

# 12-437-13

# CHELTON

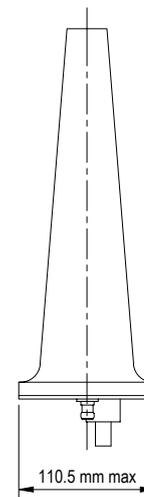
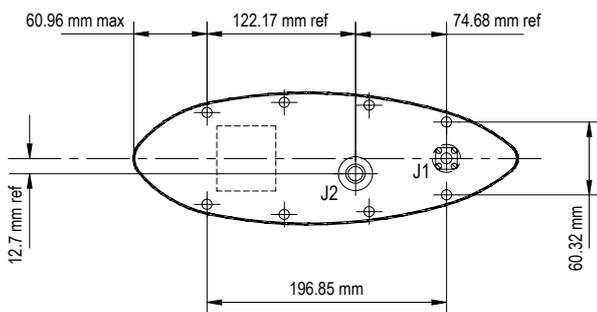
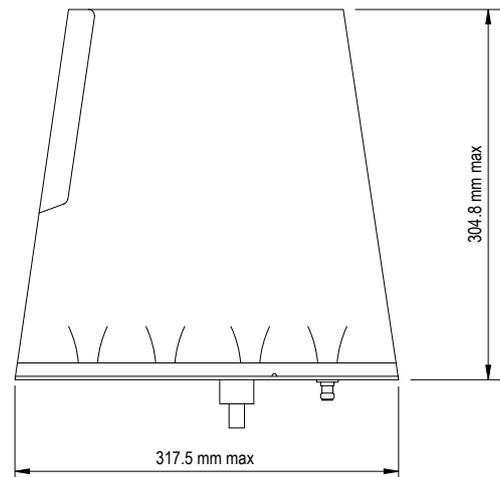
## UHF Broadband Antenna

The 12-437-13 is a broadband, multifunction, tunable blade antenna designed to work with the ARC 210 radio over the frequency ranges 30 MHz to 88 MHz, 108 MHz to 174 MHz and 225 MHz to 400 MHz. The antenna also includes 121.5 MHz and 243 MHz guard functions.

The antenna comprises two discrete radiating elements. A PIN diode tuned structure, whereby roughly binarily related lumped inductors are switched to tune a capacitive top loading element, is used to provide the VHF functions. The UHF antenna is configured as a simple fan monopole and passively matched. The two elements are combined by a diplexer to a single RF port.

The antenna blade comprises a pressure moulded composite shell which houses the tuning/matching circuitry and radiating element. This is enclosed by an aluminium alloy baseplate which supports the pcb and the two connectors.

A stainless steel leading edge strip is fitted for rain erosion protection.



## UHF Broadband Antenna

## ELECTRICAL

<b>Frequency</b>	30 MHz - 88 MHz 108 MHz - 174 MHz 225 MHz - 400 MHz
<b>Gain</b>	dBi                      MHz $\geq -14.5$ 30 $\geq -4.5$ 88 $\geq -3^*$ 108 - 174 $\geq 0^*$ 225 - 400 * average
<b>Guard Gain</b>	121.5 MHz $\geq -10$ dBi                      when tuned between 108 MHz and 156 MHz  243 MHz $\geq -7.5$ dBi                      when tuned between 30 MHz and 88 MHz $\geq -6$ dBi                        when tuned between 156 MHz and 174 MHz $\geq -2$ dBi                        when tuned between 225 MHz and 270 MHz $\geq -6$ dBi                        when tuned between 270 MHz and 400 MHz
<b>Polarisation</b>	Essentially vertical when mounted vertically
<b>Power Rating</b>	20 W cw (maximum)
<b>Impedance</b>	50 ohms nominal
<b>VSWR</b>	$\leq 2.5:1$ 30                      -                      88 MHz $\leq 2.5:1$ 108                     -                      174 MHz $\leq 2.3:1$ 225                     -                      300 MHz $\leq 2:1$ 300                     -                      400 MHz
<b>Connectors</b>	RF: TNC Female DC: D38999/49.WB.35PN

## MECHANICAL

<b>Dimensions</b>	304.8 x 317.5 x 110.5mm (maximum)
<b>Weight</b>	2.5kg (maximum)
<b>Mounting</b>	8 holes fixed location

## ENVIRONMENTAL

<b>Altitude</b>	MIL-STD-810B, Method 500, Procedure I 15240 m
<b>High Temperature</b>	MIL-STD-810B, Method 501, Procedure I Continuous Operation:    +55°C Intermittent Operation:    +71°C Storage:                        +85°C
<b>Low Temperature</b>	MIL-STD-810B, Method 502, Procedure I Operation:                      -54°C Storage:                         -57°C
<b>Acceleration</b>	MIL-STD-810B, Method 513, Procedure I 13.5 g all axes
<b>Shock</b>	MIL-STD-810C, Method 516.2, Procedures I and III Functional:                      20 g, 11 ms, sawtooth Crash Hazard:                   40 g, 11 ms, sawtooth
<b>Vibration</b>	MIL-STD-810C, Method 514.2, Procedure I, Category b1 Figure 514.2-2, Curve H
<b>Temperature Shock</b>	MIL-STD-810B, Method 503
<b>Rain</b>	MIL-STD-810B, Method 506, Procedure I Normal operation when exposed to driving rain
<b>Humidity</b>	MIL-STD-810B, Method 507, Procedure I 95% relative humidity at 60°C
<b>Salt Mist</b>	MIL-STD-810B, Method 509, Procedure I 48 hours exposure to 5% salt solution
<b>Solar Radiation</b>	MIL-STD-810B, Method 505, Procedure II
<b>Magnetic Effect</b>	Less than 1° deflection at 300 mm

