

MESA-X-EVU Evaluation Unit X-Band 19dBi Agile Beam Radar Aperture

Applications

- ◆ UAV Airborne Sense and Avoid (ABSAA)
- ◆ Stand-off Threat Tracking
- ◆ Ground Surveillance out to >10km
- ◆ All Weather Vision Enhancement
- ◆ Maritime Surveillance and Tracking



Features and Benefits

- ◆ Compact Size and Low Weight
- ◆ Easily Packaged for Air/Land/Sea Platforms
- ◆ Integrated Beam Steering Controller
- ◆ Plug and Play (No Calibration Required)
- ◆ Simple Serial Command Structure
- ◆ Low Power Aperture Control
- ◆ Compatible with Pulsed & FMCW modes
- ◆ Ultra Fast Beam Transition < 1 uSec
- ◆ Up to 125 watt TX Power (Peak 20% Duty)
- ◆ Custom Higher EIRP Options Available

General Description - Metamaterial Electronically Scanning Array called MESA™ is a new architecture for forming and controlling a beam of radiating energy from a surface. This Evaluation Unit is an ideal platform for users to explore this disruptive technology in a wide range of applications requiring fast agile electronic beam steering without mechanical gimbals .

Interfaces		Aperture - Continued	
Control:	USB mini— Using SCPII Command over virtual COM port via Terminate Terminal	Array	
DC Input	5.5mm Barrel Socket	Active Area	12.8λ by 4λ
RF I/O	SMA Female Input / Output (Max +25 Watt CW/Avg, +125 Watt Pk)	Edge Border	< 3cm each side.
Beam Step Trig.	BNC 3.3V TTL trig. to table step	Antenna Parameters	
General SWAP and Environment		Realized Gain	19dBi typical (on boresight)
Size	50cm x 18cm x 2.5cm (2250 cm ³) wo pkg 54cm x 22cm x 3.6cm (4277 cm ³) w pkg	Gain Roll off	<2.5dB Typ.
Weight	< 1.4kg (wo pkg) / 2.9kg (w pkg)	Field of View	±45° min. / ±60° Typ. (AZ & EL)
Power:	+12V 2.0 amp typ. (24 watt)	Polarization	Horizontal (> 20 dB Cross Pol Iso.)
Op. Temp.	-20 to +65C (Storage -55 to +95C)	SLL <±45°	Typical <-15dB max avg. all beams.
Aperture		Beam Parameters	
Center Freq.	10.14 GHz Std. (Custom 8-12GHz)	AZ / EL (HPBW)	AZ 4° / EL 12° Typical
Bandwidth 3dB	150 MHz min. (300MHz Typical)	Beam Pointing	Step 3° Typ. (Accuracy <1° Typical) Bore Sight Error 1° Typ.
		Beam Control	Serial Command Theta/Phi Coordinate

Echodyne MESA™ Technology

Metamaterial Electronically Scanning Array

Echodyne's patented Metamaterial Electronically Scanning Array (MESA) represents a major breakthrough in radar technology – thinner, lighter, and lower cost than any other electronically scanning radar technology.

Unlike conventional mechanical apertures that steer a radar beam using motorized gimbals, Echodyne's MESA requires no moving parts to steer its beam. And unlike Phased Array radars or Active Electronically Scanning Array radars that require complicated and expensive transmit/receive modules - including phase shifters, amplifiers, circulators, and low noise amplifiers behind every single antenna element - MESA uses a vastly simpler metamaterials architecture. The net effect of this simplified architecture is dramatically lower cost, size, weight and power.

About Echodyne

Echodyne is reinventing the way the world uses radar by creating high performance electronically scanning radars with ultra-low C-SWAP (cost, size, weight, and power). Echodyne's patented Metamaterial Electronically Scanning Array (MESA) offers disruptive capabilities for existing radar applications, and enables new categories of radars never before thought possible such as small, lightweight radars for UAVs, robots, autonomous vehicles, and security that work well even when environmental conditions are less than ideal (e.g., in rain, snow, fog, dust, darkness, etc.). Echodyne is a privately held company backed by Bill Gates, Madrona Venture Group, Vulcan Capital, Lux Capital, and The Kresge Foundation, among others.

* Go to www.Echodyne.com for more information

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