



METASENSING  
RADAR SOLUTIONS

# PHOENIX

## SPACEBORNE SAR PAYLOAD

### SCALABLE X-BAND SAR PAYLOAD FOR EARTH OBSERVATION MISSIONS

Designed for Flexible Earth Observation  
Missions



#### COMPACT & MODULAR ARCHITECTURE

Phoenix is MetaSensing's compact and flexible X-band SAR payload designed for scalable Earth Observation missions and next-generation satellite constellations. Its modular architecture enables configurations ranging from 74 to 166 kg, allowing operators to tailor payload performance to different mission objectives while maintaining a compact and integration-friendly design. This flexible approach supports a wide range of operational scenarios, from individual Earth Observation missions to scalable multi-satellite constellation deployments.



#### ADVANCED IMAGING CAPABILITIES

With a slant range resolutions up to 0,125 meters and support for both Stripmap and Spotlight imaging modes, Phoenix provides unmatched SAR imagery tailored to a wide range of applications. From commercial needs such as urban planning and land monitoring to security operations requiring surveillance and reconnaissance, Phoenix delivers clarity and quality that redefine expectations. This advanced imaging capability makes it a versatile tool for addressing both commercial and mission-critical demands.



#### CUTTING-EDGE ENGINEERING AND INNOVATION

At the heart of Phoenix lies its single polarization slotted waveguide design, a feat of engineering precision optimized for X-band signals with bandwidths of up to 1200 MHz. This refined design guarantees consistent, high-quality performance across diverse operating conditions. By integrating state-of-the-art technology into a compact framework, Phoenix embodies MetaSensing's dedication to innovation and excellence. It offers a powerful solution for microsatellite missions, broadening the scope of SAR imaging possibilities and setting a benchmark in the field.

# PHOENIX TECHNICAL DATA

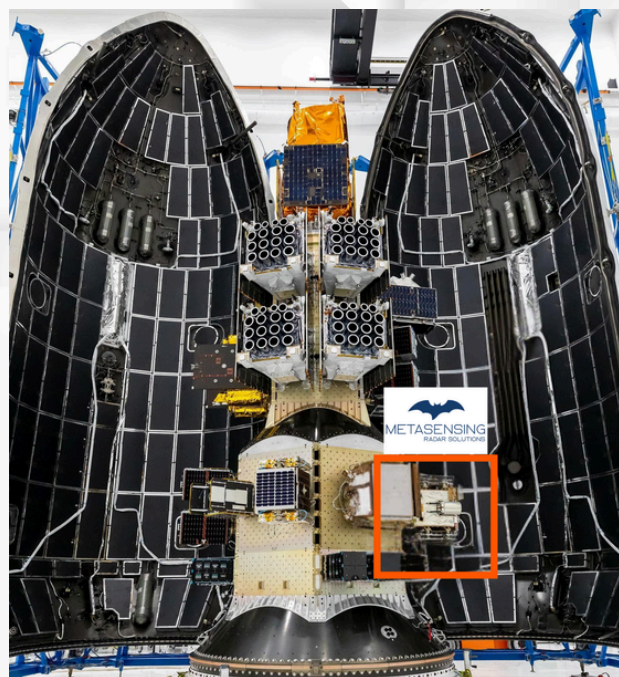
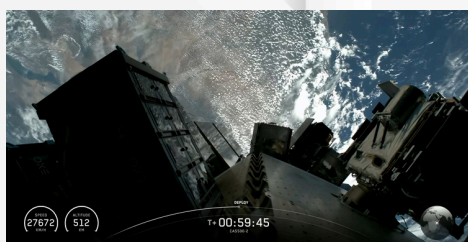
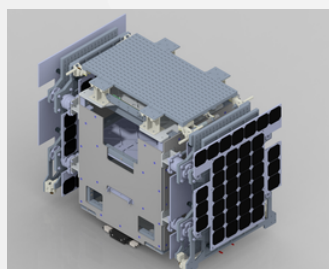
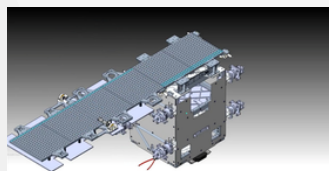
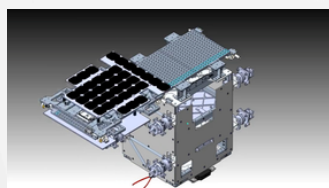
| MetaSensing<br>PhoeniX ApeX                          | PhoeniX ApeX – 8x TRM-15 modules<br>per tile, 10 tiles<br>(ApeX-A-10-20) | PhoeniX ApeX – 16x TRM-15 modules<br>per tile, 10 tiles<br>(ApeX-C-10-40) | PhoeniX ApeX – 16x TRM-15 modules<br>per tile, 12 tiles<br>(ApeX-C-12-48) |
|------------------------------------------------------|--------------------------------------------------------------------------|---------------------------------------------------------------------------|---------------------------------------------------------------------------|
| Radiating antenna dimension<br>(elevation x azimuth) | 0.35 x 3.52 m                                                            | 0.70 x 3.52 m                                                             | 0.70 x 4.24 m                                                             |
| Phase centers<br>(elevation x azimuth)               | 8 x 40                                                                   | 16 x 40                                                                   | 16 x 48                                                                   |
| Electronic Steering angle in Elevation               | +/- 10.0 deg                                                             | +/- 10.0 deg                                                              | +/- 10.0 deg                                                              |
| Electronic Steering angle in Azimuth                 | +/- 4.5 deg                                                              | +/- 4.5 deg                                                               | +/- 4.5 deg                                                               |
| RF peak power                                        | 2 kW                                                                     | 4.0 kW                                                                    | 4.8 kW                                                                    |
| DC power consumption                                 | 2.3 kW                                                                   | 4.6 kW                                                                    | 5.5 kW                                                                    |
| Slant range resolution                               | > 0.125 m                                                                | > 0.125 m                                                                 | > 0.125 m                                                                 |
| Maximum bandwidth                                    | 1200 MHz                                                                 | 1200 MHz                                                                  | 1200 MHz                                                                  |
| Incident angle recording data                        | 15-50 deg                                                                | 15-50 deg                                                                 | 15-50 deg                                                                 |
| SAS (SAR Antenna Subsystem) payload mass             | ~58 kg                                                                   | ~121 kg                                                                   | ~146 kg                                                                   |
| SES (SAR Electronic Subsystem) payload mass          | ~10 kg                                                                   | ~10 kg                                                                    | ~10 kg                                                                    |
| Payload interface                                    | ~10 kg                                                                   | ~10 kg                                                                    | ~10 kg                                                                    |
| <b>Total Mass</b>                                    | <b>~78 kg</b>                                                            | <b>~141 kg</b>                                                            | <b>~166 kg</b>                                                            |

## KEY FEATURES:

- Modular X-band SAR architecture
- Configurable payload from 74 to 166 kg
- Slotted waveguide antenna technology
- Optimized RF efficiency and compact design
- Flexible acquisition modes
- Designed for scalable constellation deployment

## KEY BENEFITS:

- Scalable architecture for different mission classes
- Reduced integration complexity
- Efficient constellation deployment
- Reliable imaging performance
- Cost-Effective Solution: High-performance SAR capabilities in a compact package



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