Aviat NETWORKS

WTM 4000

ALL-OUTDOOR, IP/SDN RADIO

DATASHEET [ANSI]

The WTM 4000 platform delivers ultra-high capacity in single or dual-transceiver architecture, optimized for all-outdoor applications. With up to 2.5 Gbit/s of throughput in a single unit, WTM 4000 supports all microwave bands with cutting edge networking features to set the benchmark for next generation backhaul and transport requirements.

Comprising WTM 4100, WTM 4200 and WTM 4500, the WTM 4000 series includes the very latest capacity innovations, including 4096 QAM, 112 MHz channels, Adaptive Dual-Carrier and Multi-Layer Header Compression, with single and dual-transceiver configurations, all in a compact all-outdoor device.

With a self-contained architecture, integrated high-speed Ethernet switch, and optimized for full-outdoor implementation, WTM 4000 also supports split-mount applications used with Aviat's CTR 8000 Transport Switch/Router.

WTM 4000 supports best-in-class system gain performance for longer reach, smaller antennas, improved link availability and lower TCO, with advanced radio features such as XPIC operation, radio link bonding (L1LA) and LOS MIMO.

Advanced networking options include the very latest in Carrier Ethernet switching, Ethernet OAM, packet-based synchronization and SDN. WTM 4000 is the only all outdoor radio upgradeable to support L3 IP/MPLS and includes a full suite of high-security features.

Maximum capacities up to 2.5 Gbit/s per link in microwave bands from 5 to 42 GHz, up to 20 Gbit/s in 80 GHz E-Band, or up to 10 Gbit/s in Multi-Band applications.

WTM 4000 is the only microwave platform to support Aviat's unique Adaptive Dual-Carrier (A2C+) capability, enabling double capacity using a single microwave transceiver.

WTM 4000 provides a powerful microwave networking solution allowing "transparent" connections, or comprehensive Carrier Ethernet (CE), or IP/MPLS operation.

General Specifications

General		
Frequency bands		5, L6/U6, 7, 8, 10, 11, 13, 15, 18, 23, 26, 28, 31, 32, 39, 42 GHz
Modulation and coding options	Fixed and Adaptive	QPSK, 16, 32, 64, 128, 256, 512, 1024, 2048, 4096 QAM
Channel sizes supported		3.75, 5, 10, 20, 25, 30, 40, 50, 60, 80, 100 MHz 14, 28, 56, 112 MHz (SRSP 312.7, SRSP 331.8 only)
Capacity range	Airlink Capacity	Up to 920 Mbit/s (single channel WTM 4100) or 1.8 Gbit/s (dual channel operation WTM 4100 with A2C+, or WTM 4200)
	Ethernet / IP Throughput (with IFG/PA Suppression)	Up to 2.5 Gbit/s, single or dual channel, with Multi-Layer Header Compression (actual throughput dependent upon traffic/frame size mix)
Configuration options		1+0 with optional Space Diversity 2+0 Co-Polar (ACCP), Co-Channel Operation XPIC (CCDP) 4+0 CCDP or LOS MIMO (up to 5 Gbit/s) Radio Channel Physical Link Aggregation (PLA) for dual channel configurations. Patented Layer 1 Link Aggregation (L1LA) to aggregate multiple WTM 4000 terminals

Transmitter		
High power		Up to +30.5 dBm
Frequency stability		± 5 ppm
Manual transmitter power control range		25 dB
Automatic Transmitter Power Control (ATPC)		Configurable over the full manual attenuation range
Transmitter mute		> 50 dB

Receiver		
Frequency stability		± 5 ppm
Receiver overload	BER=1x10^{-6}	20 dBm
Max receiver input level	BER=1x10^{-3}	0 dBm
Residual (Background) Bit Error Rate		1x10^{-13}

User Interfaces	
Traffic	2x 10/100/1000Base-T (RJ-45) fixed electrical ports (one port supports PoE) 2x optional SFP+ ports – 1, 2.5 or 10 Gbit/s SFP+ (optical/electrical)
DC power supply input	±24/±48 Vdc (SELV) wide-mouth
Console maintenance ports	USB
Receive signal indicator	Dual voltmeter pins

Synchronization	
Synchronous Ethernet (SyncE)	ITU-T G.8262
ESMC/SSM	ITU-T G.8264
Precision Time Protocol	IEEE 1588v2 – TC/BC

Carrier Ethernet / L2 Services	
Non-blocking switch	
QoS	8 COS Scheduling, Policing, Storm control, Shaping
QOS mapping	PCP (802.1p), DSCP, H-QoS[1]
VLANs	IEEE 802.1Q IEEE 802.1ad (Q-in-Q)
Spanning tree protocols	STP, RSTP, MSTP
L2 link aggregation	802.1AX
Ethernet ring protection	ITU-T G.8032v2
Ethernet OAM	IEEE 802.1ag, ITU-T Y.1731[1]
Congestion avoidance	RED & WRED
Jumbo frames	to 10 KB

IP / MPLS Services	
IP addressing	IPv4 & IPv6
Routing type	Unicast routing with IP Static routing Equal Cost Multipath IP Routing and MPLS load sharing Segment Routing with OSPF[1] IPv6 for management (OSPFv3[1])
Gateway protocols	IS-IS, OSPF (interior) BGP with Route Reflector, iBGP, eBGP (exterior)
Signaling	Label Distribution Protocol (LDP) and T-LDP LSP protection with BFD Micro-BFD over LAG
Services supported	Layer 2 VPN services over LDP signaled tunnels (VPLS and VPWS) Layer 3 VPN services are supported using BGP
Diagnostics	VRF & LSP Ping and Traceroute
Traffic engineering	Supports RSVP-TE extensions [1]

Element and Network Management	
Local configuration via USB	Configuration save & load, backup to memory stick Wireless dongle to support Bluetooth/Wi-Fi (optional) Aviat OS software upgrade
Event and alarm capture	Time stamp and logging
Statistics	RMON 1 Ethernet and radio performance statistics
Network management	ProVision, ProVision Plus NETCONF/Yang SNMPv2c MIB interface support, SNMPv3 option
IPv4/6 addressing with an in-band management VLAN	SSH access
Simple Network Time Protocol (SNTP V4)	Embedded real time clock
User authentication	TACACS+ Authentication, Authorisation and Accounting (AAA)

Mechanical and Environmental		
Operating temperature	Guaranteed Extended	-27° to +131°F (-33° to +55°C) -49° to +149°F (-45° to +65°C)
Humidity	Guaranteed	0 to 100%, non-condensing
Altitude	Guaranteed	14,763 ft (4500 m)
Input voltage		±20 to ±57 V
Power over Ethernet		IEEE 802.3at, 802.3bt
Power consumption	WTM 4100 WTM 4200 WTM 4500	50 W nominal, 65 W maximum 75-90 W nominal, 108 W maximum 58-90 W nominal, 108 W maximum
Size (h-w-d), including built-in coupler/OMT		11.6 in x 10.6 in x 3.75 in (295 mm x 270 mm x 95 mm)
Weight, including coupler/OMT	WTM 4100 WTM 4200 WTM 4500	12 lb (5.5 kg) 24 lb (11 kg) 24 lb (11 kg)

Standards Compliance	
Security	FIPS 197, Cert #A980 AES 256 Payload Encryption
EMC	FCC CFR47 Part 15 ICES-003
Operation	EN 300 019 Class 4.1
Safety	UL 60950-1 UL 62368-1 UL 60950-22
RF performance	FCC CFR47 Part 101 FCC CFR47 Part 30 (28GHz, 39GHz) NTIA Red Book
Water ingress	IEC 60529, IP66
Lightning protection (internal)	IEC 61000-4-5

Notes:

[1] To be confirmed in a later release

Disclaimer

This material is for informational purposes only and does not constitute a legal obligation to deliver any product, feature or functionality and should not be relied upon in making purchasing decisions. All specifications are guaranteed values, at room temperature (20 to 30ºC, 68 to 86ºF), referenced to the ACU antenna port (including ACU losses) unless otherwise stated, and are subject to change without notice. The development, release and timing of any features or functionality described for our products is at Aviat Networks' sole discretion.

For details of availability, Please contact your Aviat Networks Sales Representative.