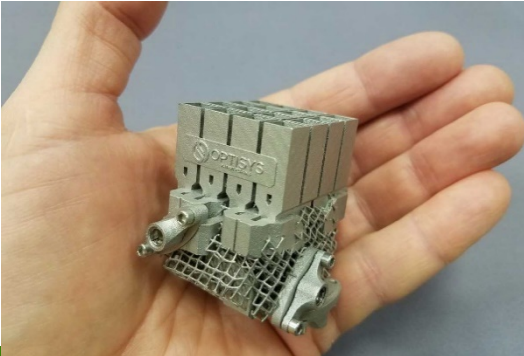




# Metal 3D Printed Antennas

## Design, Manufacture, Testing



### Capability Statement

Optisys is an antenna design company that specializes in the use of metal 3D printing. We design and manufacture highly integrated antenna structures that achieve the lightest weight and smallest volume physically possible by printing metal only where absolutely required.

*Mass customization* allows Optisys to provide custom antenna solutions at mass production lead times and pricing. Our approach enables scaling, mixing, and matching of an existing library of antenna subcomponents to develop modular product solutions.

### Overview:

- Antenna Design Company
- High Performance Antennas
- Reduced Size Antennas
- Reduced Weight Antennas

### Product Services:

- Antenna/RF Design
- Mechanical Design
- Systems Engineering
- Additive Engineering
- Additive Manufacturing
- Antenna/RF Testing

### Applications:

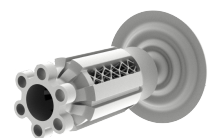
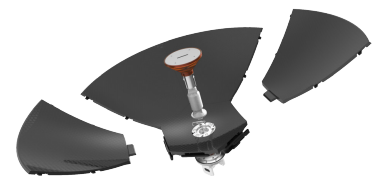
- Satellites, CubeSats
- Air/Ground SATCOM
- Radar
- UAV Communications
- Soldier C4ISR

### Metal 3D Benefits

- |                       |                               |
|-----------------------|-------------------------------|
| – Light Weight:       | Reduced from pounds to ounces |
| – Reduced Part Count: | One-piece construction        |
| – Small Size:         | 10-100x size reduction        |
| – Short Lead Times:   | Reduced from months to weeks  |
| – Cheaper:            | Reduced system level costs    |

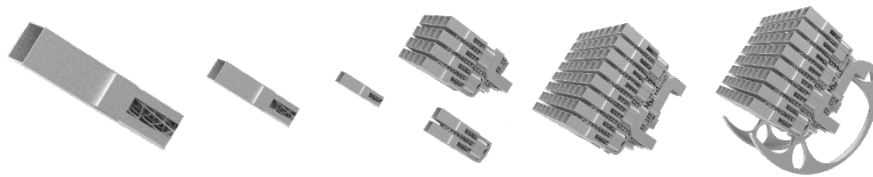
### Proficiencies

- Production Quality Parts
- Antenna Tracking Solutions
- Integrated Cooling Features
- Integrated Mounting Features
- Antenna Feeds and Subreflectors
- Waveguide Assemblies and Components



## Mass Customization

Optisys uses modular designed antenna components to significantly cut design costs, reduce weight, decrease size, and shorten design time and manufacturing cycles. We combine RF/electrical, mechanical/structural, and thermal requirements into a single metal 3D printed component.

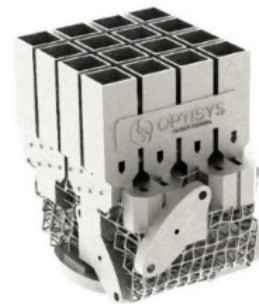


- Unit Horn
- Frequency Scaling
- Combiner
- Control Arms
- Polarizer
- Mechanical Specs
- Monopulse
- Gearing
- Lattice Structure
- Thermal Features
- Array Size

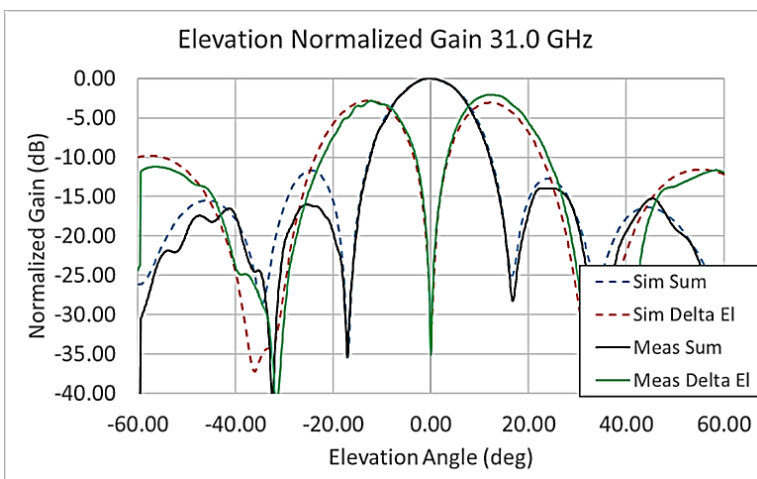
## Product Description (4x4) Array

Integrated Ka-band monopulse tracking array fabricated as a single part:

- 4x4 array of horns
- 27.5 to 31 GHz frequency
- Measured axial ratio better than 1.5 dB
- Dual polarization (RHCP and LHCP)
- Waveguide dual-axis monopulse on RHCP
- 5x SMP connector mounting face
- Structural lattice



## Data (4x4) Array



Measurement	Value
Weight	1.4 oz (40 g)
Size	1.4 x 1.9 x 1.8 in (36 x 48 x 46 mm)
Directivity	21.0 dB
Connector Losses	0.6 dB
Gain	19.4 dB
Axial Ratio	1.5 dB
Efficiency	78%
Insertion Loss	1.0 dB
Beamwidth	14.0°
Side Lobe Atten	13.4 dB
Null Depth	33 dB