

Broadband Fixed Tilt Antennas

Polarization: Dual $\pm 45^\circ$

Electrical Downtilt: Fixed

Horizontal beamwidth: 65° or 90°

Broadband

Tilt range: 2°, 5° & 6°

Applications

This innovative range of broadband variable tilt antennas are cross-polarized, available in 65° or 90 degree horizontal beamwidths for use in the following systems:

DCS1800 (1710-1785, 1805-1880MHz)

PCS (1850-1910, 1930-1990MHz)

UMTS (1920-1980, 2110-2170MHz)

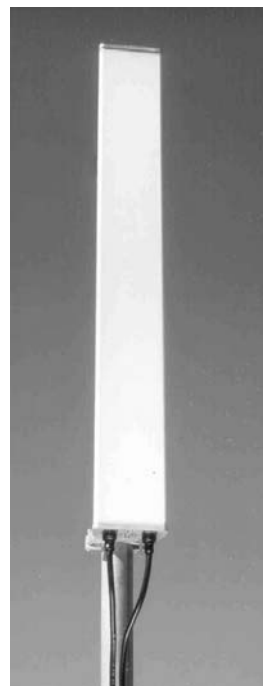
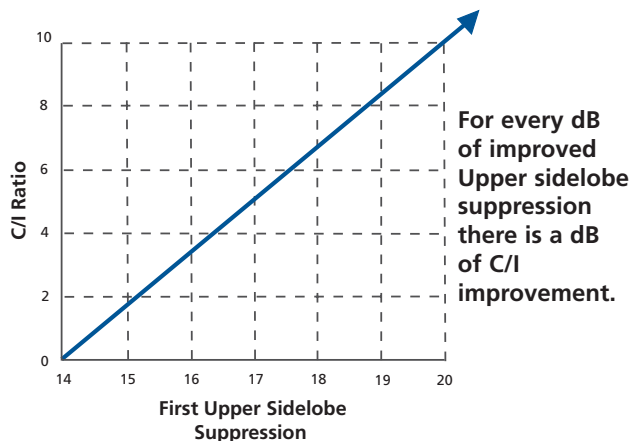
These high performance antennas have excellent upper sidelobe suppression, VSWR and front to back ratio. The antennas are available in a variety of gain options varying from 14.7 to 19.2 dBi with electrical downtilt option of 0°, 2°, 5° and 6°. These antennas are covered by a UV resistant fiberglass radome.

These antennas have two 7-16 connectors mounted at the bottom and are designed for use with our new APM40 Global Mount system/APM70-3C cluster kit.

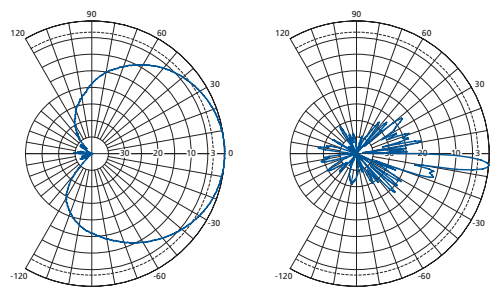
Performance Optimization Techniques

The need for improved control of RF energy has led to ongoing developments in antenna technology aimed at reducing spurious emissions and providing tighter control of the antenna footprint.

The impact of interference in GSM networks is generally measured as the ratio of carrier signal (C) to co-channel interference level (I)-or the C/I ratio-where minimum C/I values for acceptable voice quality are 9 to 10 decibels. It follows that reducing interference will improve C/I, and in turn yield improvements in audio quality and network capacity. Where once side lobe suppression was typically in the range of 12 dB, the target is now 18 to 20 dB—with RFS achieving typically better than 20 dB across the entire tilt range with its Optimizer antenna series.



APX18-20* Series



Horizontal Pattern Vertical Pattern

Features & Benefits

- High gain
- High suppression of all upper sidelobes (typically <-20dB)
- Includes null fill of the 1st and 2nd lower nulls
- At least 30 dB isolation between polarization's
- Stable horizontal and vertical beamwidths
- Very low beam squint over frequency band
- Effective polarization diversity ensured by high cross polar discrimination
- Broadband design
- Low wind load

APX18-20* Series

1710-2170 MHz

Broadband Fixed Tilt Antennas

APX18-206513-CT0

Horizontal Beamwidth, deg 65

Gain, dBi 14.9

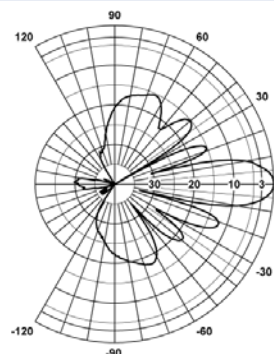
Electrical Downtilt, deg 0

ELECTRICAL SPECIFICATIONS

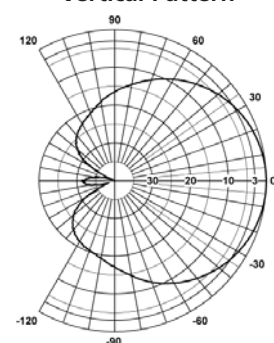
Frequency Range, MHz	1710-1900	1900-2170
Horizontal Beamwidth, deg	65	63
Vertical Beamwidth, deg	13.5	12.5
Gain, dBi	14.7 (12.6)	14.9 (12.8)
Front-To-Back Ratio, dB	> 28	
VSWR	< 1.5:1	
Isolation between Ports, dB	> 30	
Maximum Power Input, W	300	
Polarization	Dual pol +/-45°	
3rd Order IMP @ 2 x 43 dBm, dBc	> 150	
7th Order IMP @ 2x46 dBm, dBc	> 170	

MECHANICAL SPECIFICATIONS

Dimensions - HxWxD, mm (in)	668 x 198 x 50 (26.29 x 7.79 x 1.97)
Survival Wind Speed, km/h (mph)	200 (125)
Max Wind Loading Area, m² (ft²)	0.13 (1.42)
Rated Wind Speed, km/h (mph)	160 (100)
Maximum Thrust @ Rated Wind, N (lbf)	210 (47)
Front Thrust @ Rated Wind, N (lbf)	210 (47)
Reflector Material	Aluminum
Radiating Element Material	Brass
Radome Material	Fiberglass
Radome Color	Light Grey RAL7035
Weight w/o Mtg Hardware, kg (lb)	3.4 (7.5)
Packing Dimensions - HxWxD, m (ft)	0.77 x 0.3 x 0.17 (2.54 x 0.99 x 0.56)
Packing Dimensions, HxWxD, mm (in)	770 x 300 x 170 (30.3 x 11.81 x 6.69)



Vertical Pattern



Horizontal Pattern

APX18-206513-CT6

Horizontal Beamwidth, deg 65

Gain, dBi 13.8

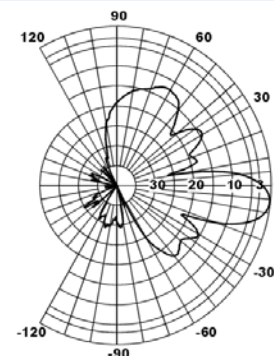
Electrical Downtilt, deg 6

ELECTRICAL SPECIFICATIONS

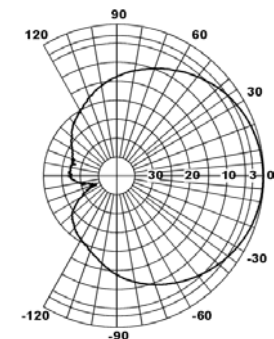
Frequency Range, MHz	1710-1900	1900-2170
Horizontal Beamwidth, deg	65	63
Vertical Beamwidth, deg	13.5	12.5
Gain, dBi (dBd)	13.8 (11.7)	
Front-To-Back Ratio, dB	> 28	
VSWR	< 1.5:1	
Isolation between Ports, dB	> 30	
Maximum Power Input, W	300	
Polarization	Dual pol +/-45°	
3rd Order IMP @ 2 x 43 dBm, dBc	> 150	
7th Order IMP @ 2x46 dBm, dBc	> 170	

MECHANICAL SPECIFICATIONS

Dimensions - HxWxD, mm (in)	668 x 198 x 50 (26.29 x 7.79 x 1.97)
Survival Wind Speed, km/h (mph)	200 (125)
Max Wind Loading Area, m² (ft²)	0.13 (1.42)
Rated Wind Speed, km/h (mph)	160 (100)
Maximum Thrust @ Rated Wind, N (lbf)	210 (47)
Front Thrust @ Rated Wind, N (lbf)	210 (47)
Reflector Material	Aluminum
Radiating Element Material	Brass
Radome Material	Fiberglass
Radome Color	Light Grey RAL7035
Weight w/o Mtg Hardware, kg (lb)	3.4 (7.5)
Packing Dimensions - HxWxD, m (ft)	0.77 x 0.3 x 0.17 (2.54 x 0.99 x 0.56)
Packing Dimensions, HxWxD, mm (in)	770 x 300 x 170 (30.3 x 11.81 x 6.69)



Low Band Vertical Pattern



Horizontal Pattern

Broadband Fixed Tilt Antennas

APX18-206516L-CT0

Horizontal Beamwidth, deg 65

Gain, dBi 18

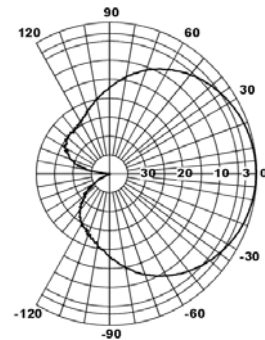
Electrical Downtilt, deg 0

ELECTRICAL SPECIFICATIONS

Frequency Range, MHz	1710-1900	1900-2170
Horizontal Beamwidth, deg	65	63
Vertical Beamwidth, deg	7	6
Gain, dBi (dBd)	17.5 (15.4)	18 (15.9)
1st Upper Sidelobe Suppression, dB	> 20	
Front-To-Back Ratio, dB	> 27	
VSWR	< 1.4:1	
Isolation between Ports, dB	> 30 (typ 35)	
Maximum Power Input, W	300	
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)	1350 x 175 x 80 (53.15 x 6.8 x 3.15)
Survival Wind Speed, km/h (mph)	200 (125)
Max Wind Loading Area, m² (ft²)	0.24 (2.58)
Rated Wind Speed, km/h (mph)	160 (100)
Maximum Thrust @ Rated Wind, N (lbf)	349 (113)
Front Thrust @ Rated Wind, N (lbf)	349 (113)
Reflector Material	Aluminum
Radiating Element Material	Brass
Radome Material	Fiberglass
Radome Color	Light Grey RAL7035
Weight w/o Mtg Hardware, kg (lb)	7.5 (16.55)
Packing Dimensions - HxWxD, m (ft)	1.5 x 0.3 x 0.2 (4.95 x 0.99 x 0.66)
Packing Dimensions, HxWxD, mm (in)	1465 x 275 x 160 (57.68 x 10.83 x 6.3)



Low Band Horizontal Pattern

APX18-206516L-CT2

Horizontal Beamwidth, deg 65

Gain, dBi 18

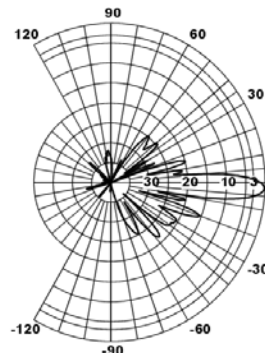
Electrical Downtilt, deg 2

ELECTRICAL SPECIFICATIONS

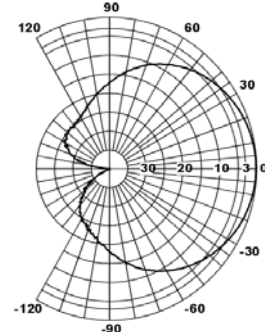
Frequency Range, MHz	1710-1900	1900-2170
Horizontal Beamwidth, deg	65	63
Vertical Beamwidth, deg	7	6
Gain, dBi (dBd)	17.5 (15.4)	18 (15.9)
1st Upper Sidelobe Suppression, dB	> 20	
Front-To-Back Ratio, dB	> 27	
VSWR	< 1.4:1	
Isolation between Ports, dB	> 30 (typ 35)	
Maximum Power Input, W	300	
Polarization	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)	1350 x 175 x 80 (53.15 x 6.8 x 3.15)
Survival Wind Speed, km/h (mph)	200 (125)
Max Wind Loading Area, m² (ft²)	0.24 (2.58)
Rated Wind Speed, km/h (mph)	160 (100)
Maximum Thrust @ Rated Wind, N (lbf)	349 (113)
Front Thrust @ Rated Wind, N (lbf)	349 (113)
Reflector Material	Aluminum
Radiating Element Material	Brass
Radome Material	Fiberglass
Radome Color	Light Grey RAL7035
Weight w/o Mtg Hardware, kg (lb)	7.5 (16.55)
Packing Dimensions - HxWxD, m (ft)	1.5 x 0.3 x 0.2 (4.95 x 0.99 x 0.66)
Packing Dimensions, HxWxD, mm (in)	1465 x 275 x 160 (57.68 x 10.83 x 6.3)



Low Band Vertical Pattern



Low Band Horizontal Pattern

APX18-20* Series

1710-2170 MHz

Broadband Fixed Tilt Antennas

APX18-206516L-CT6

Horizontal Beamwidth, deg 65

Gain, dBi 18

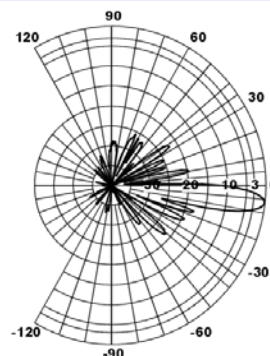
Electrical Downtilt, deg 6

ELECTRICAL SPECIFICATIONS

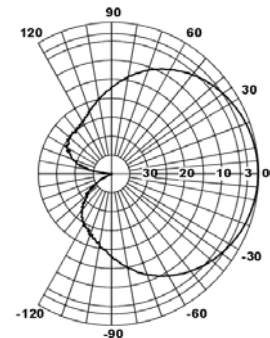
Frequency Range, MHz	1710-1900	1900-2170
Horizontal Beamwidth, deg	65	63
Vertical Beamwidth, deg	7	6
Gain, dBi (dBd)	17.5 (15.4)	18 (15.9)
1st Upper Sidelobe Suppression, dB	> 22	> 18 (typ 20)
Front-To-Back Ratio, dB	> 27	> 18 (typ 20)
VSWR	< 1.4:1	< 1.4:1
Isolation between Ports, dB	> 30 (typ 35)	> 30 (typ 35)
Maximum Power Input, W	300	300
Polarization	Dual pol +/-45°	
3rd Order IMP @ 2 x 43 dBm, dBc	> 150	> 150
7th Order IMP @ 2x46 dBm, dBc		> 170

MECHANICAL SPECIFICATIONS

Dimensions - HxWxD, mm (in)	1350 x 175 x 80 (53.15 x 6.8 x 3.15)
Survival Wind Speed, km/h (mph)	200 (125)
Max Wind Loading Area, m² (ft²)	0.24 (2.58)
Rated Wind Speed, km/h (mph)	160 (100)
Maximum Thrust @ Rated Wind, N (lbf)	349 (113)
Front Thrust @ Rated Wind, N (lbf)	349 (113)
Reflector Material	Aluminum
Radiating Element Material	Brass
Radome Material	Fiberglass
Radome Color	Light Grey RAL7035
Weight w/o Mtg Hardware, kg (lb)	7.5 (16.55)
Packing Dimensions - HxWxD, m (ft)	1.5 x 0.3 x 0.2 (4.95 x 0.99 x 0.66)
Packing Dimensions, HxWxD, mm (in)	1465 x 275 x 160 (57.68 x 10.83 x 6.3)



Low Band Vertical Pattern



Low Band Horizontal Pattern

APX18-206517-CT2

Horizontal Beamwidth, deg 65

Gain, dBi 19

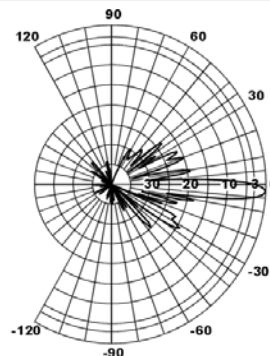
Electrical Downtilt, deg 2

ELECTRICAL SPECIFICATIONS

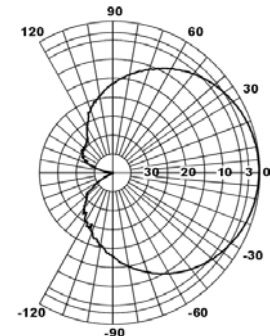
Frequency Range, MHz	1710-1900	1900-2170
Horizontal Beamwidth, deg	65	63
Vertical Beamwidth, deg	5	4.5
Gain, dBi (dBd)	18.5 (16.4)	19 (16.9)
1st Upper Sidelobe Suppression, dB	> 20	> 18 (typ 20)
Front-To-Back Ratio, dB	> 30	> 25
VSWR	< 1.4:1	< 1.4:1
Isolation between Ports, dB	> 30 (typ 35)	> 30 (typ 35)
Maximum Power Input, W	300	300
Polarization	Dual pol +/-45°	
3rd Order IMP @ 2 x 43 dBm, dBc	> 150	> 150
7th Order IMP @ 2x46 dBm, dBc		> 170

MECHANICAL SPECIFICATIONS

Dimensions - HxWxD, mm (in)	1840 x 175 x 80 (72.44 x 6.8 x 3.15)
Survival Wind Speed, km/h (mph)	200 (125)
Max Wind Loading Area, m² (ft²)	0.32 (3.44)
Rated Wind Speed, km/h (mph)	160 (100)
Maximum Thrust @ Rated Wind, N (lbf)	473 (106)
Front Thrust @ Rated Wind, N (lbf)	473 (106)
Reflector Material	Aluminum
Radiating Element Material	Brass
Radome Material	Fiberglass
Radome Color	Light Grey RAL7035
Weight w/o Mtg Hardware, kg (lb)	9.5 (20.95)
Packing Dimensions - HxWxD, m (ft)	1.9 x 0.3 x 0.2 (6.27 x 0.99 x 0.66)
Packing Dimensions, HxWxD, mm (in)	1965 x 275 x 160 (77.36 x 10.83 x 6.3)



Low Band Vertical Pattern



Low Band Horizontal Pattern

Broadband Fixed Tilt Antennas

APX18-206517-CT5

Horizontal Beamwidth, deg 65

Gain, dBi 19

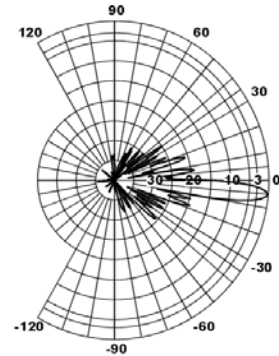
Electrical Downtilt, deg 5

ELECTRICAL SPECIFICATIONS

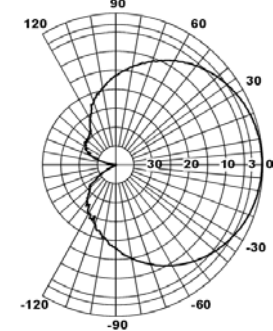
Frequency Range, MHz	1710-1900	1900-2170
Horizontal Beamwidth, deg	65	63
Vertical Beamwidth, deg	5	4.5
Gain, dBi (dBd)	18.5 (16.4)	19 (16.9)
1st Upper Sidelobe Suppression, dB	> 20	> 18 (typ 20)
Front-To-Back Ratio, dB	> 30	> 25
VSWR	< 1.4:1	
Isolation between Ports, dB	> 30 (typ 35)	
Maximum Power Input, W	300	
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)	1840 x 175 x 80 (72.44 x 6.8 x 3.15)
Survival Wind Speed, km/h (mph)	200 (125)
Max Wind Loading Area, m² (ft²)	0.32 (3.44)
Rated Wind Speed, km/h (mph)	160 (100)
Maximum Thrust @ Rated Wind, N (lbf)	473 (106)
Front Thrust @ Rated Wind, N (lbf)	473 (106)
Reflector Material	Aluminum
Radiating Element Material	Brass
Radome Material	Fiberglass
Radome Color	Light Grey RAL7035
Weight w/o Mtg Hardware, kg (lb)	9.5 (20.95)
Packing Dimensions - HxWxD, m (ft)	1.9 x 0.3 x 0.2 (6.27 x 0.99 x 0.66)
Packing Dimensions, HxWxD, mm (in)	1965 x 275 x 160 (77.36 x 10.83 x 6.3)



Low Band Vertical Pattern



Low Band Horizontal Pattern

APX18-209014-CT2

Horizontal Beamwidth, deg 90

Gain, dBi 15.9

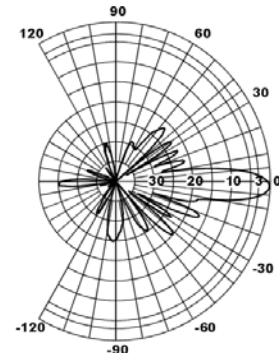
Electrical Downtilt, deg 2

ELECTRICAL SPECIFICATIONS

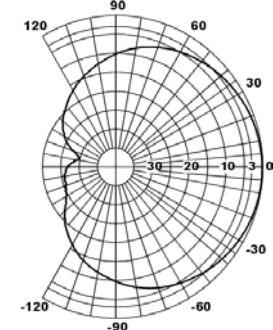
Frequency Range, MHz	1710-1900	1900-2170
Horizontal Beamwidth, deg	90	
Vertical Beamwidth, deg	8	7.5
Gain, dBi (dBd)	15.4 (13.3)	15.9 (13.8)
1st Upper Sidelobe Suppression, dB	> 20	
Front-To-Back Ratio, dB	> 28	
VSWR	< 1.4:1	
Isolation between Ports, dB	> 30	
Maximum Power Input, W	300	
Polarization	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)	1220 x 175 x 80 (48.03 x 6.8 x 3.15)
Survival Wind Speed, km/h (mph)	200 (125)
Max Wind Loading Area, m² (ft²)	0.21 (2.26)
Rated Wind Speed, km/h (mph)	160 (100)
Maximum Thrust @ Rated Wind, N (lbf)	316 (71)
Front Thrust @ Rated Wind, N (lbf)	316 (71)
Reflector Material	Aluminum
Radiating Element Material	Brass
Radome Material	Fiberglass
Radome Color	Light Grey RAL7035
Weight w/o Mtg Hardware, kg (lb)	6.5 (14.33)
Packing Dimensions - HxWxD, m (ft)	1.5 x 0.3 x 0.2 (4.95 x 0.99 x 0.66)
Packing Dimensions, HxWxD, mm (in)	1450 x 250 x 145 (57.09 x 9.84 x 5.71)



Low Band Vertical Pattern



Low Band Horizontal Pattern

APX18-20* Series

1710-2170 MHz

Broadband Fixed Tilt Antennas

APX18-209014-CT5

Horizontal Beamwidth, deg 90

Gain, dBi 15.8

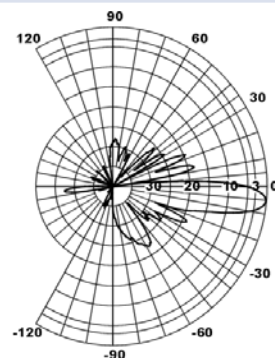
Electrical Downtilt, deg 5

ELECTRICAL SPECIFICATIONS

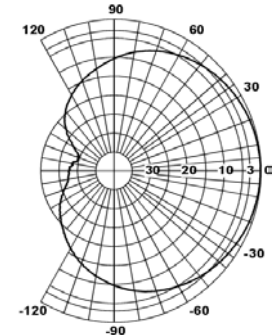
Frequency Range, MHz	1710-1900	1900-2170
Horizontal Beamwidth, deg	90	
Vertical Beamwidth, deg	8	7.5
Gain, dBi (dBd)	15.4 (13.3)	15.8 (13.7)
1st Upper Sidelobe Suppression, dB	> 20 (typ 23)	> 18 (typ 22)
Front-To-Back Ratio, dB	> 28	
VSWR	< 1.4:1	
Isolation between Ports, dB	> 35	
Maximum Power Input, W	300	
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)	1220 x 175 x 80 (48.03 x 6.8 x 3.15)
Survival Wind Speed, km/h (mph)	200 (125)
Max Wind Loading Area, m² (ft²)	0.21 (2.26)
Rated Wind Speed, km/h (mph)	160 (100)
Maximum Thrust @ Rated Wind, N (lbf)	316 (71)
Front Thrust @ Rated Wind, N (lbf)	316 (71)
Reflector Material	Aluminum
Radiating Element Material	Brass
Radome Material	Fiberglass
Radome Color	Light Grey RAL7035
Weight w/o Mtg Hardware, kg (lb)	6.5 (14.33)
Packing Dimensions - HxWxD, m (ft)	1.5 x 0.3 x 0.2 (4.95 x 0.99 x 0.66)
Packing Dimensions, HxWxD, mm (in)	1450 x 250 x 145 (57.09 x 9.84 x 5.71)



Low Band Vertical Pattern



Low Band Horizontal Pattern

APX18-209015-CT2

Horizontal Beamwidth, deg 90

Gain, dBi 17.7

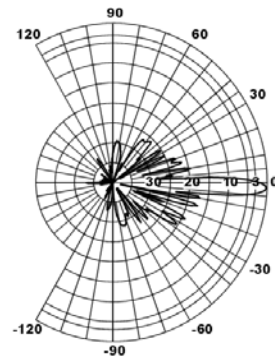
Electrical Downtilt, deg 2

ELECTRICAL SPECIFICATIONS

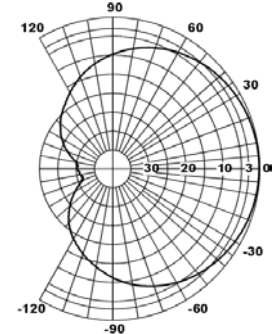
Frequency Range, MHz	1710-1900	1900-2170
Horizontal Beamwidth, deg	90	
Vertical Beamwidth, deg	5	4.5
Gain, dBi (dBd)	17.5 (15.4)	17.7 (15.6)
1st Upper Sidelobe Suppression, dB	> 18 (typ 20)	
Front-To-Back Ratio, dB	> 30	
VSWR	< 1.4:1	
Isolation between Ports, dB	> 30 (typ 35)	
Maximum Power Input, W	300	
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)	1845 x 175 x 80 (72.64 x 6.8 x 3.15)
Survival Wind Speed, km/h (mph)	200 (125)
Max Wind Loading Area, m² (ft²)	0.32 (3.44)
Rated Wind Speed, km/h (mph)	160 (100)
Maximum Thrust @ Rated Wind, N (lbf)	473 (106)
Front Thrust @ Rated Wind, N (lbf)	473 (106)
Reflector Material	Aluminum
Radiating Element Material	Brass
Radome Material	Fiberglass
Radome Color	Light Grey RAL7035
Weight w/o Mtg Hardware, kg (lb)	9.2 (20.28)
Packing Dimensions - HxWxD, m (ft)	1.9 x 0.3 x 0.2 (6.27 x 0.99 x 0.66)
Packing Dimensions, HxWxD, mm (in)	1965 x 275 x 160 (77.36 x 10.83 x 6.3)



Low Band Vertical Pattern



Low Band Horizontal Pattern



APX18-20* Series

1710-2170 MHz

Broadband Fixed Tilt Antennas

APX18-209015-CT5

Horizontal Beamwidth, deg 90

Gain, dBi 17.5

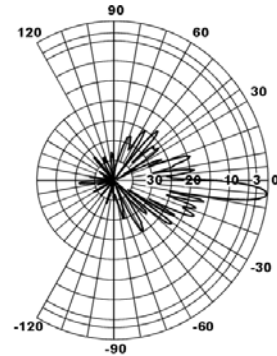
Electrical Downtilt, deg 5

ELECTRICAL SPECIFICATIONS

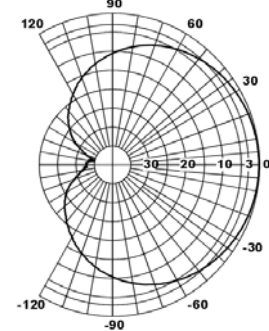
Frequency Range, MHz	1710-1900	1900-2170
Horizontal Beamwidth, deg	90	
Vertical Beamwidth, deg	5	4.5
Gain, dBi (dBd)	17.4 (15.3)	17.5 (15.4)
1st Upper Sidelobe Suppression, dB	> 18 (typ 20)	
Front-To-Back Ratio, dB	> 30	
VSWR	< 1.4:1	
Isolation between Ports, dB	> 30 (typ 35)	
Maximum Power Input, W	300	
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)	1845 x 175 x 80 (72.64 x 6.8 x 3.15)
Survival Wind Speed, km/h (mph)	200 (125)
Max Wind Loading Area, m ² (ft ²)	0.32 (3.44)
Rated Wind Speed, km/h (mph)	160 (100)
Maximum Thrust @ Rated Wind, N (lbf)	473 (106)
Front Thrust @ Rated Wind, N (lbf)	473 (106)
Reflector Material	Aluminum
Radiating Element Material	Brass
Radome Material	Fiberglass
Radome Color	Light Grey RAL7035
Weight w/o Mtg Hardware, kg (lb)	9.2 (20.28)
Packing Dimensions - HxWxD, m (ft)	1.9 x 0.3 x 0.2 (6.27 x 0.99 x 0.66)
Packing Dimensions, HxWxD, mm (in)	1965 x 275 x 160 (77.36 x 10.83 x 6.3)



Low Band Vertical Pattern



Low Band Horizontal Pattern

