

Hughes WS-1000 Nano

UAV BVLOS Architecture Implementation

Reliable, secure, and adaptive communications are both advantageous and mission critical in today's dynamic operational landscape. Hughes is proud to introduce the WS-1000, enabling high bandwidth 4G/5G Beyond Visual Line of Sight (BVLOS) Command Control and Communications (C3) for Unmanned Aerial Vehicles (UAVs). This next-generation, compact, multi-network communications architecture is engineered for demanding operational environments. The WS-1000 is one of many modem options powering the Hughes All Domain Communications Service or as a vendor integrated communications channel.

KEY FEATURES AND TACTICAL ADVANTAGES

Innovative and Adaptable BVLOS Communications

Designed for integration into UAV platforms, controllers, heads-up displays, the WS-1000 ensures global persistent connectivity across vast operational theaters.

Low Low Size, Weight, and Power (SWaP)

Optimized for tactical deployment, our platform delivers high performance in a compact footprint which is ideal for Group 1–3 UAVs and other SWaP-constrained platforms.

Hughes Warspeed Smallest Form Factor

- Embedded solution for Small Unmanned Aircraft System (sUAS), handheld controllers, headsets, and more
- Lowest cost entry – service enabler for GUARDIAN

Global 5G/4G Cellular Modem

- 5G Redcap at 200 Mbps downlink and 100 Mbps uplink
- 4G/LTE CAT4 Fallback

Secure Network Gateway

- Executes Hughes Router OS and SNE-Lite Functionality. Switches between Cellular and Line of Sight (LOS) connectivity.
- GUARDIAN Secure Tunnel Backbone
- FIPS 140-3 Level 2 Trusted Platform Module

eSIM and Network Management

- Dual SIM On-board: eSIM + 4FF Physical SIM
- Automatic Network Failover: SIM and Wide Area Network (WAN) failover
- Primary, Alternate, Contingency, and Emergency (PACE) and network route planning. Pre-provision SIM and network rules prior to mission

Quick Deployment

Zero touch provisioning and remote endpoint management*

Easy to Integrate

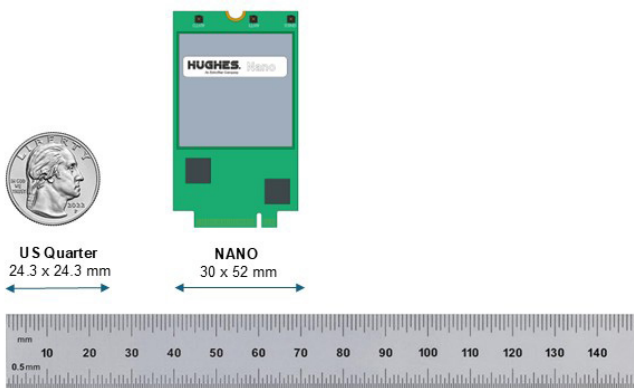
- M.2 B-Key standard connector for power and data (USB 2.0/UART)
- No custom kernel drivers needed. Support Windows / Linux out of the box
- Built-in MAVLink router for framing and routing MAVLink between Unmanned Aerial System (UAS) and network endpoints*

*Future Roadmap Features

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Technical Specifications	
Processor Subsystem	1x ARM A7 @ 1.7 GHz 1 GB DDR/1 GB NAND
# SIM	Dual SIM: Nano-4FF, eSIM
Antenna/MIMO	Rx Diversity and MIMO DL 2x2 (2 MHF.4)
GNSS	L1/L5 (MHF.4)
M.2 Key	Industry Standard M.2 B-Key <ul style="list-style-type: none"> • 3.3V Supply and Gnd • USB 2.0 • PCI Express x1 • SIM 1 and 2 (option) • UART • GPIOs
Operational Temperature	-40 °C to +70 °C
Weight	Less than 12 g
Dimensions (W x L x D)	30 x 52 x 4.5 mm

Cellular Capabilities with WS-Nano Installed	
Cellular Radio Access	3GPP Rel 17, 5G Redcap 4G/LTE CAT4 Fallback
Cellular Bands	5G FR1: n1/n2/n3/n5/n7/n8/n12/n13/n14/n18/n20/n25/n26/n28/n29/n30/n38/n40/n41/n48/n66/n70/n71/n77/n78/n79 4G LTE: B1/B2/B3/B4/B26/B7/B8/B12/B13/B14/B17/B18/B19/B20/B25/B28/ / B30/B34/B38/B39/B40/B41/B42/B43/B48(CBRS)/B66/B70/B71/B106
Cellular Throughput	5G Sub.6 FDD and TDD operation in 5G NR stand-alone <ul style="list-style-type: none"> • DL: 223 Mbps • UL: 123 Mbps LTE Cat 4 <ul style="list-style-type: none"> • DL: 200 Mbps • UL: 105 Mbps
LTE/5G Transmit Power	23 dBm (Power Class 3)



Warpspeed G2 Resilient Comms

For more information, visit www.hughes.com

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