

Sovereign Constellation - Performance

Narrowband C2 communication, resilient navigation
LEO satellites, commercial GEO backup until full deployment

Kela's sovereign LEO constellation delivers narrowband C2 and resilient PNT, free of foreign infrastructure. A baseline of 50 satellites, client-dependent.

Hybrid GEO-LEO terminals for rapid capability using GEO, with gradual migration to sovereign LEO.

Opportunistic PNT for navigation before constellation deployment, with enhancement once satellites are in orbit.

System Modes

Two operating modes, selectable dynamically per mission:

<p>Balanced</p> <p>Capacity and coverage are distributed evenly across the theater.</p>	<p>Prioritized</p> <p>Resources are concentrated on a designated area of interest - raising its coverage and data rate there, at the expense of lower coverage and capacity across the rest of the theater.</p>
--	--

Example Timeline



Operational Performance Timeline

Capability		27H2	28H1	29H2-30Q3	30Q4
Program	Milestones	GEO-based demo Opportunistic PNT demo	2 x V1 satellites in orbit Hybrid-based demo GEO-based IOC	Launch #1-4 10 x V2 satellites per quarter	Launch #5 LEO-based FOC
Satellites	In orbit (LEO)	0	2 (V1)	10-40 (V2)	50 (full)
Comms — GEO	Bandwidth	5-10 kb/s			
	Coverage	Theater-wide, continuous			
Comms — LEO	Bandwidth	—	Max data rate: 10-20 Mb/s 100 terminals: 100-200 kb/s 1,000 terminals: 10-20 kb/s		
	Coverage (service) <small>During outage, falls back to GEO.</small>	—	Service: 86 min/day Avg outage: 120 min Max outage: 16 h	Deployment year — coverage rises non-linearly as each launch fills a separate plane and commissions.	<u>Prioritized:</u> Service: 24 h/day, Avg outage: 0 min Max outage: 0 min <u>Balanced:</u> Service: 17.3 h/day, Avg outage: 3 minutes, Max outage: 6 min
Navigation	Location accuracy	<20 m	<5 m covered <10 m not	<2 m covered <5 m not	<2 m
Terminals	Product	Small scale, not final. Separate comms & navigation	Unified scalable terminal		

Assumptions & Notes

- Figures assume 1,000 terminals in continuous use. In practice terminals are mostly idle and transmit in short bursts at the stated rate, so the network effectively supports on the order of x10 more terminals.
- Capacity is shared across active terminals; concentrating it on fewer terminals raises each one's rate proportionally — e.g. ~x10 the data rate when serving 100 terminals.
- The analysis assumes UAV-class terminals. Ground-platform and dismounted-soldier terminals can carry higher-gain antennas, yielding higher data rates than shown.
- These figures are preliminary and are based on a generic baseline deployment. Final numbers will be confirmed against the client's operational scenario.