

9-33-30

CHELTON

VHF/UHF/L-Band Antenna

The 9-33-30 is a combined VHF/UHF/L-Band broadband antenna designed to provide communications over the frequency bands 30 MHz to 512 MHz and 950 MHz to 1250 MHz. The antenna is intended for use in general subsonic airborne applications.

The 9-33-30 is configured as two separate radiating elements.

The VHF/UHF function is fulfilled by a broadband radiating element fed via an impedance matching network to optimise the VHF gain and a frequency dependent resistive matching network to achieve compliance with the return loss specification.

The L-band element is based on a folded monopole approach.

Decoupling networks are included in the VHF/UHF element to prevent corruption of the L-band elevation pattern.

The 9-33-30 comprises a pressure moulded blade of aerofoil section within which is housed the electrical assembly. The blade is enclosed by an aluminium alloy baseplate which supports the two RF connectors.

The structure is foam filled for optimum mechanical integrity.



ELECTRICAL

Frequency	30 MHz - 512 MHz 950 MHz - 1250 MHz
Gain	dBi MHz > -25 30 > -15 88 > -4 118 - 174 ≥ 0 average 225 - 512 ≥ 0 950 - 1250
VSWR	< 2.5:1 30 MHz - 512 MHz < 2.0:1 950 MHz - 1 000 MHz < 1.8:1 1000 MHz - 1100 MHz < 2.0:1 1100 MHz - 1250 MHz
Polarisation	Vertical when mounted vertically
Radiation Pattern	Omnidirectional in azimuth (nominal)
Power Handling	25 W CW (max) 30 MHz-512 MHz 1.5 kW peak, 15 W CW (max) 950 MHz-1250 MHz
Impedance	50 Ohms nominal
Connectors	VHF/UHF: TNC Type Female L-Band: N Type Female



VHF/UHF/L-Band Antenna

MECHANICAL

Dimensions (LxWxH)	330.20 x 65.53 x 173.48 mm (maximum)
Weight	1.14 kg (maximum)
Aerodynamic Loads	3500 kgf/m ² (5 psi) (minimum ultimate)
Aerodynamic Drag	19 N (1.95 kgf) at 250 knots EAS and 457.2 m
Mounting Configuration	8 holes fixed location

ENVIRONMENTAL

High Temperature	MIL-STD-810E, Method 501.3, Procedures I and II Continuous Operational: +120°C
Low Temperature	MIL-STD-810E, Method 502.3, Procedure I Operational: -54°C Storage: 57°C
Altitude	MIL-STD-810E, Method 500.3, Procedures I and II Operational: 15,240 m Storage: 15,240 m
Temperature Shock	MIL-STD-810E, Method 503.3
Vibration	MIL-STD-810E, Method 514.4, Procedure I, Category 4 0.01 g ² /Hz 15 to 2000 Hz L1 = 0.6 g ² /Hz at 68 Hz
Shock	MIL-STD-810E, Method 516.4, Procedures I and V Functional: 20 g, 11 ms, sawtooth Crash Hazard: 40 g, 11 ms, sawtooth
Rain	MIL-STD-810E, Method 506.3, Procedure I Normal operation when exposed to blowing rain
Humidity	MIL-STD-810E, Method 507.3, Procedure III 95% relative humidity at 60°C
Magnetic Effect	RTCA DO-160E, Section 15, Category Z Less than 1° deflection at 300 mm

