

## Optimizer® Triple-band Antennas

**Polarization:** Dual  $\pm 45^\circ$

**Electrical Downtilt:** Fixed or Variable

**Horizontal beamwidth:**  $65^\circ$

**Tilt range:**  $8^\circ$

### Applications

These new triple band GSM 900 / DCS 1800 / UMTS fixed or variable tilt antennas are cross polarized with a  $65^\circ$  horizontal beamwidth for use in the following systems:

GSM 900 (872-915, 917-960MHz)

DCS1800 (1710-1785, 1805-1880MHz)

UMTS (1920-1980, 2110-2170MHz)

These antennas have enhanced performance with great tilt range (variable tilt), gain, sidelobe suppression, VSWR and front to back ratio. These antennas provide an easy upgrade path for the addition of 3G/UMTS on existing dualband antenna sites.

Antennas are available in two versions:

- fixed tilt with gain of 15.5/16.5/16.5 dBi
- variable tilt with two gain options 15.2/16.8/17.5 and 16/16.9/17.5 dBi

Covered by a fiberglass radome, the fixed tilt series feature tilt values of  $2^\circ$  and  $6^\circ$  for GSM 900 and  $2^\circ$  for DCS1800 and  $2^\circ$  for UMTS.

Variable tilt series are equipped with three independent continuously adjustable  $2^\circ$  to  $10^\circ$  electrical downtilt for each of the three bands.

Six 7-16 connectors are mounted at the bottom. All antennas are designed for use with our APM40 global mount as well as the APM70- 3C cluster kit.



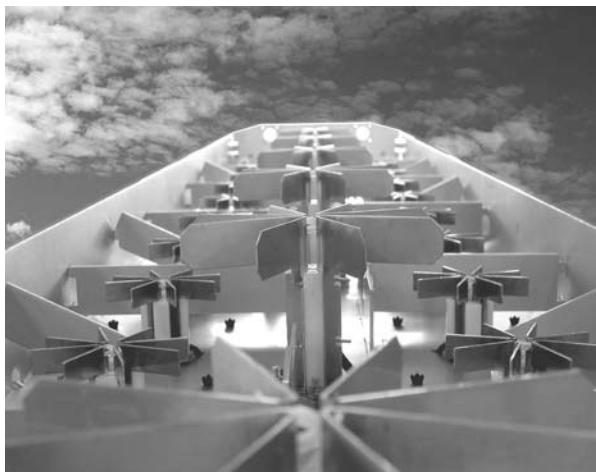
APX15G2-15D2-15W2B Series



APX\*GV-15DWV-15DWB Series

### Features & Benefits

- Side by side construction allows independent control of each antenna array
- High suppression of upper sidelobes
- 30 dB isolation between polarizations
- 30 dB isolation between bands
- Stable horizontal and vertical beamwidths
- Broadband design for high band (varitilt)
- Low wind load



Triple band radiating structure

## Optimizer® Triple-band Dual Polarized Antennas

### APX15G2-15D2-15W2B-C

**Horizontal Beamwidth, deg** 65, 65, 60

**Gain, dBi** 15.5, 16.5, 16.5

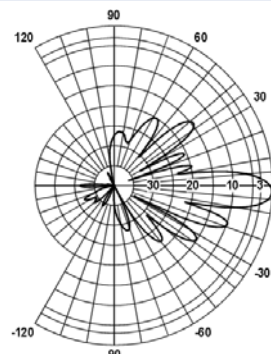
**Electrical Downtilt, deg** 2, 2, 2

#### ELECTRICAL SPECIFICATIONS

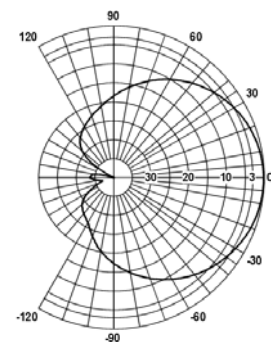
Frequency Range, MHz	880-960	1710-1880	1920-2170
Horizontal Beamwidth, deg	65	65	60
Vertical Beamwidth, deg	10	7.5	6.5
Gain, dBi (dBd)	15.5 (13.4)	16.5 (14.4)	16.5 (14.4)
1st Upper Sidelobe Suppression, dB	> 15 (typ18)	> 16 (typ18)	> 16 (typ17)
Front-To-Back Ratio, dB	> 25	> 25	> 30
VSWR	> 30	< 1.5:1	> 30
Isolation between Ports, dB	> 30	> 30	> 30
Isolation Between Bands, dB	> 30	> 30	> 30
Maximum Power Input, W	400	200	200
Polarization	Dual pol +/-45°		
3rd Order IMP @ 2 x 43 dBm, dBc	> 150	> 150	> 170
7th Order IMP @ 2x46 dBm, dBc			> 170

#### MECHANICAL SPECIFICATIONS

Dimensions - HxWxD, mm (in)	1920 x 328 x 128 (69.83 x 11.93 x 4.66)		
Survival Wind Speed, km/h (mph)	200 (125)		
Max Wind Loading Area, m² (ft²)	0.63 (6.87)		
Rated Wind Speed, km/h (mph)	160 (100)		
Maximum Thrust @ Rated Wind, N (lbf)	998 (224)		
Front Thrust @ Rated Wind, N (lbf)	998 (224)		
Reflector Material	Aluminum		
Radiating Element Material	Brass		
Radome Material	Fiberglass		
Radome Color	Light Grey RAL7035		
Weight w/o Mtg Hardware, kg (lb)	22.6 (49.7)		
Packing Dimensions - HxWxD, m (ft)	2.1 x 0.43 x 0.32 (6.93 x 1.42 x 1.06)		
Packing Dimensions, HxWxD, mm (in)	2090 x 435 x 320 (76 x 15.8 x 11.6)		



Low Band Vertical Pattern



Low Band Horizontal Pattern

### APX15G6-15D2-15W2B-C

**Horizontal Beamwidth, deg** 65, 65, 60

**Gain, dBi** 15.5, 16.5, 16.5

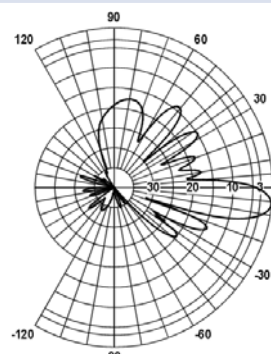
**Electrical Downtilt, deg** 6, 2, 2

#### ELECTRICAL SPECIFICATIONS

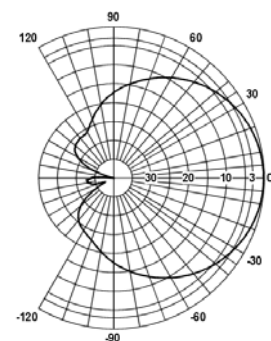
Frequency Range, MHz	880-960	1710-1880	1920-2170
Horizontal Beamwidth, deg	65	65	60
Vertical Beamwidth, deg	10	7.5	6.5
Gain, dBi (dBd)	15.5 (13.4)	16.5 (14.4)	16.5 (14.4)
1st Upper Sidelobe Suppression, dB	> 15	> 17	> 17
Front-To-Back Ratio, dB	> 25	> 25	> 30
VSWR	> 30	< 1.5:1	> 30
Isolation between Ports, dB	> 30	> 30	> 30
Isolation Between Bands, dB	> 30	> 30	> 30
Maximum Power Input, W	400	200	200
Polarization	Dual pol +/-45°		
3rd Order IMP @ 2 x 43 dBm, dBc	> 150	> 150	> 170
7th Order IMP @ 2x46 dBm, dBc			> 170

#### MECHANICAL SPECIFICATIONS

Dimensions - HxWxD, mm (in)	1920 x 328 x 128 (69.83 x 11.93 x 4.66)		
Survival Wind Speed, km/h (mph)	200 (125)		
Max Wind Loading Area, m² (ft²)	0.63 (6.87)		
Rated Wind Speed, km/h (mph)	160 (100)		
Maximum Thrust @ Rated Wind, N (lbf)	998 (224)		
Front Thrust @ Rated Wind, N (lbf)	998 (224)		
Reflector Material	Aluminum		
Radiating Element Material	Brass		
Radome Material	Fiberglass		
Radome Color	Light Grey RAL7035		
Weight w/o Mtg Hardware, kg (lb)	22.6 (49.7)		
Packing Dimensions - HxWxD, m (ft)	2.1 x 0.43 x 0.32 (6.93 x 1.42 x 1.06)		
Packing Dimensions, HxWxD, mm (in)	2090 x 435 x 320 (76 x 15.8 x 11.6)		



Low Band Vertical Pattern



Low Band Horizontal Pattern

## Optimizer® Triple-band Dual Polarized Antennas

### APX13GV-15DWV-15DWVB-C

**Horizontal Beamwidth, deg** 69, 65, 60

**Gain, dBi** 15.2, 16.8, 17.5

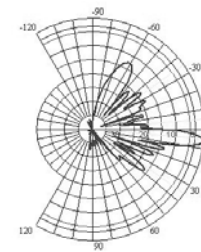
**Electrical Downtilt, deg** 2-10

#### ELECTRICAL SPECIFICATIONS

Frequency Range, MHz	880-960	1710-1900	1900-2170
Horizontal Beamwidth, deg	69	65	60
Vertical Beamwidth, deg	8	6.5	6
Gain, dBi (dBd)	15.2 (13.1)	16.8 (14.7)	17.5 (15.4)
1st Upper Sidelobe Suppression, dB	> 15	> 12	> 12
Front-To-Back Ratio, dB	> 25	> 25	> 25
VSWR		< 1.5:1	
Isolation between Ports, dB	> 26	> 30	> 30
Isolation Between Bands, dB		> 30	
Maximum Power Input, W		500	
Polarization		Dual pol +/-45°	
3rd Order IMP @ 2 x 43 dBm, dBc	> 150		
7th Order IMP @ 2x46 dBm, dBc			> 170

#### MECHANICAL SPECIFICATIONS

Dimensions - HxWxD, mm (in)	2120 x 270 x 145 (77.1 x 9.82 x 5.27)		
Survival Wind Speed, km/h (mph)	200 (125)		
Max Wind Loading Area, m² (ft²)	0.57 (6.21)		
Rated Wind Speed, km/h (mph)	160 (100)		
Maximum Thrust @ Rated Wind, N (lbf)	500 (112)		
Front Thrust @ Rated Wind, N (lbf)	500 (112)		
Reflector Material	Aluminum		
Radiating Element Material	Diecast Zamach		
Radome Material	Polycarbonate		
Radome Color	Light Grey RAL7035		
Weight w/o Mtg Hardware, kg (lb)	27 (59.4)		
Packing Dimensions - HxWxD, m (ft)	2.5 x 0.4 x 0.4 (8.25 x 1.32 x 1.32)		
Packing Dimensions, HxWxD, mm (in)	2500 x 400 x 400 (90.9 x 14.55 x 14.55)		



High Band Vertical Pattern

### APX14GV-15DWV-15DWVB-C

**Horizontal Beamwidth, deg** 69, 65, 60

**Gain, dBi** 16, 16.9, 17.5

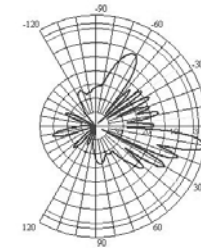
**Electrical Downtilt, deg** 2-10

#### ELECTRICAL SPECIFICATIONS

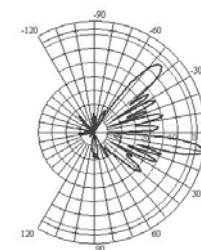
Frequency Range, MHz	880-960	1710-1900	1900-2170
Horizontal Beamwidth, deg	69	65	60
Vertical Beamwidth, deg	6.8	6.5	6
Gain, dBi (dBd)	16 (13.9)	16.9 (14.8)	17.5 (15.4)
1st Upper Sidelobe Suppression, dB	> 15	> 14	> 14
Front-To-Back Ratio, dB	> 25	> 25	> 25
VSWR		< 1.5:1	
Isolation between Ports, dB	> 26	> 30	> 30
Isolation Between Bands, dB		> 30	
Maximum Power Input, W		500	
Polarization		Dual pol +/-45°	
3rd Order IMP @ 2 x 43 dBm, dBc	> 150		
7th Order IMP @ 2x46 dBm, dBc			> 170

#### MECHANICAL SPECIFICATIONS

Dimensions - HxWxD, mm (in)	2620 x 270 x 145 (95.3 x 9.82 x 5.27)		
Survival Wind Speed, km/h (mph)	200 (125)		
Max Wind Loading Area, m² (ft²)	0.7 (7.63)		
Rated Wind Speed, km/h (mph)	160 (100)		
Maximum Thrust @ Rated Wind, N (lbf)	581 (130)		
Front Thrust @ Rated Wind, N (lbf)	581 (130)		
Reflector Material	Aluminum		
Radiating Element Material	Diecast Zamach		
Radome Material	Polycarbonate		
Radome Color	Light Grey RAL7035		
Weight w/o Mtg Hardware, kg (lb)	32 (70.4)		
Packing Dimensions - HxWxD, m (ft)	3 x 0.4 x 0.4 (9.9 x 1.32 x 1.32)		
Packing Dimensions, HxWxD, mm (in)	3000 x 400 x 400 (109.1 x 14.55 x 14.55)		



Low Band Vertical Pattern



High Band Vertical Pattern

