

Drone Antenna System with Holographic Beam Forming® Technology

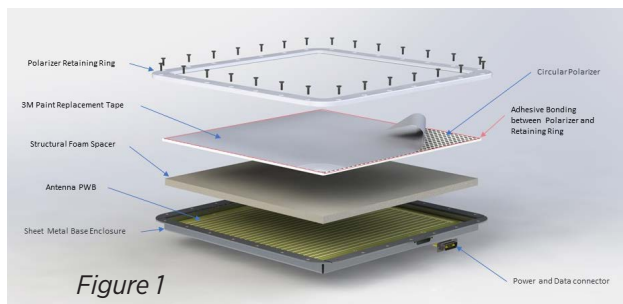
Lowest cost, size, weight and power consumption

Wide angle beam steering

Fast beam switching

Overview and Advantages

Pivotal's Drone Antenna System encloses its 14 GHz beamformer with a circular polarizer and power and data connectors as shown in Figure 1. The result is a high gain, electronically scanned, circularly polarized device operating in the Ku-band. Its thin, light weight form factor with minimal power consumption makes it suitable for drone and vehicle platforms.



The advantages of beamformers in the battlefield are clear. Directional, beamformed antennas offer inherently low probability of intercept as the narrow beam focuses energy in the direction of the intended recipient while minimizing transmission in unintended directions. Similarly, beamforming resists jamming attempts while receiving. Reconfigurable beamforming also provides a method to interrogate potential spoof attacks by directly measuring direction of arrival. A seemingly friendly signal coming from an unexpected direction may be a hostile attempt to pose as a trusted source.

Pivotal's uniquely low cost, size, weight and power consumption (C-SWaP) envelope leads to new deployment opportunities on small or mobile platforms where phased array functionality is needed but limited by high C-SWaP constraints.

Specifications

Parameter	Specification
Frequency of Operation	14.40 - 15.35 GHz
Antenna Function	TDD or FDD
Polarization	RH Circular
Antenna Gain (broadside)	28.5 dBi, nominal
Antenna Gain Variation over frequency (broadside)	<2 dB
3 dB Beamwidth (broadside)	6°
Beam Steering Accuracy (near broadside)	1.0° rms
Steering Angle Extent Azimuth	-70° to +70°
Steering Angle Extent Elevation	-60° to +60°
Scan Loss Over Steering Angle	6.0 dB, maximum
Beamwidth Broadening with Steering	<16°
RF Input Connector	SMA
RF Power Handling	20W
DC Power Consumption	14W, 0.5Amp at 28V
Dimensions	13" x 13" x 1.05"
Weight	5.25 lbs.
IP Rating	IP55
Storage Temperature	-55°C to +85°C
Operating Temperature	-40°C to +55°C
Configuration Management	RS-485

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