

# Installation Instruction

[VCD-VL/VH series]

## Introduction

The VCD antenna is a vehicle fitted covert dipole antenna, available in 2 versions:

**VCD-VL** for VHF low band (4m band) 66-88MHz.

**VCD-VH** for VHF High band (2m band) 145-175MHz.



It is important that the correct version is used as the antenna incorporates a matching section, that is specific to the frequency band.

The antenna elements are made of flexible wire to enable installation in difficult locations.

## Planning the Installation

The antenna location will vary depending on the vehicle.

Mobile radio systems usually operate with vertically polarised antennas, so it is desirable to mount the antenna with at least the radiating element (with red cap) as close to vertical as possible. The groundplane element can be positioned horizontally if required, but must not be coiled up.

The antenna should be fitted on a non-conductive panel, with as much separation from the vehicle chassis as possible.

The antenna is supplied with full length elements and will need to be tuned on the vehicle in the installed location. An antenna analyser that can sweep the required frequency band will make this task simpler.

## Installing the Antenna

Temporarily fit the antenna in the selected location and secure the elements in position.

Both elements can be cut to a little over a  $\frac{1}{4}$  wave length\* as a starting point.

Route the coaxial cable as below and fit connector.

Set up analyser for desired frequency range and connect to antenna.

Reduce the length of both elements evenly, a little bit at a time, taking a measurement after each adjustment.

A VSWR of  $< 2.5:1$  in the transmit band should be considered acceptable for this type of antenna installation.

## Routing and Terminating Coaxial Cable

Route coax cable to transceiver, taking care to avoid running adjacent to existing vehicle wiring or fouling any moving vehicle component. A suitable grommet should be used to protect the cable if routed through a vehicle bulkhead or panel.

**\*\*The cable must not be routed in front of any airbag device\*\*.**

Fit a suitable coaxial connector or adaptor (as applicable) to the cable.

## Final Test and Commission

Connect antenna to radio and carry out on air test.

**EMC Check** – with radio in transmit mode, check for any malfunction of vehicle electronic systems due to high RF fields. If this is observed, it may be necessary to re-position the antenna.

**\*To calculate:  $300 / \text{freq in MHz}$  gives wavelength in metres / 4 gives  $\frac{1}{4}$  wave.  
(where / = divide by)**