KI-81
HIGH SPEED SPACE MESH END CRYPTO UNIT, NORTHROP GRUMMAN

Multi-Level Security (MLS) Space Mesh Networking Device Enables DoD's Vision for Connected Battlespace

Benefits

The KI-81 hardware will be deployed on satellites orbiting in proliferated Low Earth Orbit (pLEO). Paired with cryptographic software, this enables network users to communicate securely within the network while protecting the large, interlinked satellite networks from cyber attacks. This cyber protection is critical for large mesh-network constellations, where hacking one satellite link could compromise the entire network.

The device is a flexible, high throughput design leveraging a single, reprogrammable chip implementation that provides a connected network solution, helping warfighters make decisions faster across a full range of platforms. While designed for satellite deployment, the KI-81 hardware can also be deployed to other platforms, including ground stations and aircraft. The hardware produces a low SWaP, low cost end crypto unit for pLEO space vehicles, thus enabling a wide range of users to securely participate in a dynamically-established and resilient mesh network.

Key Performance Parameters	
NSA Type 1 Certification	Top Secret and Below
	HAIPE Suite B, OTNK
Dimensions	9.9 x 9.9 x 2.3 cm.
Volume	228 cm.^{3}
Weight	0.3 kg (< 1 lb.)
Power	~8W
(Ethernet interfaces) Data Rate	(4) 2 Gigabits per second
Radiation Tolerance	100k Rad (Si)

Data Communications Connectivity and Cryptographic Processing at Mission Speed

- Low-Cost pLEO mesh networking End Crypto Unit
- Multichannel capabilities: 256 Security Associations (key configurations, expandable)
- Over the Network Keying (OTNK) and four independent levels of security
- On-orbit reprogrammable with new algorithms, modes and protocols
- Program Sponsored by U.S. Space Force (USSF) Space Systems Command Innovation and Prototyping Division (SSC/PKT)
- TRL6 in 2024 through space qualification testing, NSA certification

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