



1.8/1.9MHz Super-Compact Dipole Antenna

CD160-x , CD160L

☆ 1.8MHz(3-CH), 1.9MHz(1-CH)



Model CD160

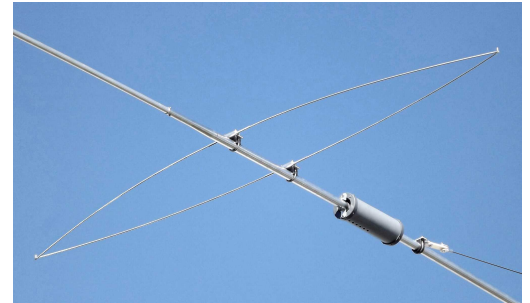


Antenna Tuning Unit BS83



Remote Controller
(Controller: Provided in kit form)

* Power Supply Required:
Approx. 13VDC 0.2~0.4A
(Not Required for CD160Jr)



5kW Loading Coil

Loading coil & capacity-rod that determines efficiency. 5kW uses air-cavity type coil for improve heat ventilation

The CD160-Series is a super-compact type dipole antenna for 1.8MHz bands, having 3 types of element length ranging from 17~26m of which reduced scale of this series is 21~32% against full-sized mechanical wave length. In a V-type dipole antenna generally available, the main radiation rob become maximum toward overhead because average height is respectively low as height of both element ends is enevitably low, hence this leads the gain of low take-off angle into dropping accordingly. By installing this antenna at a certain height level above the ground, these problems would improve significantly and adjacent interference, a reducing a noise could also be expected eventually if it is in use with a rotator.

The CD160 takes into account a numerous implementation to improve electrical performance. Adopting Hi-Q (low-loss) loading coil and capacity increases electrical performance by approximately -3.5~1.5dB, with effective radiation efficiently, which is all but similar to a full-sized dipole practically. A relay controlled type ATU for 1.8-1.9MHz is equipped in the feed section, makes each band match with maintaining low VSWR enable to RF radiation effectively (CD160Jr is for receiving only and the ATU equipped is for 1 band only).

Mechanically, a rugged structurally design and material selection is taken into consideration. An heat-resist loading coil and high-tension thick diameter of aluminum alloy tubes are used for element tubing with swaged-processed that makes this antenna to be light weight and less wind surface area. It offers a high mechanical durability.

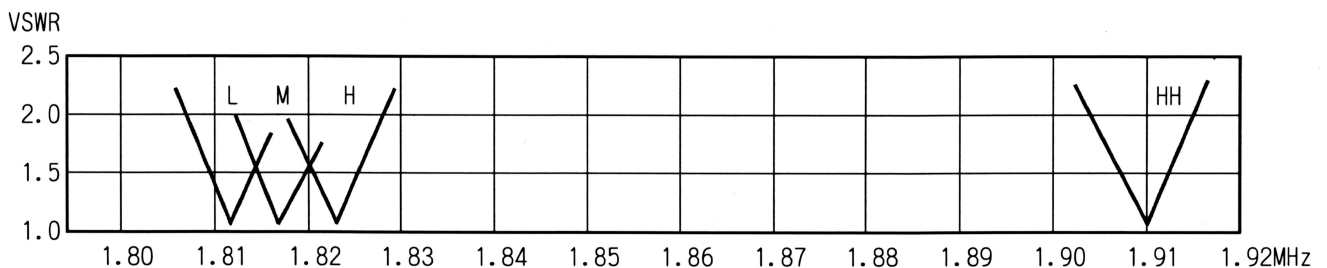


Figure 1A. VSWR Curve, CD160

Specification • Feature	CD160 Jr	CD160	CD160-5	CD160L	CD160L-5
Frequency	1.8 ~ 1.9MHz	1.8 - 1.9 MHz	1.8 - 1.9 MHz	1.8 - 1.9 MHz	1.8 - 1.9 MHz
Gain: Free Space/1.8MHz.	-3dBi	-1.5dBi	-0.3dBi	-0.3dBi	0.5dBi
Impedance (Connector)	50 Ω (-M-)	50 Ω (-M-)	50 Ω (-N-)	50 Ω (-M-)	50 Ω (-N-)
VSWR(at the best point)	Less than 1.3	Less than 1.3	Less than 1.3	Less than 1.3	Less than 1.3
Power CW (Duty 50%) / PEP	30W/100W	1kW/2kW	5kW/10kW	2kW/4kW	5kW/10kW
Element Length Nominal	17.2 m	19.9 m	21.6 m	25.8 m	25.8 m
Weight	12 kg	18 kg	21 kg	31 kg	35 kg
Mast Diameter	φ 48 ~ 61 mm	φ 48 ~ 61 mm	φ 48 ~ 61 mm	φ 48 ~ 61 mm	φ 48 ~ 61 mm
Survival Wind Speed	35 m/s	35 m/s	35 m/s	35 m/s	35 m/s
Wind Surface Area, Wind Load (35m/s)	0.5m ² , 46kgf	0.68m ² , 62kgf	0.72m ² , 66kgf	0.95m ² , 87kgf	1.0m ² , 92kgf

CMN-1612

CD160Jr : This is a model for receiving purpose, and is the most compact type among this series. Those who uses vertical polarized type of antenna for both receiving and transmission but wish to receive horizontally would meet the demands. Although 1-CH type ATU is equipped in the feed section, a sufficient receiving sensitivity across the entire bandwidth would be assured.

CD160 : This is a antenna that the size of element is minimum limited that allows to operate in a practical way. Making further reducing the scale type is possible, but operability deteriorates due to narrower bandwidth maintaining stable VSWR, drawback a drift of frequency etc. The gain of this antenna is approx. -3.5dB in comparison with that of a full-size dipole however, far have a superiority to those of inverted V antenna can offers.

CD160-5 : This is a model that updated CD160 durable to higher power input, and is advantageous in terms of its gain and frequency-drift. As a high-powerizing of a antenna needs inevitably large high Q loading coil, this lets inevitably narrow-band-ability of VSWR characteristics, hence provides 1.8:1 VSWR with 5kHz bandwidth per 1-CH. The model comes with element-guy kit.

CD160L : This is a longer element type of CD160 offers higher specification enhanced to gain, VSWR characteristic, and frequency-drift as well. This is a longer element type of dipole progressed from CD160 offers several enhancements, gain, VSWR characteristic, and restraining against frequency-drift as well. An element-guy kit is included.

CD160L-5 : This CD160L-5 is a high power type model modified from model CD160L. Except power durability, the electric specification is the same as that of CD160L and CD160-5. The bandwidth per 1-CH is 5kHz maintaining VSWR around 1.5:1. The antenna includes element-guy kit.

A MERIT OF ROTATABLE HORIZONTAL DIPOLE

Although it might be of advantage that those vertically-polarized radiational antennas radiating at low take-off angle can offer is ideal for DX communication, and prone to consider that those vertical polarized antennas are better than a horizontal antennas, particularly for the communication in low bands. However, vertical antennas have less ground-reflection, and the gain at maximum radiation angle is greatly dropped down. Fig. A shows the radiation pattern of both horizontal plane and vertical plane when CD160L is installed on 30m above the ground. In the take-off angle at above 30° however, the gain of horizontal type antenna have precedence over vertical polarized antenna, while surpass slightly when the angle is below in vertical polarized antennas. Generally however, propagation that transmitted RF wave is reached to other side inevitably involves ground reflection by means of ionospherically bounds, horizontal polarized antennas are of advantage ahead and are ideal for their higher effective reflection-ability. With being "oval" shape radiation pattern that horizontal polarized antenna is innate, could bring a merit by rotating it with use of a rotator than non-directional antennas in terms of S/N ratio. Although it refers to 1dB higher gain than CD160L at maximum take-off angle in a full-sized inverted V DP antenna at V-angle setting at 100 degree on the height of 30m above the ground, CD160 surpass it when setting is less than 20 degree.

—— Horizontal GAIN: 4.7dBi Free Space GAIN: -0.3dBi
 - - - - - Vertical GAIN: -1.3dBi Height: 30m

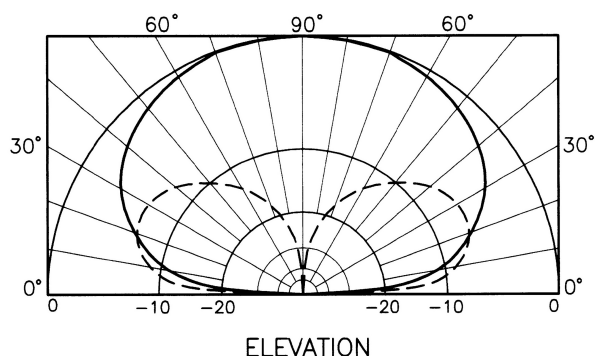


Figure A. CD160L, Radiation Pattern of Reduced Dipole