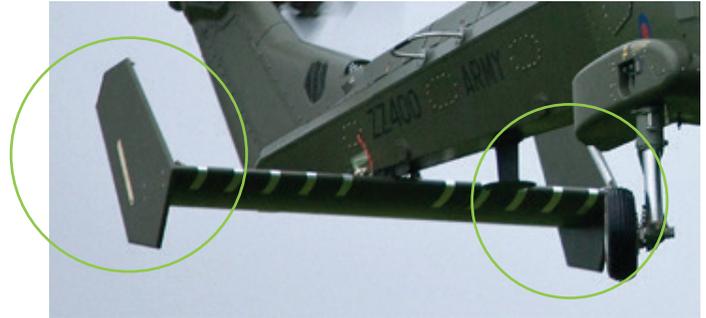


V/UHF IFF Antennas

Key features:

- **18-50A V/UHF IFF Antenna (Port)**
- **18-50B V/UHF IFF Antenna (Starboard)**



Cobham Antenna Systems are experts in the embedding of antennas into structures for aerodynamic, stealth and low RCS (Radar Cross Section) applications. One element of this capability is, in cooperation with Cobham Composite Technologies, to supply aircraft structural assemblies that incorporate antennas.

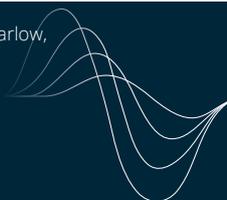
The 18-50 V/UHF IFF Antennas are handed, end plate antenna systems for installation on the port (18-50A) and starboard (18-50B) aircraft tail fin assemblies. The antennas are designed to provide communications over the frequency bands 30 MHz to 512 MHz and 1000 MHz to 1100 MHz.

The 18-50 antennas are configured as two separate radiating elements, one for V/UHF and the other for IFF (Identification Friend or Foe). The end plate is part metallised to ease the inclusion of lightning protection.

The V/UHF element is configured as a broadband top-loaded monopole. The lower portion of the end plate is metallised to act as a counterpoise for the element and to provide a source of grounding in order to optimize the RF performance commensurate with meeting the lightning specification.

The V/UHF element is configured as a broadband top-loaded monopole. The lower portion of the end plate is metallised to act as a counterpoise for the element and to provide a source of grounding in order to optimize the RF performance commensurate with meeting the lightning specification. The element is fed via a susceptance compensation network to maximize VHF gain. Frequency dependent resistive loading ensures compliance with the return loss limits.

The IFF function is fulfilled by a folded monopole based structure. The element is reactively matched and, being earthed, provides optimum capability to function after direct lightning attachment to the end plate. The antenna structure comprises a honeycomb filled end plate manufactured with E-glass skins. The radiating elements are located on one face, with the feed and matching networks enclosed within the fin. The two RF connectors are mounted on the inner face in line with the horizontal interface.



18-50A / 18-50B

CHELTON

V/UHF IFF Antennas



ELECTRICAL

| | |
|--------------------------|--|
| Frequency Ranges | 30 MHz - 88 MHz |
| | 118 MHz - 136 MHz |
| | 156 MHz - 174 MHz |
| | 225 MHz - 512 MHz |
| | 1000 MHz - 1100 MHz |
| VSWR | < 2.5:1 30 MHz - 88 MHz |
| | < 2.5:1 118 MHz - 136 Hz |
| | < 2.5:1 156 MHz - 174 MHz |
| | < 2.5:1 225 MHz - 512 MHz |
| | < 1.8:1 1000 MHz - 1100 MHz |
| Gain | dBi MHz |
| | > -23 30 |
| | > -10 88 |
| | > -7 118 |
| | > -3 dBi 174 |
| | > 0 dBi* 225 - 512 |
| | > 0 dBi 1000 - 1100 |
| | * average |
| Polarisation | Predominantly vertical when mounted on the aircraft |
| Radiation Pattern | Essentially omni-directional in azimuth |
| Power Rating | 25 W CW maximum 30 MHz-512 MHz 1.5 kW peak 0.04% duty cycle 1000 MHz-1100 MHz |
| Impedance | 50 ohm (nominal) |
| Connectors | TNC Type Female V/UHF N Type Female IFF |

ENVIRONMENTAL

| | |
|--------------------------|--|
| Altitude | MIL-STD-810F, Method 500.4, Procedures I and II Operational: 4,572 metres (15,000 feet) Storage: 15,220 metres (50,000 feet) |
| High Temperature | MIL-STD-810F, Method 501.4, Procedure II Operational: +70°C Storage: +90°C |
| Low Temperature | MIL-STD-810F, Method 502.4, Procedures I and II Operational: -40°C Storage: -55°C |
| Acceleration | MIL-STD-810E, Method 513.4, Procedure I 13.5 g all axes |
| Tropical Exposure | MIL-STD-810F, Method 507.4 |
| Lightning | DEF-STAN 59-113 Zone 1B |
| Shock | DEF-STAN 00-35, Part 3, Chapter 2-03, Test M3 |

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