

# Horizontally Polarized Transportable HF Antennas

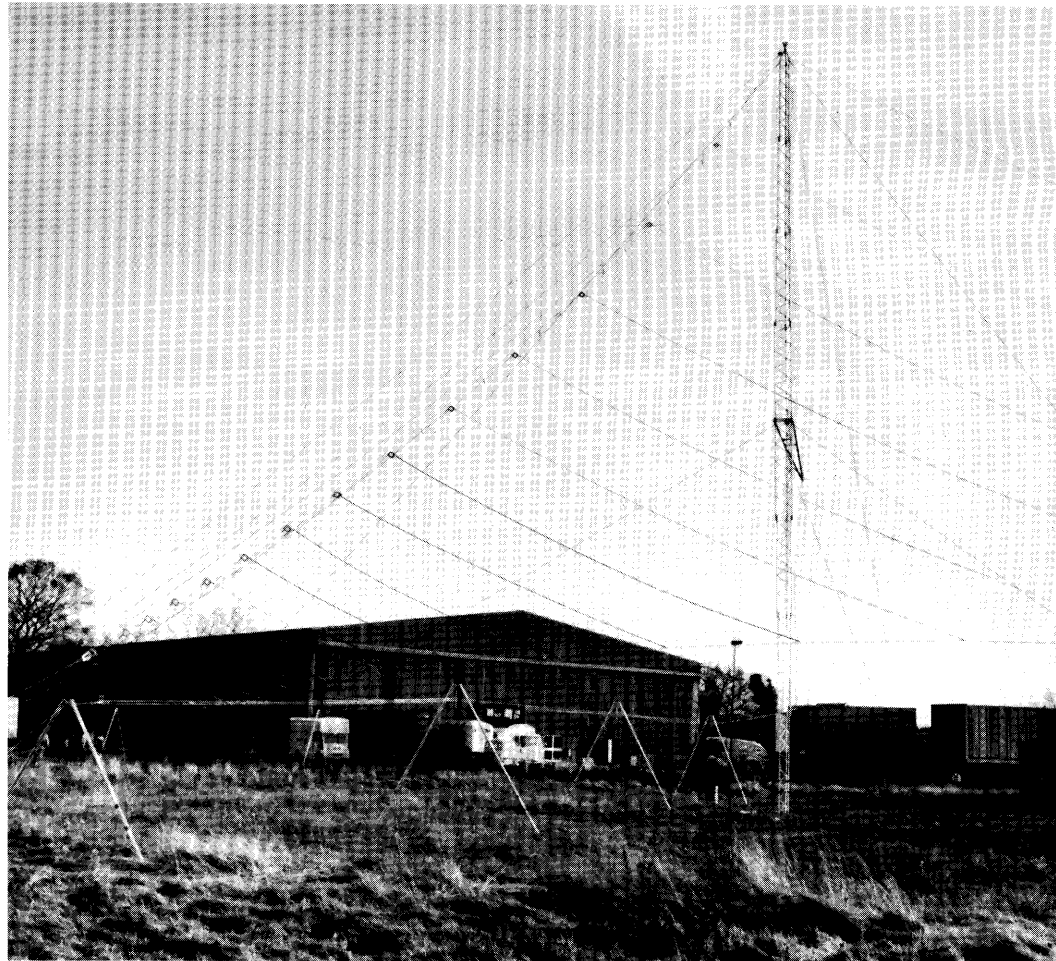
- 2-30 MHz or 4-30 MHz Frequency Range with Single Input
- Up to 20 kW Average 40 kW Peak Power Rating
- Horizontal Polarization
- Transportable Directional Log Periodic
- 2.0:1 Nominal, 2.5:1 Maximum VSWR (2.0 MHz Version)
- Short-, Medium-, and Long-Range Communications

## General Description

The Type 747CD high performance, log periodic antenna is lightweight, transportable, easy to erect and provides high gain and directivity with proven reliability. It is designed for short, medium and long range communications with a frequency range of 2 to 30 MHz or 4 to 30 MHz. One balun transformer is supplied for the 2 to 30 MHz range. A complete set of tools and winches, a special erection fixture and an instruction manual are also provided with the system.

## Adaptability

For HF communications stations situated in hurricane and typhoon zones, the 747CD Series offers quick restoration of operational antenna circuits which are damaged by storms. When such damage occurs, the antenna can be erected and, with some advance preparation, made operational in less than two hours. The advance work includes selecting a tower site, burying the guy and catenary anchors in position and permanently installing the transmission line from the transmitter. The antennas are easy to erect. The 75 ft (22.9 m) tower which supports the antenna is supplied in nested sections with a special erection fixture that simplifies installation.



Only two sets of guys are required. There are no locking latches, sliding sections or elaborate cable and pulley arrangements to malfunction; the design simplicity increases ease of assembly and reliability.

## Transportability

All versions of the 747CD are sufficiently lightweight to be air transportable. They can also be moved from one location to another by truck or other ground vehicle. Transportable weight and volume of each version are listed in the shipping information.

## Strength and Durability

The 747CD Series antennas are built to withstand harsh environments and repeated setup and takedown in the field. The single central tower, which

supports each antenna, is fabricated of 6061-T6 aluminum alloy, a material extremely resistant to corrosion. The feedline and radiator assembly, prefabricated in a single unit, is of high strength Calsun-bronze wire. Spacers are of high-purity alumina ceramic.

The tower has a rigid triangular truss configuration, with tubular vertical members that reduce frontal area and frictional wind drag. It is secured by two sets of "Parafil" rope guys attached to galvanized steel anchors 3.5 feet (1.05 m) long.

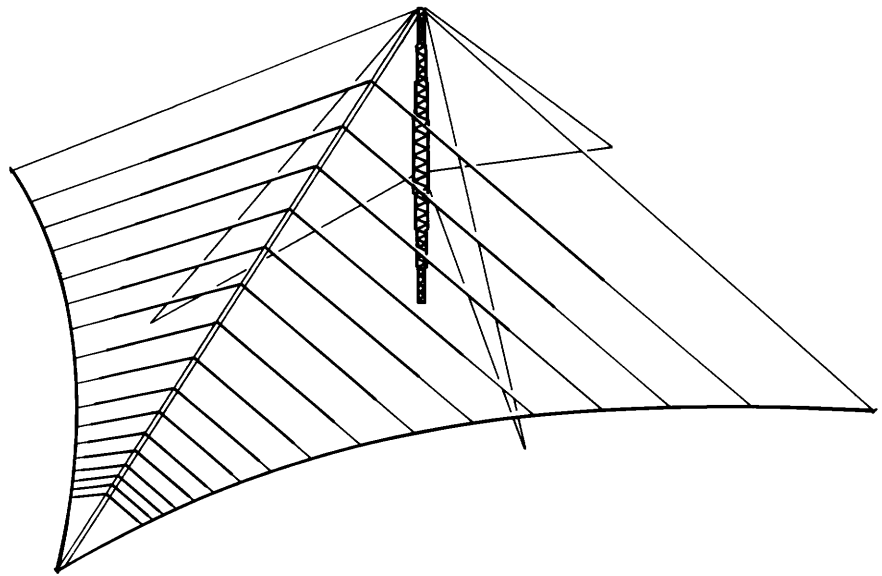
The antenna elements are made of materials that resist the effects of corrosive agents such as salt spray, as well as ultraviolet light, arcing or corona.

Organic plastics, which tend to carbonize under some of these conditions, are not used.

**Optional 4-30 MHz Compact Antenna**

This series is offered as an optional configuration when available ground area is limited. Except for operating frequency, weight and size, the performance characteristics and operating features are similar to the standard series. The frequency range can be extended from 4-30 MHz to 2-30 MHz through use of an optional field conversion kit. An additional type, 747CD-44, with power ratings of 20 kW average 40 kW peak is available to meet higher power requirements.

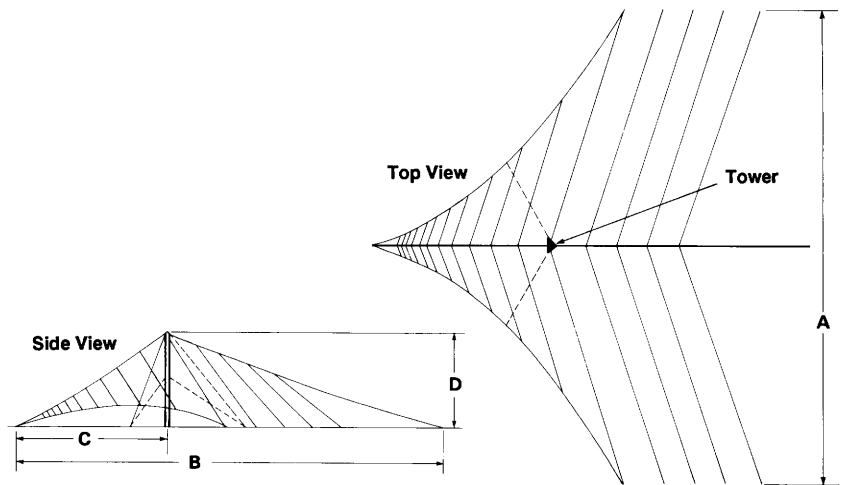
Partial List of Users of 747CD  
 Horizontally Polarized Transportable Antennas: U.S. Army, Air Force, Marine Corps and Navy; Australian Army and Air Force; U.K. Ministries of Defense and Aviation; NATO; and the Canadian and French Governments.



**Characteristics**

	Standard Series	Compact Series
Frequency Range, MHz	2-30	4-30
Polarization	Horizontal	Horizontal
VSWR without Resistive Loading, max.	2.0:1 (2.5:1 below 4.2 MHz)	2.0:1
Input Impedance, ohms	50	50
Gain	See Page 3	See Page 3
Azimuth Plane Half-Power Beamwidth, degrees		
2-4 MHz	essentially omnidirectional	—
4-30 MHz	60	60
Elevation Plane Pattern	See Page 3	See Page 3
Max. Length of Any Part When Packed, ft (m)	10 (3.0)	10 (3.0)
Wind Survival Rating, mph (km/h)		
Without ice	100 (160)	100 (160)
With 0.5 in (12 mm) Radial Ice	50 (80.5)	50 (80.5)
Erection Time (average ground)	2 hours with a 5-man crew	

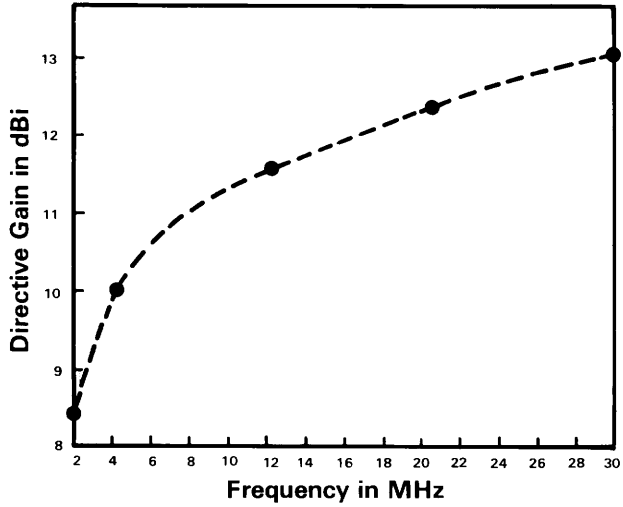
**Antenna Dimensions**



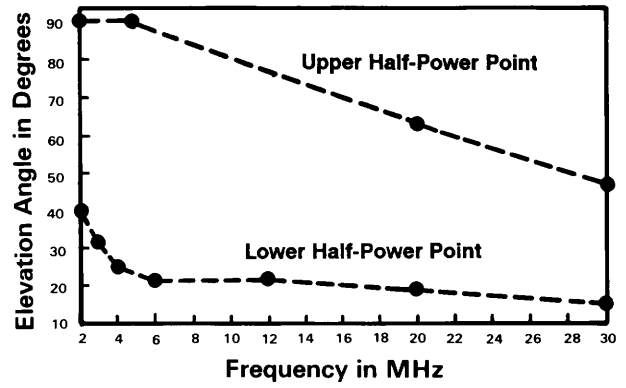
**Dimensions**

	A ft (m)	B ft (m)	C ft (m)	D ft (m)
Standard Series 2.0-30 MHz	317.5 (96.8)	328.3 (100.1)	120 (36.6)	75 (22.9)
Compact Series 4.0-30 MHz	303 (92.4)	186 (56.7)	120 (36.6)	75 (22.9)

### Directive Gain vs. Frequency

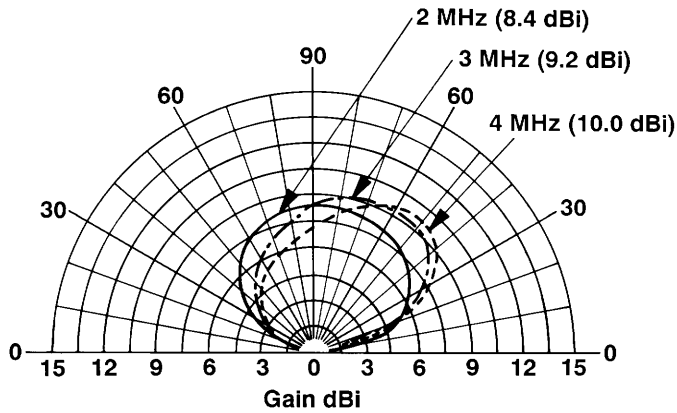


### Elevation Plane Coverage

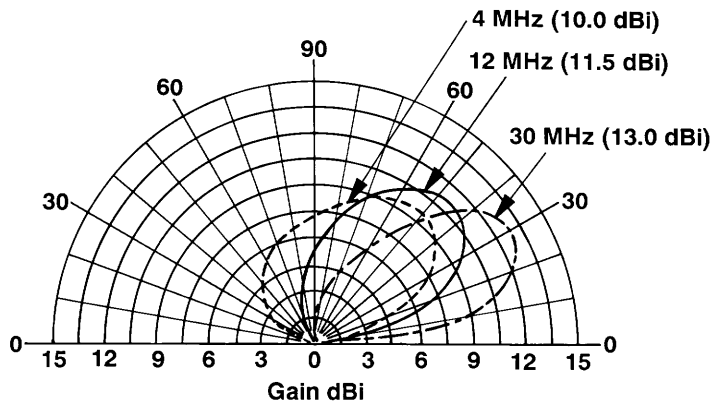


### Elevation Plane Radiation Patterns (Directive Gain in dB Relative to Isotropic)

#### Frequency in MHz, 2-4 MHz Range



#### Frequency in MHz, 4-30 MHz Range



## Ordering Information

Type Number	Frequency Range MHz	Power Rating kW		Input Connector Female
		Average	Peak	
747CD-2	2 - 30	Receive only		Type N
747CD-3	2 - 30	1	2	7/8" EIA
747CD-7	2 - 30	10	30	1-5/8" EIA
747CD-9	2 - 30	2.5	30	7/8" EIA
747CD-11	2 - 30	20	40	1-5/8" EIA
747CD-42	4 - 30	Receive only		Type N
747CD-43	4 - 30	1	2	Type N
747CD-44	4 - 30	20	40	1-5/8" EIA
747CD-47	4 - 30	10	30	1-5/8" EIA
747CD-49	4 - 30	2.5	30	7/8" EIA



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**Andrew Corporation**  
10500 West 153rd St.  
Orland Park, IL 60462  
U.S.A.  
**From North America:**  
1-800-255-1479  
Fax: 1-800-349-5444  
Intl.: 708-873-2307  
Fax: 708-349-5444

**Andrew Canada, Inc.**  
606 Beech Street, West  
Whitby, Ontario, Canada  
L1N 5S2  
Tel: 905-668-3348  
Fax: 905-668-8590

**Andrew Ltd.**  
Ilex Building, Mulberry  
Business Park  
Fishponds Road  
Wokingham, Berkshire  
England, United Kingdom  
RG41 2GY  
Tel: +44 118-936-6700  
Fax: +44 118-936-6777

**Fax-on-Demand**  
From North America:  
1-800-861-1700  
International:  
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