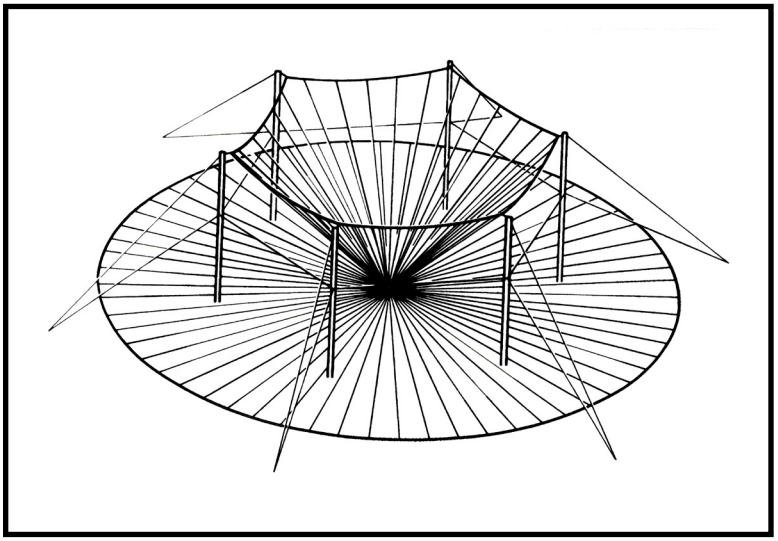
KRATOS
READY FOR WHAT'S NEXT™

794 Series Granger Monocone HF Antennas

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

General Description

The 794 Series MONOCONE antennas have been designed for high-power area coverage transmission, and are particularly suited to ship/shore, ground air and HF broadcast applications. The broad frequency range permits use of the optimum frequency for any distance, while the radiation patterns are suitable for sky-wave propagation at medium or low ranges, supplemented by ground-wave propagation at short ranges. The antennas perform efficiently at all frequencies within the specified ranges. There are no frequencies which must be avoided because of high VSWR, poor radiation patterns or any other causes.



Features

Use with two or more Transmitters. The extremely broad frequency range of the 794 Series antennas can be devided into two or more ample sub-ranges, each available to a separate transmitter. For this purpose, a high-power transmitting multicoupler is available. A typical system is diagrammed in figure 2. The multicoupler does not require tuning, and each transmitter functions within its allotted bandwidth as though the other were not in the circuit. A system coupling four transmitters to the 794 antenna is diagrammed in figure 3.

Strength and Durability

All exposed materials are highly corrosion resistant-aluminum, copper, epoxy-bonded fiberglass and stainless steel fittings. These materials form a simple, symmetrical, flexible structure. Radiators of aluminum-clad stranded steel cables, stronger than any copper or bronze and of equal conductivity, lengthen the service life of an antenna exposed to heavy gusts of wind and continuous vibration. Aluminum protects the steel effectively in highly corrosive industrial, marine and tropical atmospheres. The steel is protected from nicks or scratches by a coat of aluminum oxide formed by electrolysis. Whenever dissimilar materials must be joined, fittings of non-magnetic stainless steel are used so that corrosive electrolytic action cannot occur.

Ground screens are fabricated of copper radials, brazed to a copper ground plate at the apex of the cone and grounded at the perimeter to copper-clad steel rods driven five feet deep. Guys are epoxy-bonded fiberglass rod, a non-conducting material which cannot distort the radiation pattern. The guys are as strong as steel but far more elastic, enabling them to stretch to relieve wind loads without being permanently elongated. The epoxy binder, unlike many non-metallic materials, will not absorb water and salts; and is thus not subject to becoming conductive nor to burning in fields of intense radiation.

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Ease of Installation

The antenna is available for use with either of two types of customer supplied vertical supports: standard utility poles or two piece poles. It is shipped largely pre-assembled to facilitate erection.

Radiation Patterns

The elevation plane radiation patterns shown illustrate the capability of the antennas for communication at greatly varying distances. The solid lines are patterns over perfectly conducting ground for all MONOCONE™ antennas. Note that at higher frequencies, generally used for long-range skywave transmission, radiation is concentrated at the low-elevation angles required. At the lower frequencies, useful for shorter ranges, the patterns show greater gain at higher angles required for skywave transmission, while preserving sufficient gain at low angles to facilitate groundwave propagation.

The broken lines show the pattern over average soil for the 2-30 MHz antenna with the ground screen provided. Patterns for the 2.5-32 MHz and 3-32 MHz antenna will be similar. Average soil is defined to have a coductivity of .012 mhos/meter and a relative dielectric constant of 15.

The patterns shown are representative of the entire frequency range. there are no frequencies within the specified ranges at which the pattern deteriorates significantly from those shown.

Accessories

The following accessories are available for ease of installation and maintenance: tower lighting kit, erection kit, paint kit, tool kit, lightning rod kit, anti-climbing kit, and spares kit.

Characteristics

Type	HF MONOCONE
Frequency Range, MHz	2-30, 2.5-30 or 3-30
Power Rating, KW	Up to 40 average, 160 peak
Polarization	Vertical
VSWR	2.0:1 maximum
Azimuth Plane Radiation Patterns	Circular within ± 0.75 dB
Elevation Plane Radaiation Patterns	See pages 2 and 3
Wind survival Rating, mph (km/h)	
Without Ice	120 (190)*
With 1/2 in (12mm) Radial Ice	100 (160)

* Higher environmental capabilities available upon request

Typical VSWR Plot vs. Frequency for a 3 to 32 MHz MONOCONE

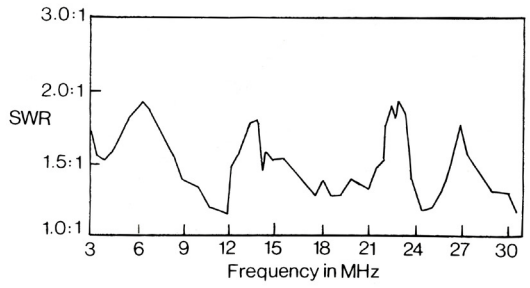
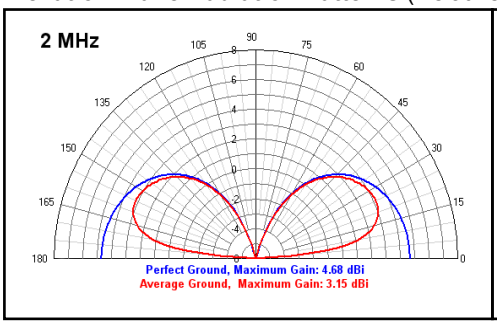
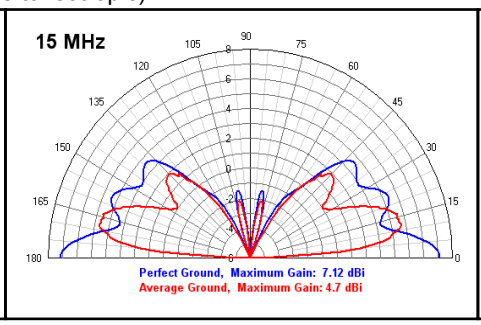
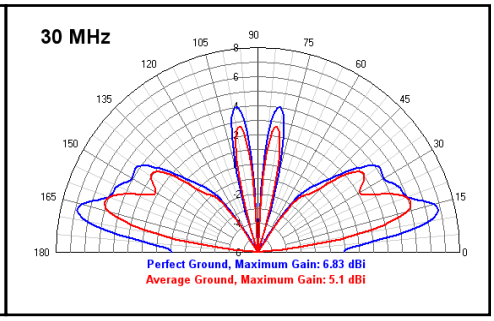


Figure 1. Typical plot of VSWR vs frequency for 3 to 32 MHz MONOCONE

Elevation Plane Radiation Patterns (Relative to Isotropic)







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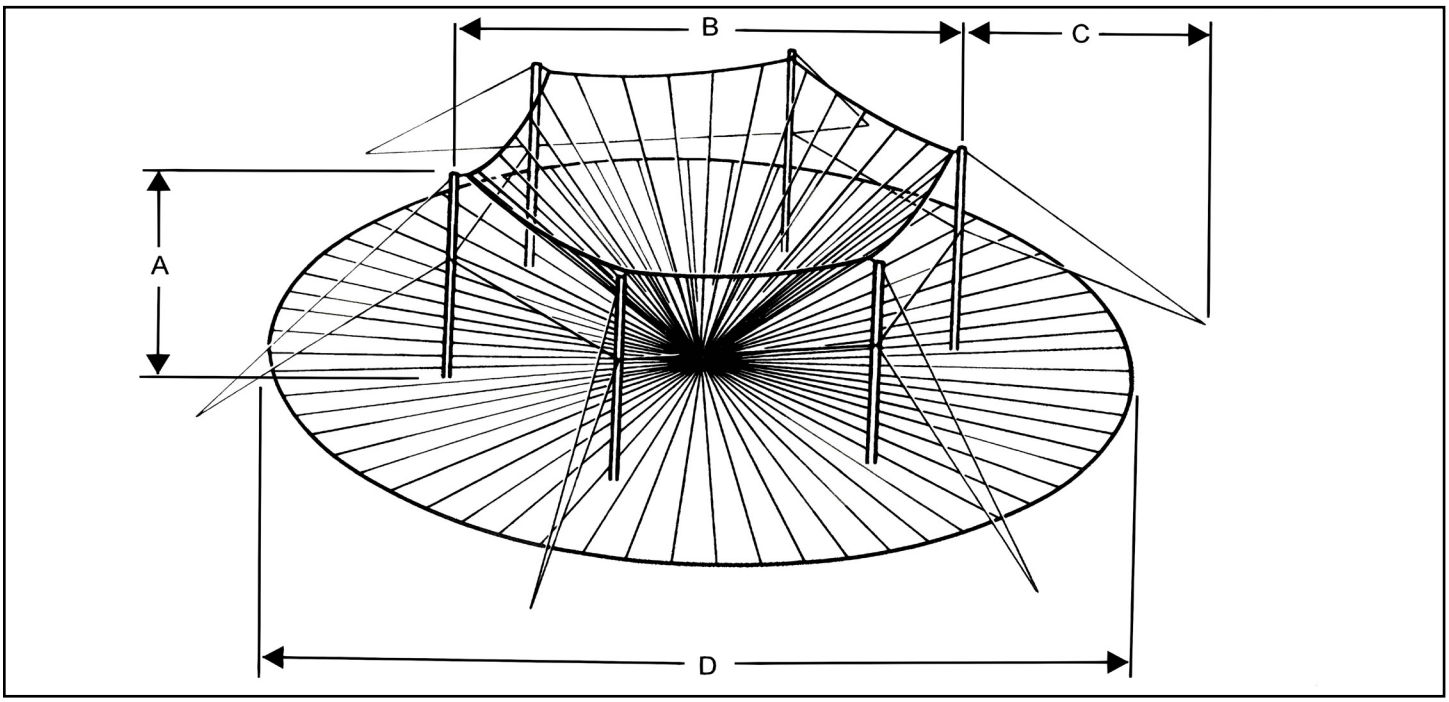

Ordering Information

Type Number*	Frequency Range, MHz	Power Rating, KW		Input Connector	Dimensions			
		Average	Peak		A, ft (m)	B, ft (m)	C, ft (m)	D, ft (m)
Without Support Poles								
794-101-1	2.0-30	20	70	1-5/8" EIA	71 (22)	140 (43)	70 (21)	246 (75)
794-101-2	2.0-30	40	160	3-1/8" EIA	71 (22)	140 (43)	70 (21)	246 (75)
794-101-3	2.0-30	Receive Only		50 Ohm 'N' Jack	71 (22)	140 (43)	70 (21)	246 (75)
794-101-4	2.0-30	3	10	7/8" EIA	71 (22)	140 (43)	70 (21)	246 (75)
794-102-1	2.5-32	20	70	1-5/8" EIA	57 (17)	112 (34)	56 (17)	196 (60)
794-102-2	2.5-32	40	160	3-1/8" EIA	57 (17)	112 (34)	56 (17)	196 (60)
794-102-3	2.5-32	Receive Only		50 Ohm 'N' Jack	57 (17)	112 (34)	56 (17)	196 (60)
794-102-4	2.5-32	3	10	7/8" EIA	57 (17)	112 (34)	56 (17)	196 (60)
794-103-1	3.0-32	20	70	1-5/8" EIA	48 (15)	94 (29)	47 (14)	164 (50)
794-103-2	3.0-32	40	160	3-1/8" EIA	48 (15)	94 (29)	47 (14)	164 (50)
794-103-3	3.0-32	Receive Only		50 Ohm 'N' Jack	48 (15)	94 (29)	47 (14)	164 (50)
794-103-4	3.0-32	3	10	7/8" EIA	48 (15)	94 (29)	47 (14)	164 (50)
With Support Poles								
794-105-1	2.0-30	20	70	1-5/8" EIA	71 (22)	140 (43)	70 (21)	246 (75)
794-105-2	2.0-30	40	160	3-1/8" EIA	71 (22)	140 (43)	70 (21)	246 (75)
794-105-3	2.0-30	Receive Only		50 Ohm 'N' Jack	71 (22)	140 (43)	70 (21)	246 (75)
794-105-4	2.0-30	3	10	7/8" EIA	71 (22)	140 (43)	70 (21)	246 (75)
794-106-1	2.5-32	20	70	1-5/8" EIA	57 (17)	112 (34)	56 (17)	196 (60)
794-106-2	2.5-32	40	160	3-1/8" EIA	57 (17)	112 (34)	56 (17)	196 (60)
794-106-3	2.5-32	Receive Only		50 Ohm 'N' Jack	57 (17)	112 (34)	56 (17)	196 (60)
794-106-4	2.5-32	3	10	7/8" EIA	57 (17)	112 (34)	56 (17)	196 (60)
794-107-1	3.0-32	20	70	1-5/8" EIA	48 (15)	94 (29)	47 (14)	164 (50)
794-107-2	3.0-32	40	160	3-1/8" EIA	48 (15)	94 (29)	47 (14)	164 (50)
794-107-3	3.0-32	Receive Only		50 Ohm 'N' Jack	48 (15)	94 (29)	47 (14)	164 (50)
794-107-4	3.0-32	3	10	7/8" EIA	48 (15)	94 (29)	47 (14)	164 (50)

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