

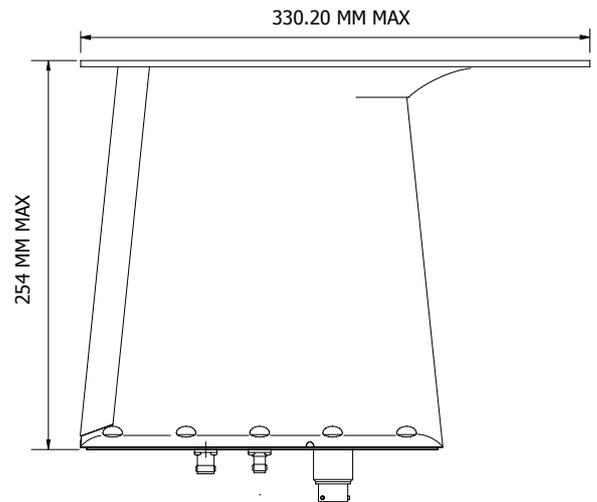
Type 12-190-310

V/UHF Tuneable Antenna
30 MHz - 1220 MHz

12-190-310-DS Issue 1

COBHAM

The most important thing we build is trust



The **12-190-310 V/UHF Tuneable Antenna** is a multiband, low profile, blade antenna designed for operation in the frequency bands 30 MHz to 88 MHz, 108 MHz to 174 MHz, 225 MHz to 530 MHz and 960 MHz to 1220 MHz.

When operating with the AN/ARC 210 radio, the **12-190-310** should be tuned using a Cobham Antenna Systems **Type 7-163PIN160 Logic Control Unit**.

The **12-190-310** is configured as three separate radiating elements.

The VHF function is fulfilled by a PIN diode tuned structure. The topplate surmounting the blade provides a capacitance which is tuned by an arrangement of binarily related switched inductive elements,

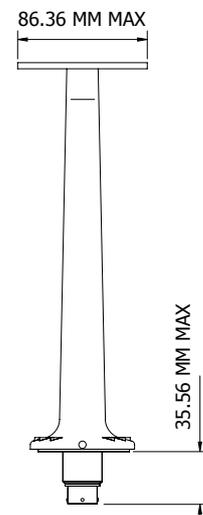
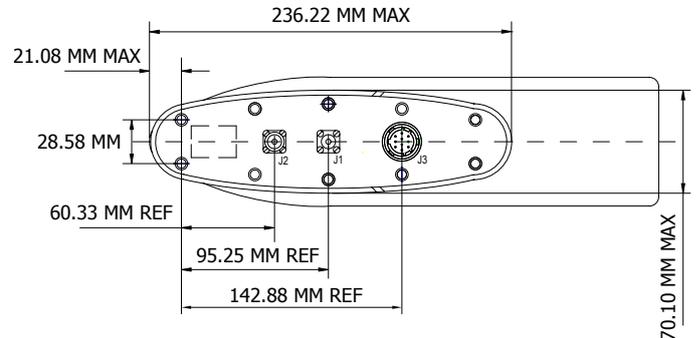
This produces a high efficiency structure with some degree of selectivity, particularly at low FM frequencies.

The UHF antenna is configured as a broadband passive element, predominantly matched using essentially lossless techniques.

The VHF and UHF antennas are combined within the blade by a contiguous diplexer consisting of two five section filters exhibiting a Tchebyscheff response to a single RF connector.

The L-band antenna comprises a fan monopole, reactively matched and fed via a separate RF port.

The **12-190-310** comprises a blade of aerofoil section surmounted by a capacitive top loading plate. The electronic circuitry is mounted on a circuit board housed within the blade, which is sealed at the base by an aluminium alloy baseplate. The baseplate also supports the three connectors.



Type 12-190-310

V/UHF Tuneable Antenna

Electrical Specification

Frequency	Frequency (MHz)	
	30 - 88	
	108 - 174	
	225 - 530	
	960 - 1220	
Gain	dBi	MHz
	≥ -13	30
	≥ -4	88
	≥ -3	108
	≥ 0	174
	≥ 0 average	225 - 530
	≥ +2 average	960 - 1220
Power Rating	RF Power (Watts)	Frequency (MHz)
	23	30 - 88
	23	108 - 174
	23	225 - 530
	500 peak	960 - 1220
Impedance	50 Ohm nominal	
VSWR	VSWR	Frequency (MHz)
	< 2.5:1	30 - 88
	< 2.5:1	108 - 174
	< 2.5:1	225 - 530
	< 2.0:1	960 - 1220
Radiation Pattern	Nominally omnidirectional in azimuth	
Polarisation	Essentially vertical when mounted vertically	
Connectors	DC:	12-10P
	VHF/UHF:	TNC female
	L-Band:	N female

Mechanical Specification

Dimensions (mm)	254.00 x 330.20 x 86.36
Weight (kg)	1.82
Mounting Configuration	10 holes fixed location

Environmental Specification

High Temperature	MIL-STD-810E, Method 501.3, Procedures I and II
	Continuous Operation: +55°C
	Intermittent Operation: +71°C
	Storage: +85°C
Low Temperature	MIL-STD-810E, Method 502.3, Procedures I and II
	Operation: -54°C
	Storage: -57°C
Altitude	MIL-STD-810E, Method 500.3, Procedures I and II
	Operation and storage 50,000 ft
Acceleration	MIL-STD-810E, Method 513.4, Procedure I
	13.5 g all axes
Mechanical Shock	MIL-STD-810E, Method 516.4, Procedures I and V
	Functional: 11 ms, 20 g terminal sawtooth
	Crash safety: 11 ms, 40 g terminal sawtooth
Vibration	MIL-STD-810E, Method 514.4, Procedures I, Category 4
	0.01 g ² /Hz IS to 2000 Hz, L1=0, 6 g ² /Hz at 68 Hz
Temperature Shock	MIL-STD-810E, Method 503.3
Rain	MIL-STD-810E, Method 506.3, Procedure I
	Normal operation when exposed to driving rain
Humidity	MIL-STD-810E, Method 507.3, Procedure III
	95% relative humidity at 60°C
Salt Fog	MIL-STD-810E, Method 509.3, Procedure I
	48 hours exposure to 5% salt solution
Magnetic Effect	Less than 1° deflection at 300 mm

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