and systems, dealing with space and zoning issues limiting the appearance and location of new installations.



Key Benefits:

- Multi sector coverage
- Simplified Site Acquisition
- Less Visual Impact "Zoning"
- Simpler/Faster installation and Commissioning
- Simplified Logistics
- Improved Quality (products and installation)
- Reduced Total Cost
- Guaranteed Performance

ANTENNA
SYSTEMS

BASE STATION
SYSTEMS

COVERAGE
SYSTEMS

THE POWER IN WIRELESS®



Preliminary –to be changed without further notice

Clean Site™ Single sector Solution

Antenna system numbering

PPPP.QRS.TUVX.YZ

PPPP part number antenna
Q Tilt variant
RS Concept
T RET Functionality
U RET SW
V # of TMAs per sector
X # of combined filter bands per sector
YZ Variant #

Q	Description
0	Standard tilt range
1-9	Shifted tilt variants

R	S	Description
M	1	Monopole 1 sector
	2	Monopole 2 sector
	3	Monopole 3 sector
I	1	Intellimast 1 sector
	2	Intellimast 2 sector
	3	Intellimast 3 sector
S	0	Standard antenna No bracket
	F	Standard antenna Fixed bracket
	U	Standard antenna Connector up
	C	Standard antenna Combined F&U
	T	Standard antenna Tilt bracket
C	D	Standard antenna Combined T&U
	0	Single sector Clean Site

T	Description
0	No RET
1	1 RET controlled band
2	2 RET controlled bands
3	3 RET controlled bands
A	i-RET (male connector)
B	i-RET (male+female connector)
C	i-RET (male+male)

U	Description
0	No RET
1	AISG SW
2	Ericsson
3	Siemens
4	3GPP
5	AISG/Ericsson
6	AISG/Siemens

V	Description
0	No TMA
1	1 TMA per sector
2	2 TMA per sector
E	Empty TMA box incl

X	Description
0	No Filters
2	2 duplexers per sector
3	2 triplexers per sector
E	Empty Filter box incl

By integrating our products together, a large number of values are added:

- One Clean Site product instead of several products (Antenna, TMA, RET) with a number of jumper cables makes it much easier to get an approval from land lords and for building permits. This gives a faster time to market and less administrative cost.
- One Clean Site product to order and install gives simpler logistics and easier installations.
- Elimination of feeders between TMA and Antenna gives 0.3 to 0.5 dB lower Noise Figure and 0.3 to 0.5 dB less TX loss. This gives increased coverage by minimizing loss of the expensive TX power and improving the Base station sensitivity. This gives an improved quality of service and increased traffic, higher revenue.
- One Clean Site integrated Antenna TMA RET system (AISG compatible) with factory verified performance guarantees high performance and reduces the risk for poor field made cables and connections.
- Powerwave Clean Site gives less investment cost and increased revenue.



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COVERAGE AND CAPACITY

TECHNOLOGY LEADERSHIP

GLOBAL PARTNER

INTEGRATED SOLUTIONS

QUALITY AND RELIABILITY

Preliminary –to be changed without further notice

Clean Site™ Single System Solution

Single System

Multi-band Solutions
Antenna / TMA / RET

Simpler Logistics
Easier Installations

Lower Noise Figure
0.3 to 0.5 dB Less TX Loss

Clean Site

The Powerwave Clean Site Program integrates a full range of multi-band solutions to make the most of tower space. High-volume production in several countries ensures a rapid delivery.

Our products provide design and installation flexibility that answers any needs, such as enabling co-siting of networks and systems, dealing with space and zoning issues limiting the appearance and location of new installations.

ANTENNA
SYSTEMS

BASE STATION
SYSTEMS

COVERAGE
SYSTEMS

Key Benefits:

- Simplified Site Acquisition
- Less Visual Impact “Zoning”
- Simpler/Faster installation and Commissioning
- Simplified Logistics
- Improved Quality (products and installation)
- Reduced Total Cost
- Guaranteed Performance



Clean Site™ Single System Solution

Clean Site

Example

Antenna Part Nr	Antenna Description	HBW	Gain
7720.00	UXM-1710-2170-65-15i-A-D	65°	15dBi
7721.00	UXM-1710-2170-65-18i-A-D	65°	18dBi
7721.10	UXM-1710-2170-65-18i-A-D	65°	18dBi
7722.00	UXM-1710-2170-65-19.5i-A-D	65°	19.5dBi
7735.00	UXM-1710-2170-90-13.5i-A-D	90°	13.5dBi
7740.00	UXM-1710-2170-90-16.5i-A-D	90°	16.5dBi
7745.00	UXM-1710-2170-90-18i-A-D	90°	18dBi

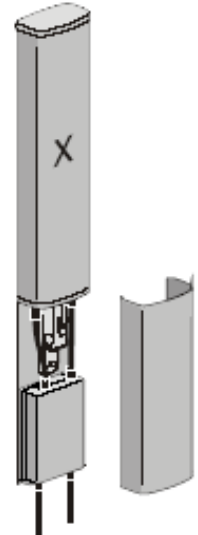
TMA Part Nr	TMA Description	Frequency Band	Gain
16720	2100MHz 12 dB gain	1920-2170	12dB
16721	2100MHzVG (24-32dB gain)	1920-2170	24-32 dB (variable)
18607	1900MHz 12 dB gain	1850-1990	12dB
18608	1900MHz 24 dB gain	1850-1990	24dB
18507	1800MHz 12 dB gain	1710-1880	12dB
18508	1800MHz high gain 24 dB gain	1710-1880	24dB

RET Part Nr	RET Description	Voltage range
7010.00	Single system unit AISG	9-30V

Clean Site Single system configured with Antenna (18dBi) + TMA (variable gain 24-32db) +RE

By integrating our products together, a large number of values are added:

- One Clean Site product instead of several products (Antenna, TMA, RET) with a number of jumper cables makes it much easier to get an approval from land lords and for building permits. This gives a faster time to market and less administrative cost.
- One Clean Site product to order and install gives simpler logistics and easier installations.
- Elimination of feeders between TMA and Antenna gives 0.3 to 0.5 dB lower Noise Figure and 0.3 to 0.5 dB less TX loss. This gives increased coverage by minimizing loss of the expensive TX power and improving the Base station sensitivity. This gives an improved quality of service and increased traffic, higher revenue.
- One Clean Site integrated Antenna TMA RET system (AISG compatible) with factory verified performance guarantees high performance and reduces the risk for poor field made cables and connections.
- Powerwave Clean Site gives less investment cost and increased revenue.



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COVERAGE AND CAPACITY

TECHNOLOGY LEADERSHIP

GLOBAL PARTNER

INTEGRATED SOLUTIONS

QUALITY AND RELIABILITY

Clean Site™ Dual System Solution

Dual System

Multi Band Solutions
Antenna / TMA / RET

Simpler Logistics
Easier Installation

lower Noise Figure
0.3 to 0.5 dB less TX loss

Clean Site

The Powerwave Clean Site Program integrates a full range of multi-band solutions to make the most of tower space. High-volume production in several countries ensures a rapid delivery. Our products provide design and installation flexibility that answers any needs, such as enabling co-siting of networks and systems, dealing with space and zoning issues limiting the appearance and location of new installations.

ANTENNA
SYSTEMS

BASE STATION
SYSTEMS

COVERAGE
SYSTEMS



Key Benefits:

- Simplified Site Acquisition
- Less Visual Impact "Zoning"
- Simpler/Faster installation and Commissioning
- Simplified Logistics
- Improved Quality (products and installation)
- Reduced Total Cost
- Guaranteed Performance

THE POWER IN WIRELESS®

 **Powerwave**
technologies

Clean Site™ Dual System Solution

Clean Site

Example

Part Number	Antenna Description	HBW	Gain
7760.00	UXCM-1710-2170-65-18i-A-D	65/65	18/18
7765.00	UXCM-1710-2170-65-19.5i-A-D	65/65	19.5/19.5
7766.00	UXCM-1710-2170-90-18i-A-D	90/90	18/18
7762.00	UXCM-1710-2170-90-16.5i-A-D	90/90	16.5/16.5
7750.00	AXCM-824-960/1710-2170-65-15/18i-A-D	67/65	14.5/18
7752.00	AXCM-824-960/1710-2170-65-16.5/18i-A-D	67/65	15.5/18
7755.00	AXCM-824-960/1710-2170-65-18/18i-A-D	67/65	17.5/18

Number	TMA Description	Frequency Band	Gain
16720	2100 MHz 12dB Gain	1920-2170	12
16721	2100 MHz VG (23-32) dB Gain	1920-2170	23-32 (variable)
18607	1900 MHz 12 dB Gain	1850-1990	12
18608	1900 MHz 24 dB Gain	1850-1990	24
18507	1800 MHz 12 dB Gain	1710-1880	12
18508	1800 MHz 24 dB Gain	1710-1880	24

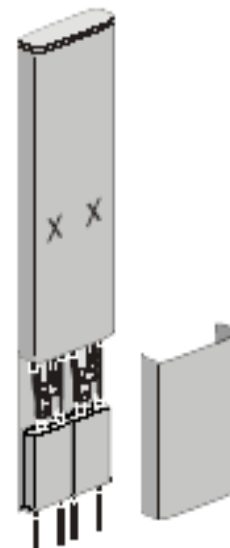
Number	Filter Description	Frequency Band	DC path
21901	TMD 800-900/1800-2100 X	824-960/1710-2170	No DC path
21902	TMD 800-900/1800-2100 D	824-960/1710-2170	824-960/1710-2170
21903	TMD 800-900/1800-2100 SH	824-960/1710-2170	1710-2170
21904	TMD 800-900/1800-2100 SL	824-960/1710-2170	824-960
23201	TMD 1800/UMTS SH	1710-1880/1920-2170	1920-2170
23202	TMD 1800/UMTS SL	1710-1880/1920-2170	1710-1880
23203	TMD 1800/UMTS D	1710-1880/1920-2170	1710-1880/1920-2170
23204	TMD 1800/UMTS X	1710-1880/1920-2170	No DC path

Number	RET Description	Voltage Range
7020.00	Dual system unit	9-30 V

Clean Site Dual system configured with:
Dual band antenna (2x18dB)+ 2XTMA (12dB) + 2xRET (AISG)

By integrating our products together, a large number of values are added:

- One Clean Site product instead of several products (Antenna, TMA, RET) with a number of jumper cables makes it much easier to get an approval from land lords and for building permits. This gives a faster time to market and less administrative cost.
- One Clean Site product to order and install gives simpler logistics and easier installations.
- Elimination of feeders between TMA and Antenna gives 0.3 to 0.5 dB lower Noise Figure and 0.3 to 0.5 dB less TX loss. This gives increased coverage by minimizing loss of the expensive TX power and improving the Base station sensitivity. This gives an improved quality of service and increased traffic, higher revenue.
- One Clean Site integrated Antenna TMA RET system (AISG compatible) with factory verified performance guarantees high performance and reduces the risk for poor field made cables and connections.
- Powerwave Clean Site gives less investment cost and increased revenue.



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COVERAGE AND CAPACITY

TECHNOLOGY LEADERSHIP

GLOBAL PARTNER

INTEGRATED SOLUTIONS

QUALITY AND RELIABILITY

Dual Band Single sector antenna

Product Number 7750.0C0.0000.00

Number of sectors 1

Electrical performance

Frequency Band (MHz) 824-960/1710-2170

Gain, ±0.5dB (dBi) 14.2/17.5

System VSWR < 1.5:1

Isolation between inputs (dB) >30

Horizontal beamwidth 69°±6°/63°±7°

Vertical beamwidth 14.3°±2°/6.6°±1°

Electrical tilt range 2°-10°/0°-8°

Inter modulation, 2x+43dBm <-110dBm

Radiation pattern 7750.00

Physical Dimensions

Height (mm) 1390

Width (mm) 275

Depth (mm) 229

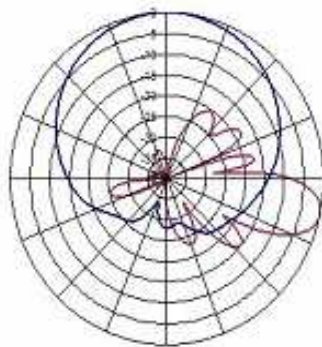
Weight, unconfigured (kg) 16

Wind Load, Frontal, 150 km/h (N) 428

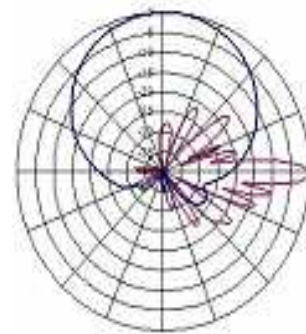
Color RAL 7035



850 MHz & 900MHz



1800 MHz & 1900 MHz



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COVERAGE AND CAPACITY

TECHNOLOGY LEADERSHIP

GLOBAL PARTNER

INTEGRATED SOLUTIONS

QUALITY AND RELIABILITY

Preliminary –to be changed without further notice

Dual Band Single sector antenna

Single sector

Product Number 7752.0C0.0000.00

Number of sectors 1

Electrical performance

Frequency Band (MHz) 824-960/1710-2170

Gain, ± 0.5 dB (dBi) 15.9/17.5

System VSWR < 1.5:1

Isolation between inputs (dB) >30

Horizontal beamwidth $69^\circ \pm 6^\circ / 63^\circ \pm 7^\circ$

Vertical beamwidth $9.2^\circ \pm 1^\circ / 6.6^\circ \pm 1^\circ$

Electrical tilt range $2^\circ - 9^\circ / 0^\circ - 8^\circ$

Inter modulation, 2x+43dBm <-110dBm

Radiation pattern 7752.00

Physical Dimensions

Height (mm) 2020

Width (mm) 275

Depth (mm) 229

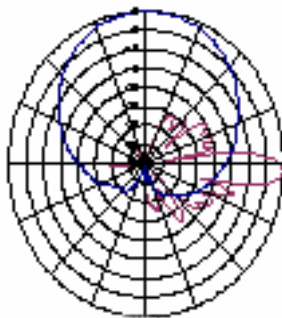
Weight, unconfigured (kg) 20

Wind Load, Frontal, 150 km/h (N) 628

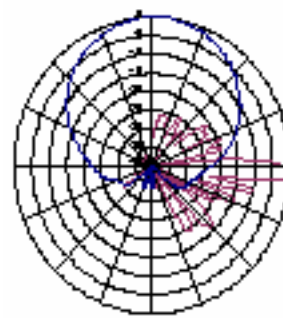
Color RAL 7035



850 MHz & 900MHz



1800 MHz & 1900 MHz



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COVERAGE AND CAPACITY

TECHNOLOGY LEADERSHIP

GLOBAL PARTNER

INTEGRATED SOLUTIONS

QUALITY AND RELIABILITY

Preliminary –to be changed without further notice

Dual Band Single sector antenna

Single sector

Product Number 7755.0C0.0000.00

Number of sectors 1

Electrical performance

Frequency Band (MHz) 824-960/1710-2170

Gain, ±0.5dB (dBi) 15.9/17.5

System VSWR < 1.5:1

Isolation between inputs (dB) >30

Horizontal beamwidth 69°±6°/63°±7°

Vertical beamwidth 9.2°±1°/6.6°±1°

Electrical tilt range 2°-9°/0°-8°

Inter modulation, 2x+43dBm <-110dBm

Radiation pattern 7755.00

Physical Dimensions

Height (mm) 2645

Width (mm) 275

Depth (mm) 229

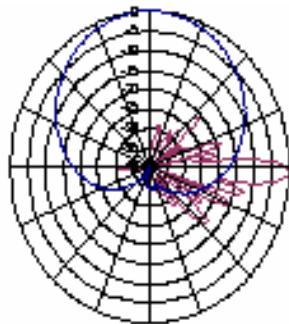
Weight, unconfigured (kg) 24

Wind Load, Frontal, 150 km/h (N) 820

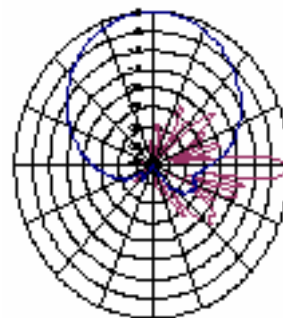
Color RAL 7035



850 MHz & 900MHz



1800 MHz & 1900 MHz



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COVERAGE AND CAPACITY

TECHNOLOGY LEADERSHIP

GLOBAL PARTNER

INTEGRATED SOLUTIONS

QUALITY AND RELIABILITY

Preliminary –to be changed without further notice

Clean Site™ Triple System Solution

Triple Band

Multi Band Solutions
Antenna / TMA / RET

Simpler Logistics
Easier Installation

lower Noise Figure
0.3 to 0.5 dB less TX loss

Clean Site

The Powerwave Clean Site Program integrates a full range of multi-band solutions to make the most of tower space. High-volume production in several countries ensures a rapid delivery.

Our products provide design and installation flexibility that answers any needs, such as enabling co-siting of networks and systems, dealing with space and zoning issues limiting the appearance and location of new installations.

ANTENNA
SYSTEMS

BASE STATION
SYSTEMS

COVERAGE
SYSTEMS



Key Benefits:

- Simplified Site Acquisition
- Less Visual Impact “Zoning”
- Simpler/Faster installation and Commissioning
- Simplified Logistics
- Improved Quality (products and installation)
- Reduced Total Cost
- Guaranteed Performance

THE POWER IN WIRELESS®

 **Powerwave**
technologies

Clean Site™ Triple System Solution

Clean Site

Example

Antenna Part Number	Antenna Description	HBW	Gain
7780.00	ALXT-824-960/2x1710-2170-15i-A-D	69/65/62	14.5/15/15
7782.00	ALXT-824-960/2x1710-2170-17i-A-D	69/65/62	16.5/17/17
7785.00	ALXT-824-960/2x1710-2170-18i-A-D	69/65/62	17/17.5/15.5

TMA Part Number	TMA Description	Frequency Band	Gain
16720	2100 MHz 12dB Gain	1920-2170	12
16721	2100 MHz VG (23-32) dB Gain	1920-2170	23-32 (variable)
18607	1900 MHz 12 dB Gain	1850-1990	12
18608	1900 MHz 24 dB Gain	1850-1990	24
18507	1800 MHz 12 dB Gain	1710-1880	12
18508	1800 MHz 24 dB Gain	1710-1880	24

Filter Part Number	Filter Description	Frequency Band	DC path
21901	TMD 800-900/1800-2100 X	824-960/1710-2170	No DC path
21902	TMD 800-900/1800-2100 D	824-960/1710-2170	824-960/1710-2170
21903	TMD 800-900/1800-2100 SH	824-960/1710-2170	1710-2170
21904	TMD 800-900/1800-2100 SL	824-960/1710-2170	824-960
23201	TMD 1800/UMTS SH	1710-1880/1920-2170	1920-2170
23202	TMD 1800/UMTS SL	1710-1880/1920-2170	1710-1880
23203	TMD 1800/UMTS D	1710-1880/1920-2170	1710-1880/1920-2170
23204	TMD 1800/UMTS X	1710-1880/1920-2170	No DC path
14108	TMT UMTS/900/1800 SMH	824-960/1710-1880/1920-2170	1710-1880
14109	TMT UMTS/900/1800 SSH	824-960/1710-1880/1920-2170	1920-2170
14110	TMT UMTS/900/1800 SLH	824-960/1710-1880/1920-2170	824-960

RET Part Number	RET Description	Voltage Range
7030.00	Triple system unit	9-30 V

Clean Site Triple Band system configured with TB Antenna (15dBi) + TMA UMTS (12dB) + TB RET (AISG) + 2xTPX filter

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- Powerwave Clean Site gives less investment cost and increased revenue.



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GLOBAL PARTNER

INTEGRATED SOLUTIONS

QUALITY AND RELIABILITY

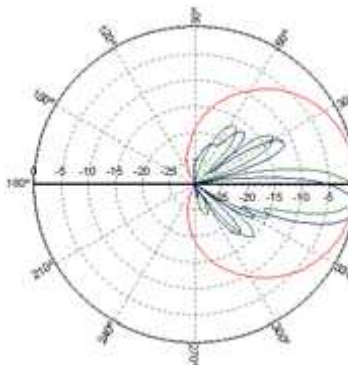
Triple Band Single sector antenna

Single sector

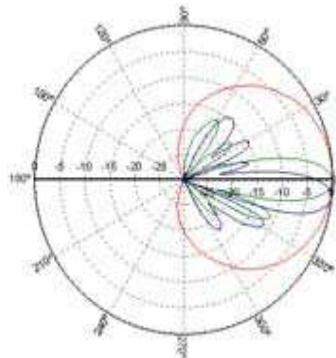
Product Number	7780.0C0.0000.00
Number of sectors	1
Electrical performance	
Frequency Band (MHz)	824-960/1710-2170/1710-2170
Gain, ± 0.5 dB (dBi)	14.5/14.4/14.8
System VSWR	< 1.5:1
Isolation between inputs (dB)	>30
Horizontal beamwidth	$68^\circ \pm 5^\circ / 65^\circ \pm 5^\circ / 62^\circ \pm 5^\circ$
Vertical beamwidth	$14^\circ \pm 2^\circ / 14.^\circ \pm 1^\circ / 13^\circ \pm 1^\circ$
Electrical tilt range	$2^\circ - 12^\circ / 0^\circ - 12^\circ / 0^\circ - 12^\circ$
Inter modulation, 2x+43dBm	<-110dBm
Radiation pattern	7780.00
Physical Dimensions	
Height (mm)	1390
Width (mm)	275
Depth (mm)	229
Weight, unconfigured (kg)	18,5
Wind Load, Frontal, 150 km/h (N)	428
Color	RAL 7035



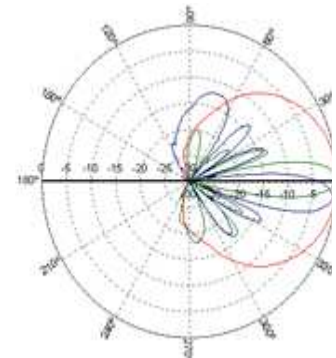
850 MHz & 900MHz



1800 MHz & 1900 MHz



2100MHz



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INTEGRATED SOLUTIONS

QUALITY AND RELIABILITY

Preliminary –to be changed without further notice

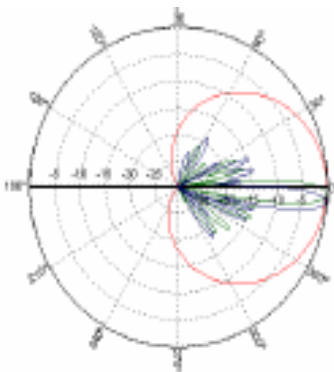
Triple Band Single sector antenna

Single sector

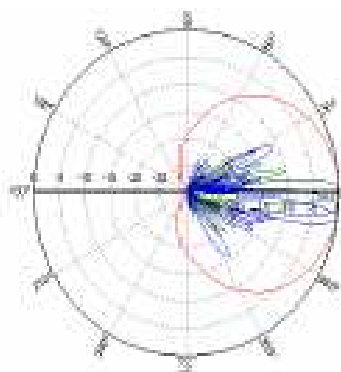
Product Number	7782.0C0.0000.00
Number of sectors	1
Electrical performance	
Frequency Band (MHz)	824-960/1710-2170/1710-2170
Gain, ±0.5dB (dBi)	16.5/16.5/16.8
System VSWR	< 1.5:1
Isolation between inputs (dB)	>30
Horizontal beamwidth	67°/65°/ 64°
Vertical beamwidth	9°±1°/10°±1°/ 9°±1°
Electrical tilt range	2 °-9°/0°-10°/ 0 °-10°
Inter modulation, 2x+43dBm	<-110dBm
Radiation pattern	7782.00
Physical Dimensions	
Height (mm)	2020
Width (mm)	275
Depth (mm)	229
Weight, unconfigured (kg)	21,5
Wind Load, Frontal, 150 km/h (N)	628
Color	RAL 7035



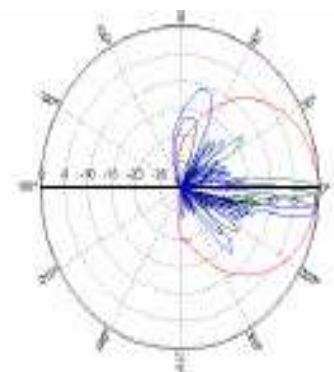
850MHz & 900MHz



1800MHz & 1900MHz



2100MHz



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QUALITY AND RELIABILITY

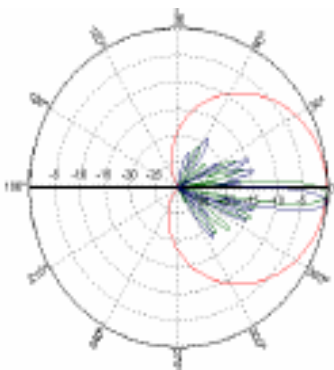
Preliminary –to be changed without further notice

Triple Band Single sector antenna

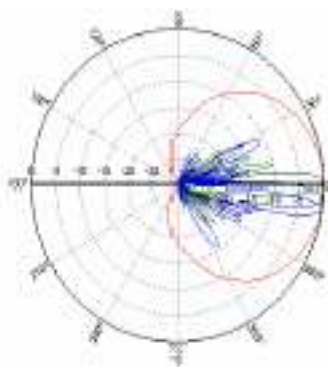
Product Number	7785.0C0.0000.00
Number of sectors	1
Electrical performance	
Frequency Band (MHz)	824-960/1710-2170/1710-2170
Gain, ±0.5dB (dBi)	17.4/17.2/17.5
System VSWR	< 1.5:1
Isolation between inputs (dB)	>30
Horizontal beamwidth	65°/65°/ 62°
Vertical beamwidth	7°/7°/6°
Electrical tilt range	2 °-8°/0°-8°/ 0 °-8°
Inter modulation, 2x+43dBm	<-110dBm
Radiation pattern	7785.00
Physical Dimensions	
Height (mm)	2645
Width (mm)	275
Depth (mm)	229
Weight, unconfigured (kg)	27,5
Wind Load, Frontal, 150 km/h (N)	820
Color	RAL 7035



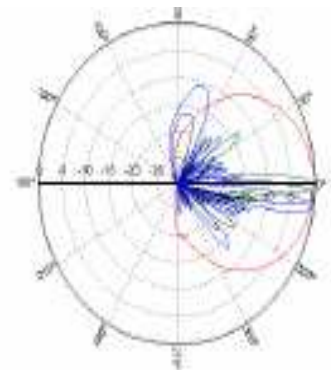
850MHz & 900MHz



1800MHz & 1900MHz



2100MHz



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COVERAGE AND CAPACITY

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GLOBAL PARTNER

INTEGRATED SOLUTIONS

QUALITY AND RELIABILITY

Preliminary –to be changed without further notice

Clean Site™ MonoPole Solution

MonoPole

Multi Band Solutions
Antenna / TMA / RET

Simpler Logistics
Easier Installation

Lower Noise Figure
0.3 to 0.5 dB less TX loss

MonoPole

As a part of Powerwaves CleanSite solutions the MonoPole offers a flexible way of integrating multi sector solutions in one single radome. MonoPole is the mounting solution to use when more than one sector is covered from a single location. The MonoPole solution offers maximum sector coverage with minimum visual impact.

The Powerwave Clean Site Program integrates a full range of multi-band solutions to make the most of tower space. High-volume production in several countries ensures a rapid delivery.

Our products provide design and installation flexibility that answers any needs, such as enabling co-siting of networks and systems, dealing with space and zoning issues limiting the appearance and location of new installations.



Key Benefits:

- Multi sector coverage
- Simplified Site Acquisition
- Less Visual Impact "Zoning"
- Simpler/Faster installation and Commissioning
- Simplified Logistics
- Improved Quality (products and installation)
- Reduced Total Cost
- Guaranteed Performance

ANTENNA
SYSTEMS

BASE STATION
SYSTEMS

COVERAGE
SYSTEMS

THE POWER IN WIRELESS®



Preliminary –to be changed without further notice



Clean Site™ MonoPole Solution

Antenna system numbering

PPPP.QRS.TUVX.YZ
 Basic config Integration config

PPPP part number antenna
Q Tilt variant
RS Concept

T RET Functionality
U RET SW
V # of TMAs per sector
X # of combined filter bands per sector
YZ Variant #

Q	Description
0	Standard tilt range
1-9	Shifted tilt variants

R	S	Description
M	1	Monopole 1 sector
	2	Monopole 2 sector
	3	Monopole 3 sector
I	1	Intellimast 1 sector
	2	Intellimast 2 sector
	3	Intellimast 3 sector
S	0	Standard antenna No bracket
	F	Standard antenna Fixed bracket
	U	Standard antenna Connector up
	C	Standard antenna Combined F&U
	T	Standard antenna Tilt bracket
C	D	Standard antenna Combined T&U
	0	Single sector Clean Site

T	Description
0	No RET
1	1 RET controlled band
2	2 RET controlled bands
3	3 RET controlled bands
A	i-RET (male connector)
B	i-RET (male+female connector)
C	i-RET (male+male)

U	Description
0	No RET
1	AISG SW
2	Ericsson
3	Siemens
4	3GPP
5	AISG/Ericsson
6	AISG/Siemens

V	Description
0	No TMA
1	1 TMA per sector
2	2 TMA per sector
E	Empty TMA box incl

X	Description
0	No Filters
2	2 diplexers per sector
3	2 triplexers per sector
E	Empty Filter box incl

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- One Clean Site product instead of several products (Antenna, TMA, RET) with a number of jumper cables makes it much easier to get an approval from land lords and for building permits. This gives a faster time to market and less administrative cost.
- One Clean Site product to order and install gives simpler logistics and easier installations.
- Elimination of feeders between TMA and Antenna gives 0.3 to 0.5 dB lower Noise Figure and 0.3 to 0.5 dB less TX loss. This gives increased coverage by minimizing loss of the expensive TX power and improving the Base station sensitivity. This gives an improved quality of service and increased traffic, higher revenue.
- One Clean Site integrated Antenna TMA RET system (AISG compatible) with factory verified performance guarantees high performance and reduces the risk for poor field made cables and connections.
- Powerwave Clean Site gives less investment cost and increased revenue.



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COVERAGE AND CAPACITY	TECHNOLOGY LEADERSHIP	GLOBAL PARTNER	INTEGRATED SOLUTIONS	QUALITY AND RELIABILITY
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Preliminary –to be changed without further notice

Trisector 1800/UMTS Single Broad Band MonoPole antenna

MonoPole

Product Number	7721.0M3.0000.00
Number of sectors	3
Azimuth variation	+/-15 degrees
Electrical performance	
Frequency Band (MHz)	1710-2170
Gain, ±0.5dB (dBi)	18
System VSWR	< 1.5:1
Isolation between inputs (dB)	>30
Horizontal beamwidth	65°±5°
Vertical beamwidth	6.6°±0.6°
Electrical tilt range	0°-8°
Inter modulation, 2x+43dBm	<-110dBm
Radiation pattern	7721.00
Physical Dimensions	
Height (mm)	2215
Diameter (mm)	340
Weight (kg)	53
Wind load @ 40m/s (N)	1200 @ 60 feet
Color	RAL 7035



For additional antenna data, check the 7721.00 data sheet

Space for TMAs included in design

Accessories for Monopole Ø340

- ACS50 Base
- ACS51 Platform
- ACS04 Cable inlet
- ACS05 Roof adapter
- ACS52 1m Extension
- ACS54 Hinge kit
- ACS55 Lightning pole
- ACS56 Cable kit
- ACS57 TMA installation bracket

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Trisector 1800/UMTS Single Broad Band MonoPole antenna

MonoPole

Product Number 7721.1M3.0000.00

Number of sectors 3

Azimuth variation +/-15 degrees

Electrical performance

Frequency Band (MHz) 1710-2170

Gain, ±0.5dB (dBi) 18

System VSWR < 1.5:1

Isolation between inputs (dB) >30

Horizontal beamwidth 65°±5°

Vertical beamwidth 6.6°±0.6°

Electrical tilt range 2°-10°

Inter modulation, 2x+43dBm <-110dBm

Radiation pattern 7721.02

Physical Dimensions

Height (mm) 2215

Diameter (mm) 340

Weight (kg) 53

Wind load @ 40m/s (N) 1200 @ 60 feet

Color RAL 7035

For additional antenna data, check the 7721.02 data sheet

Space for TMAs included in design



Accessories for Monopole Ø340

ACS50 Base

ACS51 Platform

ACS04 Cable inlet

ACS05 Roof adapter

ACS52 1m Extension

ACS54 Hinge kit

ACS55 Lightning pole

ACS56 Cable kit

ACS57 TMA installation bracket

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Trisector 1800/UMTS Single Broad Band MonoPole antenna

MonoPole

Product Number	7721.3M3.0000.00
Number of sectors	3
Azimuth variation	+/-15 degrees
Electrical performance	
Frequency Band (MHz)	1710-2170
Gain, ±0.5dB (dBi)	18
System VSWR	< 1.5:1
Isolation between inputs (dB)	>30
Horizontal beamwidth	65°±5°
Vertical beamwidth	6.6°±0.6°
Electrical tilt range	6°-14°
Inter modulation, 2x+43dBm	<-110dBm

Radiation pattern 7721.06

Physical Dimensions

Height (mm)	2215
Diameter (mm)	340
Weight (kg)	53
Wind load @ 40m/s (N)	1200 @ 60 feet
Color	RAL 7035

For additional antenna data, please check the 7721.06 data sheet

Space for TMAs included in design



Accessories for Monopole Ø340

- ACS50 Base
- ACS51 Platform
- ACS04 Cable inlet
- ACS05 Roof adapter
- ACS52 1m Extension
- ACS54 Hinge kit
- ACS55 Lightning pole
- ACS56 Cable kit
- ACS57 TMA installation bracket

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Trisector 900/UMTS Dual Broad Band MonoPole

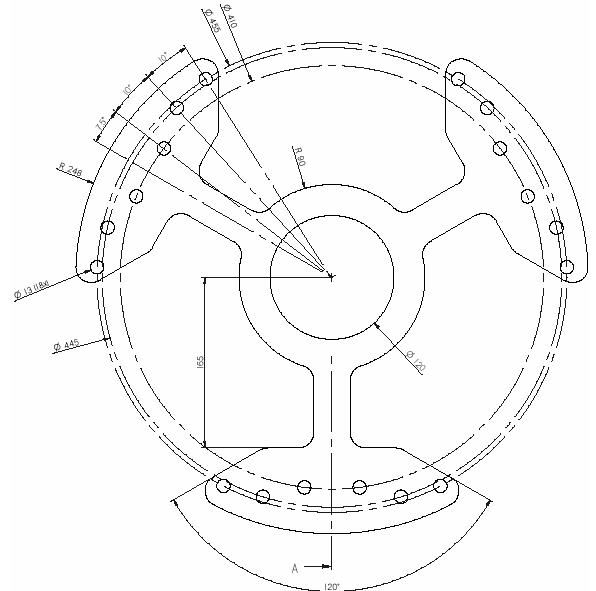
MonoPole

Product Number	77500.0M3.0000.00
Number of sectors	3
Azimuth variation	+/-15 degrees in 5deg steps
Electrical performance	
Frequency Band (MHz)	824-960/1710-2170
Gain, ±0.5dB (dBi)	14.2/17.5
System VSWR	< 1.5:1
Isolation between inputs (dB)	>30
Horizontal beamwidth	69°±6°/63°±7°
Vertical beamwidth	14.3°±2°/6.6°±1°
Electrical tilt range	2°-10°/0°-8°
Inter modulation, 2x+43dBm	<-110dBm
Radiation pattern	7750.00
Physical Dimensions	
Height (mm)	1850
Diameter (mm)	500
Weight (kg)	100
Wind load @ 40m/s (N)	1130 @ 60 feet
Color	RAL 7035



Accessories

Extension tube, 2m	ACS01
Wire sustaining ring	ACS02
TMA/Filter mounting tube, 0.5m	ACS03
Cable inlet	ACS04
Roof adapter	ACS05
Lightning Pole	ACS06
Door kit, Antenna	ACS07.1
Door kit, 1 box	ACS07.2
Door kit, 1 box+antenna	ACS07.3
Door kit, 2 boxes+antenna	ACS07.4
Cable kit, dual band	ACS10
Cable kit, triple band	ACS11
Cable kit, Ant-TMA	ACS12
Cable fixation plate	ACS20



Interface drawing: [antenna_interface.dxf](#)
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Trisector 900/UMTS Dual Broad Band MonoPole

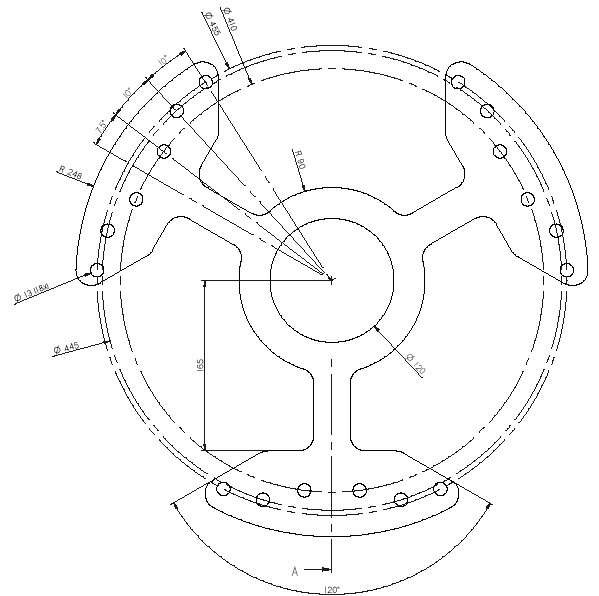
MonoPole

Product Number	7752.0M3.0000.00
Number of sectors	3
Azimuth variation	+/-15 degrees in 5deg steps
Electrical performance	
Frequency Band (MHz)	824-960/1710-2170
Gain, ±0.5dB (dBi)	15.9/17.5
System VSWR	< 1.5:1
Isolation between inputs (dB)	>30
Horizontal beamwidth	69°±6°/63°±7°
Vertical beamwidth	9.2°±1°/6.6°±1°
Electrical tilt range	2°-9°/0°-8°
Inter modulation, 2x+43dBm	<-110dBm
Radiation pattern	7752.00
Physical Dimensions	
Height (mm)	2500
Diameter (mm)	500
Weight (kg)	125
Wind load @40m/s (N)	1530 @ 60 feet
Color	RAL 7035



Accessories

Extension tube, 2m	ACS01
Wire sustaining ring	ACS02
TMA/Filter mounting tube, 0.5m	ACS03
Cable inlet	ACS04
Roof adapter	ACS05
Lightning Pole	ACS06
Door kit, Antenna	ACS07.1
Door kit, 1 box	ACS07.2
Door kit, 1 box+antenna	ACS07.3
Door kit, 2 boxes+antenna	ACS07.4
Cable kit, dual band	ACS10
Cable kit, triple band	ACS11
Cable kit, Ant-TMA	ACS12
Cable fixation plate	ACS20



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Trisector 900/UMTS Dual Broad Band MonoPole

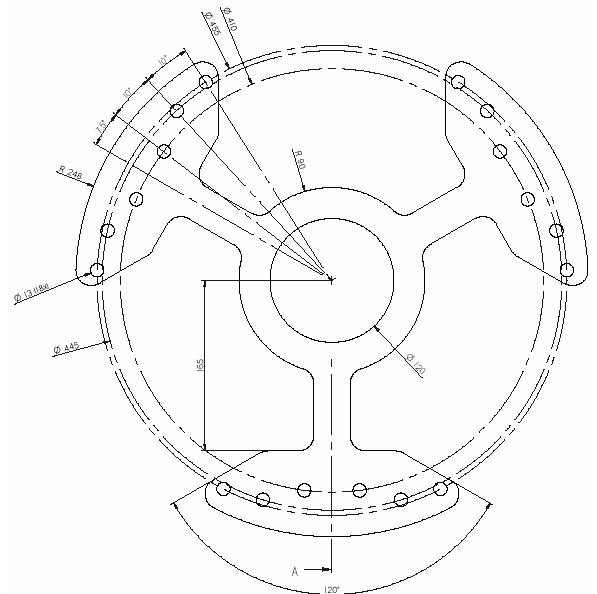
MonoPole

Product Number	7755.0M3.0000.00
Number of sectors	3
Azimuth variation	+/-15 degrees in 5deg steps
Electrical performance	
Frequency Band (MHz)	824-960/1710-2170
Gain, ±0.5dB (dBi)	15.9/17.5
System VSWR	< 1.5:1
Isolation between inputs (dB)	>30
Horizontal beamwidth	69°±6°/63°±7°
Vertical beamwidth	9.2°±1°/6.6°±1°
Electrical tilt range	2 °-9°/0°-8°
Inter modulation, 2x+43dBm	<-110dBm
Radiation pattern	7755.00
Physical Dimensions	
Height (mm)	3100
Diameter (mm)	500
Weight (kg)	150
Wind load @40m/s /(N)	1900 @ 60 feet
Color	RAL 7035



Accessories

Extension tube, 2m	ACS01
Wire sustaining ring	ACS02
TMA/Filter mounting tube, 0.5m	ACS03
Cable inlet	ACS04
Roof adapter	ACS05
Lightning Pole	ACS06
Door kit, Antenna	ACS07.1
Door kit, 1 box	ACS07.2
Door kit, 1 box+antenna	ACS07.3
Door kit, 2 boxes+antenna	ACS07.4
Cable kit, dual band	ACS10
Cable kit, triple band	ACS11
Cable kit, Ant-TMA	ACS12
Cable fixation plate	ACS20



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Trisector 900/1800/UMTS Triple Broad Band MonoPole

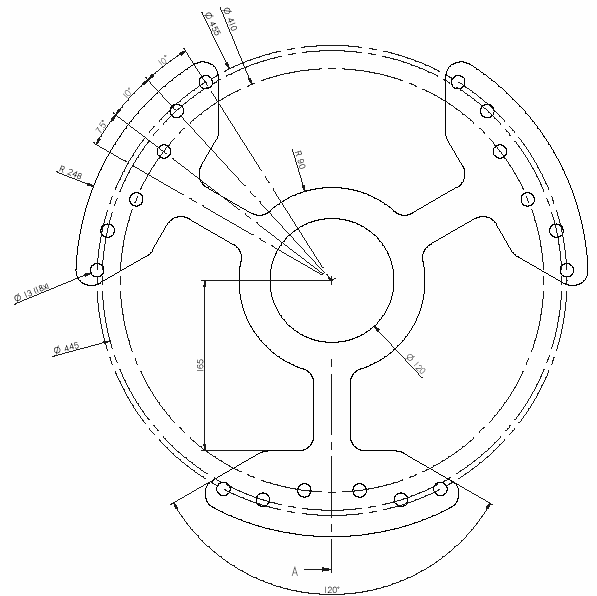
MonoPole

Product Number	7780.0M3.0000.00
Number of sectors	3
Azimuth variation	+/-15 degrees in 5deg steps
Electrical performance	
Frequency Band (MHz)	824-960/1710-2170/1710-2170
Gain, ±0.5dB (dBi)	14.5/14.4/14.8
System VSWR	< 1.5:1
Isolation between inputs (dB)	>30
Horizontal beamwidth	68°±5°/65°±5°/ 62°±5°
Vertical beamwidth	14°±2°/14.°±1°/ 13°±1°
Electrical tilt range	2 °-12°/0°-12°/ 0 °-12°
Inter modulation, 2x+43dBm	<-110dBm
Radiation pattern	7780.00
Physical Dimensions	
Height (mm)	1850
Diameter (mm)	500
Weight (kg)	105
Wind load @40m/s (N)	1130 @ 60 feet
Color	RAL 7035



Accessories

Extension tube, 2m	ACS01
Wire sustaining ring	ACS02
TMA/Filter mounting tube, 0.5m	ACS03
Cable inlet	ACS04
Roof adapter	ACS05
Lightning Pole	ACS06
Door kit, Antenna	ACS07.1
Door kit, 1 box	ACS07.2
Door kit, 1 box+antenna	ACS07.3
Door kit, 2 boxes+antenna	ACS07.4
Cable kit, dual band	ACS10
Cable kit, triple band	ACS11
Cable kit, Ant-TMA	ACS12
Cable fixation plate	ACS20



Interface drawing: antenna_interface.dxf
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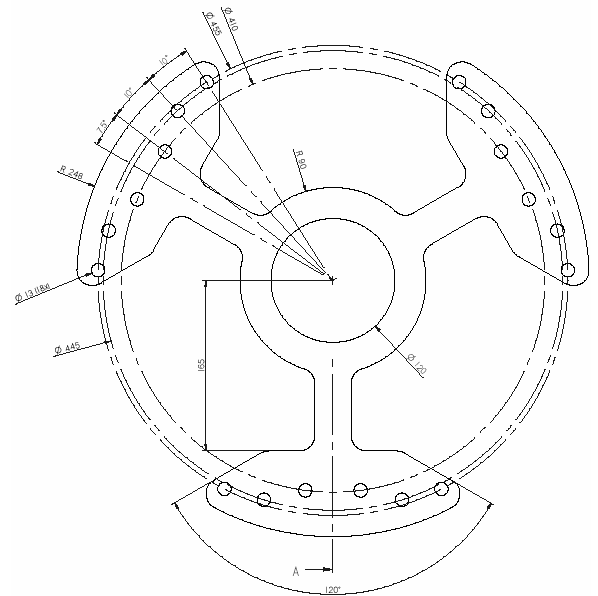
MonoPole

Product Number	7782.0M3.0000.00
Number of sectors	3
Azimuth variation	+/-15 degrees in 5deg steps
Electrical performance	
Frequency Band (MHz)	824-960/1710-2170/1710-2170
Gain, ±0.5dB (dBi)	16.5/16.5/16.8
System VSWR	< 1.5:1
Isolation between inputs (dB)	>30
Horizontal beamwidth	67°/65°/ 64°
Vertical beamwidth	9°±1°/10°±1°/ 9°±1°
Electrical tilt range	2 °-9°/0°-10°/ 0 °-10°
Inter modulation, 2x+43dBm	<-110dBm
Radiation pattern	7782.00
Physical Dimensions	
Height (mm)	2500
Diameter (mm)	500
Weight (kg)	130
Wind load @40m/s (N)	1530 @ 60 feet
Color	RAL 7035



Accessories

Extension tube, 2m	ACS01
Wire sustaining ring	ACS02
TMA/Filter mounting tube, 0.5m	ACS03
Cable inlet	ACS04
Roof adapter	ACS05
Lightning Pole	ACS06
Door kit, Antenna	ACS07.1
Door kit, 1 box	ACS07.2
Door kit, 1 box+antenna	ACS07.3
Door kit, 2 boxes+antenna	ACS07.4
Cable kit, dual band	ACS10
Cable kit, triple band	ACS11
Cable kit, Ant-TMA	ACS12
Cable fixation plate	ACS20



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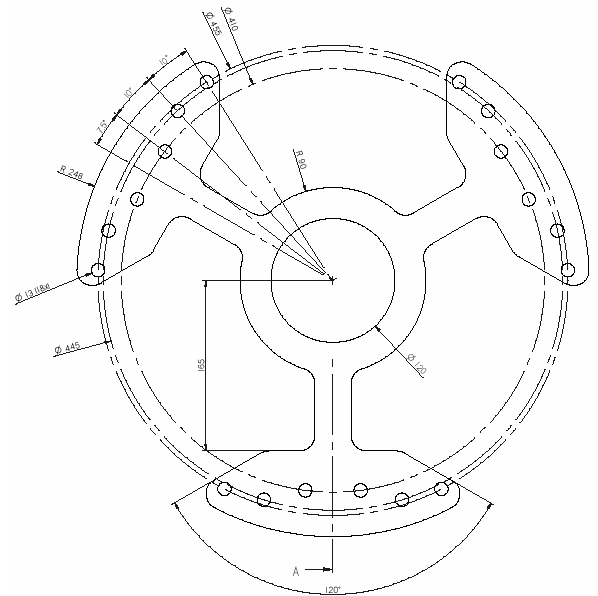
MonoPole

Product Number	7785.0M3.0000.00
Number of sectors	3
Azimuth variation	+/-15 degrees in 5deg steps
Electrical performance	
Frequency Band (MHz)	824-960/1710-2170/1710-2170
Gain, ±0.5dB (dBi)	17.4/17.2/17.5
System VSWR	< 1.5:1
Isolation between inputs (dB)	>30
Horizontal beamwidth	65°/65°/ 62°
Vertical beamwidth	7°/7°/6°
Electrical tilt range	2 °-8°/0°-8°/ 0 °-8°
Inter modulation, 2x+43dBm	<-110dBm
Radiation pattern	7785.00
Physical Dimensions	
Height (mm)	3100
Diameter (mm)	500
Weight (kg)	155
Wind load @40m/s (N)	1900 @ 60 feet
Color	RAL 7035



Accessories

Extension tube, 2m	ACS01
Wire sustaining ring	ACS02
TMA/Filter mounting tube, 0.5m	ACS03
Cable inlet	ACS04
Roof adapter	ACS05
Lightning Pole	ACS06
Door kit, Antenna	ACS07.1
Door kit, 1 box	ACS07.2
Door kit, 1 box+antenna	ACS07.3
Door kit, 2 boxes+antenna	ACS07.4
Cable kit, dual band	ACS10
Cable kit, triple band	ACS11
Cable kit, Ant-TMA	ACS12
Cable fixation plate	ACS20



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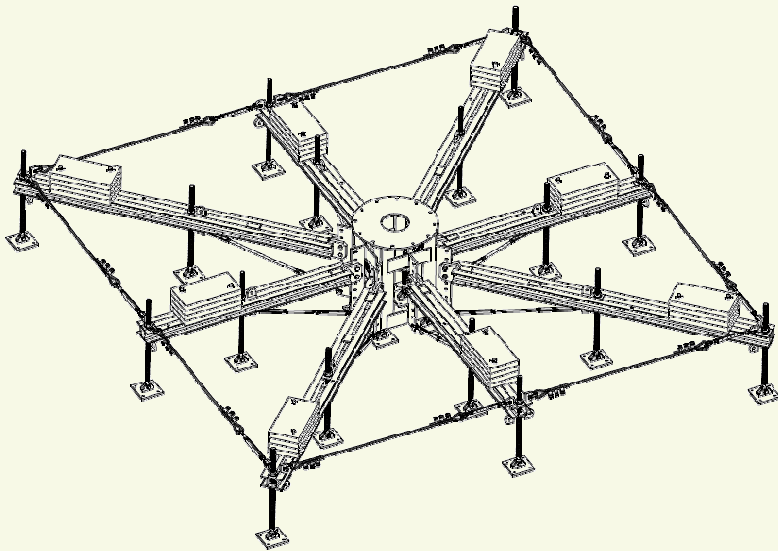
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Base for MonoPole

Product Number	ACS50	
Supports MonoPole with Ø340		
Support up to 5200 mm build height		
Maximum roof slope	10°	
Physical Dimensions		
Height (mm)	754	
Side length (mm)	3540	
Weight (kg)	1200	
Color	Metal	

Free standing base MonoPole installations on roof tops.

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Preliminary –to be changed without further notice

MonoPole

Platform for MonoPole

Product Number ACS51

Supports MonoPole with Ø340

Support up to 4000m total height

Physical Dimensions

Height (mm)

Side length (mm)

Weight (kg)

Color

2500

Metal

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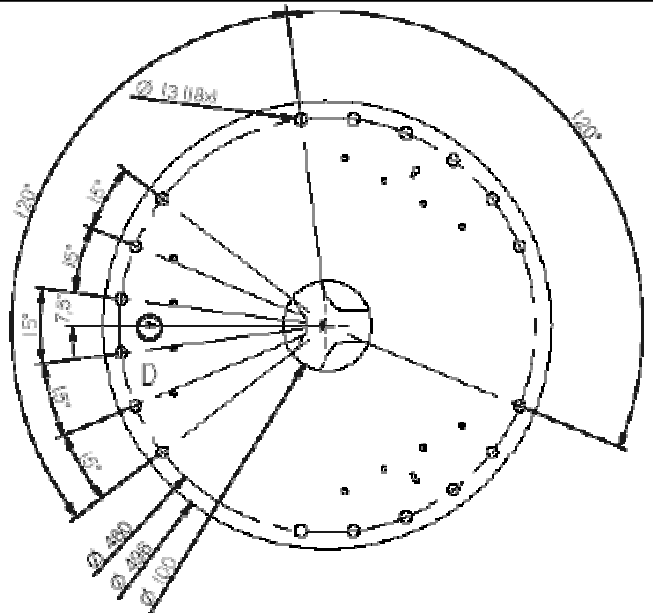
Preliminary –to be changed without further notice

Product Number ACS04

Supports MonoPole with Ø340 and Ø500

Physical Dimensions

Height (mm)	190
Diameter (mm)	496
Weight (kg)	23
Color	Metal



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QUALITY AND RELIABILITY

Preliminary –to be changed without further notice

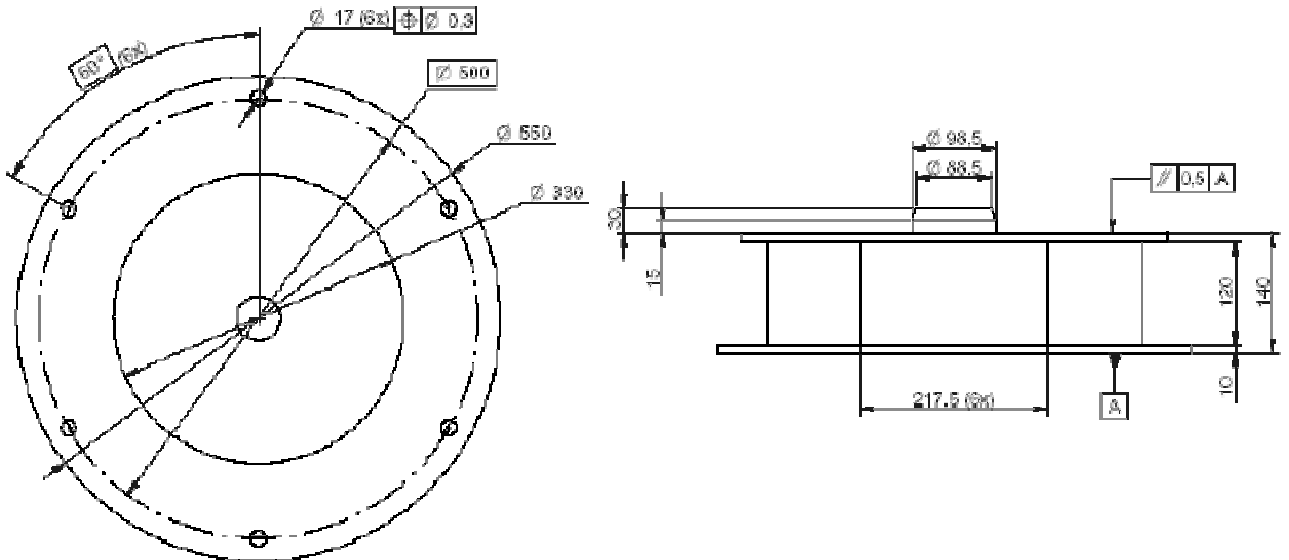
Roof Adapter

Product Number ACS05

Physical Dimensions

Height (mm) 170
 Diameter (mm) 550
 Weight (kg) 37

Color Metal



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COVERAGE AND CAPACITY

TECHNOLOGY LEADERSHIP

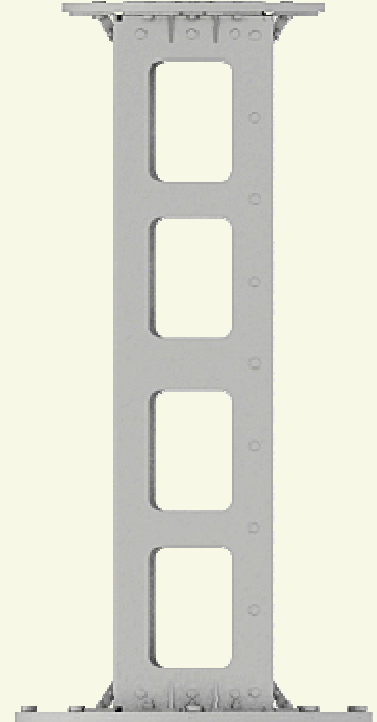
GLOBAL PARTNER

INTEGRATED SOLUTIONS

QUALITY AND RELIABILITY

Preliminary –to be changed without further notice

Product Number	ACS52
Supports MonoPole with Ø340	
Height of steps (mm)	250
Physical Dimensions	
Height (mm)	1000
Diameter (mm)	340
Weight (kg)	31
Color	RAL 7035



Extension tube with built in ladder
Doors as cover of internal structure

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COVERAGE AND CAPACITY

TECHNOLOGY LEADERSHIP

GLOBAL PARTNER

INTEGRATED SOLUTIONS

QUALITY AND RELIABILITY

Preliminary –to be changed without further notice

Product Number ACS54

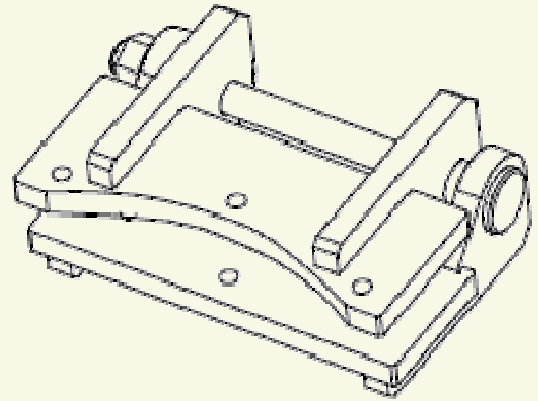
Supports MonoPole with Ø340

Physical Dimensions

Weight (kg)

Color

RAL 7035



**Removable hinge kit for MonoPole installations.
Can be used during installation for simplified raise of MonoPole.**

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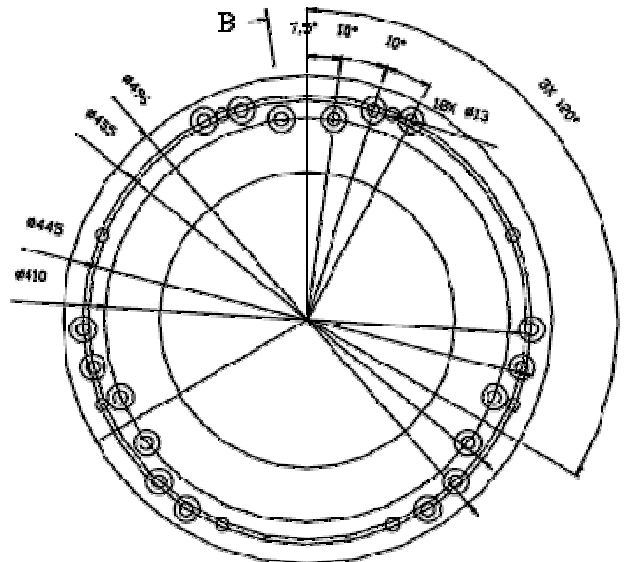
GLOBAL PARTNER

INTEGRATED SOLUTIONS

QUALITY AND RELIABILITY

Preliminary –to be changed without further notice

Product Number	ACS55
Supports MonoPole with Ø340	
Thickness (mm)	12
Diameter (mm)	496



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QUALITY AND RELIABILITY

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Product Number ACS56

Supports MonoPole with Ø340

No. of cables 6

Cable type ½"

Length (mm)

Cable kit interconnect between Antennas and TMAs

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COVERAGE AND CAPACITY

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QUALITY AND RELIABILITY

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TMA installation bracket kit

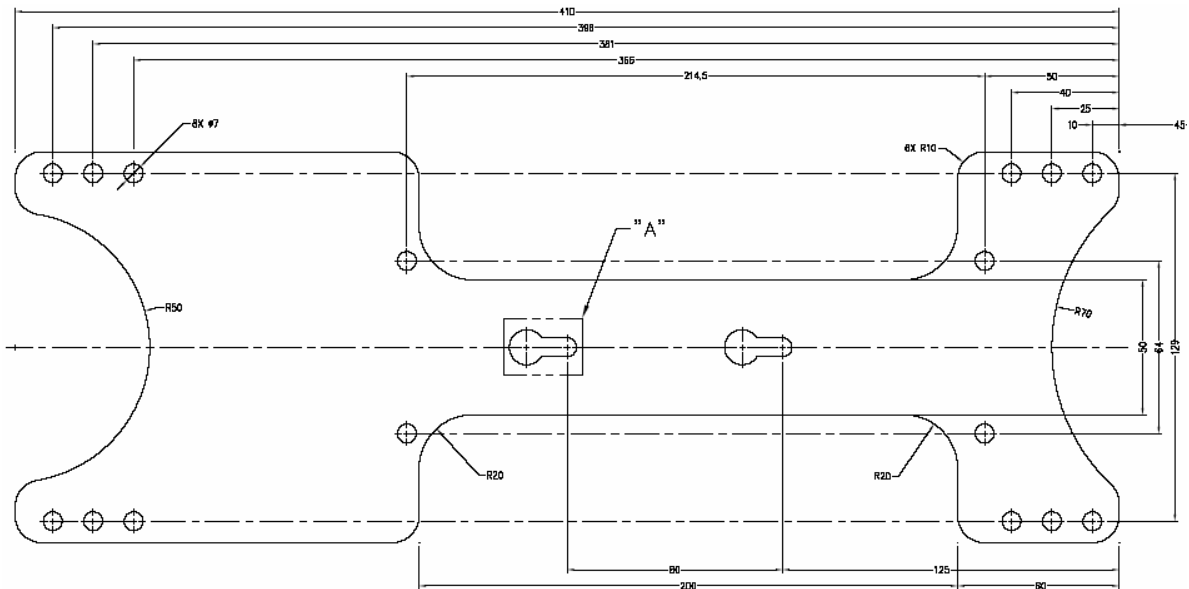
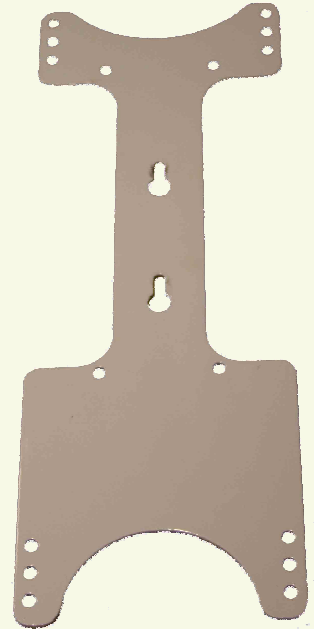
MonoPole

Product Number ACS57

Supports MonoPole with Ø340

No. of brackets 3
 Weight (kg)
 Width (mm) 145
 Height (mm) 410
 Width (mm) 2

Mounting hard ware for TMAs included



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Antenna Brackets

Tilt Bracket Kit

Part Number:
7456.00A

Antenna length:
< 1.5 meter/5 feet

Weight:
3.6 kg/7.9 lbs

All Powerwave antennas shorter than 1.5 meter (5 feet)* shall be installed with Powerwave tilt bracket, 7456.00. Below is a list outlining which antennas come with pre-mounted tilt brackets. For a reference list of accessory products see mechanical specification on page 2.

*Urban antennas longer than 1.5 meter with three brackets use 7456.00

Family	Part Number
HBB	7720.x0/7721.x0/7722.x0/7735.x0A/7740.x0A/7745.x0A
Urban	7225.0x/7226.0x/7227.0x/7228.0x/7230.0x/7231.0x/72320x/7233.0x/ 7270.0x/ 7271.0x/ 7272.0x/ 7273.0x/ 7275.0x/ 7276.0x/ 7277.0x/ 7278.0x
Xurban	7216.0x/7217.0x/7218.0x/7255.0x/7263.0x/7281.0x/7282.0x
Metro	7182.xx/7183.xx/7184.xx/7185.xx/7194.xx/7195.xx/7198.xx/7199.xx/ 7200.xx/7221.xx
AL antennas	7337.0x/7338.0x/7339.0x



Key Benefits:

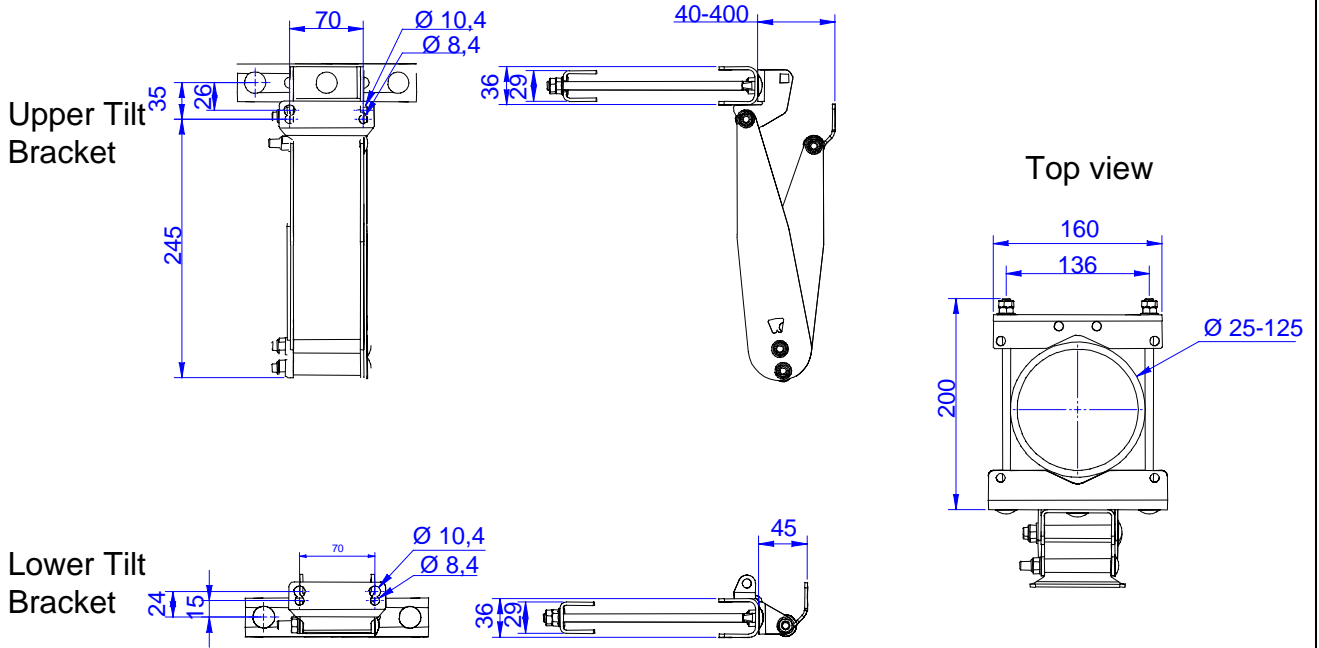
- Robust and reliable design
- Accessory products available
- Easy to install
- Pre mounted on antennas

ANTENNA
SYSTEMS

BASE STATION
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Antenna Brackets

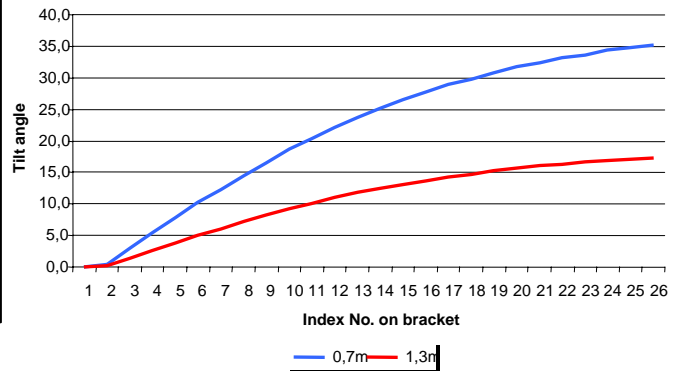


All dimensions are in millimeters

Mechanical Specifications

Dimensions, HxWxD	See drawing
Weight	3,6 kg/7,9 lbs
Material	Galvanized steel, stainless screws & nuts
Packing Size, HxWxD	HxWxD
Shipping Weight	4,0 kg/8,8 lbs
Tilt range	See diagram
Pole dimension	25-125mm
Accessory products	Panning Kit 2201.11/ Big Pole Clamp 7458.00/ Flush wall, pole clamp 7455.00

Tilt angles for different antenna lengths



All brackets fulfill the requirements stated in the standards below.

Antennas are tested together with their corresponding brackets.

Random Vibration: IEC 60068-2-64

Sinus Vibration: IEC 60028-2-6

Salt Mist: IEC 68-2-11, test Ka, 35°C, 48h, 5% salt.

Antenna Brackets

Heavy Duty Tilt Bracket Kit

Part Number:
7256.00

Antenna length:
≥ 1.5 meter/5 feet

Weight:
5.5 kg/12.1 lbs

All Powerwave antennas larger than 1.5 meters (5 feet) shall be installed with a Powerwave heavy-duty bracket, product number 7256.00. Please refer to list below for antennas that have with pre-mounted heavy duty brackets.

Family	Part Number
LBB65	747x.xx
LBB90	748x.xx
DHBB	776x.xx
DBB65	775x.xx
DBB90	777x.xx
TBB65	778x.x0
ALP	7804.00/7824.00/7834.00/7838.00
City	7143.xx.xx.xx/7144.xx.xx.xx/7145.xx.xx.xx
Urban	7218.1x
Xurban	7227.1x
AL Antennas	7840.x0/7850.x0/7329.0x/7330.0x/ 7331.0x/7332.0x/7333.0x/7334.0x

All antennas except .90 are shipped with pre-mounted brackets.



Key Benefits:

- Robust and reliable design
- Accessory products available
- Easy to install
- Pre mounted on antennas

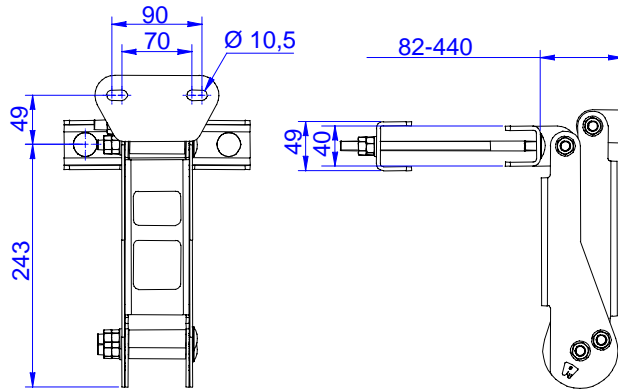
ANTENNA
SYSTEMS

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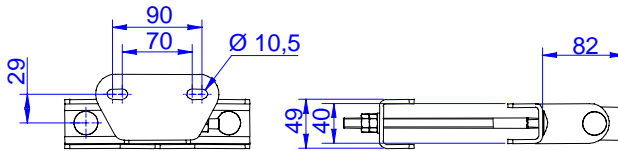
COVERAGE
SYSTEMS

Antenna Brackets

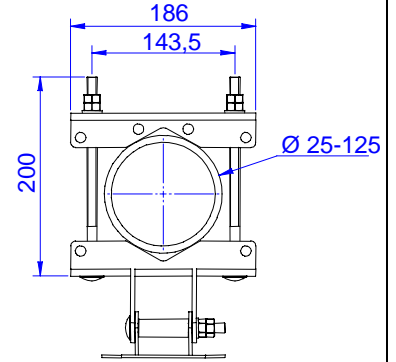
Upper Tilt Bracket



Lower Tilt Bracket



Top view

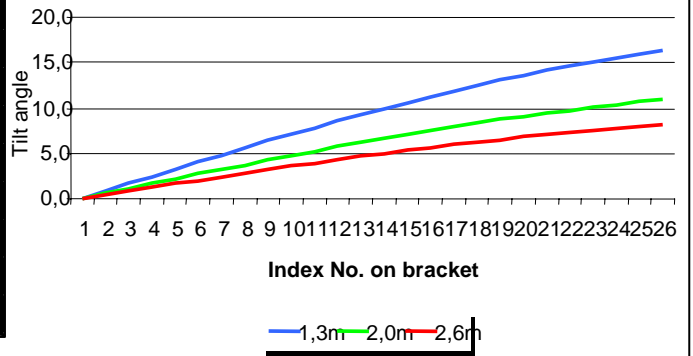


Note: All dimensions are in millimeters

Mechanical Specifications

Dimensions, HxWxD	See drawing
Weight	5,5kg/ 12.1lbs
Material	Galvanized steel, stainless screws & nuts
Packing Size, HxWxD	HxWxD
Shipping Weight	5,9kg/ 13lbs
Tilt range	See diagram
Pole dimension	25- 125mm
Panning range	N/A
Accessory products	Heavy Duty Bracket Panning Kit 2210.10

Tilt angles for different antenna lengths with 7256.00 brackets



All brackets fulfill the requirements stated in the standards below. Antennas are tested together with their corresponding brackets.

Random Vibration: IEC 60068-2-64

Sinus Vibration: IEC 60028-2-6

Salt Mist: IEC 68-2-11, test Ka, 35°C, 48h, 5% salt.

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QUALITY AND RELIABILITY

Antenna Brackets

Large pole mounting adapter

Part Number:
7458.00

Antennas length:
< 1.5 meter/5 feet

Weight:
9.5 kg/20,9 lbs

Powerwave large pole mounting adapter is to be used with Powerwave antennas shorter than 1.5 meter/5 feet, see table below.

Family	Part Number
HBB	7720.x0/7721.x0/7722.x0/7735.x0A/7740.x0A/7745.x0A
Urban	7225.0x/7226.0x/7227.0x/7228.0x/7230.0x/7231.0x/72320x/7233.0x/ 7270.0x/ 7271.0x/ 7272.0x/ 7273.0x/ 7275.0x/ 7276.0x/ 7277.0x/ 7278.0x
Xurban	7216.0x/7217.0x/7218.0x/7255.0x/7263.0x/7281.0x/7282.0x
Metro	7182.xx/7183.xx/7184.xx/7185.xx/7194.xx/7195.xx/7198.xx/7199.xx/ 7200.xx/7221.xx
AL antennas	7337.0x/7338.0x/7339.0x

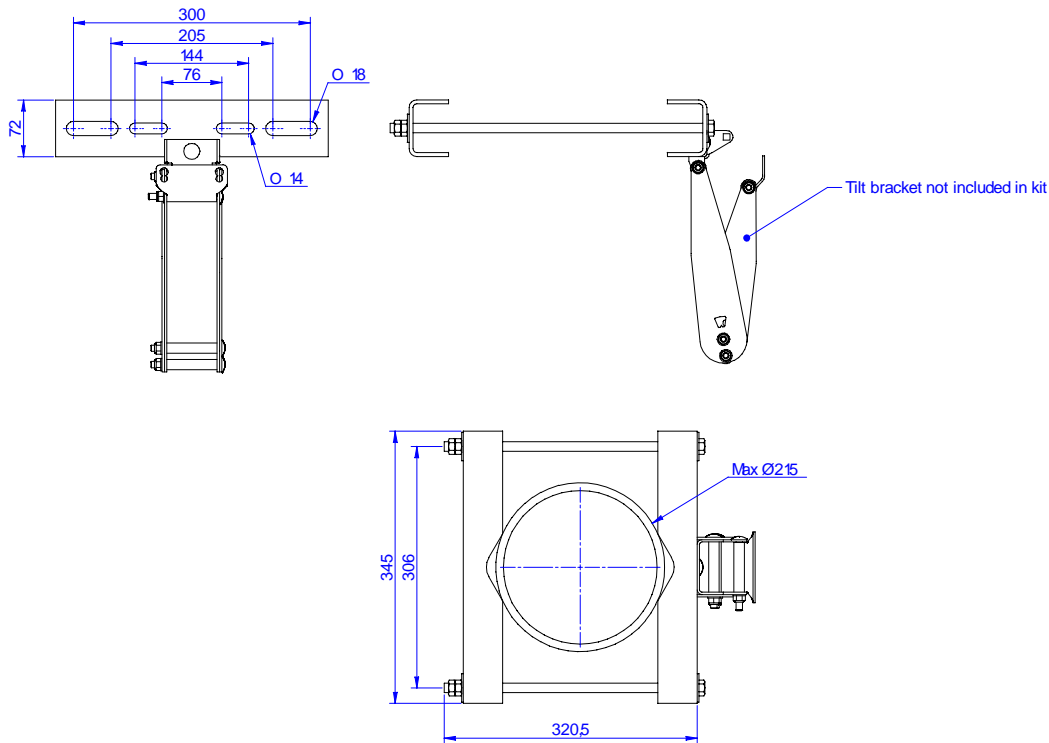
Key Benefits:

- Robust and reliable design
- Easy to install

ANTENNA
SYSTEMS

BASE STATION
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COVERAGE
SYSTEMS



Note: All dimensions are in millimeters

Mechanical Specifications	
Dimensions, HxWxD	See drawing
Weight	9,5 kg/20,9lbs
Material	Galvanized steel, stainless screws & nuts
Packing Size, HxWxD	200x200x20 (mm)
Shipping Weight	10 kg/ 22 lbs
Pole dimension	Max Ø215 / mm78.5"
Accessory products	To be used with antenna tilt brackets 7456.00A

All brackets fulfill the requirements stated in the standards below. Antennas are tested together with their corresponding brackets.

Random Vibration: IEC 60068-2-64

Sinus Vibration: IEC 60028-2-6

Salt Mist: IEC 68-2-11, test Ka, 35°C, 48h, 5% salt.

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Antenna Brackets

Triple Mount Bracket

Part Number:
7454.00

Antenna width:
< 370 mm/14.5"

Weight:
1.5 kg/3.3 lbs

The Powerwave Triple Mount Bracket allows the mounting of three antennas on a single support for a sturdy and elegant installation. The Triple Mount Bracket permits independent mechanical and electrical tilting of each sector, offering unparalleled versatility. Antennas may be used with their standard mounting hardware, with or without mechanical tilt.

The Model 7454.00 Triple Mount Bracket is compatible with all directional Powerwave panel antennas up to 370 mm/14.5" width. Antennas shorter than 1.5m/5 feet can use the full tilt range of the 7456.00A antenna tilt bracket.



Key Features/Benefits:

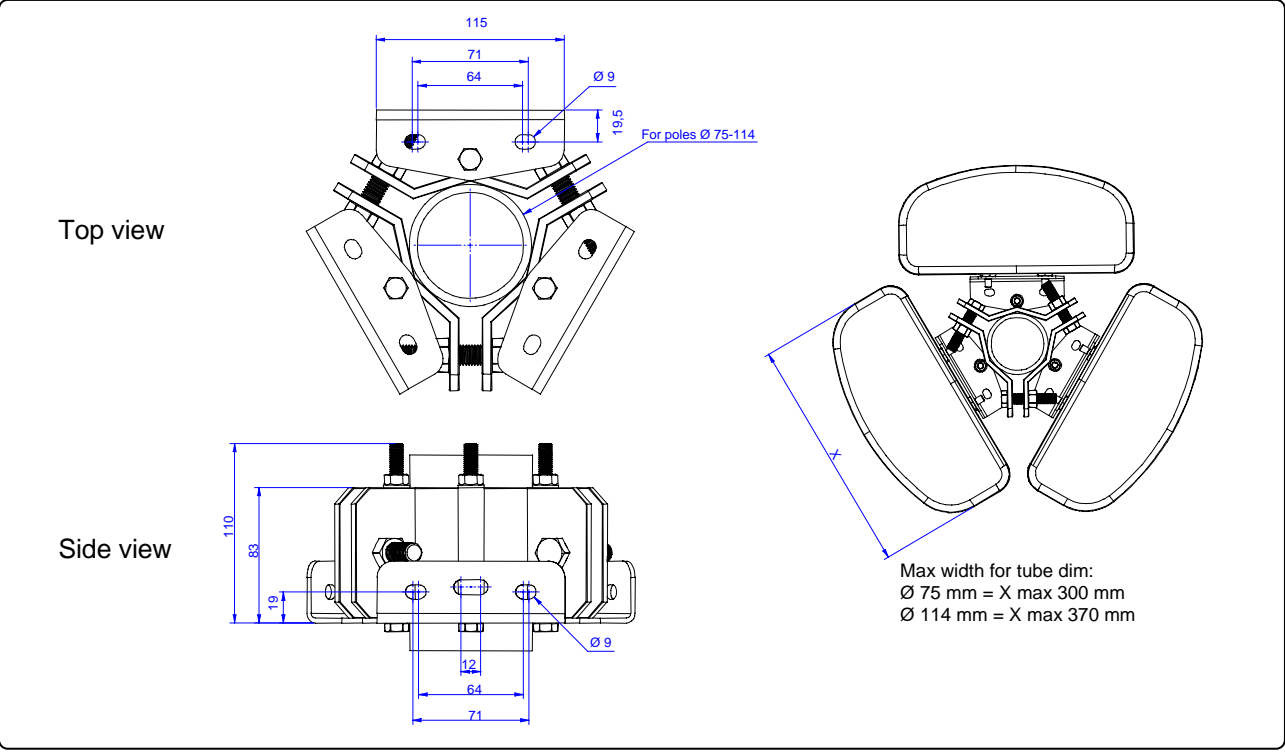
- Compatible with several antenna models
- Rugged design and construction
- Visually appealing
- Precise alignment of sector boundaries
- Easy to install
- Any length antenna
- Perfect for stealth installations
- Can be used with standard tilt brackets, 7456.00A, included on antennas

ANTENNA
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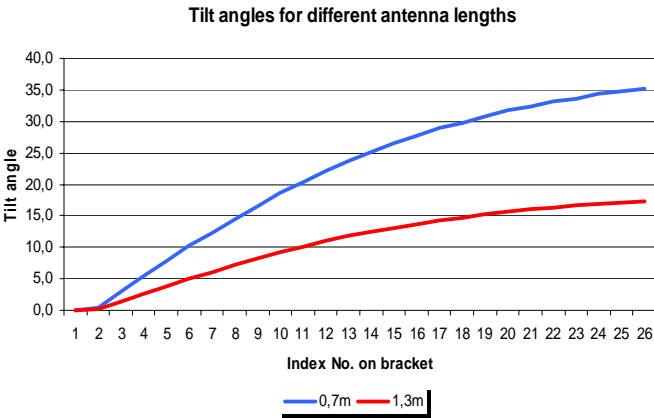
BASE STATION
SYSTEMS

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SYSTEMS

Antenna Brackets



Mechanical Specifications	
Dimensions, HxVxD	See drawing
Weight	6.8 kg / 15 lbs
Material	Steel
Tilt range	See diagram. Only antennas < 1.5 m/5 feet
Pole dimension	75-114 mm
Panning range	N/A
Accessory products	Can be used with antenna tilt brackets 7456.00A



The design and the design calculations are based on Swedish Standards as follows:

- Swedish building rules, BBR (last edition 1999)
- Swedish design rules, BKR (last edition 1999)
- Handbook for steel structures, BSK (last edition 99)
- Handbook for snow and wind loadings, BSV (last edition 97:2)

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Antenna Brackets

Wall and Panning Kit

Part Number:
2201.11

Antenna length:
< 1.5 meter/5 feet

Weight:
0,3 kg/0,7 lbs

All Powerwave antennas shorter than 1.5 meter (5 feet) can be installed with the Powerwave wall and panning kit, 2201.11. Below is a list outlining which antennas which can use this wall and panning kit.

Family	Part Number
HBB	7720.x0/7721.x0/7722.x0/7735.x0A/7740.x0A/7745.x0A
Urban	7225.0x/7226.0x/7227.0x/7228.0x/7230.0x/7231.0x/72320x/7233.0x/ 7270.0x/ 7271.0x/ 7272.0x/ 7273.0x/ 7275.0x/ 7276.0x/ 7277.0x/ 7278.0x
Xurban	7216.0x/7217.0x/7218.0x/7255.0x/7263.0x/7281.0x/7282.0x
Metro	7182.xx/7183.xx/7184.xx/7185.xx/7194.xx/7195.xx/7198.xx/7199.xx/ 7200.xx/7221.xx
AL antennas	7337.0x/7338.0x/7339.0x



Key Benefits:

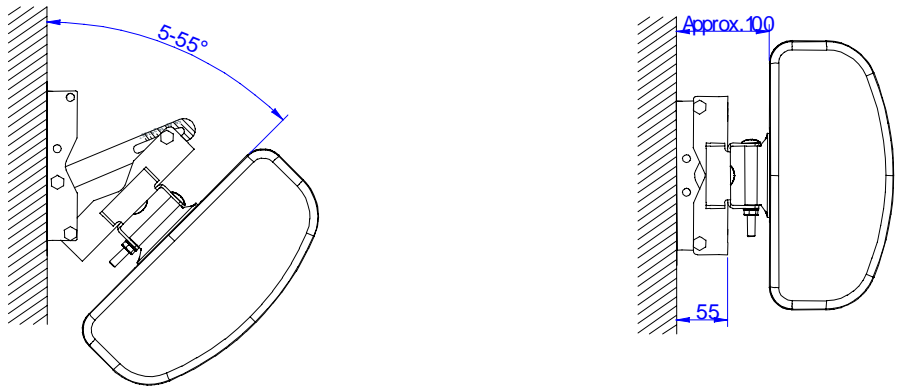
- Robust and reliable design
- Easy to install
- Easy to operate

ANTENNA
SYSTEMS

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Antenna Brackets

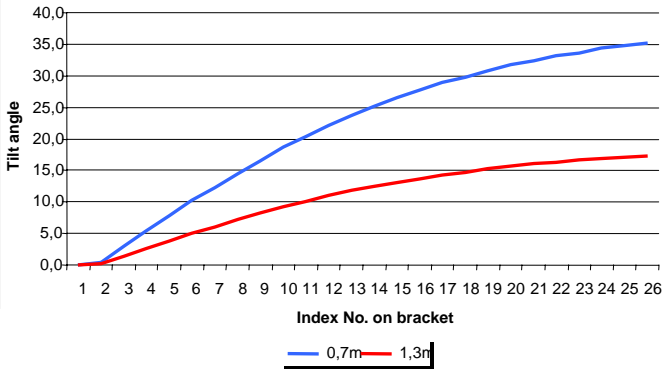


Note: All dimensions are in millimeters

Mechanical Specifications

Dimensions, HxWxD	See drawing
Weight	0,3 kg/0,7 lbs
Material	Galvanized steel, stainlessscrews & nuts
Packing Size, HxWxD	200x200x20 (mm)
Shipping Weight	0,3 kg/0,7 lbs
Tilt range	See diagram
Pole dimension	N/A
Panning range	5-55°
Accessory products	To be used with antenna tilt brackets 7456.00A

Tilt angles for different antenna lengths



All brackets fulfill the requirements stated in the standards below. Antennas are tested together with their corresponding brackets.

Random Vibration: IEC 60068-2-64

Sinus Vibration: IEC 60028-2-6

Salt Mist: IEC 68-2-11, test Ka, 35°C, 48h, 5% salt.

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Antenna Brackets

Wall and Panning Kit

Part Number:
2210.10

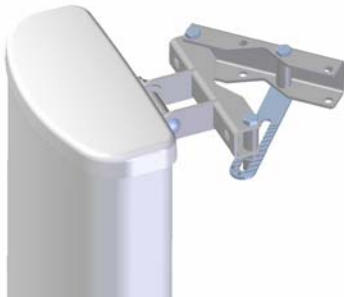
Antenna length:
≥ 1.5 meter/5 feet

Weight:
1,0 kg/2,2 lbs

All Powerwave antennas with heavy duty bracket 7256.00 can be installed with Powerwave wall and panning kit, 2210.10. Below is a list outlining which antennas must use the 2210.10 wall and panning kit.

Family	Part Number
LBB65	747x.xx
LBB90	748x.xx
DHBB	776x.x0
DBB65	775x.x0
DBB90	777x.x0
TBB65	778x.x0
ALP	7804.00/7824.00/7834.00/7838.00
City	7143.xx.xx.xx/7144.xx.xx.xx/7145.xx.xx.xx
Urban	7218.1x
Xurban	7227.1x
AL Antennas	7840.x0/7850.x0/7329.0x/7330.0x/ 7331.0x/7332.0x/7333.0x/7334.0x

All antennas except .90 are shipped with pre-mounted brackets.



Key Benefits:

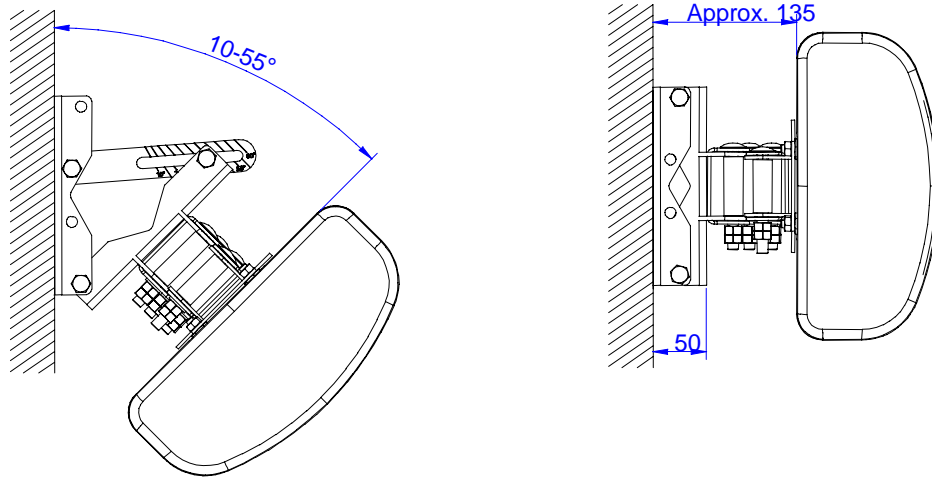
- Robust and reliable design
- Easy to install
- Easy to operate

ANTENNA
SYSTEMS

BASE STATION
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Antenna Brackets

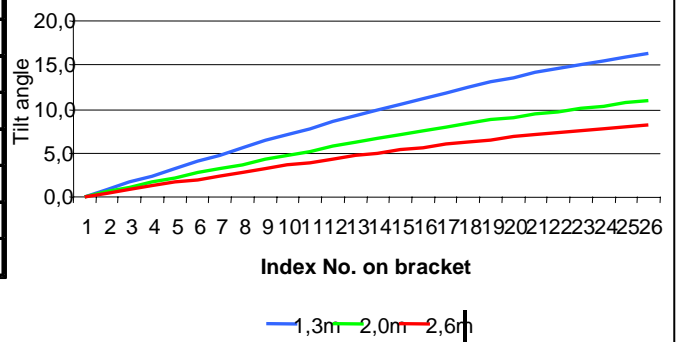


Note: All dimensions are in millimeters

Mechanical Specifications

Dimensions, HxWxD	See drawing
Weight	1,0 kg/ 2,2lbs
Material	Galvanized steel, stainless screws & nuts
Packing Size, HxWxD	200x200x20 (mm)
Shipping Weight	1kg/2.2lbs
Tilt range	See diagram
Panning range	10-55°
Accessory products	To be used with antenna tilt brackets 7256.00

Tilt angles for different antenna lengths with 7256.00 brackets



All brackets fulfill the requirements stated in the standards below.

Antennas are tested together with their corresponding brackets.

Random Vibration: IEC 60068-2-64

Sinus Vibration: IEC 60028-2-6

Salt Mist: IEC 68-2-11, test Ka, 35°C, 48h, 5% salt.

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COVERAGE AND CAPACITY

TECHNOLOGY LEADERSHIP

GLOBAL PARTNER

INTEGRATED SOLUTIONS

QUALITY AND RELIABILITY

Antenna Brackets

Flush wall/pole hose clamp

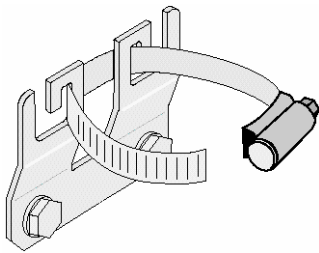
Part Number:
7455.00

Antenna length:
< 1.5 meter/5 feet

Weight:
0,4 kg/0,9 lbs

Powerwave hose clamp is to be used with Powerwave antennas shorter than 1.5 meter / 5 feet, see table below.

Family	Part Number
HBB	7720.x0/7721.x0/7722.x0/7735.x0A/7740.x0A/7745.x0A
Urban	7225.0x/7226.0x/7227.0x/7228.0x/7230.0x/7231.0x/72320x/7233.0x/ 7270.0x/ 7271.0x/ 7272.0x/ 7273.0x/ 7275.0x/ 7276.0x/ 7277.0x/ 7278.0x
Xurban	7216.0x/7217.0x/7218.0x/7255.0x/7263.0x/7281.0x/7282.0x
Metro	7182.xx/7183.xx/7184.xx/7185.xx/7194.xx/7195.xx/7198.xx/7199.xx/ 7200.xx/7221.xx
AL antennas	7337.0x/7338.0x/7339.0x



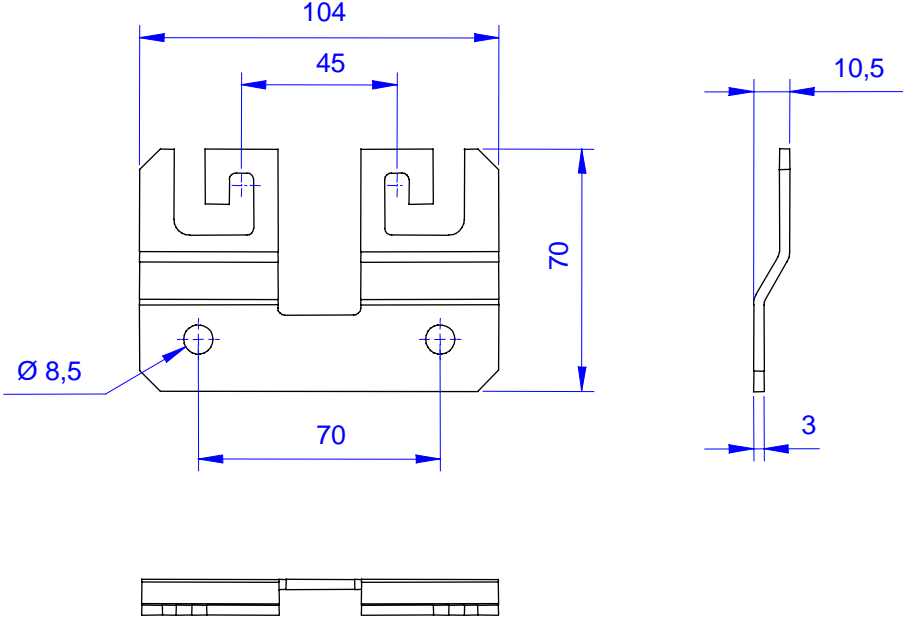
Key Benefits:

- Robust and reliable design
- Easy to install

ANTENNA
SYSTEMS

BASE STATION
SYSTEMS

COVERAGE
SYSTEMS



Note: All dimensions are in millimeters

Mechanical Specifications	
Dimensions, HxWxD	See drawing
Weight	0,4 kg/0,9 lbs
Material	Galvanized steel, stainless screws & nuts
Packing Size, HxWxD	200x200x20 (mm)
Shipping Weight	0,4 kg/0,9 lbs
Tilt range	N/A
Pole dimension	40- 100 mm/ 1.57" - 3.9"
Panning range	N/A
Accessory products	To be used with antenna tilt brackets 7456.00A

All brackets fulfill the requirements stated in the standards below. Antennas are tested together with their corresponding brackets.

Random Vibration: IEC 60068-2-64
Sinus Vibration: IEC 60028-2-6
Salt Mist: IEC 68-2-11, test Ka, 35°C, 48h, 5% salt.

D031-08418 Rev. A Pg. 2 of 2

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Product Index

<u>Antennas</u>				<u>RET</u>	<u>Filters</u>
4168.11.33.00	7233.14	7331.04	7488.06	7010.00	9215.01
4168.11.33.02	7233.16	7331.06	7700.00	7020.00	LGP141nn
4168.11.33.03	7233.18	7336.00	7700.06	7030.00	LGP144nn
4168.11.33.06	7255.03	7336.10	7701.00	7070.xx	LGP145nn
4168.11.33.52	7255.04	7471.00	7701.02	7060.00	LGP164nn
7216.03	7263.01	7472.00	7701.06	7060.10	LGP195nn
7217.03	7263.04	7473.00	7720.x0		LGP219nn
7217.04	7270.02	7476.00	7721.x0		
7217.11	7271.02	7476.02	7721.10	<u>TMA</u>	<u>Clean Site</u>
7218.13	7271.03	7476.06	7722.x0	LGP104nn	Single System
7218.14	7272.02	7477.00	7735.x0	LGP121nn	Dual System
7218.15	7273.02	7477.02	7740.x0	LGP132nn	Triple System
7218.19	7273.03	7477.06	7745.x0	LGP136nn	
7226.03	7276.02	7478.00	7750.x0	LGP138nn	
7226.04	7277.02	7478.02	7752.x0	LGP167nn	
7227.03	7278.02	7478.06	7755.x0	LGP185nn	
7227.04	7281.02	7481.00	7760.x0	LGP166nn	
7227.06	7281.04	7482.00	7762.x0	LGP192nn	
7228.13	7282.03	7483.00	7765.x0	LGP215nn	
7228.14	7329.00	7486.00	7766.x0		
7228.16	7329.06	7486.02	7780.00		
7228.18	7330.00	7486.06	7782.00		
7230.04	7330.02	7487.00	7785.00		
7231.04	7330.04	7487.02	7804.00R2A		
7231.06	7330.06	7487.06			
7232.04	7331.00	7488.00			
7232.07	7331.02	7488.02			

