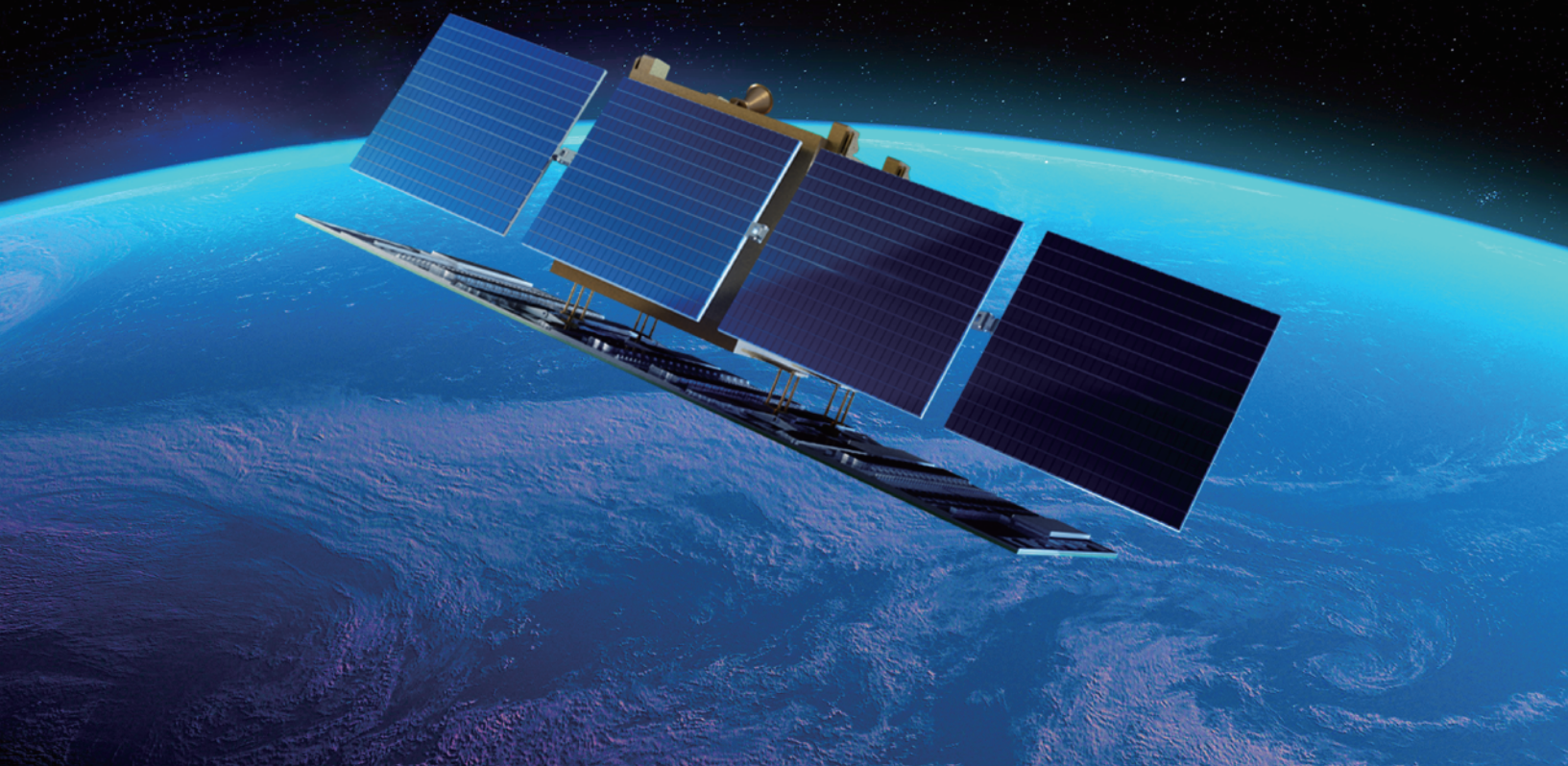


LumirX

X-band Small SAR Satellite



LUMIR
Harmonia et Differentia

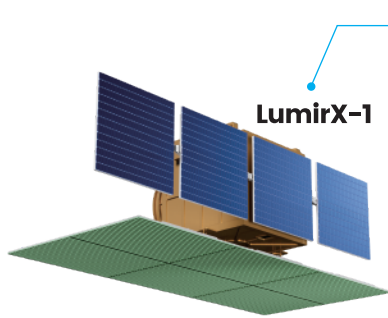


 **The LumirX series** of small synthetic aperture radar (SAR) satellites is being developed to provide essential and actionable information to a diverse range of customers, enabling them to make timely, life-saving, and business-critical decisions.

LumirX-1, the first satellite in the LumirX series, is a 100 kg-class X-band SAR satellite, capable of achieving a high resolution of 0.3 m. LumirX-1 acquires radar data of the Earth's surface using its SAR payload, **CATIS™** (Compact All-Time Imaging Sensor), and transmits data to the ground via a 2 Gbps downlink system. It offers various imaging modes to address diverse user requirements, including a 0.3 m ultra-high-resolution mode (Spotlight), 0.7 m high-resolution mode (Sliding Spotlight), 1.0 m standard-resolution mode (Stripmap), and a widewidth mode (ScanSAR) with a resolution of 10 m and an observation swath of over 100 km. The key strength of LumirX-1's advanced technology provides ultra-high-resolution images with a ground resolution of 0.3 m or better, based on a radar signal bandwidth of 1200 MHz.

Building on this highly accurate, cutting-edge technology, next-generation satellites in the LumirX series will further enhance ground resolution to 0.15 m and support interferometric modes. These advancements will enable customers—particularly in surveillance, reconnaissance, and disaster management—to access real-time insights that guide crucial decisions. By 2030, more than 18 LumirX satellites will be launched, forming a global observation constellation capable of delivering high-resolution images of any location on Earth to customers within one hour.

Through the SAR signal and image processing platform **SARDIP™**, customers can search for and purchase SAR images and information from the LumirX series. SARDIP™ offers InSAR-based terrain information analysis and AI-powered object detection services, enabling rapid access to data analysis results.



LumirX-1

- 0.3 m ultra-high resolution
- 4 observation modes
- 100 kg-class SAR satellite

Small SAR Payload : CATIS™



SCEU
SAR Control
Electronics Unit



SATA
SAR Antenna &
TRM Assembly

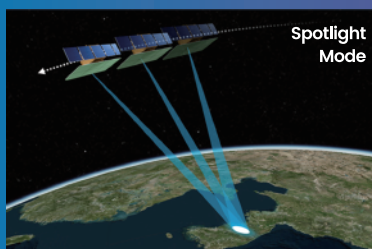


KAPA
Ka-band Phased
Array Antenna

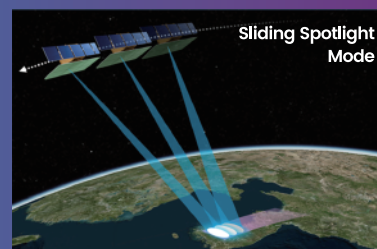
Item	Key Performance		
	Mode	Resolution	Swath Width
Ground Resolution / Swath Width	Spotlight	0.3 m	5 km
	Sliding Spotlight	0.7 m	5 km
	Stripmap	1.0 m	10 km
	ScansAR	10.0 m	100 km
Center Frequency	X-band		
Bandwidth	1200 MHz		
Polarization	VV Single Polarization		
Incidence Angle	15° - 35°		
Storage Capacity	2 TB		
Ground Link Speed	2 Gbps @ Ka-band		
Design life	4 years		

Supports 4 Observation Modes

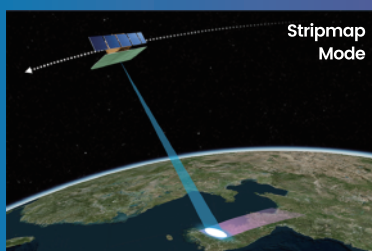
- **Spotlight Mode**
Ultra-high-resolution imagery of a single target area by continuously focusing the antenna beam
- **Sliding Spotlight Mode**
High-resolution imagery with an extended swath length by steering the antenna beam along the track
- **Stripmap Mode**
Imagery along the satellite's flight path without steering the antenna beam
- **ScanSAR Mode**
Wide-area coverage by electronically steering the beam in the range direction



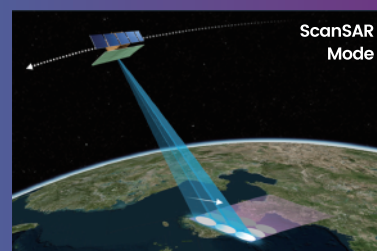
Spotlight
Mode



Sliding Spotlight
Mode



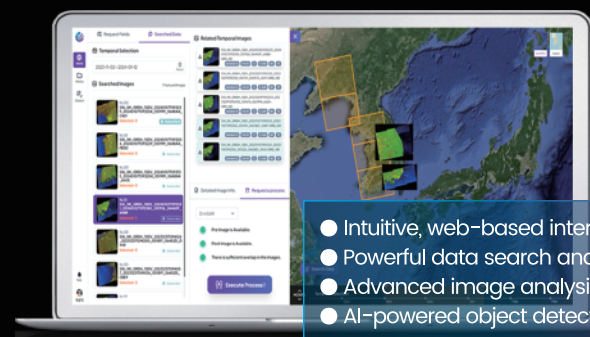
Stripmap
Mode



ScanSAR
Mode

SARDIP™

SAR Signal Processing and Data Analysis Platform



- Intuitive, web-based interface
- Powerful data search and download tools
- Advanced image analysis solutions
- AI-powered object detection services

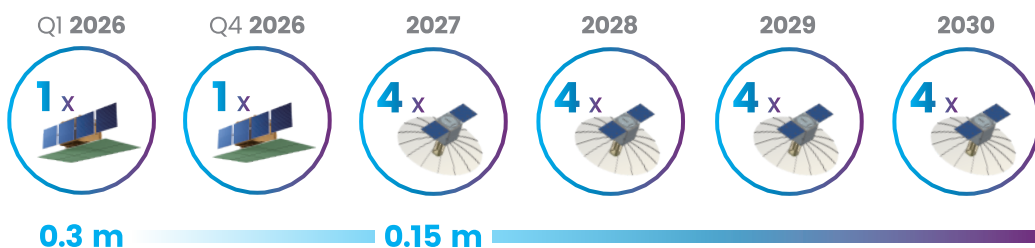
CATIS™ Validation

0.3 m resolution imagery acquisition through airborne test



LumirX Satellite Constellation Deployment Plan

- A constellation of more than 18 satellites by 2030 to support near real-time global imagery acquisition



Constellation
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