Government Antenna Systems

Index

Utilizing its broad design and manufacturing experience, Andrew has developed a wide range of antennas and antenna/pedestal systems to satisfy needs in:

- Air traffic control radar systems
- Weather radar systems
- Low and medium earth orbit satellite ground tracking systems
- Ground and airborne tracking and intercept systems
- HF communication systems
- Tactical communication antenna systems

Andrew uses its accumulated knowledge and experience to provide efficient, cost-effective solutions for special application antenna requirements.

Diverse requirements can be addressed with a wide variety of antenna configurations including parabolic reflector, log periodic, helical, bifilar, arrays, conical, discone and helicone. These antenna designs cover a broad range of frequencies from 2 MHz to 50 GHz.

L- and S-Band Air Traffic Control Antenna/Pedestal

S- and C-Band Weather Radar Antenna/Pedestal

Gear Drive Pedestal

Direct Drive Pedestal

L- and S-Band Air Traffic Control Antenna/Pedestal

- High gain and low sidelobes
- Enhanced high elevation angle performance
- High and low radiating beams with weather channel
- Dual helical gearbox
- Versatile servo amplifier
- Selectable rotation speed
- Control unit
- Rotary joint and slip rings

S- and C-Band Weather Radar Antenna/Pedestal

- Lightweight aluminum reflector design
- Proprietary NEXRAD feed system for high gain and low sidelobes
- Single and optional dual polarization
- Continuous azimuth scan and incremental stepping or sector scan in elevation
- Feed forward servo compensation
- Utility junction box
- Oil level sensor
- Local and remote controller
- Rotary joint and slip rings

Gear Drive Pedestal

- Single or dual axes
- Single or dual drives
- Inside or optional outside radome operation
- ASTM grade ductile iron casting for strength and durability
- Over torque slip clutch protection
- Interlock stow pin
- Oil lubrication bearing
- Oil level sensor
- Rotary joint and slip rings
- Controller and servo amplifier

Direct Drive Pedestal

- Post or yoke configuration
- Lightweight aluminum construction
- Precision four point contact bearing
- Environmentally sealed
- Dual motors
- Data package with pancake resolver
- Stow pin for storage and transportation
- Digital controller and servo amplifier

S-Band Air Traffic Control Radar Antenna/Pedestal System

Specifications

Electrical

Frequency Band	2.7-2.9 GHz
Gain, min	
High Beam	34 dBi
Low Beam	32 dBi
Polarization	Switchable Circular/Linear
VSWR	1.3 to 1
Beamwidth, degrees	
Elevation, nominal	7.7
Azimuth, nominal	1.4

Mechanical

Feed Type	Prime focus offset feed system aluminum chromate converted per MIL-C-5541C
Flange Type	CPR284G at output
Reflector Type	Three pieces formed aluminum mesh chromate converted per MIL-C-5514C
Wind Loading Operational	88 mph (140 km/hr) with 0.4 in (10 mm) ice on non-radiating surface
Survival	150 mph (240 km/hr) with 1.5 in (38 mm) ice

Environmental

Temperature	-50°C to +50°C
Rain	4 in (102 mm) per hour
Solar Radiation	360 BTU/hr/ft^2 (1135 watts/m^2)
Relative Humidity	100%

Shipping Information

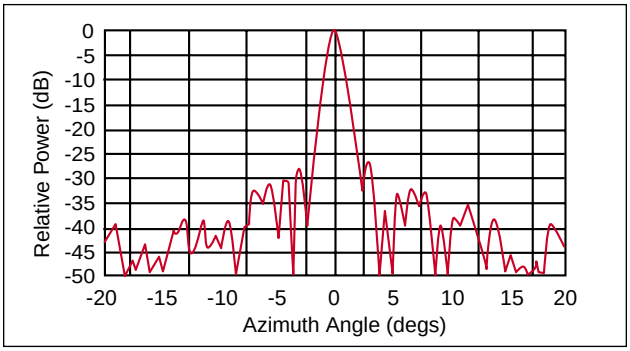
Weight, net	3,520 lb (1,597 kg)
Dimensions	13.3 ft x 13.8 ft x 16.6 ft (4.05 m x 4.20 m x 5.06 m)

Transportable via a single closed ISO container

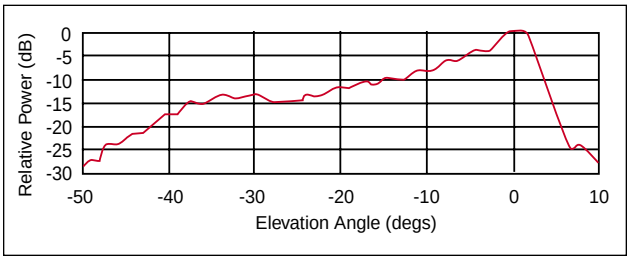
Available Options

Pedestals
Rotary Joints and Slip Rings

The Andrew S-band radar antenna was designed with the latest state-of-the-art software to generate the reflector profiles, and uses the latest technology for the feed system. These antennas are manufactured to stringent specifications and perform to the exacting standards demanded of them. Andrew has invested in extensive manufacturing tooling to ensure repeatability in production.



Typical Low Beam Azimuth Pattern at 2.8 GHz



Typical Low Beam Elevation Pattern at 2.8 GHz

S- and C-Band Weather Radar Antenna/Pedestal System

The S-band and C-band weather radar systems are the first in a family of advanced weather radar antenna/pedestal systems from Andrew. They are high quality products designed and manufactured in accordance with ISO 9001 quality assurance to stringent specifications. The family consists of a variety of antenna diameters and pedestals operating in C-band or S-band applications, including the antenna system used for the FAA/NEXRAD program.

Antenna Performance

Antenna Diameter, meters	4.5	4.5	6.1	6.1	8.5
Operating Frequency, GHz	2.7-2.9	5.4-5.9	2.7-2.9	5.6-5.65	2.7-3.0
Polarization	linear	linear	linear	linear	linear
3 dB Beamwidth, nominal	1.7°	0.95°	1.25°	0.65°	0.99°
Gain, min.	39.8 dBi	45 dBi	42.3 dBi	47.5 dBi	44.5 dBi
First Sidelobe Level	-25 dB	-30 dB	-26 dB	-26 dB	-26 dB
Cross-Polarization Discrimination	-27 dB	-27 dB	-27 dB	-27 dB	-27dB
Boresight Accuracy, max. with calibration	0.2°	0.2°	0.33°	0.1°	0.33°
Peak Power, max.	800 kW	350 kW	1 MW	250 kW	1 MW
Average Power, max.	1600 W	700 W	2 kW	125 W	2 kW
VSWR, max.	1.4	1.4	1.45	1.2	1.45
Weight, lb (kg)	880 (400)	880 (400)	1309 (595)	1309(595)	2244 (1020)

Positioner Performance for 8.5-meter Antennas

Travel		
Azimuth	Continuous	
Elevation	-3° to +92°	
Velocity		
Azimuth	0.05°/sec to 36°/sec	
Elevation	0.05°/sec to 15°/sec	
Acceleration	Rated	Max.
Azimuth	18°/sec^2	20°/sec^2
Elevation	12°/sec^2	20°/sec^2
Drive Capacity	Continuous	Peak
Azimuth	3097 ft-lb	8817 ft-lb
Elevation	3858 ft-lb	10984 ft-lb
Position Accuracy		
Azimuth	0.10°	
Elevation	0.10°	

Positioner Performance for 6.1 meter and 4.5-meter Antennas

Travel		
Azimuth	continuous	
Elevation	-3° to +92°	
Velocity		
Azimuth	0.05°/sec to 36°/sec	
Elevation	0.05°/sec to 36°/sec	
Acceleration	Rated	Max.
Azimuth	18°/sec^2	20°/sec^2
Elevation	18°/sec^2	20°/sec^2
Drive Capacity	Continuous	Peak
Azimuth	1983 ft-lb	8050 ft-lb
Elevation	1983 ft-lb	8050 ft-lb
Position Accuracy		
Azimuth	0.10°	
Elevation	0.10°	

Temperature

Operating -40° C to +49° C
Non-operating -62° C to +60° C

58135 Horn Antenna

- Capable of working over a frequency range of 1400 - 2300 MHz
- Linear polarization, vertical or horizontal; input power 100 watts, CW
- 1.75 to 1 VSWR
- Gain of 13.3 to 15.8 dBi
- 150 mph (240 km/h) wind survival

55070 Airborne Antenna

- Available in specific bandwidths covering frequency ranges from 0.8 to 13 GHz
- Vertical polarization; average power rating 50 watts CW
- Gain of 5 dBi; omnidirectional radiation pattern
- Low silhouette design minimizes drag to withstand high air speeds

58200, 19050 Discone Antenna

- Frequency coverage from 215 to 2600 MHz
- Vertical polarization; input power 400 to 1500 watts CW
- 2 to 1 VSWR
- Nominal gain at 2.0 dBi
- 150 mph (240 km/h) wind survival

58700 Omnidirectional Antenna

- Available in various bands from 1400 to 3000 MHz
- Vertically polarized; input power 50 watts CW
- 1.5 to 1 VSWR
- Nominal gain at 8 dBi
- 150 mph (240 km/h) wind survival

55305, 60116, 60117 Helical Antenna

- Available in two frequency ranges: 1600 to 2000 MHz and 2100 to 2300 MHz
- Circular polarization
- 1.5 to 1 VSWR
- Gain ranging from 13 to 15 dBi
- Enclosed in a rugged radome for protection from environmental elements

63305A-5 and 63305A-6 Bifilar Helical Antenna

- Operates in the 245 to 315 MHz band
- Right hand or left hand circular polarization
- 1.5 to 1 VSWR
- Rugged, field transportable
- Collapsible tripod mount
- Optional motorized polar ground mount

171888 and 172315X Direction Finding Antennas

- 171888-Adcock array for VHF/UHF in 3 sub-bands, 20 - 100 MHz
- 172315X-Linear and slant linear polarization in 2 sub-bands, 0.5 - 2 GHz and 2 - 18 GHz
- Sector scan and variable rotation speed of up to 200 rpm for microwave DF system
- Environmentally protected in an integral radome

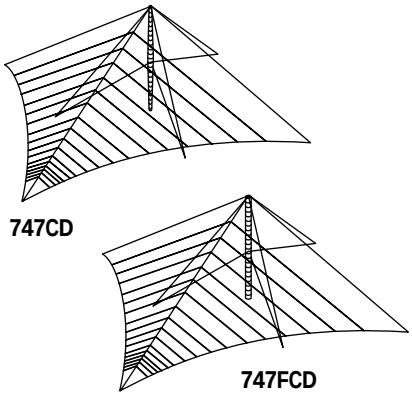
172601 through to 172608 Broadband High Power Antennas

- Available in various bands from 120 MHz to 18 GHz
- Peak power rating of 4 kW at 120 MHz to 2.5 kW at 18 GHz
- Nominal gain from 12 dBi at 120 MHz to 31 dBi at 12 GHz
- Selectable LH and RH circular polarization

Type No.	Gain Freq GHz	Polarization	Wind Nom. dBi	VSWR	Survival mph (km/h)	Input	Dimensions, in (mm) Length	Width	Height
Horn									
58135	1.4-2.3	Lin., V/H	13.3	1.75	125(200)	N Jack	20 (508)	16 (406)	11 (279)
Airborne									
55070-03	0.39-0.40	Lin., V	5.0	1.3	600 (965)	N Jack	7.23 (184)	3.13 (80)	0.69 (18)
55070-09	0.880-0.920	Lin., V	5.0	1.3	600 (965)	N Jack	3 (76)	3.13 (80)	0.69 (18)
55070-10	1.01-1.125	Lin., V	5.0	1.5	600 (965)	N Jack	2.63 (67)	3.13 (80)	0.69 (18)
55070-13	1.27-1.37	Lin., V	5.0	1.3	600 (965)	N Jack	2.16 (55)	3.13 (80)	0.69 (18)
55070-14	1.435-1.54	Lin., V	5.0	1.3	600 (965)	N Jack	1.84 (46)	3.13 (80)	0.69 (18)
55070-15	1.575	Lin., V	5.0	2.0	600 (965)	N Jack	2.06 (52)	3.13 (80)	0.69 (18)
55070-17	1.70-1.85	Lin., V	5.0	1.3	600 (965)	N Jack	1.78 (45)	3.13 (80)	0.69 (18)
55070-17A	1.7-2.3	Lin., V	5.0	1.3	600 (965)	N Jack	1.78 (45)	3.13 (80)	0.69 (18)
55070-18	1.8-2.1	Lin., V	5.0	1.5	600 (965)	N Jack	1.78 (45)	3.13 (80)	0.69 (18)
55070-21	2.1-2.3	Lin., V	5.0	1.3	600 (965)	N Jack	1.78 (45)	3.13 (80)	0.69 (18)
55070-23	2.335-2.385	Lin., V	5.0	1.3	600 (965)	N Jack	1.78 (45)	3.13 (80)	0.69 (18)
55070-25	2.5-2.7	Lin., V	5.0	1.3	600 (965)	N Jack	1.75 (44)	3.13 (80)	0.69 (18)
55070-27	2.7-3.0	Lin., V	5.0	1.3	600 (965)	N Jack	1.28 (33)	3.13 (80)	0.69 (18)
55070-44	4.4-5.0	Lin., V	5.0	1.3	600 (965)	N Jack	0.91 (23)	3.13 (80)	0.69 (18)
55070-50	5.0-5.4	Lin., V	5.0	1.3	600 (965)	N Jack	0.91 (23)	3.13 (80)	0.69 (18)
55070-54	5.4-6.0	Lin., V	5.0	1.3	600 (965)	N Jack	0.91 (23)	3.13 (80)	0.69 (18)
55070-64	6.4-7.0	Lin., V	5.0	1.3	600 (965)	N Jack	1.03 (26)	3.13 (80)	0.69 (18)
55070-66	6.6-7.3	Lin., V	5.0	1.5	600 (965)	N Jack	0.91 (23)	3.13 (80)	0.69 (18)
55070-121	12.1-13.2	Lin., V	5.0	1.5	600 (965)	N Jack	0.38 (10)	3.13 (80)	0.69 (18)
Discone									
58200-14	1.435-2.3	Lin., V	2.0	2.0	125 (200)	N Jack	12.5 (318)	3 (76) diameter	
19050-2	0.215-0.420	Lin., V	2.0	2.0	100 (160)	7/8" EIA	13 (330)	16 (406) diameter	
19050-3	0.4-1.0	Lin., V	2.0	2.0	100 (160)	7/8" EIA	14 (356)	10.5 (267) diameter	
19050-4	0.5-1.55	Lin., V	2.0	2.0	100 (160)	7/8" EIA	14 (356)	9 (229) diameter	
Omnidirectional									
58700-14	1.435-1.54	Lin., V	8.0	1.5	125 (200)	N Jack	36 (914)	3.5 (89) diameter	
58700-21	2.1-2.3	Lin., V	8.0	1.5	125 (200)	N Jack	27 (686)	3.5 (89) diameter	
58700-25	2.5-2.7	Lin., V	8.0	1.5	125 (200)	N Jack	23 (584)	3.5 (89) diameter	
Helical									
55305-1,-3,-5	2.1-2.3	RH circ.	15	1.5	125 (200)	N Jack	17 (432)	3.4 (86) diameter	
55305-2,-4,-6	2.1-2.3	LH circ.	15	1.5	125 (200)	N Jack	17 (432)	3.4 (86) diameter	
60112-1,-3,-5	0.70-0.85	RH circ.	12	2.1	125 (200)	N Jack	30 (762)	6 (152) diameter	
60112-2,-4,-6	0.70-0.85	LH circ.	12	2.1	125 (200)	N Jack	30 (762)	6 (152) diameter	
60114-1,-3,-5	1.06-1.44	RH circ.	12	1.5	125 (200)	N Jack	27 (686)	5 (127) diameter	
60114-2,-4,-6	1.06-1.44	LH circ.	12	1.5	125 (200)	N Jack	27 (686)	5 (127) diameter	
60115-1,-3,-5	1.4-1.55	RH circ.	13	1.5	125 (200)	N Jack	16 (406)	3.4 (86) diameter	
60115-2,-4,-6	1.4-1.55	LH circ.	13	1.5	125 (200)	N Jack	16 (406)	3.4 (86) diameter	
60116-1,-3,-5	1.6-2.0	RH circ.	13	1.5	125 (200)	N Jack	16 (406)	3.4 (86) diameter	
60116-2,-4,-6	1.6-2.0	LH circ.	13	1.5	125 (200)	N Jack	16 (406)	3.4 (86) diameter	
60117-1,-3,-5	2.1-2.3	RH circ.	13	1.5	125 (200)	N Jack	12 (305)	3.4 (86) diameter	
60117-2,-4,-6	2.1-2.3	LH circ.	13	1.5	125 (200)	N Jack	12 (305)	3.4 (86) diameter	
60118-1,-3,-5	2.5-3.0	RH circ.	14	1.5	125 (200)	N Jack	12 (305)	3.4 (86) diameter	
60118-2,-4,-6	2.5-3.0	LH circ.	14	1.5	125 (200)	N Jack	12 (305)	3.4 (86) diameter	
(-1 and -2 no mount, -3 and -4 13550 mounting adaptor, -5 and -6 51930A manual mount, 2" IPS pipe, mounting adaptor.)									
Bifilar Helical									
63305A-1,-3,-5	0.245-0.315	RH circ.	12.5	1.5	100 (160)	N Jack	122 (3099)	39 (991) diameter	
63305A-2,-4,-6	0.245-0.315	LH circ.	12.5	1.5	100 (160)	N Jack	122 (3099)	39 (991) diameter	
(-1 and -2 no mount, -3 and -4 54157 mount for 4" IPS pipe, -5 and -6 51930 manual mount with 62280 tripod)									
DF Antenna									
171888	0.02-0.1	Lin., V	-	11.0	100 (160)	N Jack	78 (1980)	60 (1524) diameter	
(4 array	0.1-0.5	Lin., V	-	7.0	100 (160)	N Jack	18 (457)	12 (305) diameter	
element)	0.5-1.0	Lin., V	-	7.0	100 (160)	N Jack	8 (203)	6 (152) diameter	
172315X	0.5-2.0	Lin., Slant	4	3.0	100 (160)	N Jack	17 (432)	19 (483) diameter	
	2.0-18.0	Lin., Slant	15	3.0	100 (160)	N Jack	17 (432)	19 (483) diameter	

GRANGER® HF Antennas

Andrew manufactures the complete range of GRANGER HF antennas. These include fixed, transportable and rotatable log-periodic antennas, conical monopoles, broadband dipoles, baluns and multicouplers.



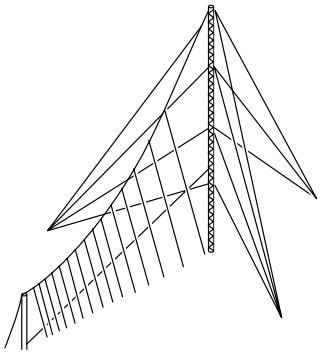
747CD

747FCD

747 Horizontally Polarized Log-Periodic

- 2 - 30 MHz or 4 - 30 MHz Frequency Range with Single Input
- Up to 20 kW Average 40 kW Peak Power Rating
- Horizontal Polarization
- 2.0:1 Nominal. 2.5:1 Maximum VSWR (2.0 MHz Version)
- Short-, Medium-, and Long-Range Communications

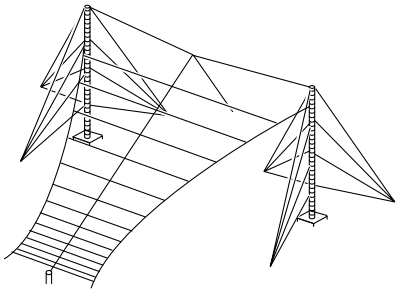
Bulletins 1410 (747CD), 1411 (747FCD)



1703 Long-Haul, Log-Periodic

- Choice of Frequency Range: 4.0 - 32, 4.6 - 32, 5.4 - 32, 6.5 - 32 MHz
- Up to 20 kW Average, 40 kW Peak Power Rating
- Vertical Polarization
- 2.0:1 Maximum VSWR
- Low Angle Radiation at All Frequencies
- Low Sensitivity to Off-Path Signals
- Minimum Space Required
- Short-Range Communications (Groundwave)
- Long-Range Communications (Skywave)

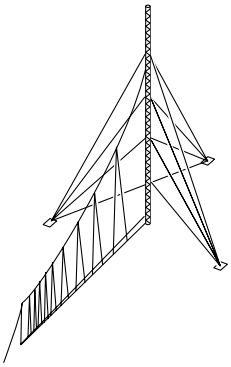
Bulletin 1417



2701/2702 Horizontally Polarized, Log-Periodic

- 2 - 32 MHz Frequency Range
- Up to 20 kW Average, 40 kW Peak Power Rating
- Horizontal Polarization
- 2.0:1 Maximum VSWR
- Short- to Medium-Range and Medium-to-Long-Range Communications
- Minimum Space Required

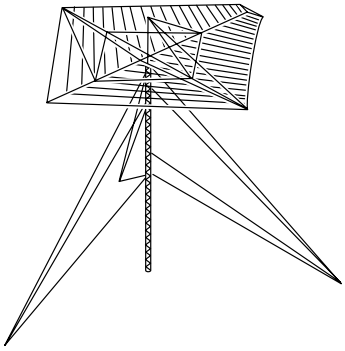
Bulletin 1424



2726 Vertically Polarized, Log-Periodic

- 2.5 - 32 MHz Frequency Range
- Up to 10 kW Average, 20 kW Peak Power Rating
- Vertical Polarization
- 2.0:1 Maximum VSWR
- Long-Range HF Communications
- Minimum Tower Height
- Minimum Space Required

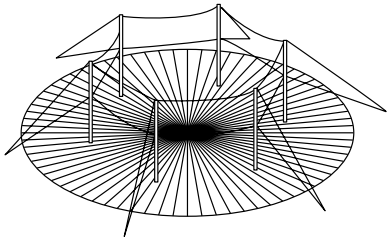
Bulletin 1426



2731/2004 Rotatable Log-Periodic

- 2 - 30 MHz Frequency Range
- Up to 25 kW Peak Power Rating, Depending on Type
- Horizontally Polarized
- 2.0:1 VSWR
- High Gain
- Easy to Install and Maintain
- High Efficiency - Up to 98%
- Medium- and Long-Range Communications
- Two Versions - Full Tower Size and Compact Roof Size

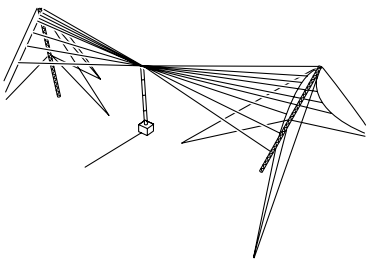
Bulletin 1423



794 Monocone

- Wide Range of Frequencies: 2 - 30, 2.5 - 32, 3 - 32 MHz
- Up to 40 kW Average, 160 kW Peak Power Rating
- Vertical Polarization
- 2.0:1 Maximum VSWR
- Low-Angle Radiation Patterns
- Short-Range Communications (Groundwave)
- Long-Range Communications (Skywave)

Bulletin 1416



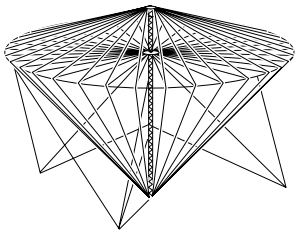
1765 Broadband Dipole

- 1.6 - 30 MHz Frequency Range
- Up to 10 kW Average, 20 kW Peak Power Rating
- Horizontal Polarization
- Omnidirectional
- 2.0:1 Nominal, 2.5:1 Maximum VSWR
- Short-to-Medium Range Communications
- No Resistive Loading, Switching or Tuning

Bulletin 1420

Patented SPIRA-CONE

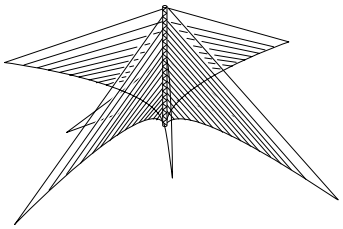
The unique patented SPIRA-CONE antenna, which is a GRANGER® HF type, permits simultaneous radiation in high-and low-angle modes without frequency restriction.



1794 Monocone

- 1.6 - 32 MHz Frequency Range
- 40 kW Average 160 kW Peak Power Rating
- Vertical Polarization
- Omnidirectional
- 2.0:1 Maximum VSWR
- Long-Range Communications (Skywave)
- Short-Range Communications (Groundwave)
- Low Angle Radiation Patterns
- Minimum Installation Ground Area

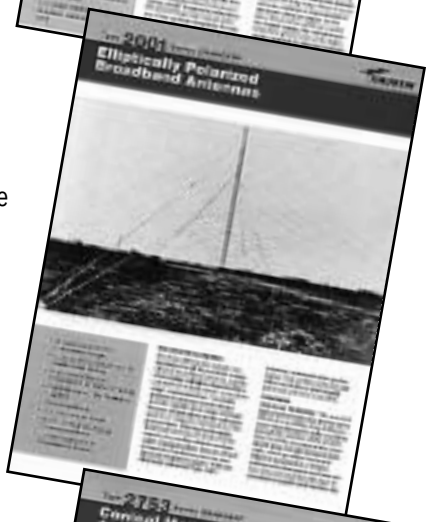
Bulletin 1421

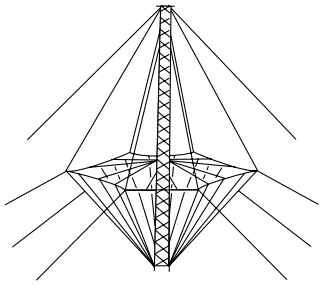


2001 Elliptically Polarized Broadband

- Broadband 2 - 30 MHz Frequency Range
- Up to 25 kW Average, 50 kW Peak Power Rating
- Horizontal-Elliptical Polarization to Reduce Fading
- Full Efficiency - No Resistive Loading
- 2.0:1 Maximum VSWR
- Short- to Medium-Range Communications
- On-Site Selection of Polarization Sense

Bulletin 1422

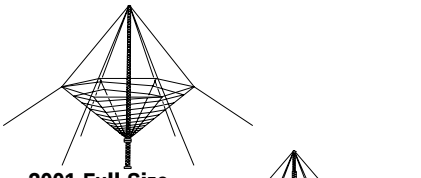




2753 Conical Monopole

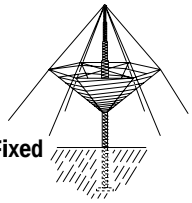
- 6:1 Bandwidth Permits Frequency Change without Antenna Tuning
- Up to 50 kW Peak Power Rating
- 50-ohm Input Provides 2.0:1 VSWR without Impedance Transformers
- A Space Saving Antenna for Ground-to-Air and Shore-to-Ship Transmission
- Short-, Medium-, and Long-Range Communications

Bulletin 1531

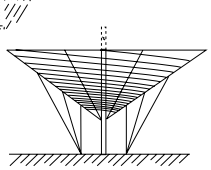


3001 Full Size

3003MT Transportable



3004 Fixed

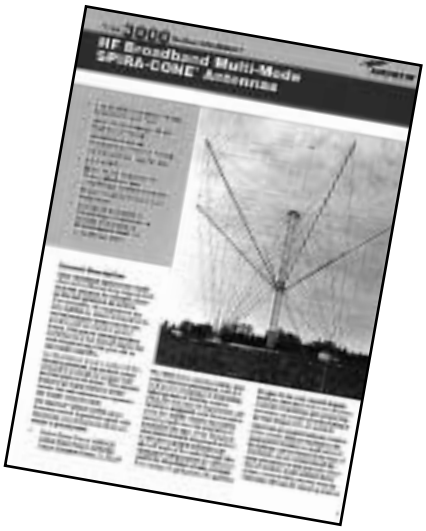


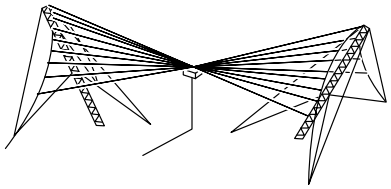
3002 Roof Mount

3000 Broadband Multi-Mode SPIRA-CONE ®

- 2 to 30 MHz Frequency Range, Dependent Upon Type
- Up to 25 kW Average, 50 kW Peak Power Rating
- Horizontal-Elliptical Polarization to Reduce Fading
- Omnidirectional Log-Periodic
- 2.0:1 VSWR
- Multi-Mode Capability for Short-, Medium-, and Long-Range Communications
- Single Tower for Simplicity of Installation
- Innovative Switching or Combining of Radiators to Provide Switchable or Simultaneous Short- or Long-Range Mode

Bulletin 1405

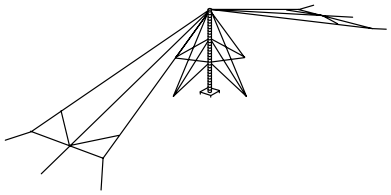




3065 Broadband Dipole

- 1.6 - 30 MHz Frequency Range
- Up to 2.5 kW Average, 5 kW Peak Power Rating
- Horizontal Polarization
- Omnidirectional
- 2.3:1 Maximum VSWR
- Short-to-Medium Range Communications
- No Resistive Loading, Switching or Tuning
- Minimum Installation Ground Area

Bulletin 1430

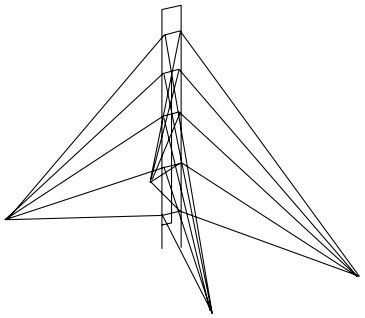


4065 Horizontally Polarized, Transportable

- 2 - 30 MHz Frequency Range
- 1 kW Average, 2 kW Peak Power Rating
- Horizontally Polarized
- Omnidirectional
- 2.0:1 VSWR
- Short- to Medium-Range Communications
- Tactical

Bulletin 1532

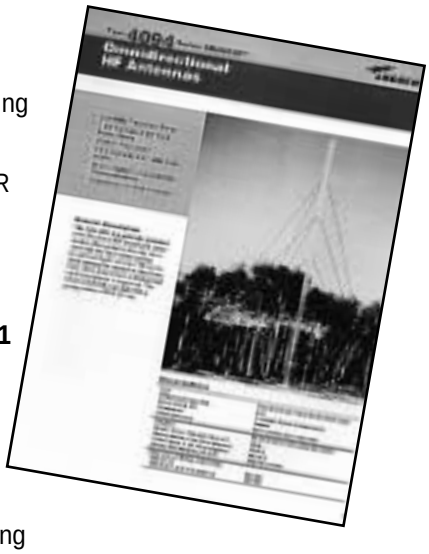
ANDREW®

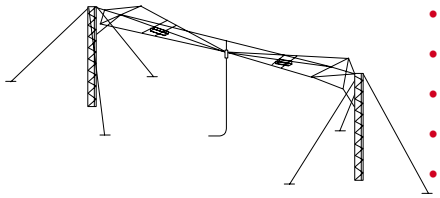


4094 Omnidirectional

- 2 - 30 MHz Frequency Range
- 1 kW Average, 2 kW Peak Power Rating
- Vertical Polarization
- 2.5:1 Nominal, 3.0:1 Maximum VSWR
- Short-, Medium-, and Long-Range Communications
- Deployable or Fixed Versions

Bulletin 1431





5065 Broadband Compact Dipole

- 2 - 30 MHz Frequency Range
- 1 kW average, 2 kW Peak Power Rating
- Horizontal Polarization
- 2.5:1 Nominal VSWR
- Short- to Medium-Range Communications
- Compact Roof Mountable

Bulletin 1534