

# Hughes WS-3000 MAX

## UAV BVLOS Communication Platform

Reliable, secure, and adaptive communications are both advantageous and mission critical in today's dynamic operational landscape. Hughes is proud to introduce a breakthrough in 4G/5G Beyond Visual Line of Sight (BVLOS) communications for Unmanned Aerial Vehicles (UAVs), a next-generation, compact, multi-network communications platform that is engineered for demanding operational environments.

### KEY FEATURES AND TACTICAL ADVANTAGES

#### Innovative and Adaptable BVLOS Communications

Designed for integration into UAV platforms, our architecture ensures persistent connectivity across vast operational theaters.

#### Extensible Resilient Comms Platform within a Low SWaP

Embed in UAVs to form on-board networking and communications backbone

#### WS-MAX is Designed to Support Three Onboard Capabilities

- Capable of hosting up to three radios or additive customer daughter cards
- Two additional radios via external ethernet and/or USB (up to five total channels)
- Swap capabilities to adapt solution to mission parameters

#### Support Multiple Concurrent communications Links to Form a Highly Resilient Comms Solution

#### 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.

#### Advanced Cellular Technology

Built on the latest production-grade 4G/5G cellular technology, our platform possesses carrier support for T-Mobile, AT&T, Verizon, and Boost, enabling rapid deployment across North America with an additional option for global network reach.

#### Network Resiliency Through Public/Private Dual SIM Support

Supports dual Subscriber Identity Modules (SIMs) to operate in Public and Private 5G networks and can autonomously switch between available networks.

#### GEO/MEO/LEO Satellite Integration

Full support for Third Generation Partnership Project (3GPP) Non-Terrestrial Network (NTN) standards, unlocking global coverage and low-latency communications

#### Networking

IPv4/IPv6, Quality of Service (QoS), SD-WAN capable

#### Secure Tunnel Backbone

End-to-end NIST standard encryption for uncompromised data integrity and confidentiality. Stateful firewall.

#### Edge Artificial Intelligence/Machine Learning (AI/ML)

Execute edge AI workloads directly, enabling real-time decision-making, threat detection, and autonomous mission support.

#### Edge Compute and Application Hosting

Capable of running microservices and third-party applications.

#### TAA-Compliant

Fully aligned with Trade Agreements Act (TAA) requirements for federal procurement.

### FUTURE-READY ROADMAP

The Hughes innovation pipeline ensures continued relevance and superiority in future operational scenarios:

#### Dual SIM, Dual Active (DSDA)

Powered by the upcoming Qualcomm SDX82 chipset, enabling simultaneous multi-network connectivity for redundancy and resilience.

#### GPS-Denied Navigation

Optional modules for robust location services in contested or degraded GNSS environments.

#### Custom Waveform Enablement

Tailored communications to mission-specific parameters with flexible waveform support.

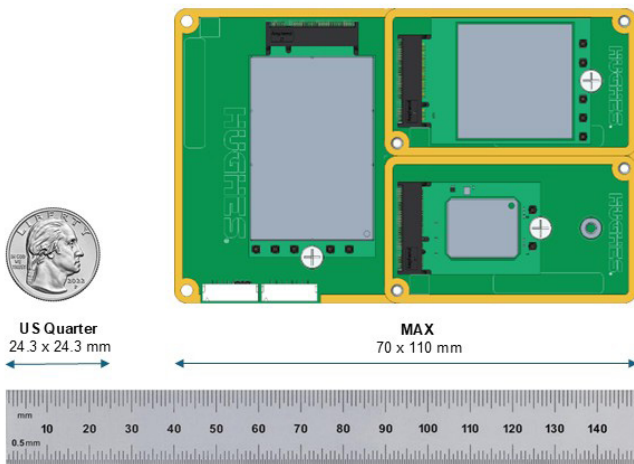
#### Advanced Networking and Routing

- Make-before-break (MBB) for seamless network transitions
- Predictive AI handoff and routing: traffic pre-emptively hands off before edge of coverage and connectivity loss
- Advanced traffic flow management and packet duplication for guaranteed delivery and QoS

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Technical Specifications	
Processor Subsystem	Quad ARMv8 A73 at 2.2 GHz, 2 GB DDR4 (up to 3 GB), 8 GB eMMC (up to 128 GB)
Secure Network Gateway	Hughes ADCA Secure Tunnel Backbone FIPS 140-3 Level 2 TPM
External Interfaces	USB 3.0/2.0 UART 2x Gigabit Ethernet Dual mini-SIM (4FF); eSIM (optional)
SD-WAN Throughput	More than 250 Mbps
Power Input	12V DC or 30V to 42V DC MCX, 24W 100–240VAC power adapter available
Operational Temperature	-40 °C to +70 °C
Weight	149 g (with single capability 5G Module)
Dimensions (W x L x D)	110 x 70 x 10 mm

Capability Slots Available	
Primary Capability (M.2)	USB3.0/2.0 PCI Express 3.0 x1 Lane Dual SIM Interfaces DC Power
Capability Expansion Interface (2x M.2)	USB3.0/2.0 PCI Express 3.0 x1 Lane DC Power



Warspeed G2 Resilient Comms

Cellular Capabilities with WS-NANO Installed	
Cellular Radio Access	5G Sub.6 FDD and TDD operation in 5G NR stand-alone <ul style="list-style-type: none"> <li>• DL: 223 Mbps</li> <li>• UL: 123 Mbps</li> </ul> LTE Cat 4 <ul style="list-style-type: none"> <li>• DL: 200 Mbps</li> <li>• UL: 105 Mbps</li> </ul>
Cellular Bands	5G FR1: n1/n2/n3/n5/n7/n8/n12/n13/n14/n18/n20/n25/n26/n28/n29/n30/n38/n39/n40/n41/n48/n53/n66/n67/n68/n70/n71/n75/n76/n77/n78/n79/n90/n91/n92/n93/n94 4G LTE: B1/B2(25)/B3/B4(66)/B26(5/18/19)/B7/B8/B12(17)/B13/B14/B20/B25/B28/B29(DL)/B30/B32(DL)/B34/B38/B39/B40/B41/B46/B48(CBRS)/B53/B67(DL)/B68/B70/B71/B75(DL)/B76(DL) 3G: B1/B2/B4/B5(6/19)/B8
Cellular Throughput	5G SA: 4.1 Gbps DL / 900 Mbps UL 5G NSA: 4.9 Gbps DL / 550 Mbps UL 4G LTE: 2 Gbps DL / 211 Mbps UL
LTE/5G Transmit Power	23 dBm (Power Class 3) 26 dBm (Power Class 2 in B41/n41)

Cellular Capabilities with Telit FN990B40	
Cellular Radio Access	<ul style="list-style-type: none"> <li>• 5G 3GPP Rel 17 sub-6 FDD and TDD, SA and NSA operations</li> <li>• 5G core network Opt. 3a/3x and Opt. 2</li> <li>• 4G: 7-CA up to 20 layers DL/2-CA UL, 256-QAM DL/UL</li> <li>• 3G: 3GPP WCDMA Rel 99, HSDPA, HSUPA, HSPA+ and DCHSPA+ (42DL/11UL Mbps)</li> </ul>
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