

# 12-227

# CHELTON

## Low Profile VHF Antenna

Type 12-227 is a high gain VHF antenna, of very low height, that provides for extremely efficient AM/FM communications (including secure speech frequency-hopping modes), while satisfying the twin requirements of low observability and low ground clearance as exists on a number of airborne platforms.

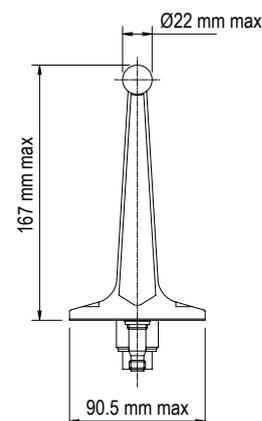
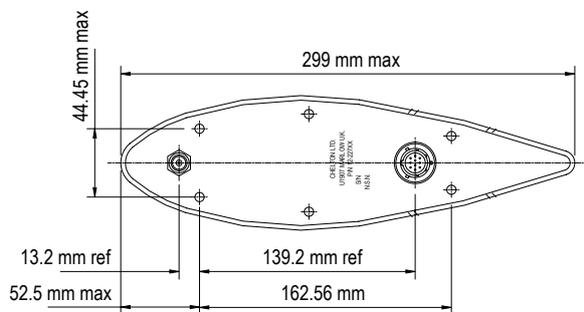
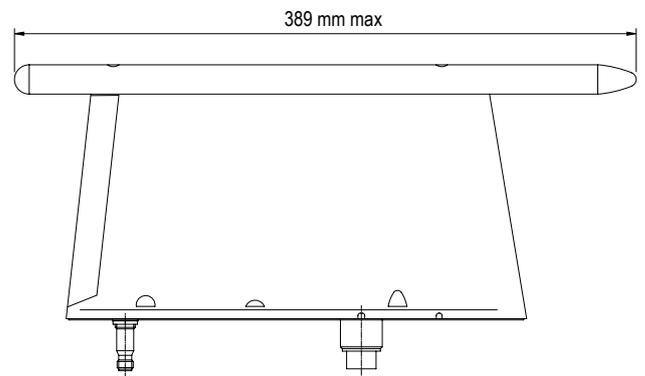
Designed and built to meet worldwide conditions of military service, the antenna is suitable for all helicopters and fixed wing aircraft operating up to MACH 1, and subject to side loading, for supersonic flight.

The **12-227** operates over the VHF frequency bands 30 MHz to 88 MHz and 108 MHz to 152 MHz.

The antenna uses PIN diode tuning technology to maximize both gain selectivity and total operating bandwidth.

Construction uses a rugged one-piece moulded composite shell surmounted by a stainless steel top loading element. An aluminium alloy base plate provides for fixing the antenna to the airframe, and careful design of internal ribs and base-to-shell load transfer ensures very high side loading acceptance.

A complete **12-227** system comprises the antenna, a Logic Converter Unit (LCU) such as Cobham Antenna Systems Type 7-AS186-2 and a VHF transceiver such as an ARC-186.



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### ELECTRICAL

<b>Frequency</b>	30 MHz - 88 MHz 108 MHz - 152 MHz
<b>Gain</b>	dBi                      MHz $\geq -13$ 30 $\geq -5$ 88 -3 dBi average,    108 - 152 -5 dBi minimum
<b>Polarisation</b>	Essentially vertical when mounted vertically
<b>Power Rating</b>	15 W CW
<b>Impedance</b>	50 Ohms nominal
<b>VSWR</b>	$\leq 2.5:1$ all bands
<b>Radiation</b>	Omnidirectional in azimuth (nominal) As per stud in elevation (nominal)
<b>Connectors</b>	RF: TNC Type Female DC: Type PT12-10P

### MECHANICAL

<b>Dimensions (LxWxH)</b>	167 x 389 x 90.5mm (maximum)
<b>Weight</b>	1.35 kg
<b>Connector</b>	6 holes fixed location

### ENVIRONMENTAL

<b>Altitude</b>	21336 m
<b>Temperature</b>	MIL-T-5422(AS), Para 4.1, Table II, Class 2 Operational:        -54°C to +71°C Intermittent:        +71°C to +95°C Storage:              -57°C to +95°C
<b>Vibration</b>	<b>MIL-STD-810D, Method 514.3, Procedure I modified</b> Resonance Search:    5 Hz        - 500 Hz@    0.5 g Helicopter Endurance:    8 Hz        - 500 Hz        @ 0.02 g2/Hz 15.0 MHz - 18.2 MHz @ 1.7 g pk 30.9 MHz - 35.5 MHz @ 2.5 g pk Aeroplane Endurance:    8 Hz        - 500 Hz        @ 0.02 g2/Hz 18.1 MHz - 21.6 MHz @ 2.0 g pk 37.1 MHz - 42.1 MHz @ 2.5 g pk <b>RTCA DO-160C, Section 8, Curve Y</b> Resonance Search:    5 Hz        - 200 Hz        @ 1 g Helicopter Endurance:    5 Hz        - 14 Hz        @ 0.2 ins pk-pk 14 Hz        - 200 Hz        @ 2 g
<b>Shock</b>	MIL-STD-810D, Method 516.3, Procedures I and VI RTCA DO-160C, Section 7, Paras 7.2 and 7.3.1
<b>Acceleration</b>	BS 3G 100: Part 2: Section 3:3.6, Class 1A 17 g all axes
<b>Humidity</b>	MIL-STD-810C, Method 507.1, Procedure III
<b>Fungus</b>	MIL-STD-810D, Method 508.3
<b>Rain</b>	MIL-STD-810D, Method 506.2, Procedure I modified Rain Fall: 203.2 mm/hr Wind Speed: 72.42 kph
<b>Ice/Freezing Rain</b>	MIL-STD-810D, Method 521.0, Procedure I modified Storage Temperature: -20°C
<b>Fluid Contamination</b>	BS 3G 100: Part 2: 3:3.12, Class A

